PXE30xxSxx Single Output DC/DC Converters

9 to 18 Vdc, 18 to 36 Vdc, or 36 to 75 Vdc input, 1.5 to 15 Vdc Single Output, 30W

TDK·Lambda

Features

- 30 watts maximum output power
- Output current up to 6A
- Standard 2" x 1.6" x 0.4" package
- High efficiency up to 90%
- 2:1 wide input voltage range
- Six-sided continuous shield
- Fixed switching frequency
- Offer single output
- CE MARK meets 2006/95/EC, 93/68/EEC and 2004/108/EC
- UL60950-1, EN60950-1 and IEC60950-1 licensed
- Iso9001 certified manufacturing facilities
- Compliant to ROHS EU directive 2002/95/EC

Options

- Heat sinks available for extended operation

APPLICATIONS

Wireless Network
Telecom/Datacom
Industry Control System
Measurement Equipment
Semiconductor Equipment

General Description

The PXE30xxSxx series offers 30 watts of output power from a 2 x 1.6 x 0.4 inch package. It has a 2:1 wide input voltage range of 9-18VDC, 18-36VDC and 36-75VDC and features 1600VDC of isolation, short-circuit and over-voltage protection.

Table of Contents

Absolute Maximum Rating				
Parameter	**Model**	**Min**	**Max**	**Unit**
Input Voltage				
Continuous	12Sxx		18	
	24Sxx		36	
	48Sxx		75	V_{DC}
Transient (100mS)	12Sxx		36	
	24Sxx		50	
	48Sxx		100	
Input Voltage Variation (complies with EST300 132 part 4.4)	All		5	V/mS
Operating Ambient Temperature (with derating)	All	-40	85	°C
Operating Case Temperature	All		100	°C
Storage Temperature	All	-55	105	°C

Output Specification					
Parameter	**Model**	**Min**	**Typ**	**Max**	**Unit**
Output Voltage	xxS1P5	1.485	1.5	1.515	
(Vin = Vin(nom) ; Full Load ; TA=25°C)	xxS1P8	1.782	1.8	1.818	
	xxS2P5	2.475	2.5	2.525	
	xxS3P3	3.267	3.3	3.333	V_{DC}
	xxS05	4.95	5	5.05	
	xxS12	11.88	12	12.12	
	xxS15	14.85	15	15.15	
Voltage Adjustability	All	-10		+10	%
Output Regulation					
Line (Vin(min) to Vin(max) at Full Load)	All	-0.2		+0.2	%
Load (Min. to 100% of Full Load)		-0.5		+0.5	
Output Ripple & Noise	xxS1P5		50		
Peak-to-Peak (20MHz bandwidth)	xxS1P8		50		
(Measured with a 0.1μF/50V MLCC)	xxS2P5		50		
	xxS3P3		50		mVp-p
	xxS05		50		
	xxS12		75		
	xxS15		75		
Temperature Coefficient	All	-0.02		+0.02	%/°C
Output Voltage Overshoot (Vin(min) to Vin(max) ; Full Load ; T_A=25°C)	All		0	5	% V_{OUT}
Dynamic Load Response (Vin = Vin(nom) ; T_A=25°C) Load step change from 75% to 100% or 100 to 75% of Full Load					
Peak Deviation	All		250		mV
Setting Time (V_{OUT}-10% peak deviation)	All		300		μS
Output Current	xxS1P5	0		6000	
	xxS1P8	0		6000	
	xxS2P5	0		6000	
	xxS3P3	0		6000	mA
	xxS05	0		6000	
	xxS12	0		2500	
	xxS15	0		2000	

Output Specification(Continued)					
Parameter	**Model**	**Min**	**Typ**	**Max**	**Unit**
Output Over Voltage Protection	xxS1P5		3.9		
(Zener diode clamp)	xxS1P8		3.9		
	xxS2P5		3.9		
	xxS3P3		3.9		V_{DC}
	xxS05		6.2		
	xxS12		15		
	xxS15		18		
Output Over Current Protection	All			150	% FL.
Output Short Circuit Protection	All	Hiccup, automatics recovery			

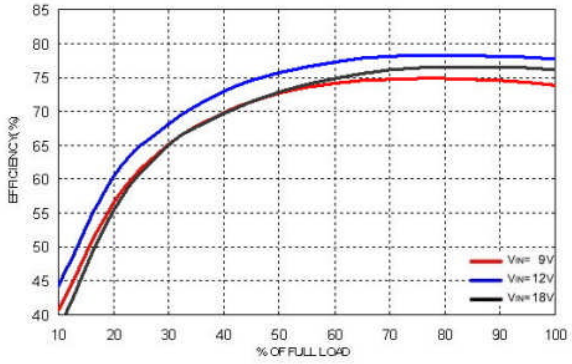
Input Specification					
Parameter	**Model**	**Min**	**Typ**	**Max**	**Unit**
Operating Input Voltage	12Sxx	9	12	18	
	24Sxx	18	24	36	V_{DC}
	48Sxx	36	48	75	
Input Current	12S1P5			1014	
(Maximum value at Vin = Vin(nom); Full Load)	12S1P8			1169	
	12S2P5			1582	
	12S3P3			2037	
	12S05			3012	
	12S12			2976	
	12S15			2976	
	24S1P5			439	
	24S1P8			580	
	24S2P5			780	
	24S3P3			1010	mA
	24S05			1490	
	24S12			1470	
	24S15			1470	
	48S1P5			244	
	48S1P8			290	
	48S2P5			390	
	48S3P3			500	
	48S05			740	
	48S12			730	
	48S15			730	

Input Specification (Continued)					
Parameter	**Model**	**Min**	**Typ**	**Max**	**Unit**
Input Standby Current	12S1P5		100		
(Typical value at Vin = Vin(nom); No Load)	12S1P8		100		
	12S2P5		110		
	12S3P3		115		
	12S05		95		
	12S12		170		
	12S15		210		
	24S1P5		50		
	24S1P8		35		
	24S2P5		45		
	24S3P3		50		mA
	24S05		50		
	24S12		80		
	24S15		90		
	48S1P5		20		
	48S1P8		20		
	48S2P5		25		
	48S3P3		30		
	48S05		35		
	48S12		35		
	48S15		55		
Under Voltage Lockout Turn-on Threshold	12Sxx			9	
	24Sxx			17.8	V_{DC}
	48Sxx			36	
Under Voltage Lockout Turn-off Threshold	12Sxx		8		
	24Sxx		16		V_{DC}
	48Sxx		33		
Input Reflected Ripple Current (5 to 20MHz, 12μH Source Impedance)	All		30		mAp-p
Start Up Time (Vin = Vin(nom) and Constant Resistive Load)					
Power Up	All			25	mS
Remote ON/OFF				25	
Remote ON/OFF Control (The ON/OFF pin voltage is referenced to $-V_{IN}$)					
Positive Logic DC-DC ON	All	3.0		12	VDC
DC-DC OFF		0		1.2	
Remote Off Input Current	All		2.5		mA
Input Current of Remote Control Pin	All	-0.5		0.5	mA

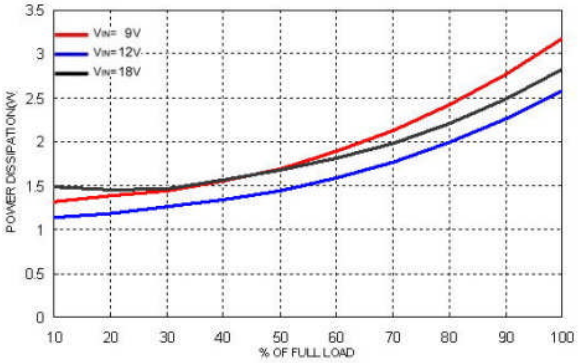
General Specification					
Parameter	**Model**	**Min**	**Typ**	**Max**	**Unit**
Efficiency (Vin = Vin(nom) ; Full Load ; TA=25°C)	12S1P5 12S1P8 12S2P5 12S3P3 12S05 12S12 12S15 24S1P5 24S1P8 24S2P5 24S3P3 24S05 24S12 24S15 48S1P5 48S1P8 48S2P5 48S3P3 48S05 48S12 48S15		78 81 83 85 87 88 88 80 82 84 86 88 89 89 81 83 85 87 89 90 90		%
Isolation Voltage Input to Output Input to Case, Output to Case	All	 1600 1600			V_{DC}
Isolation Resistance	All	1			GΩ
Isolation Capacitance	All			1000	pF
Switching Frequency	All		300		KHz
Weight	All		48		g
MTBF Bellcore TR-NWT-000332, TC=40°C MIL-HDBK-217F	All		 1.316×10^6 3.465×10^5		Hours
Over Temperature Protection	All		115		°C

Characteristic Curves

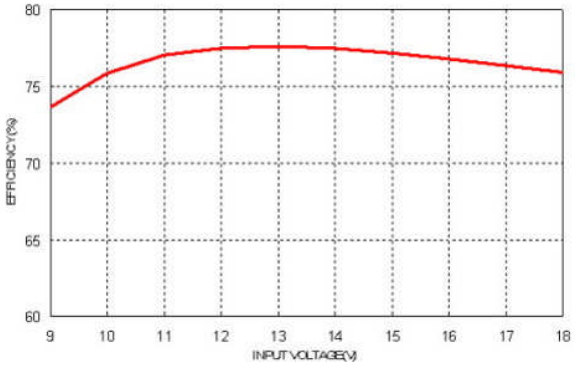
All test conditions are at 25°C.The figures are for PXE30-12S1P5



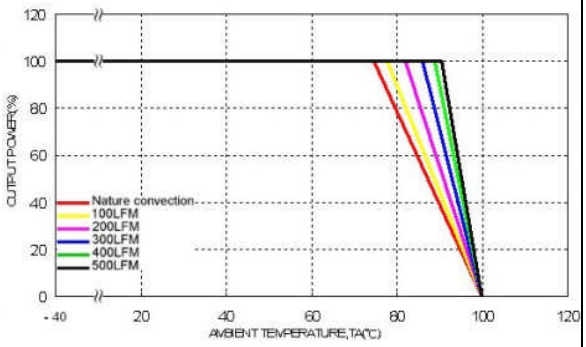
Efficiency Versus Output Current



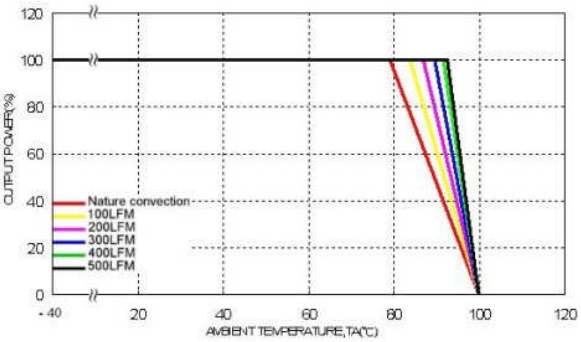
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



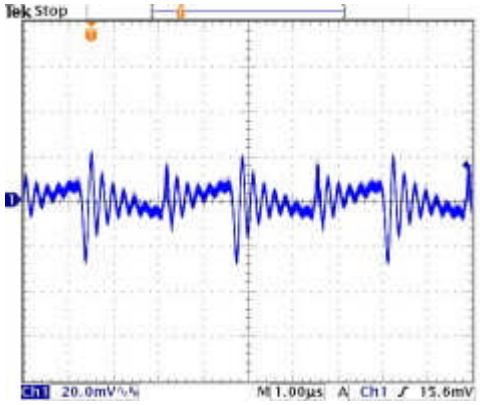
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

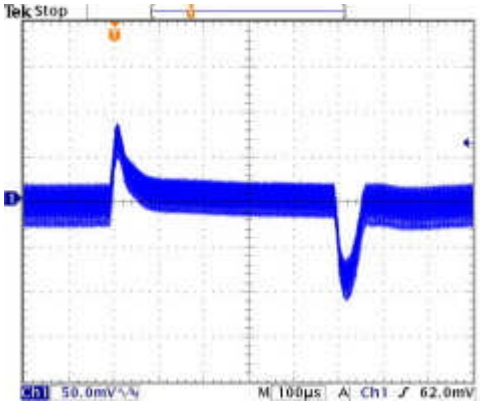
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-12S1P5

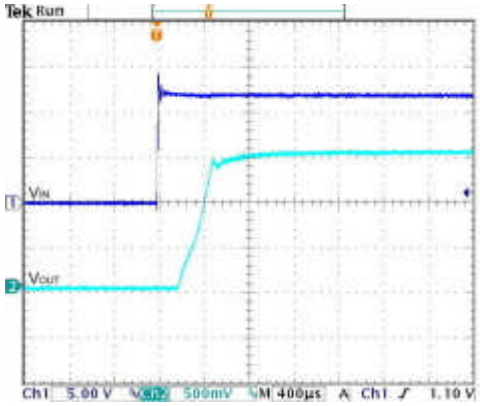


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

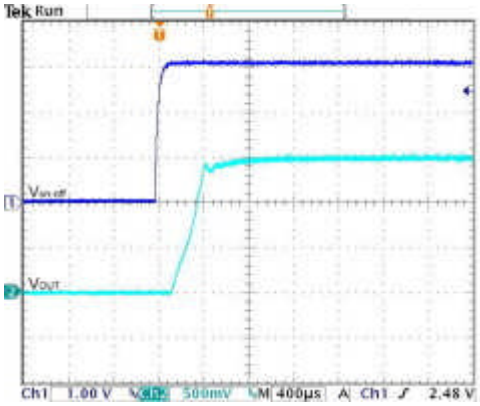


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



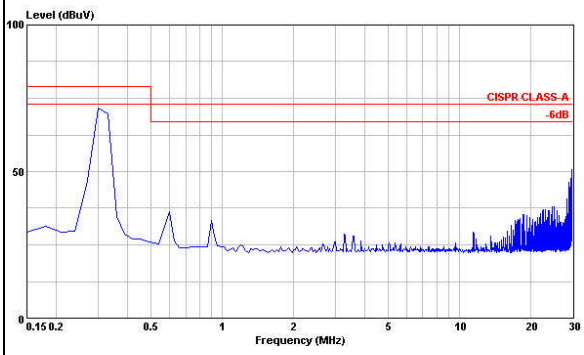
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



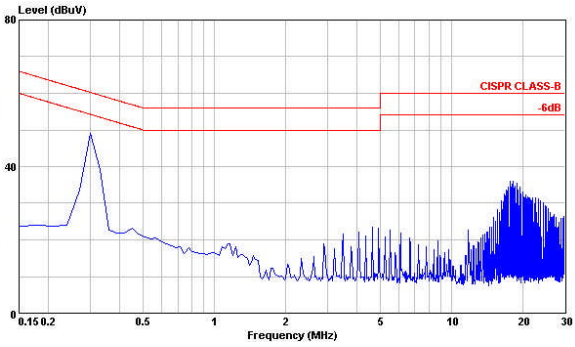
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

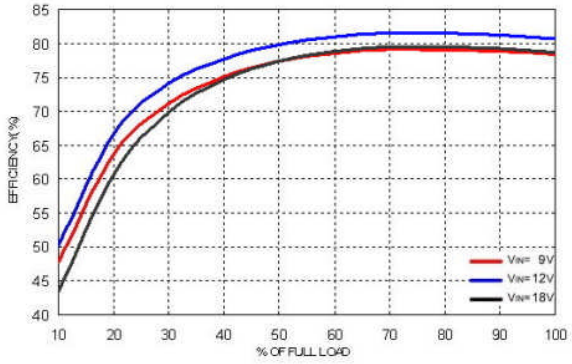


Conduction Emission of EN55022 Class B

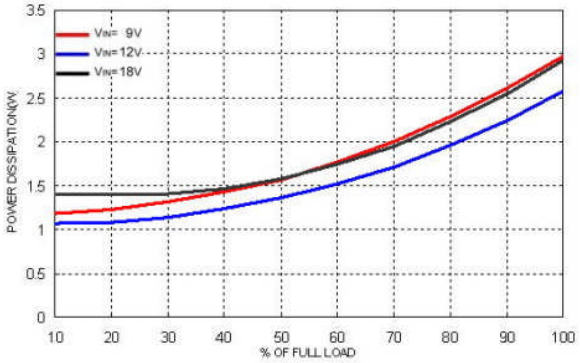
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

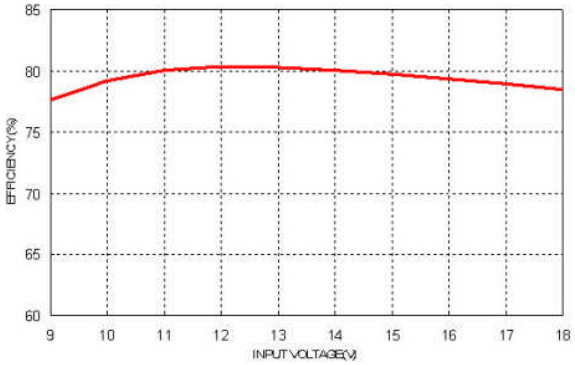
All test conditions are at 25°C.The figures are for PXE30-12S1P8



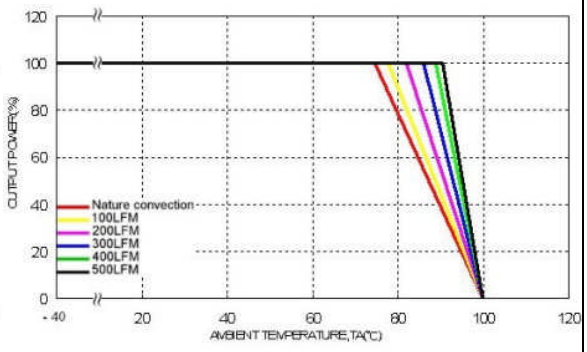
Efficiency Versus Output Current



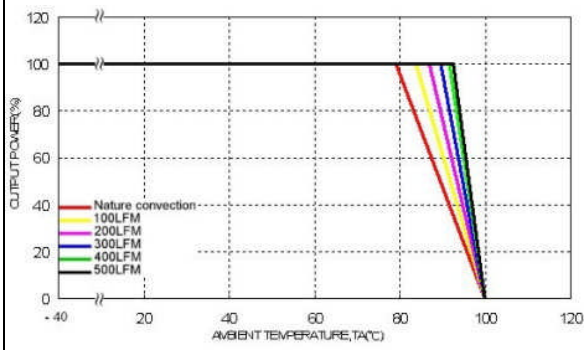
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



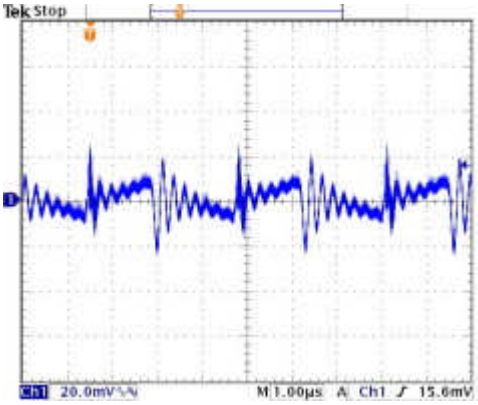
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

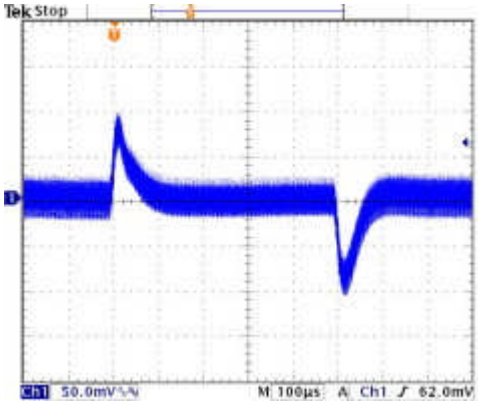
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-12S1P8

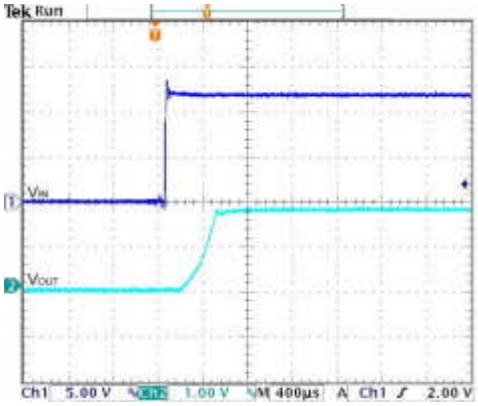


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

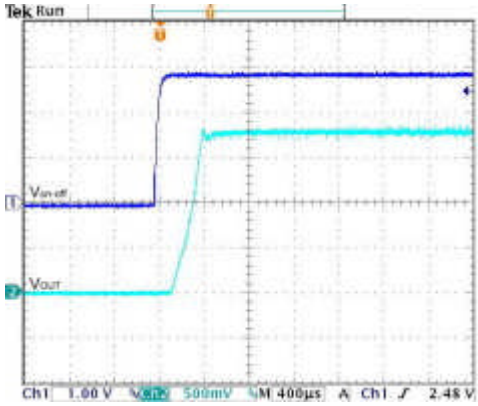


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



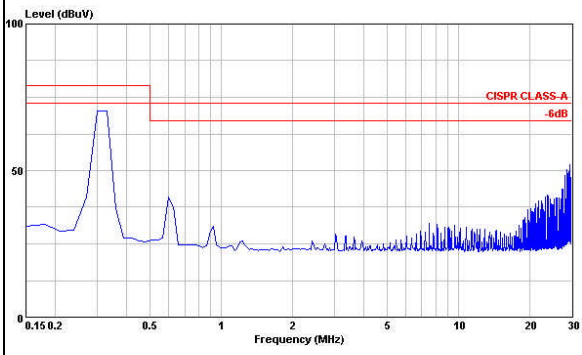
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



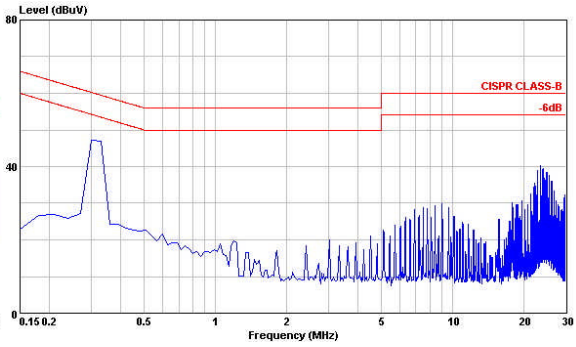
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

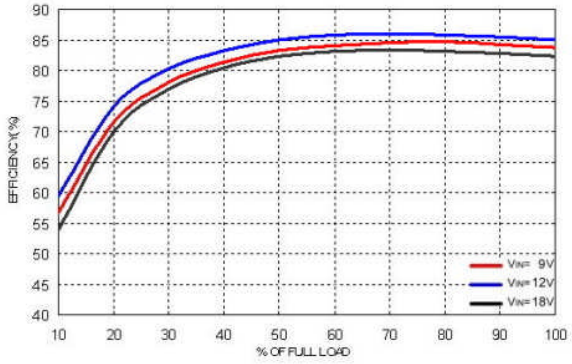


Conduction Emission of EN55022 Class B

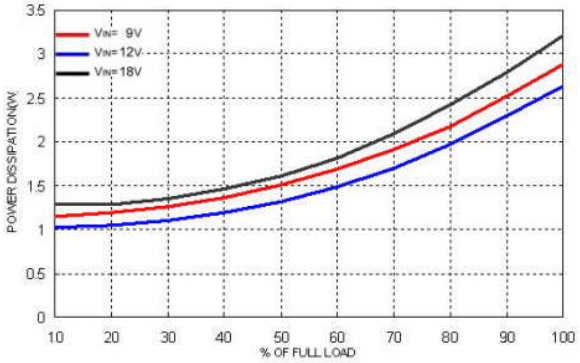
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

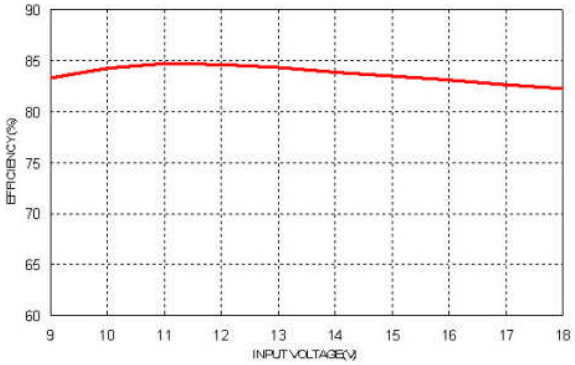
All test conditions are at 25°C.The figures are for PXE30-12S2P5



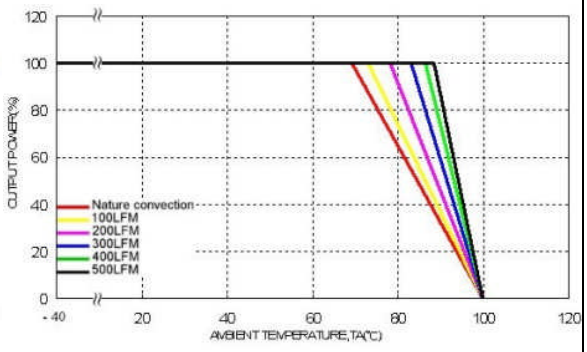
Efficiency Versus Output Current



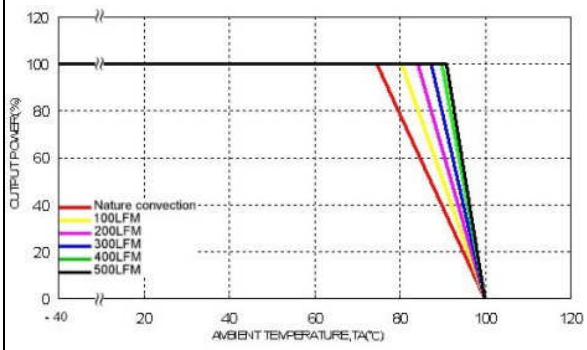
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



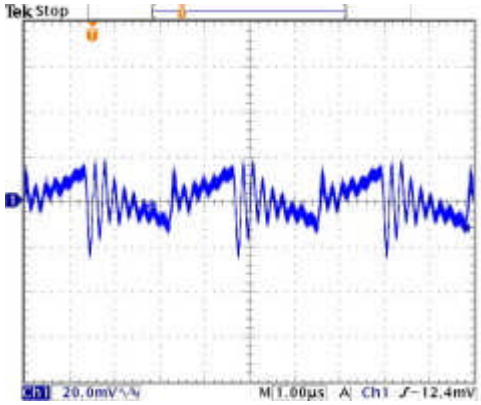
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

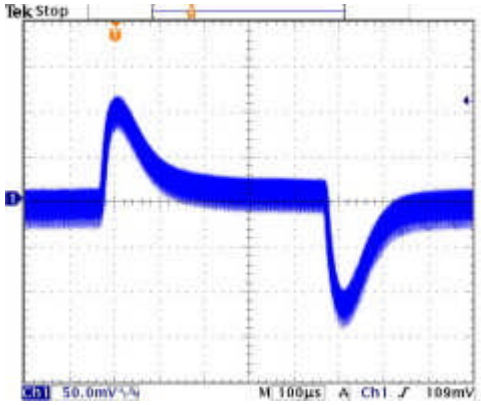
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-12S2P5

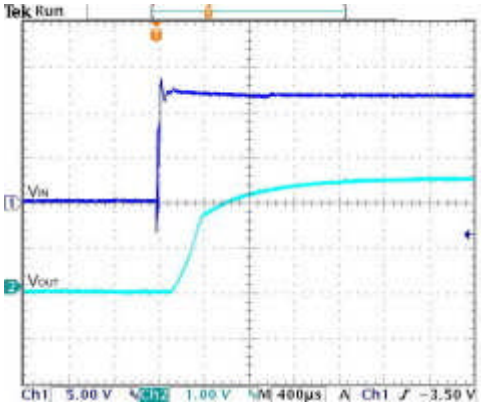


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

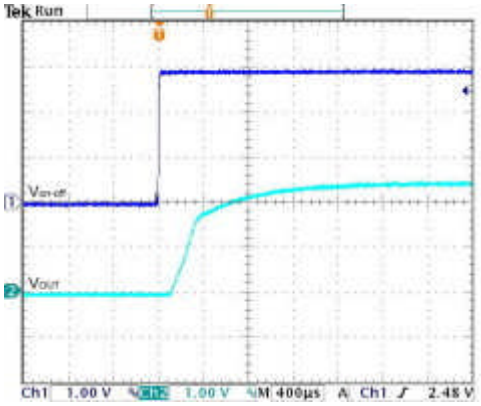


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



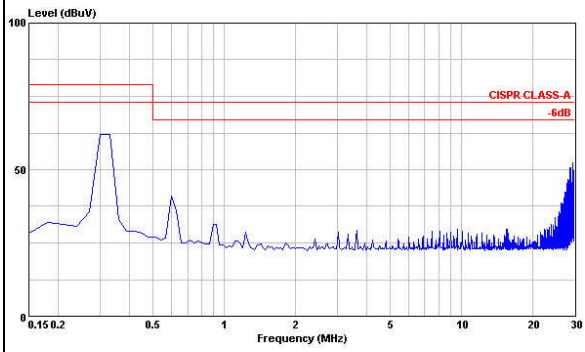
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



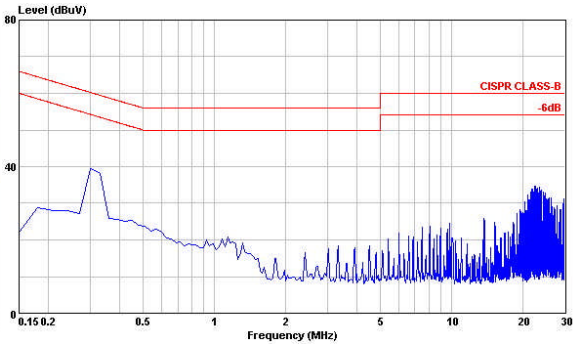
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

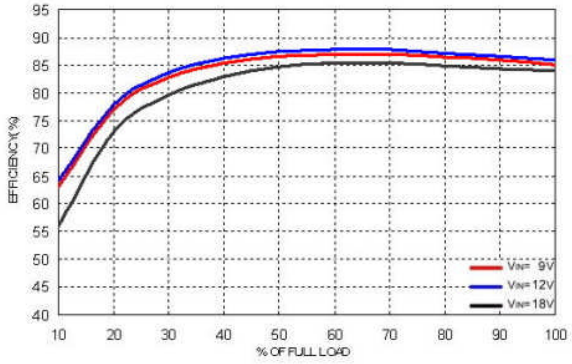


Conduction Emission of EN55022 Class B

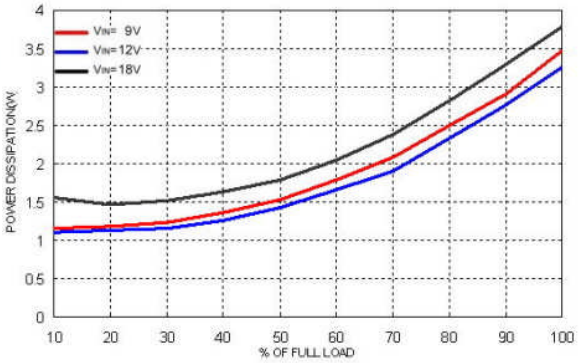
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

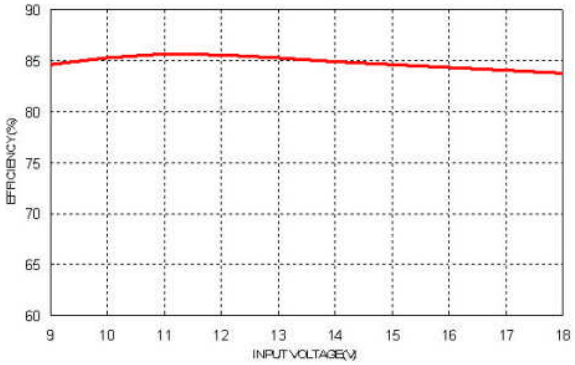
All test conditions are at 25°C.The figures are for PXE30-12S3P3



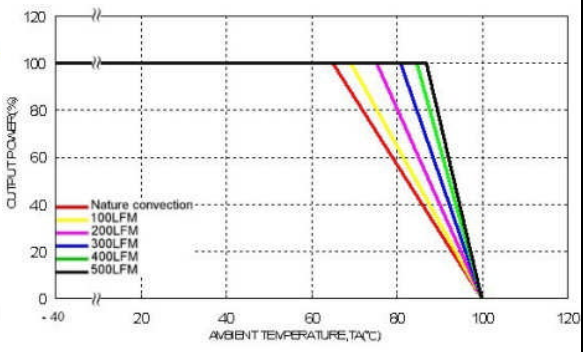
Efficiency Versus Output Current



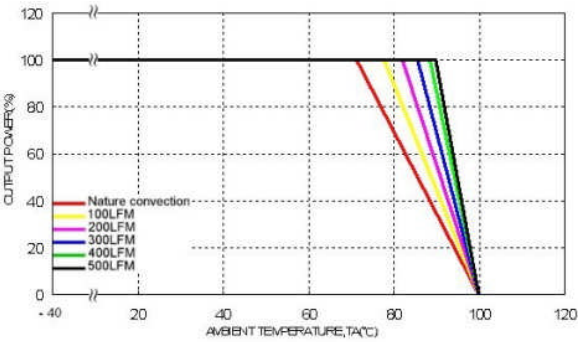
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



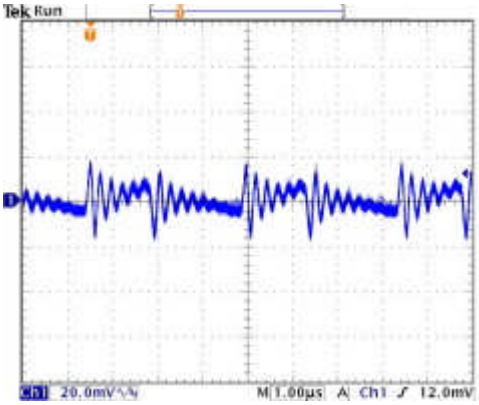
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

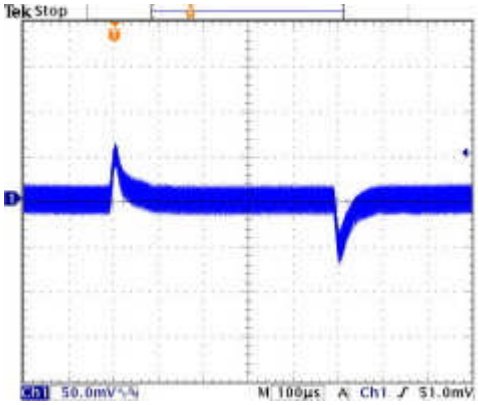
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-12S3P3

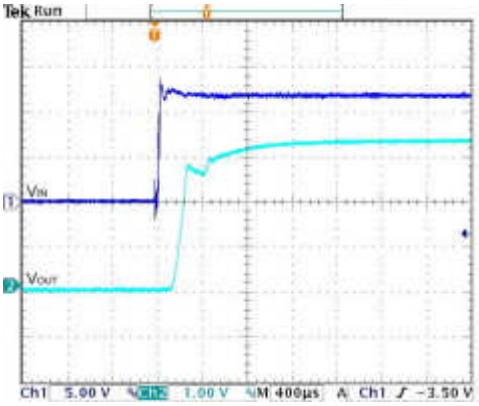


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

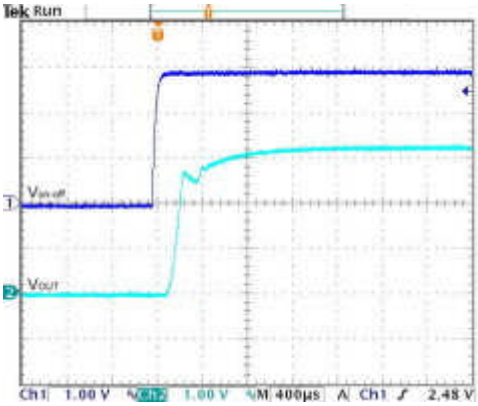


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



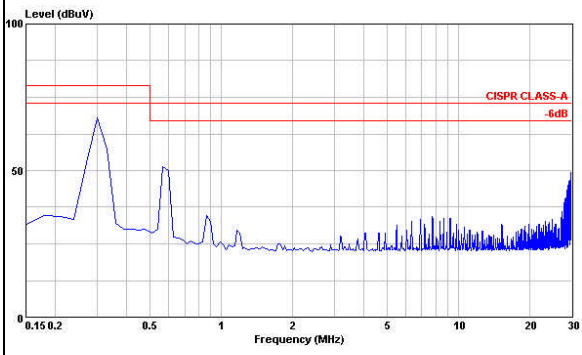
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



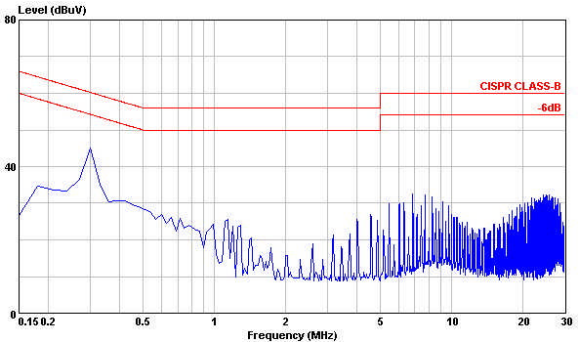
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

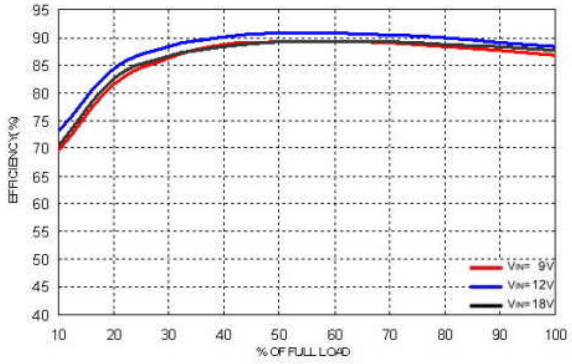


Conduction Emission of EN55022 Class B

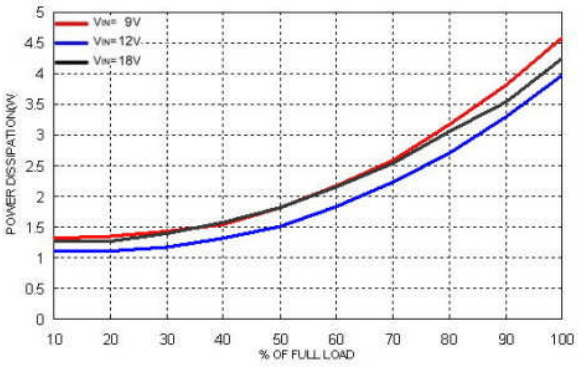
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

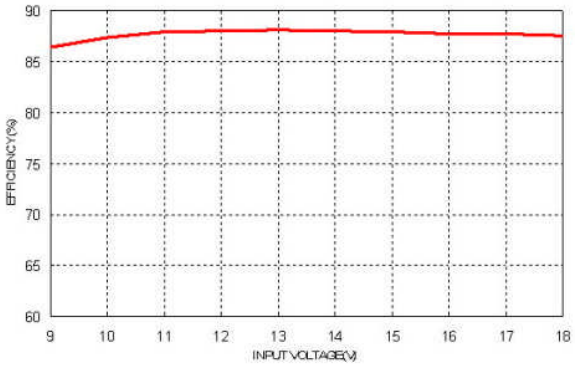
All test conditions are at 25°C.The figures are identical for PXE30-12S05



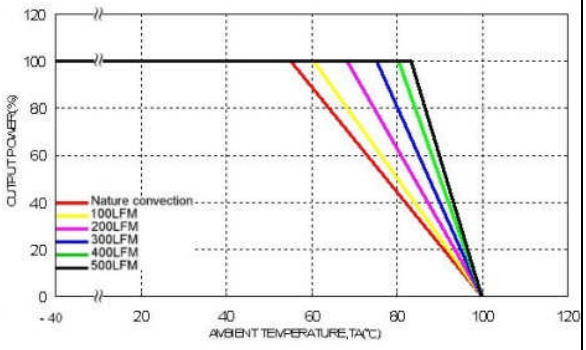
Efficiency Versus Output Current



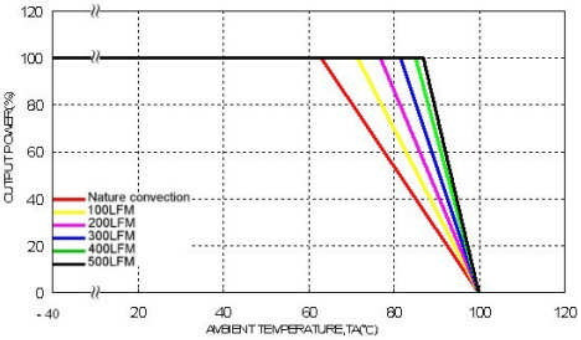
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



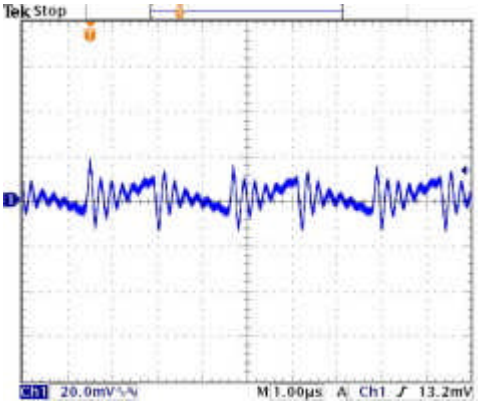
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

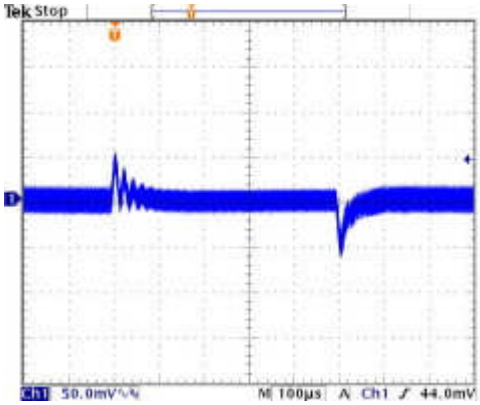
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-12S05

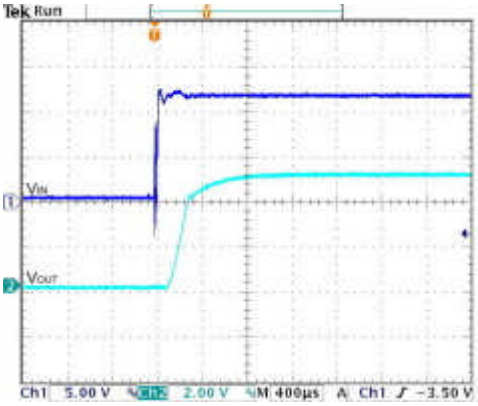


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

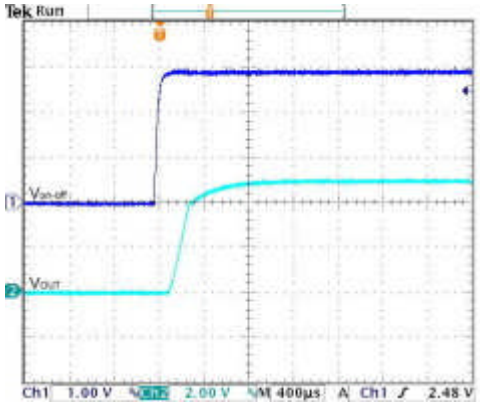


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



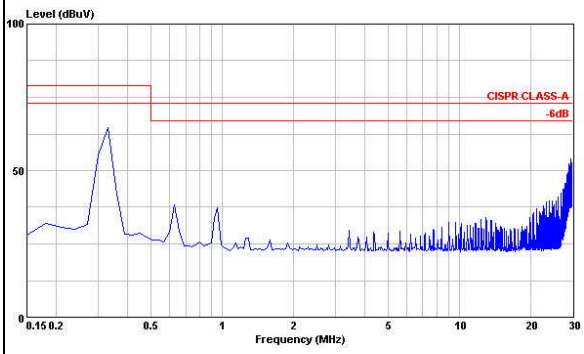
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



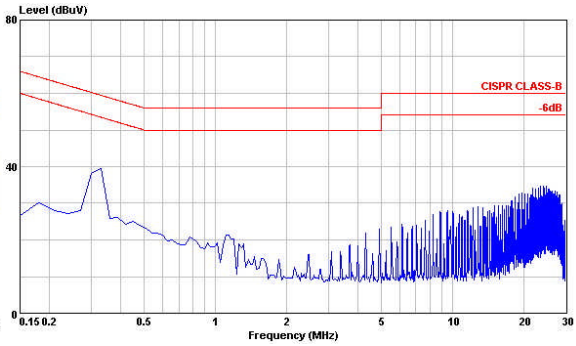
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

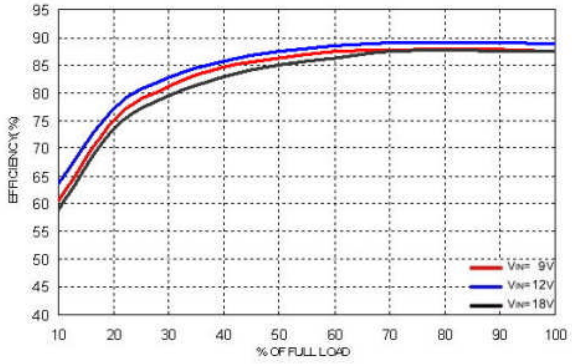


Conduction Emission of EN55022 Class B

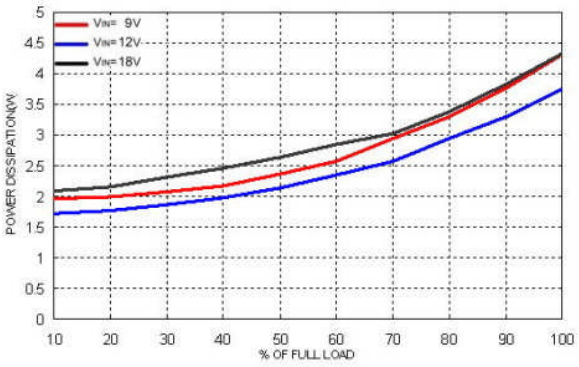
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

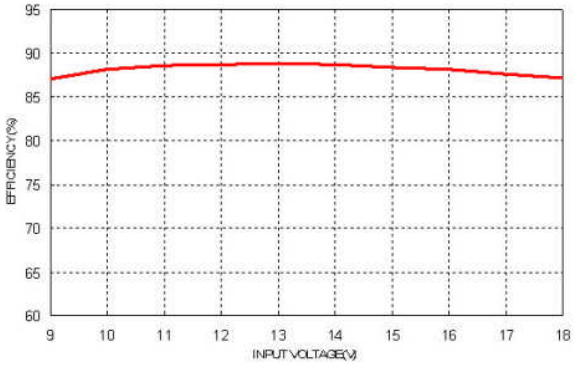
All test conditions are at 25°C.The figures are for PXE30-12S12



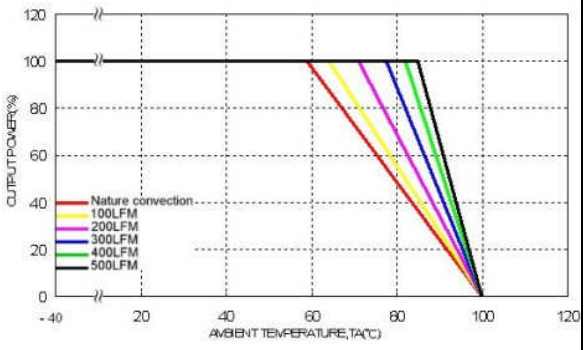
Efficiency Versus Output Current



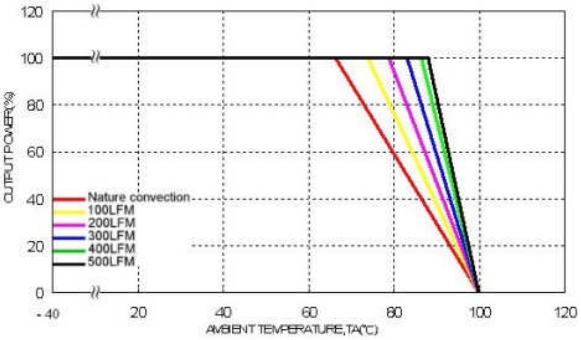
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



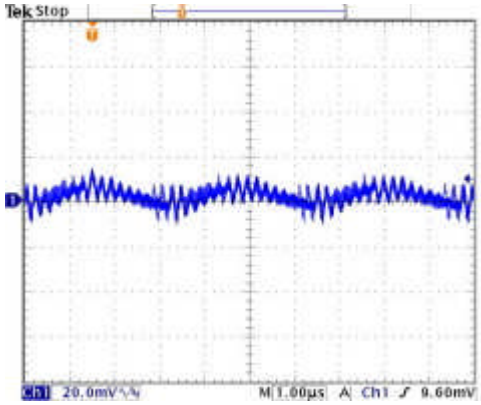
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

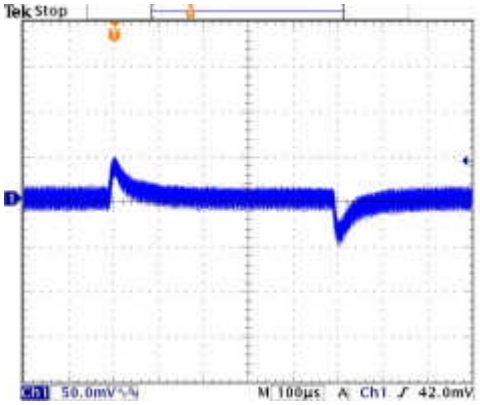
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-12S12

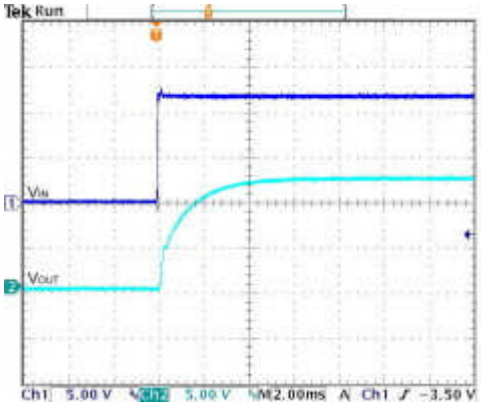


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

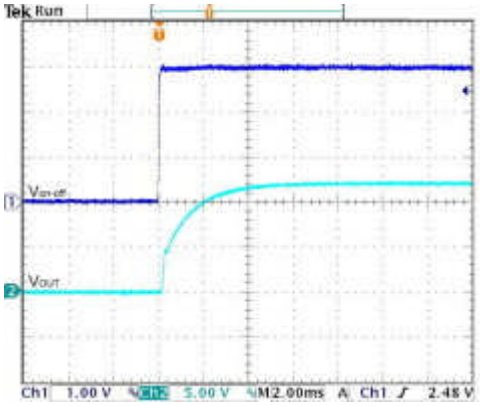


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



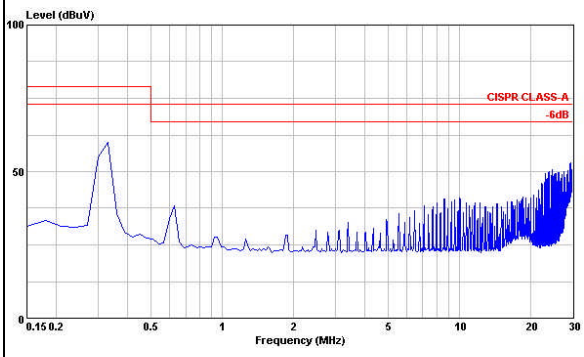
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



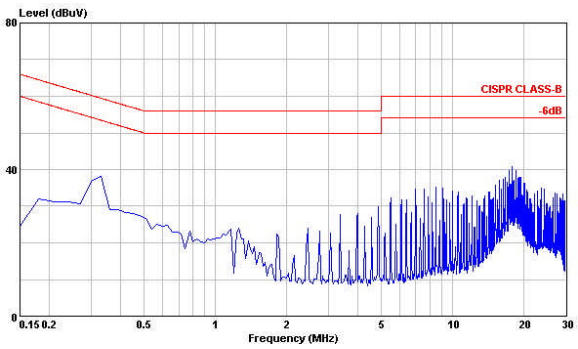
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

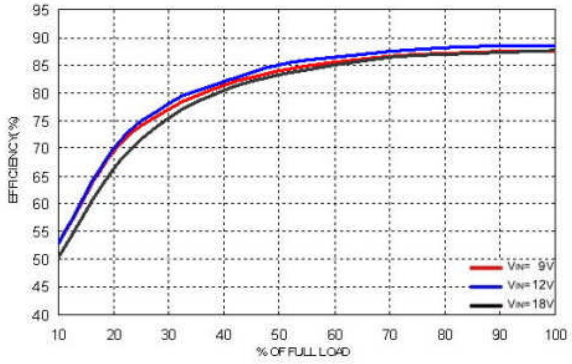


Conduction Emission of EN55022 Class B

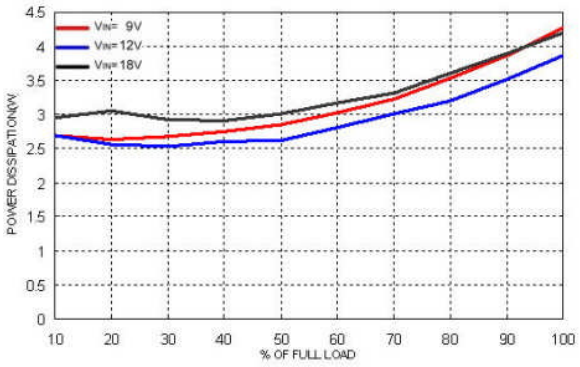
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

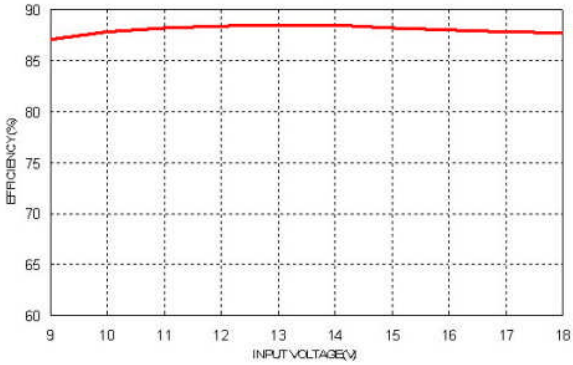
All test conditions are at 25°C.The figures are for PXE30-12S15



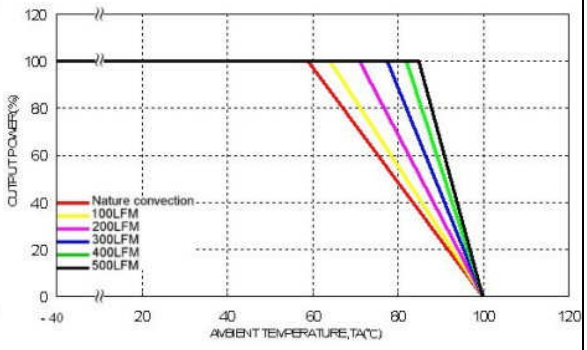
Efficiency Versus Output Current



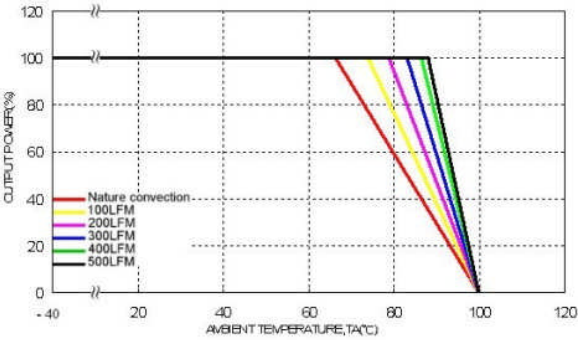
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



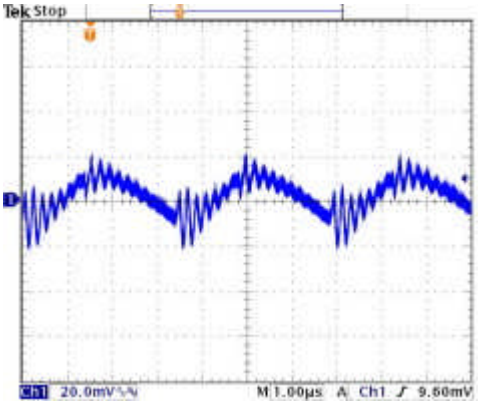
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

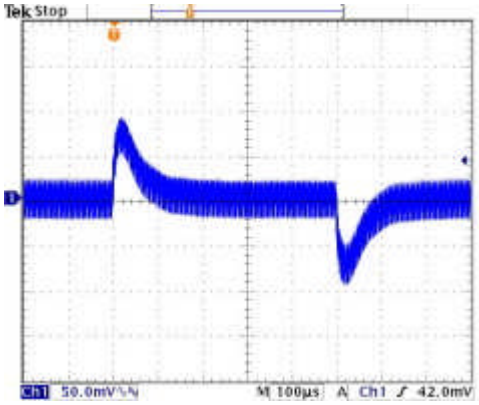
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-12S15

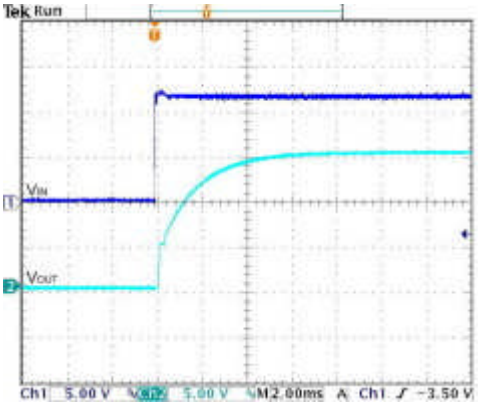


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

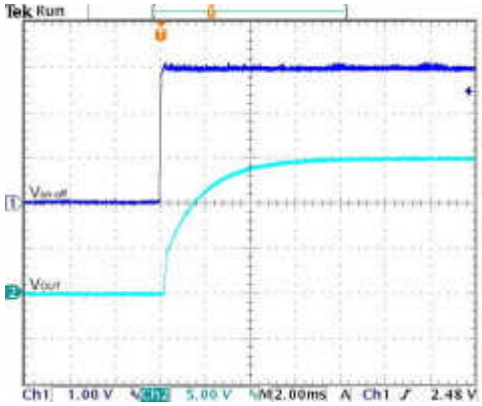


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



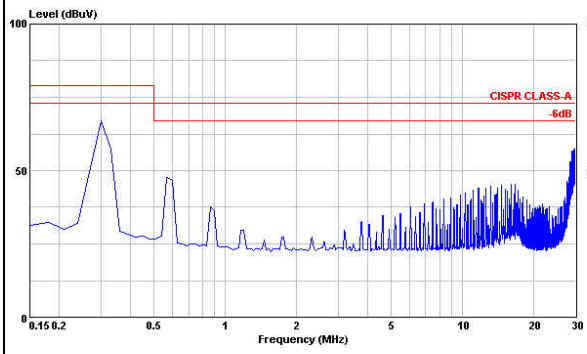
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



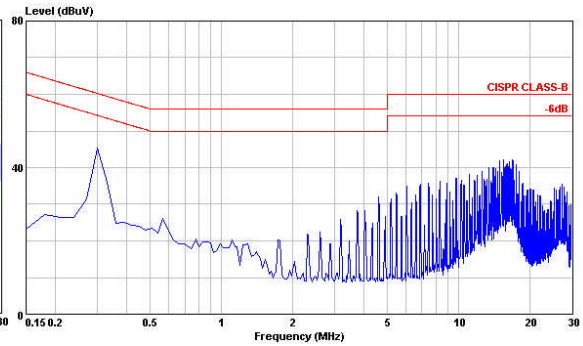
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

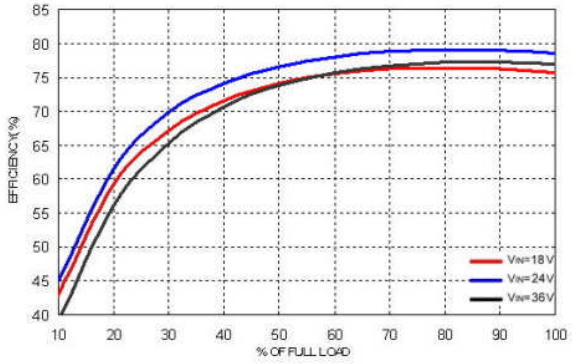


Conduction Emission of EN55022 Class B

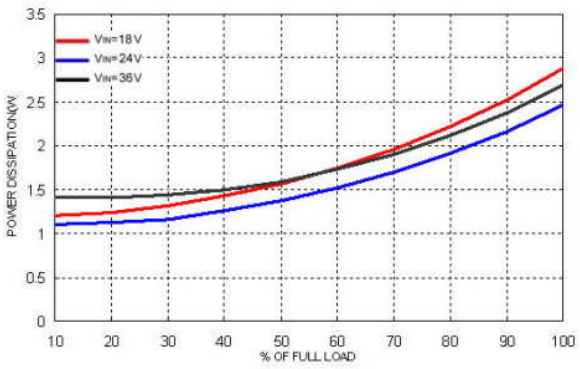
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

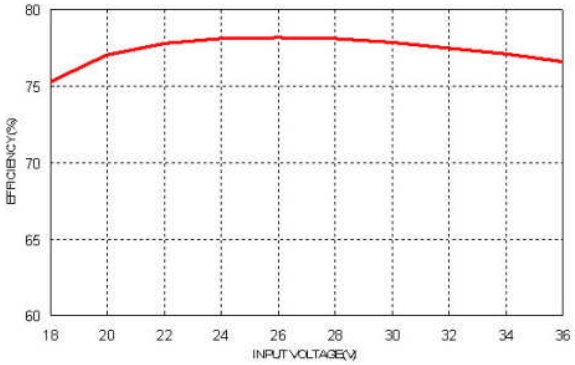
All test conditions are at 25°C.The figures are for PXE30-24S1P5



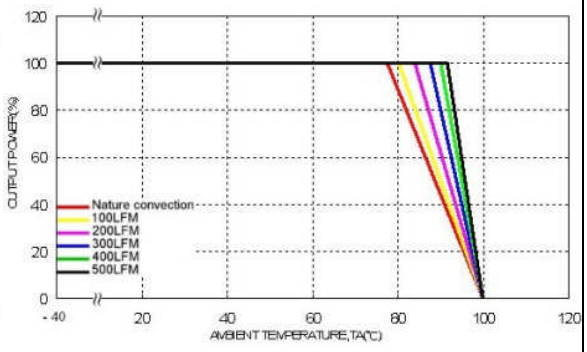
Efficiency Versus Output Current



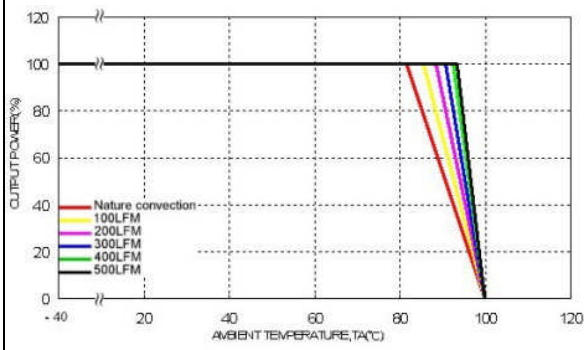
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



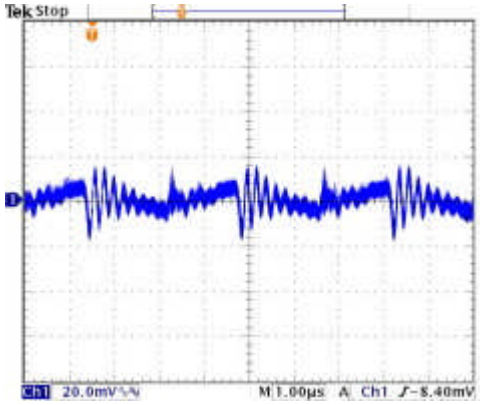
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

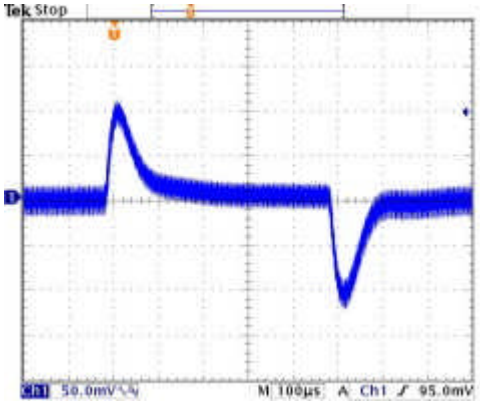
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-24S1P5

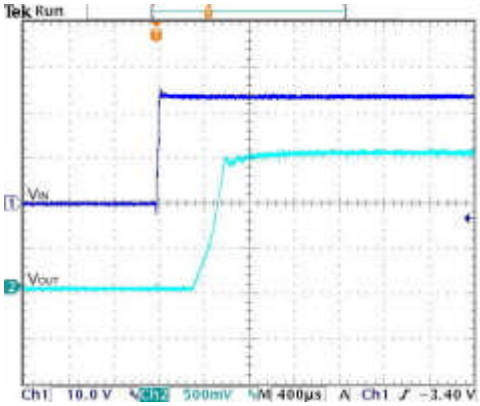


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

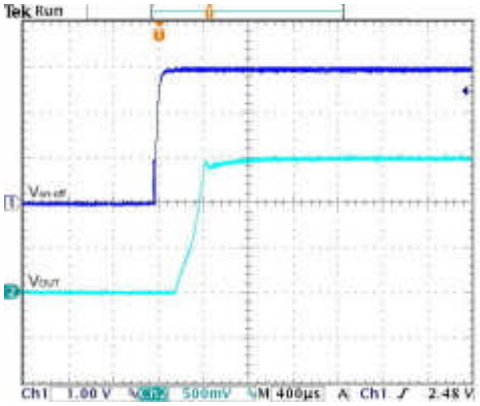


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



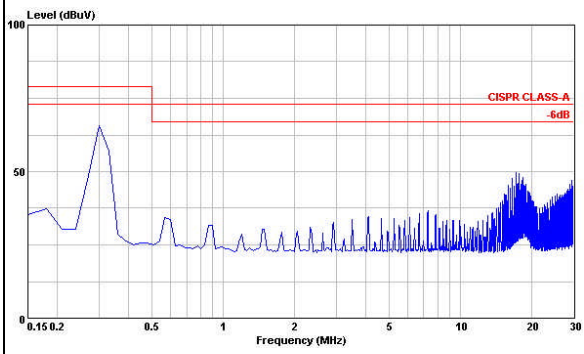
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



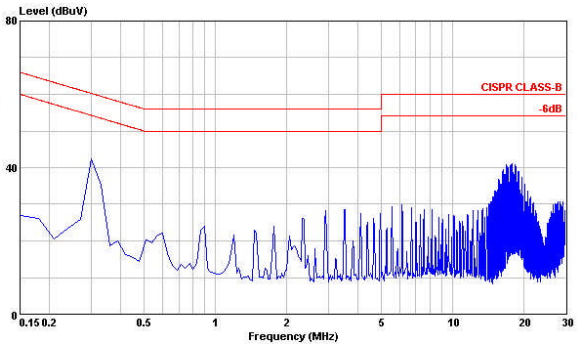
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

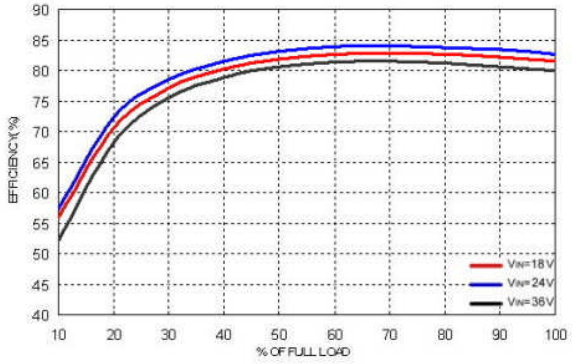


Conduction Emission of EN55022 Class B

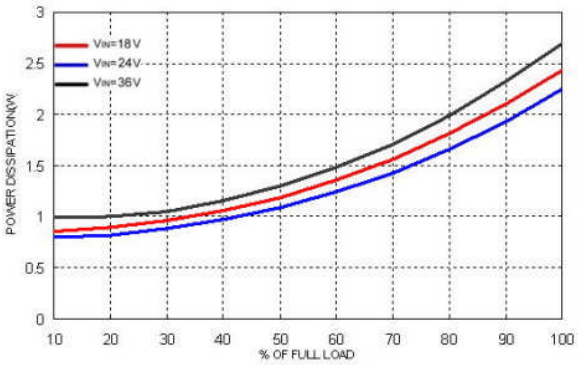
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

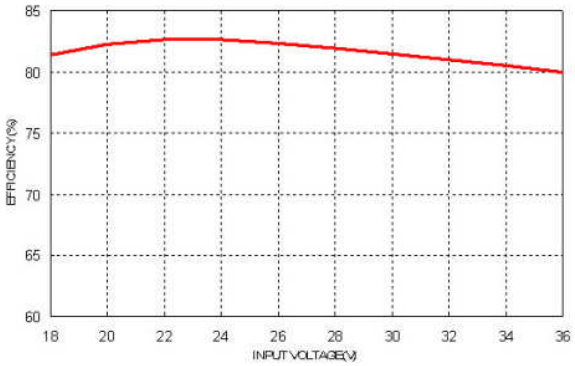
All test conditions are at 25°C.The figures are for PXE30-24S1P8



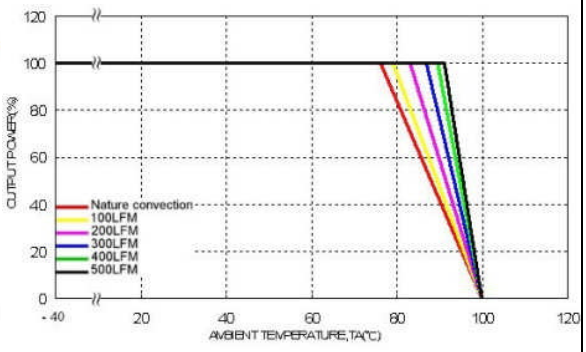
Efficiency Versus Output Current



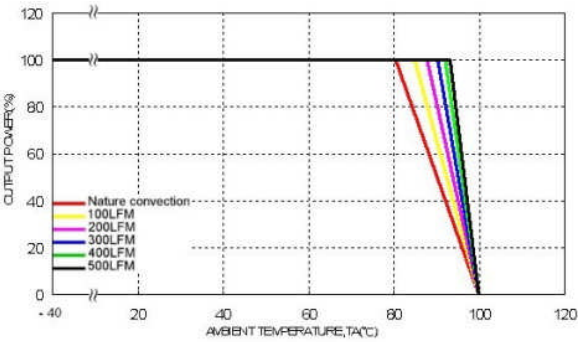
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



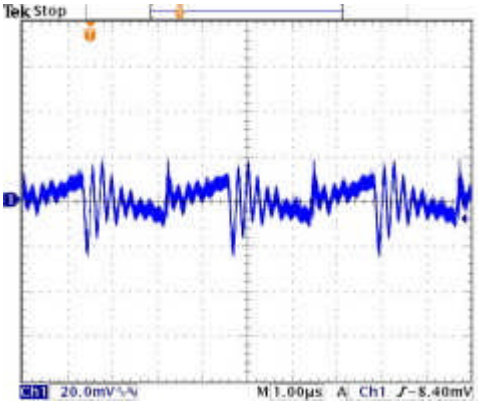
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

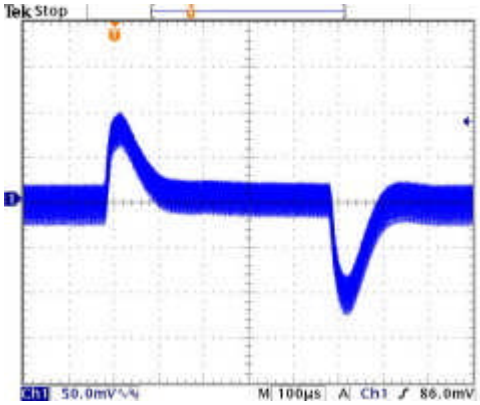
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-24S1P8

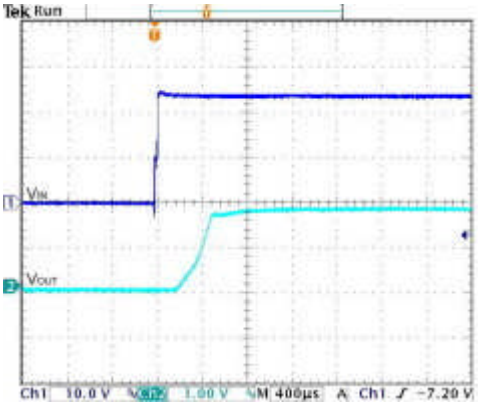


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

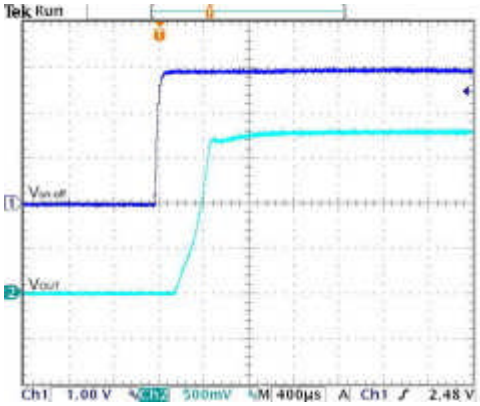


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



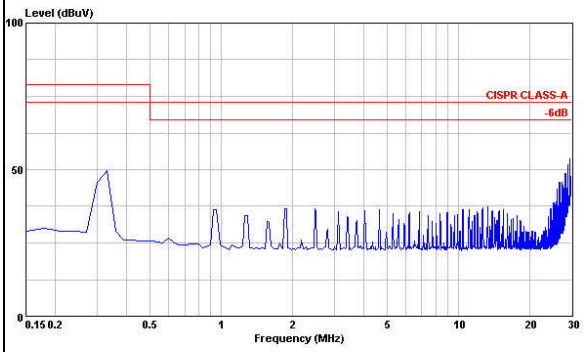
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



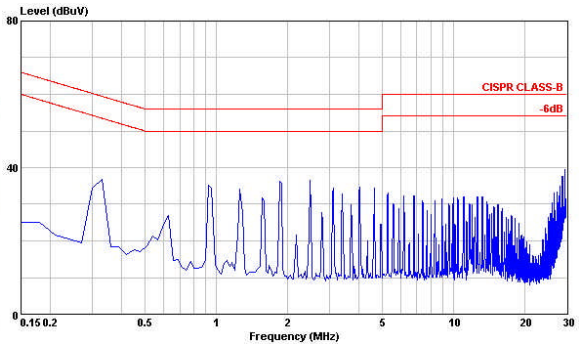
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

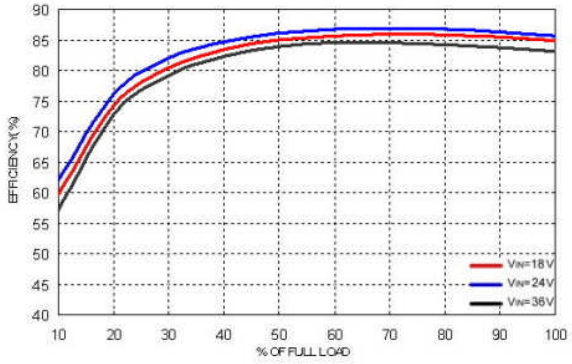


Conduction Emission of EN55022 Class B

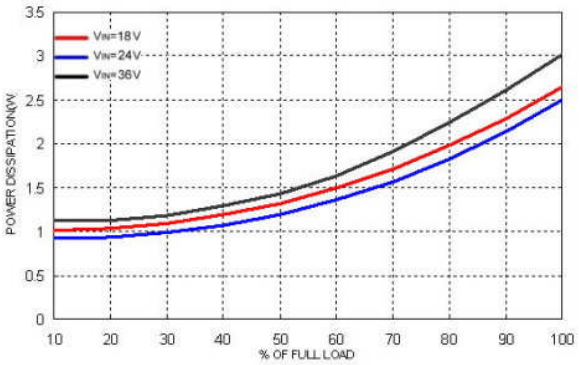
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

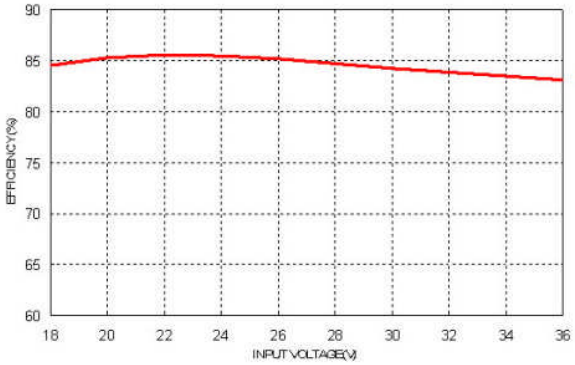
All test conditions are at 25°C.The figures are for PXE30-24S2P5



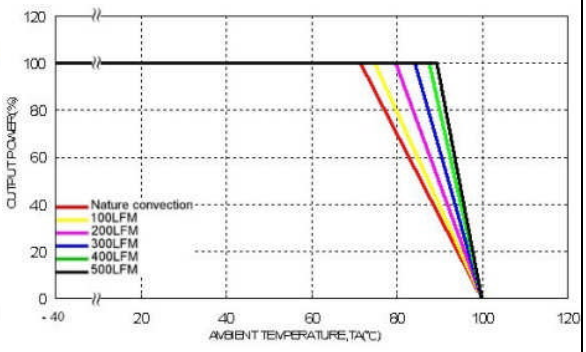
Efficiency Versus Output Current



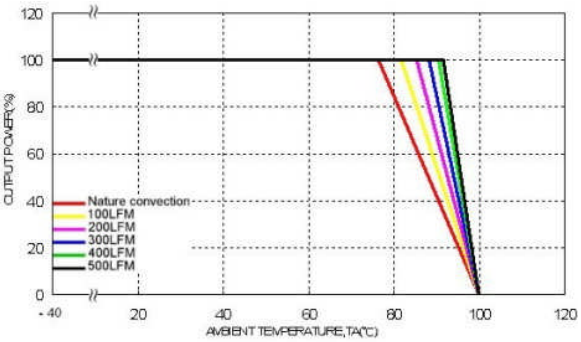
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



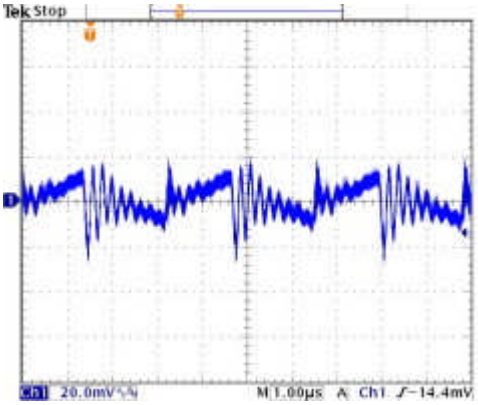
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

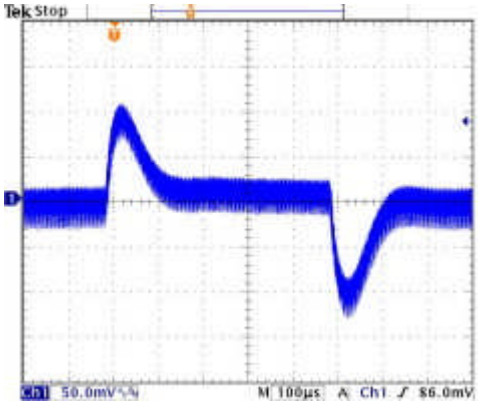
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-24S2P5

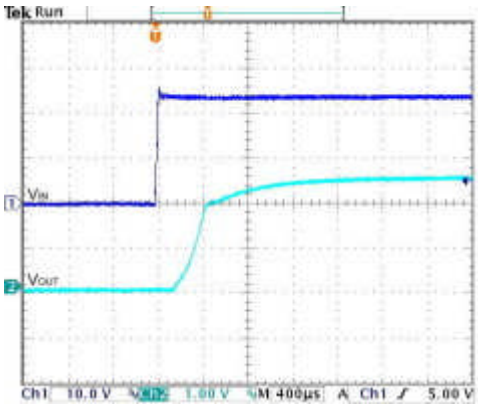


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

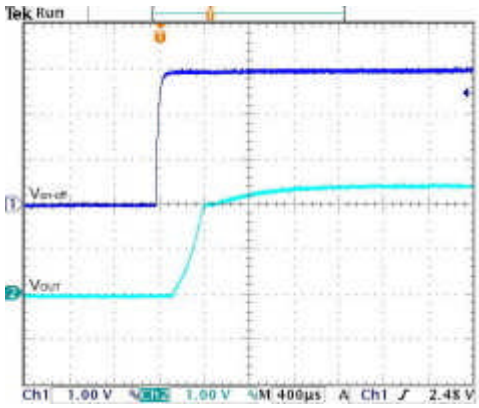


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



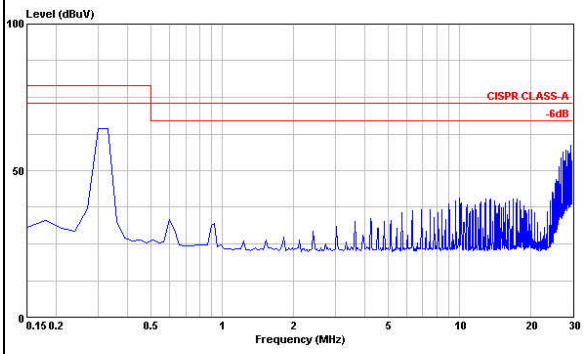
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



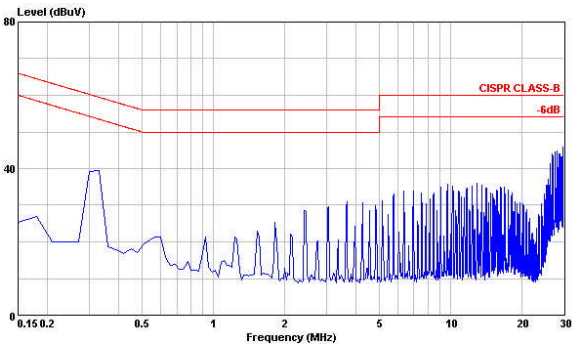
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

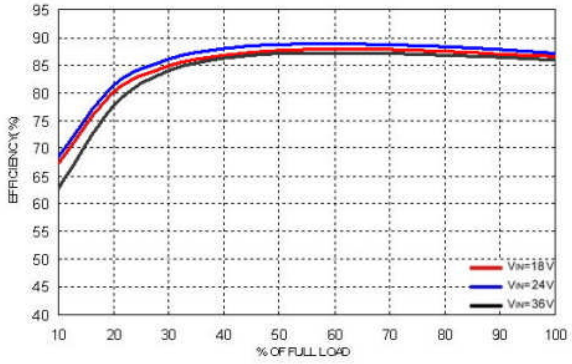


Conduction Emission of EN55022 Class B

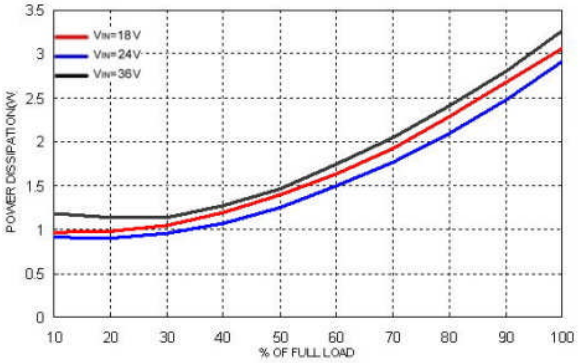
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

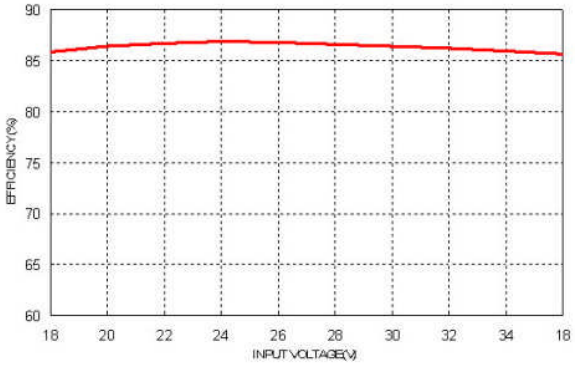
All test conditions are at 25°C.The figures are for PXE30-24S3P3



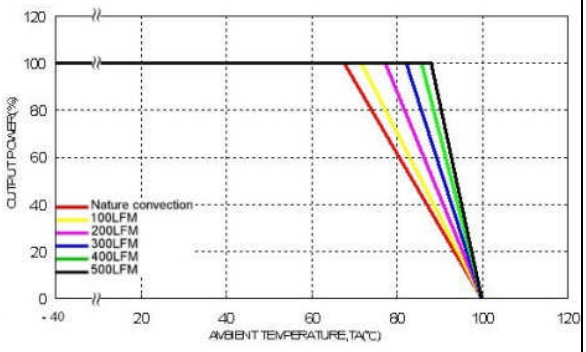
Efficiency Versus Output Current



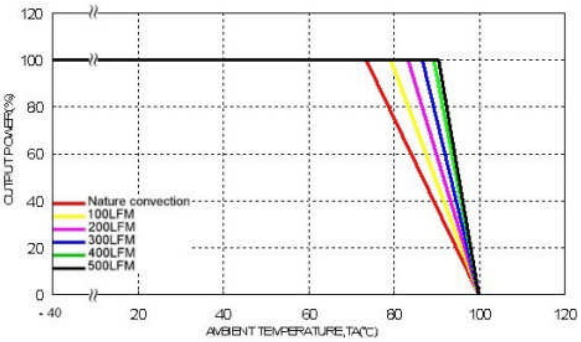
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



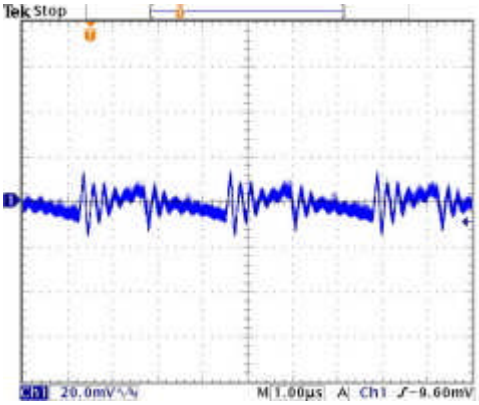
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

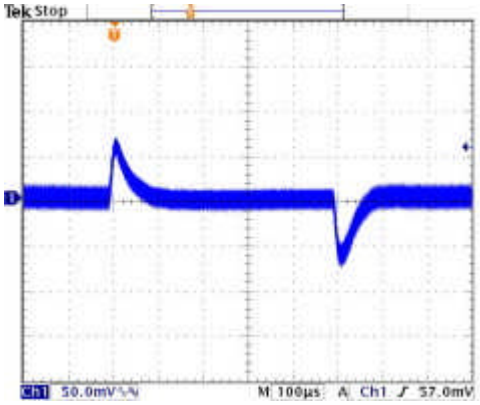
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-24S3P3

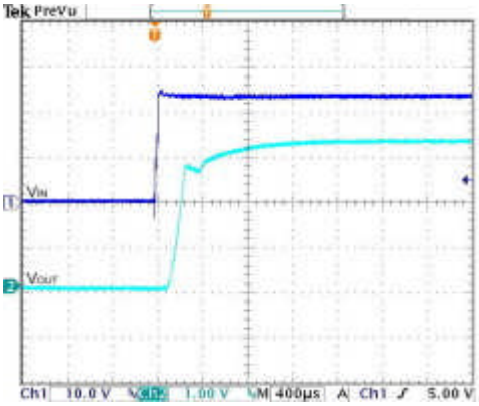


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

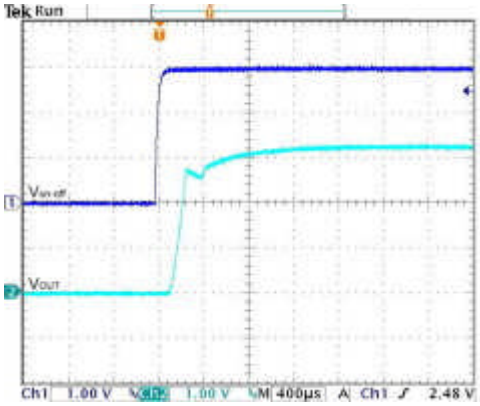


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



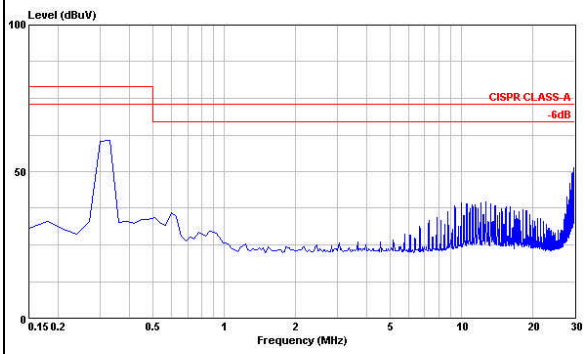
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



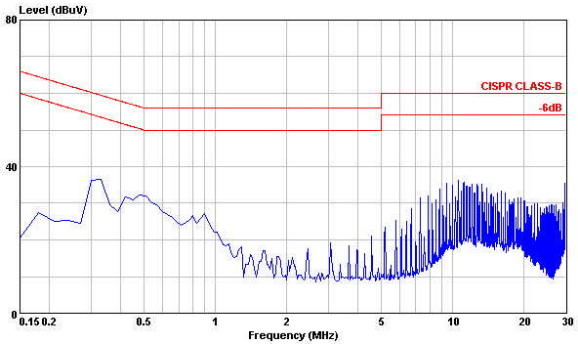
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

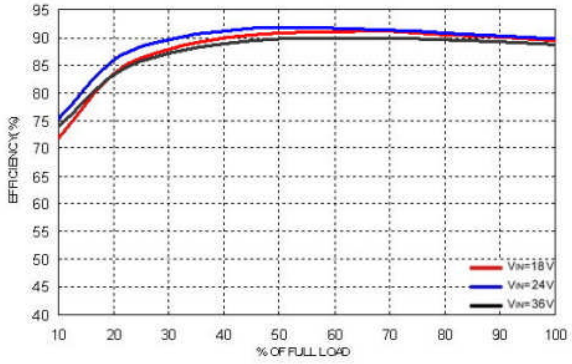


Conduction Emission of EN55022 Class B

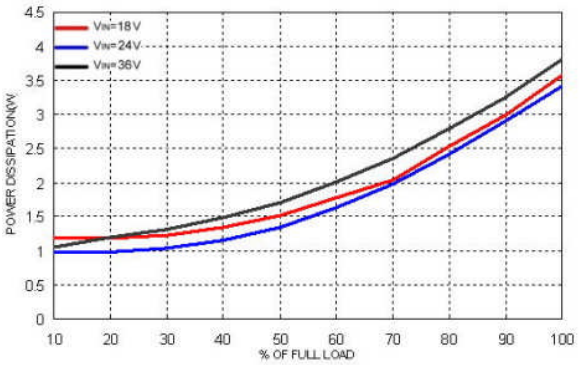
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

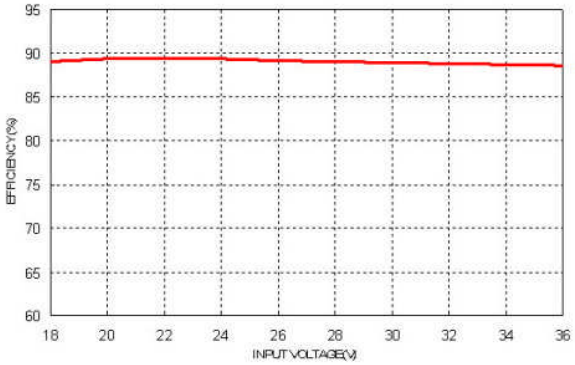
All test conditions are at 25°C.The figures are for PXE30-24S05



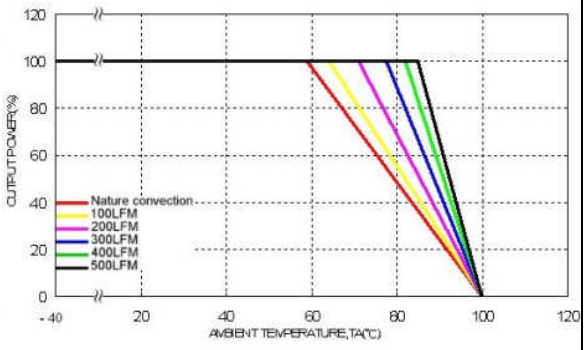
Efficiency Versus Output Current



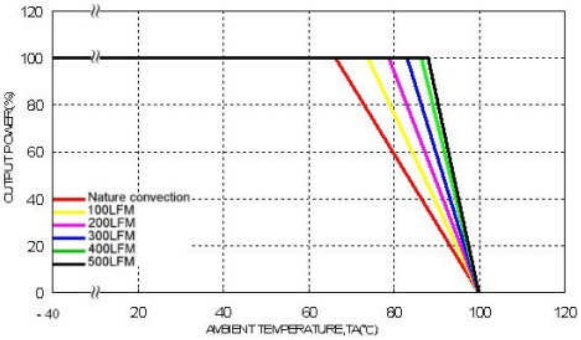
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



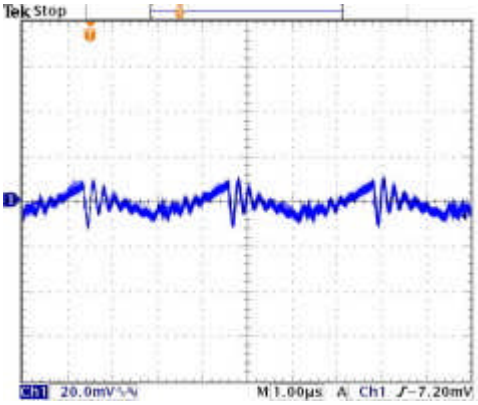
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

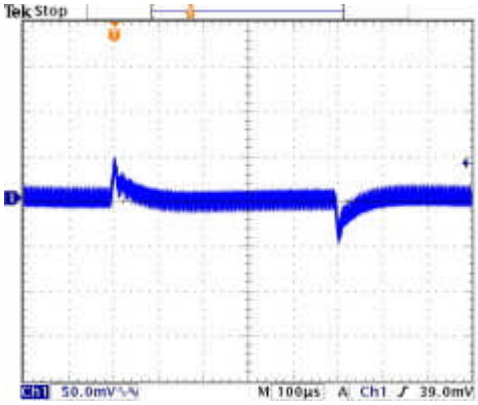
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-24S05

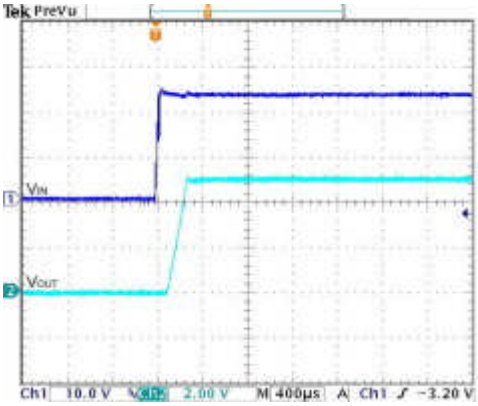


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

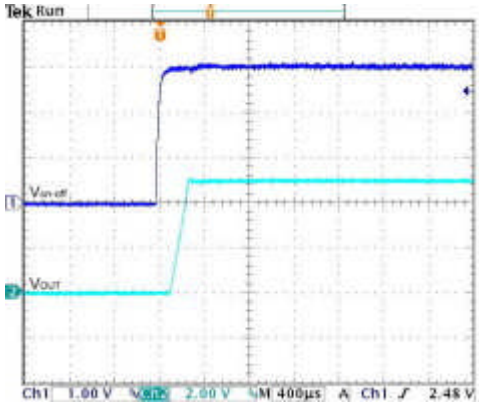


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



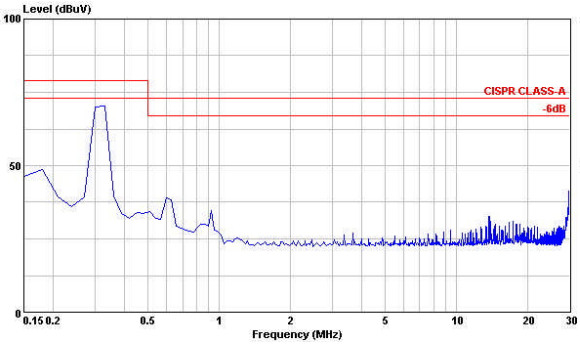
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



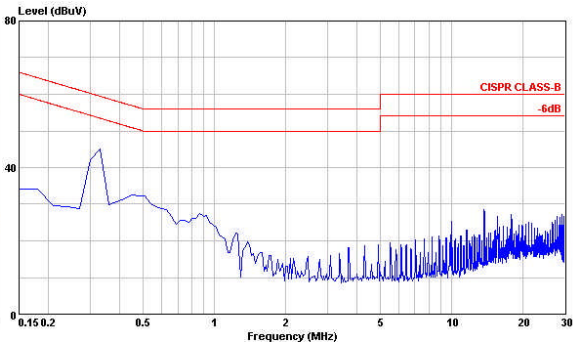
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

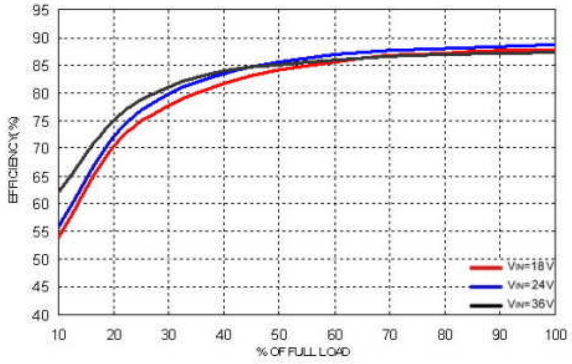


Conduction Emission of EN55022 Class B

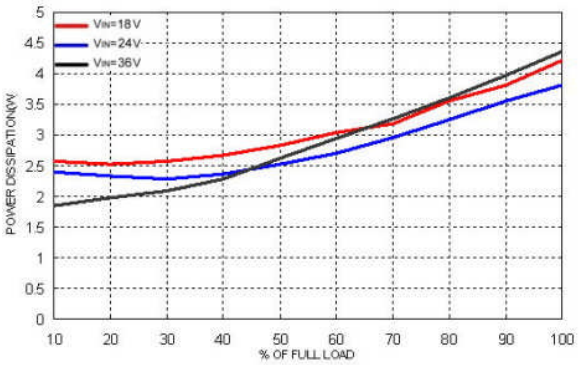
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

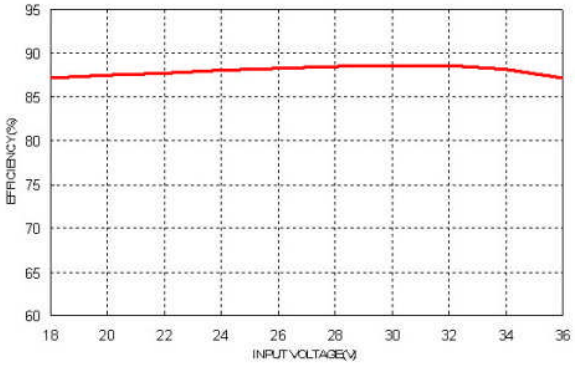
All test conditions are at 25°C.The figures are for PXE30-24S12



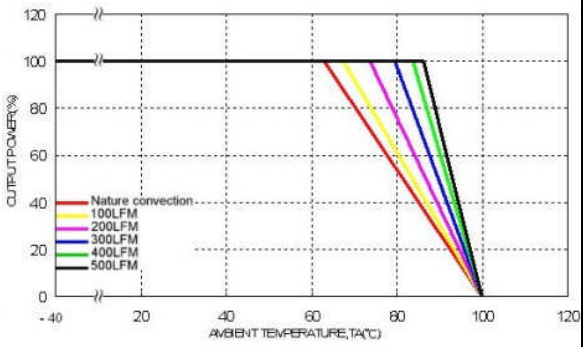
Efficiency Versus Output Current



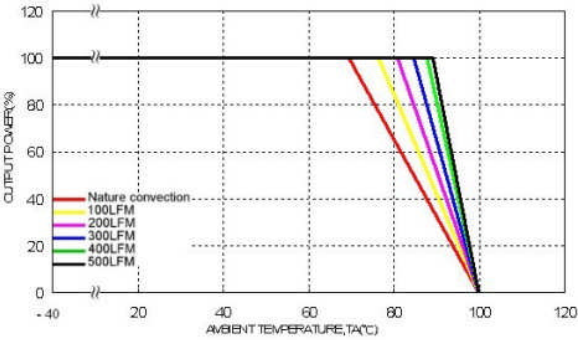
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



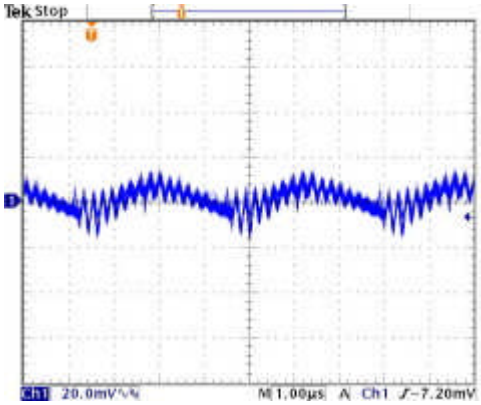
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

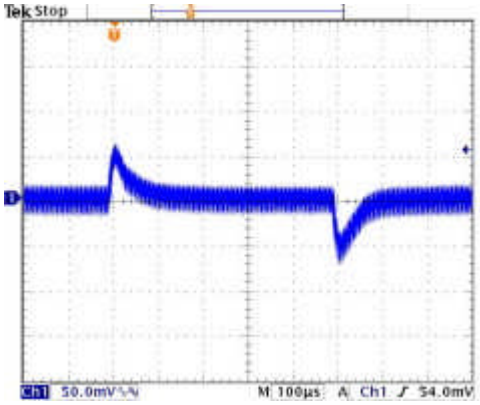
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-24S12

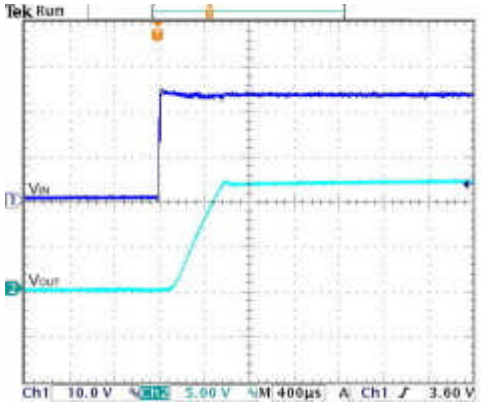


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

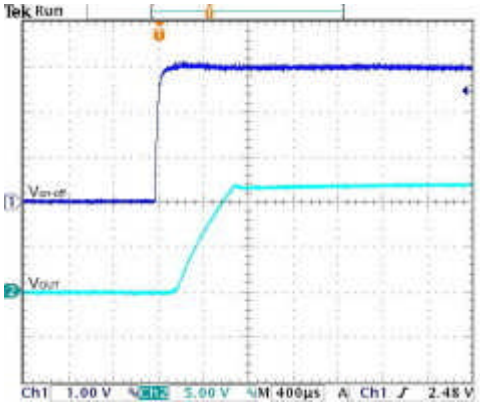


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



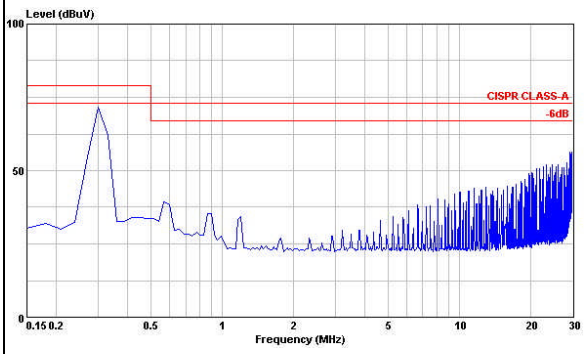
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



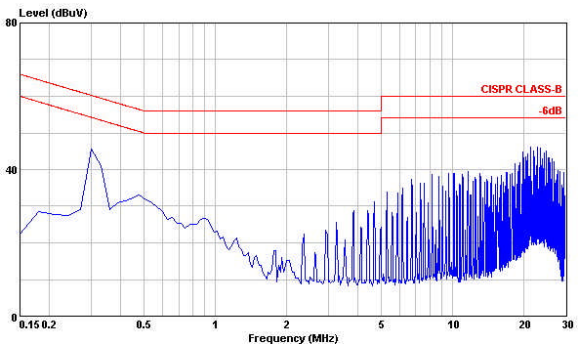
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

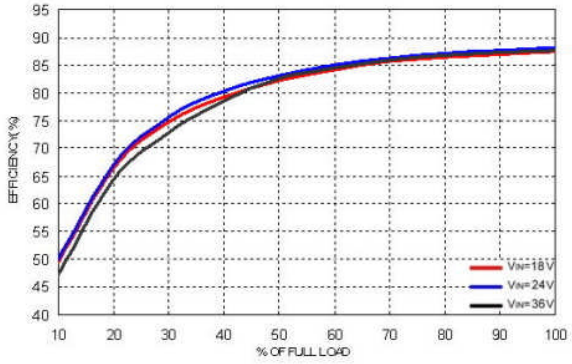


Conduction Emission of EN55022 Class B

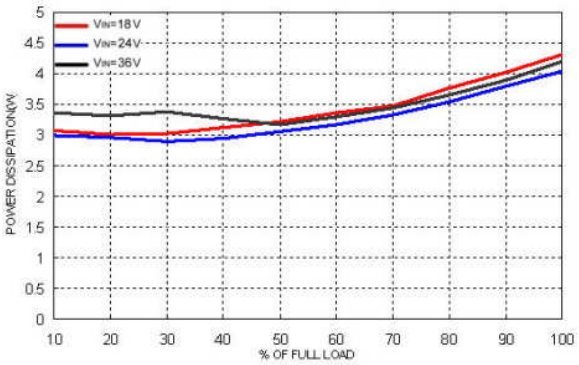
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

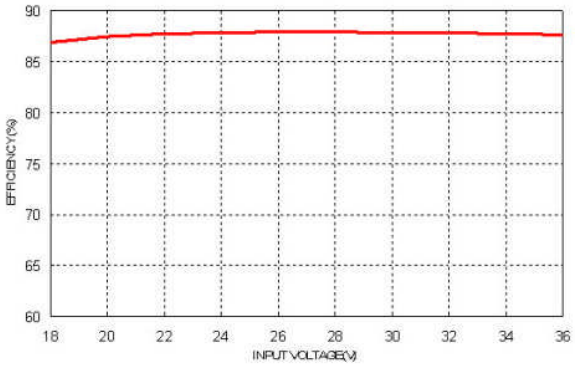
All test conditions are at 25°C.The figures are for PXE30-24S15



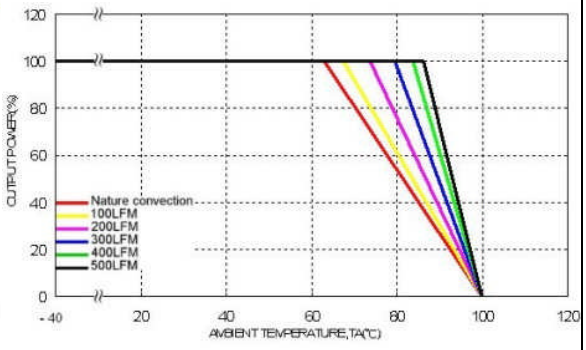
Efficiency Versus Output Current



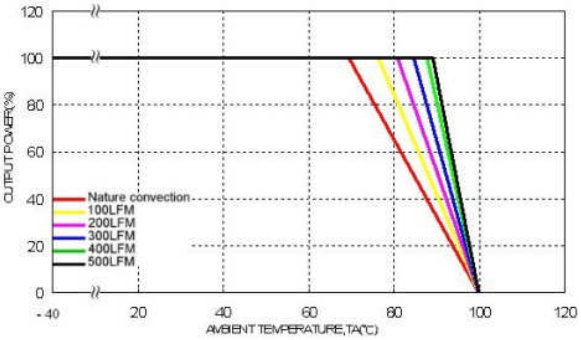
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



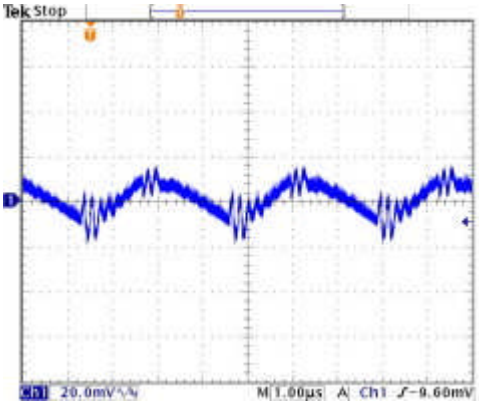
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

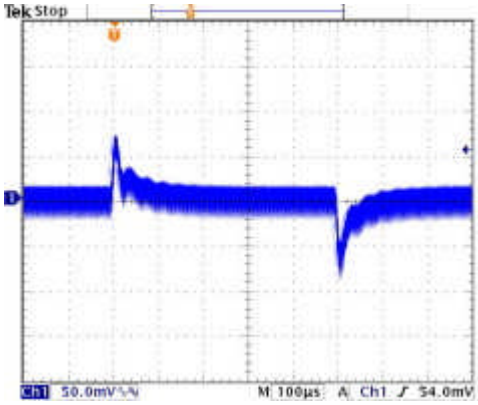
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-24S15

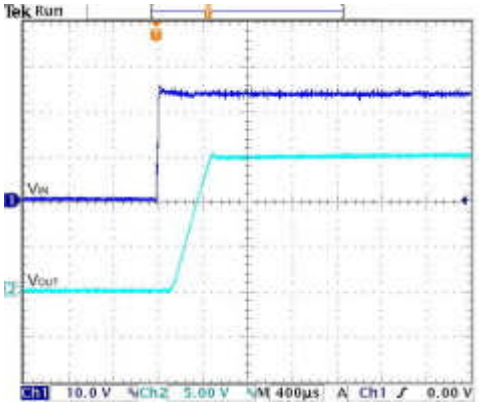


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

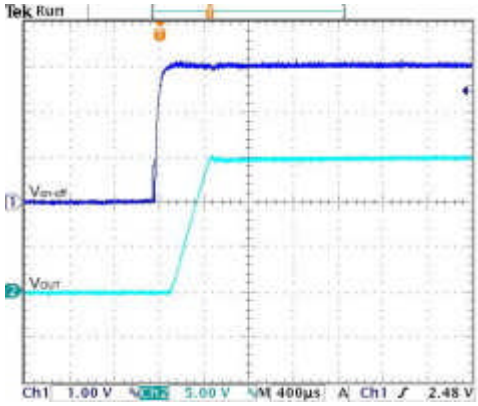


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



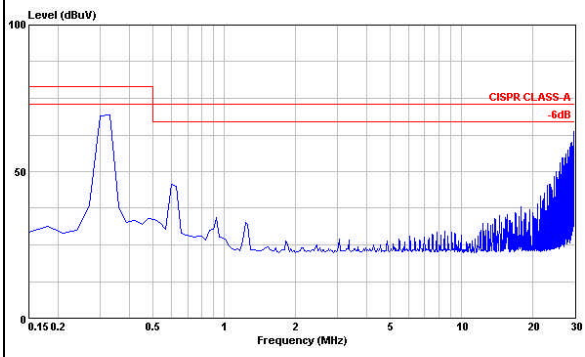
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



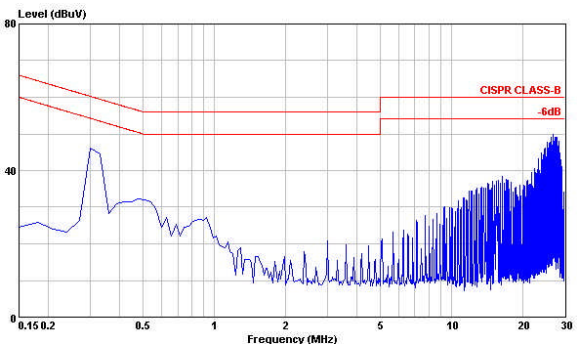
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

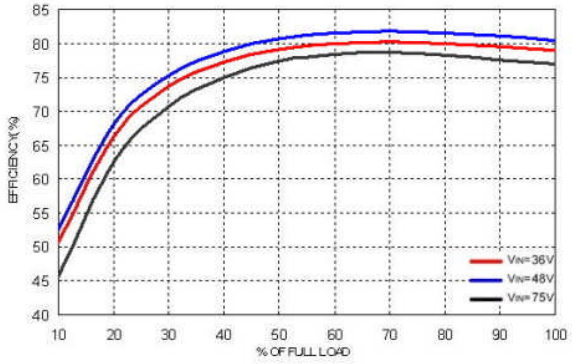


Conduction Emission of EN55022 Class B

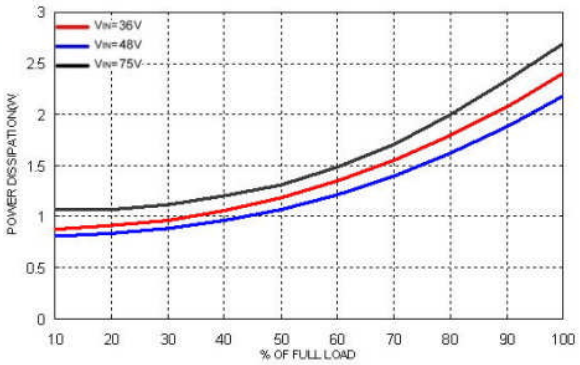
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

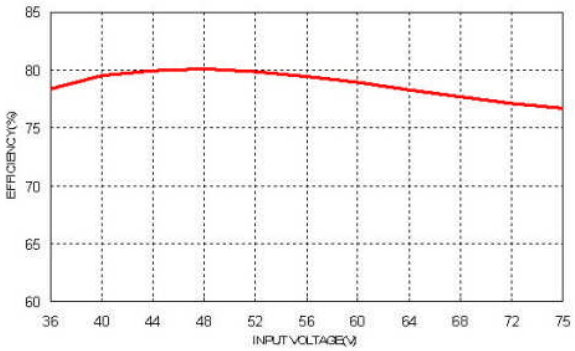
All test conditions are at 25°C.The figures are for PXE30-48S1P5



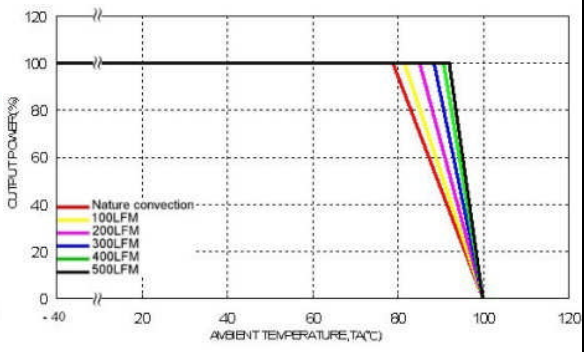
Efficiency Versus Output Current



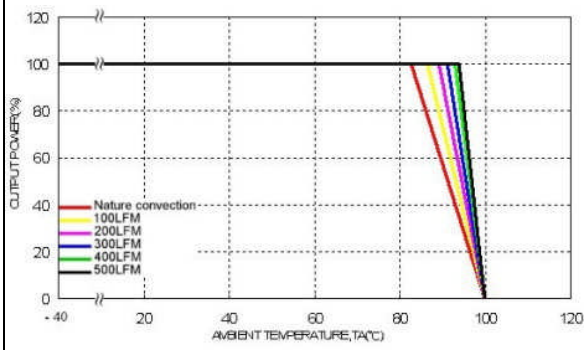
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



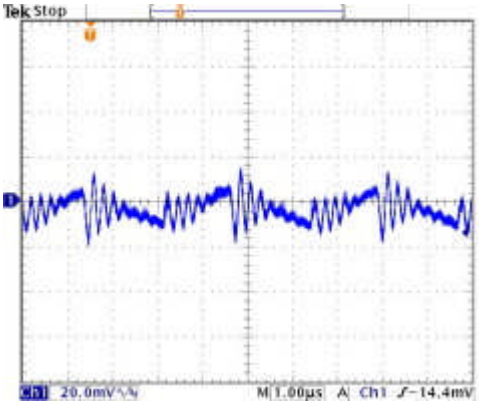
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

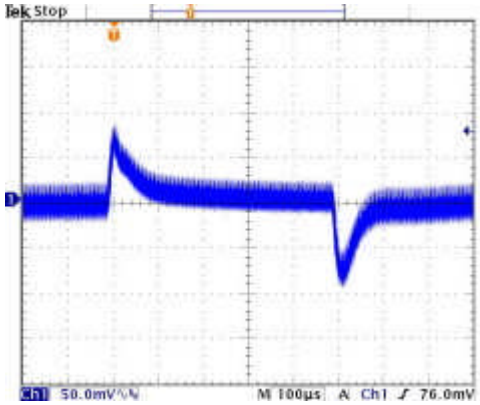
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-48S1P5

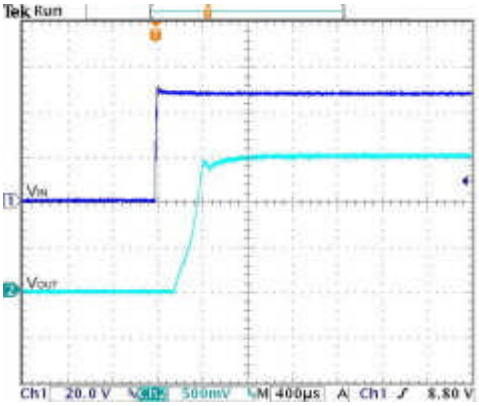


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

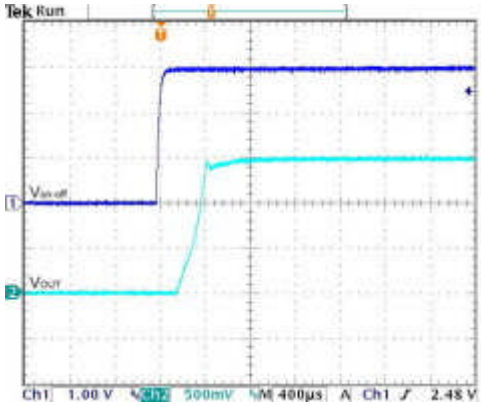


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



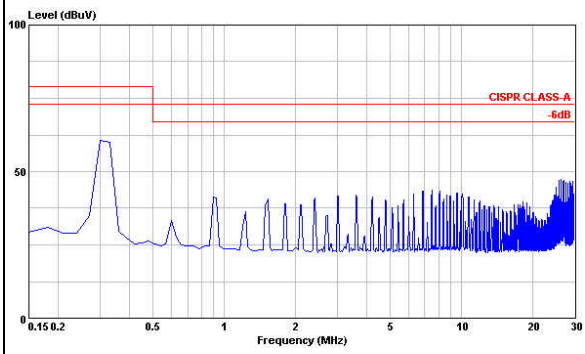
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



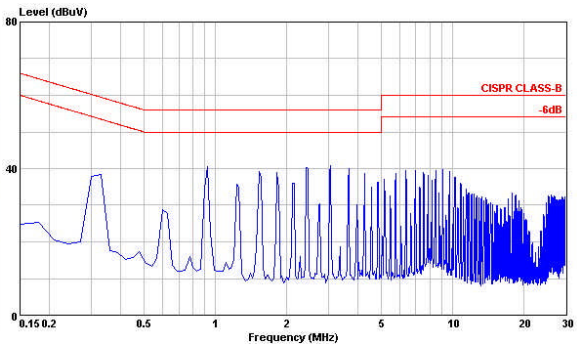
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

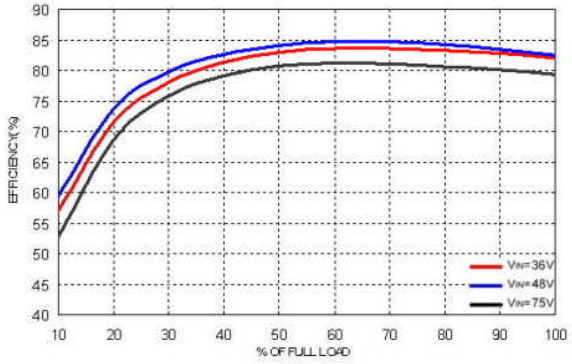


Conduction Emission of EN55022 Class B

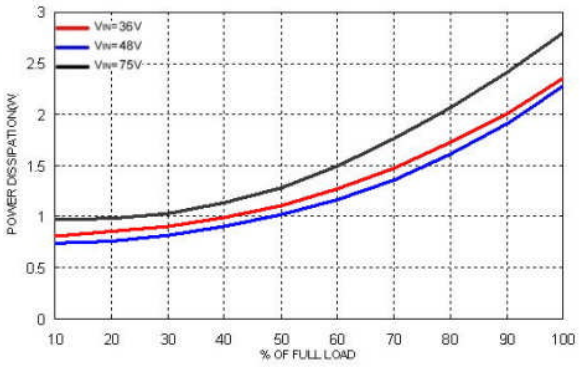
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

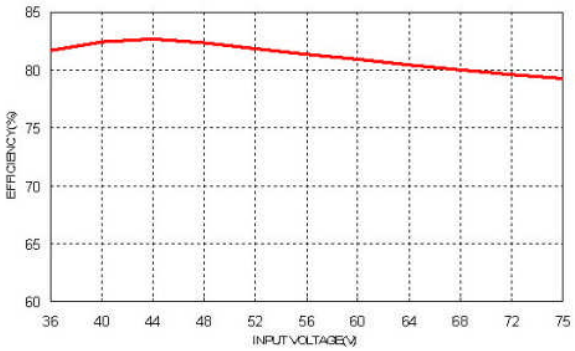
All test conditions are at 25°C.The figures are for PXE30-48S1P8



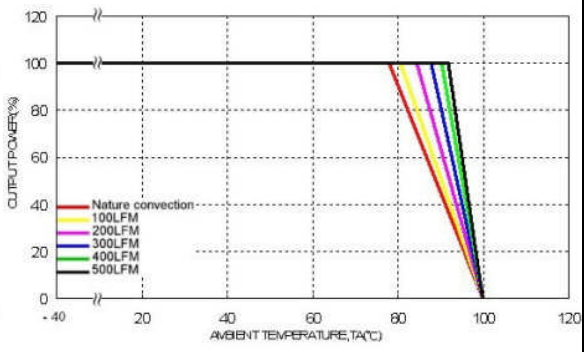
Efficiency Versus Output Current



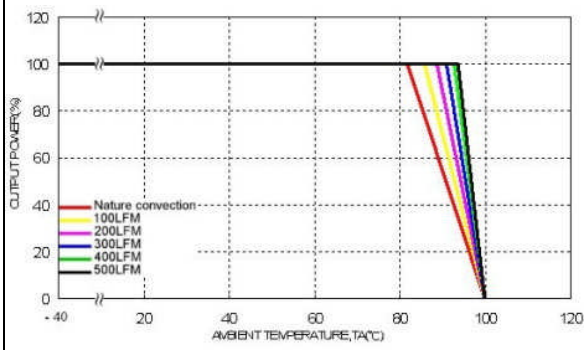
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



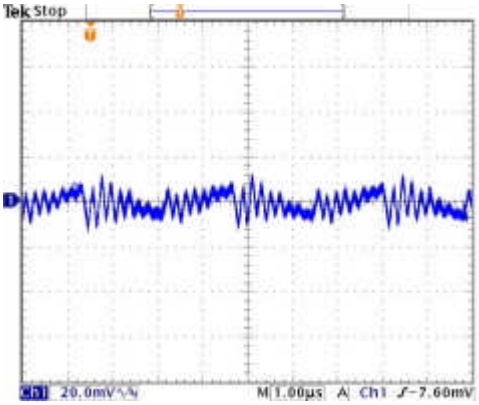
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

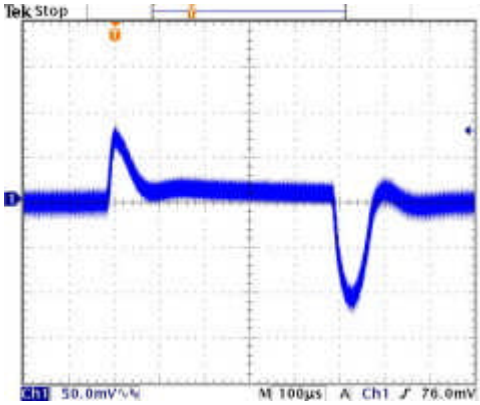
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-48S1P8

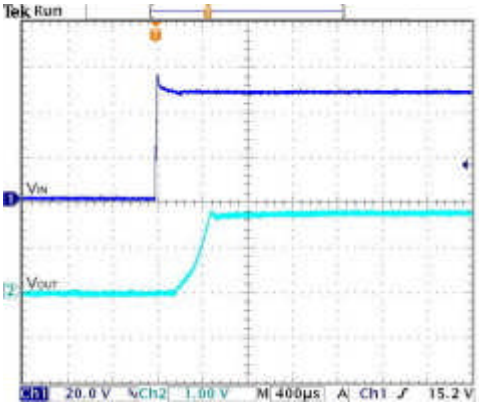


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

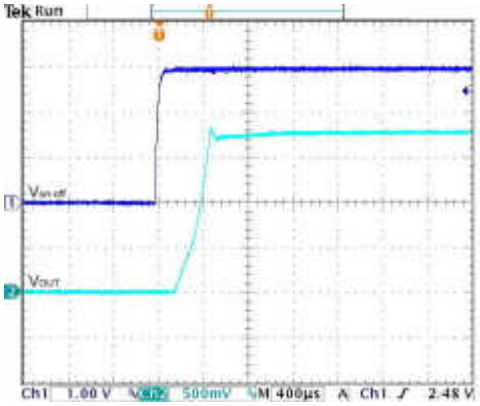


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



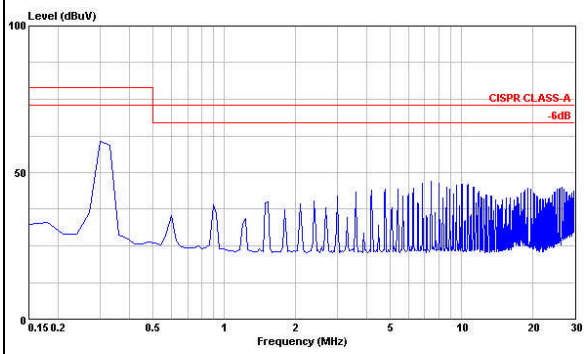
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



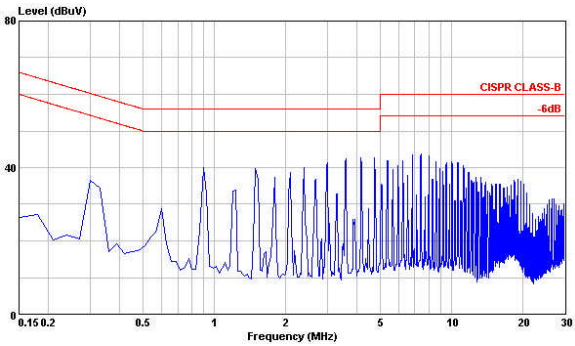
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

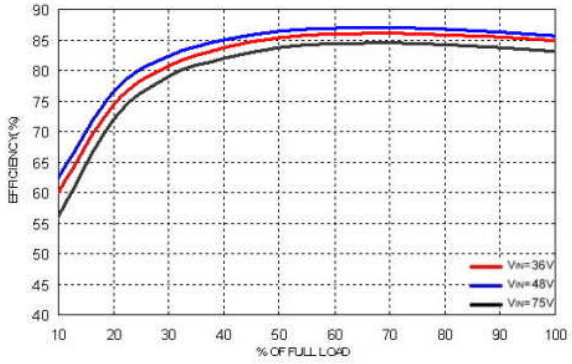


Conduction Emission of EN55022 Class B

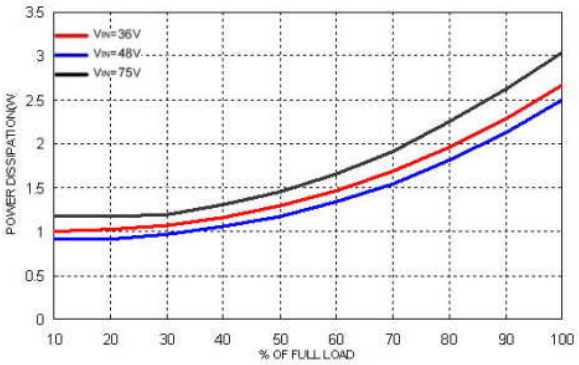
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

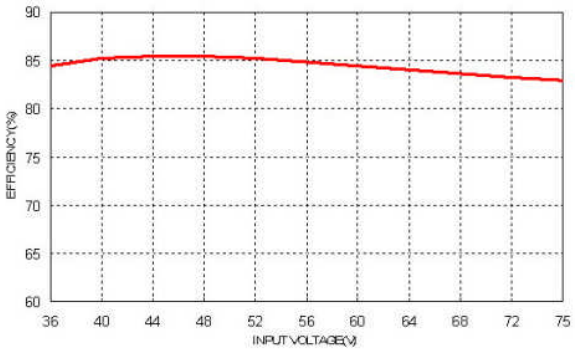
All test conditions are at 25°C.The figures are for PXE30-48S2P5



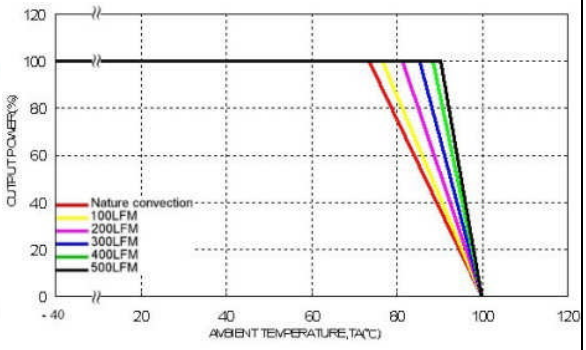
Efficiency Versus Output Current



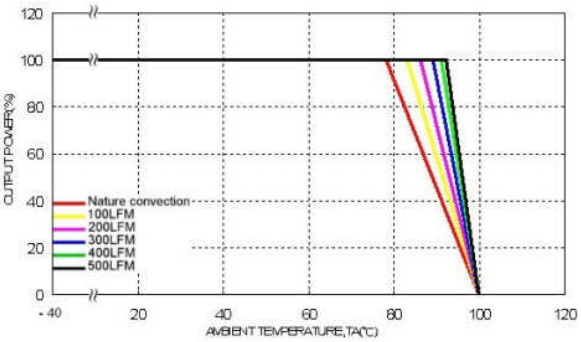
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



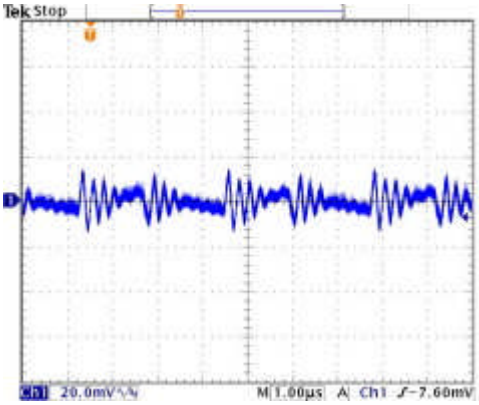
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

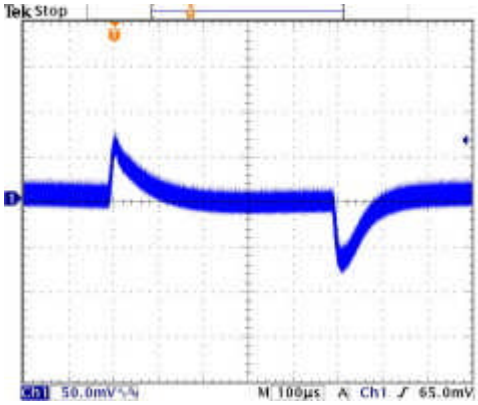
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-48S2P5

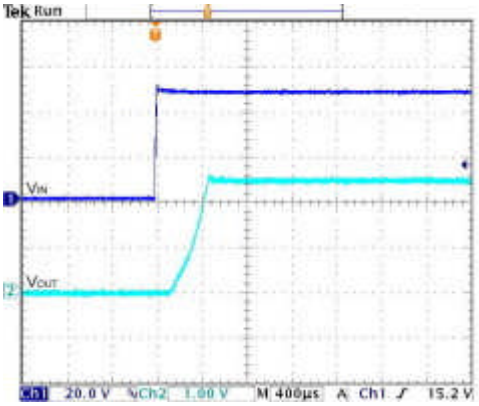


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

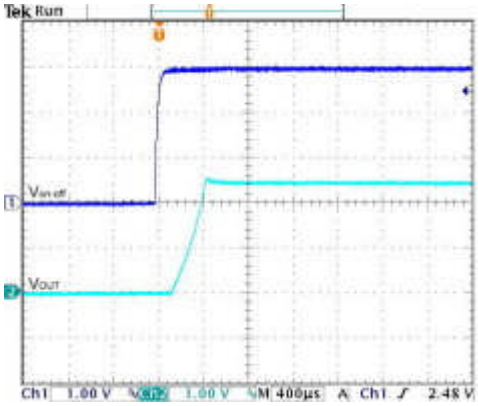


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



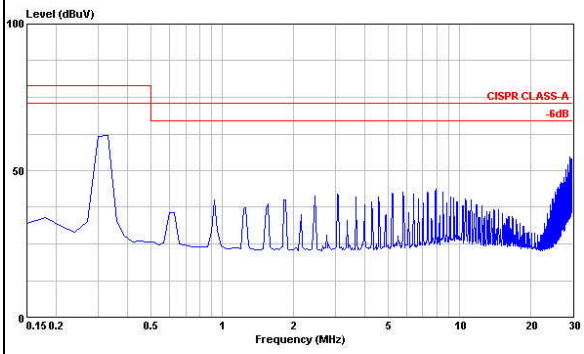
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



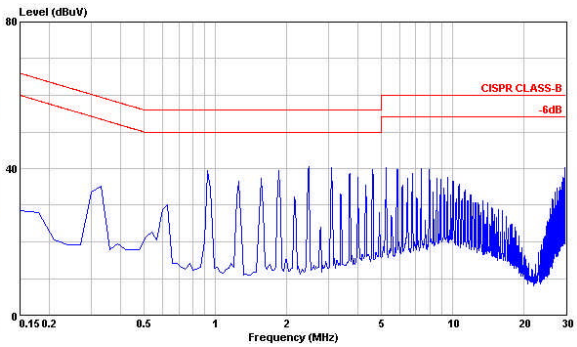
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

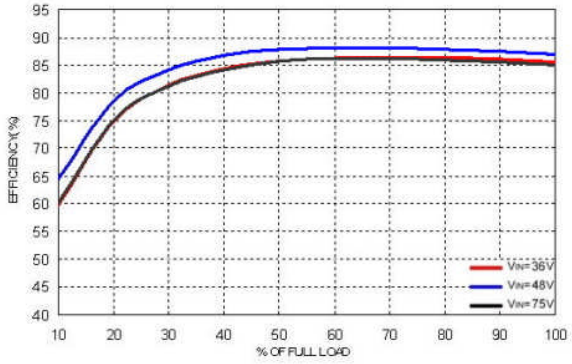


Conduction Emission of EN55022 Class B

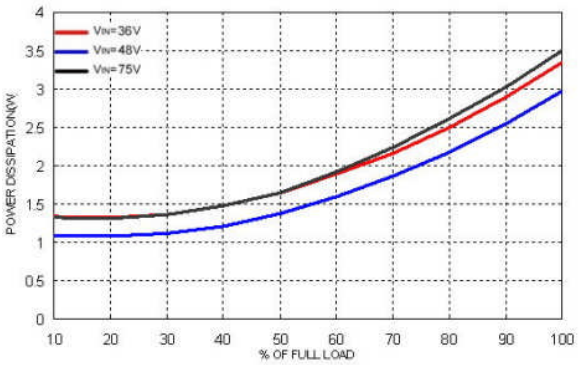
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

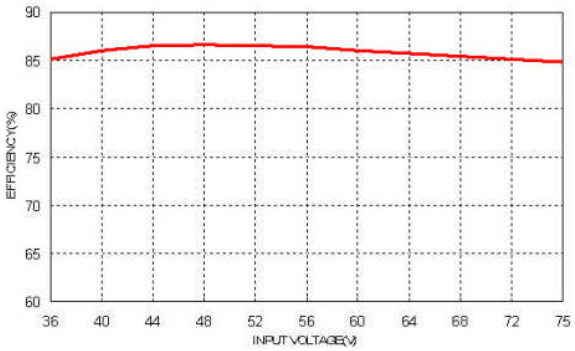
All test conditions are at 25°C.The figures are for PXE30-48S3P3



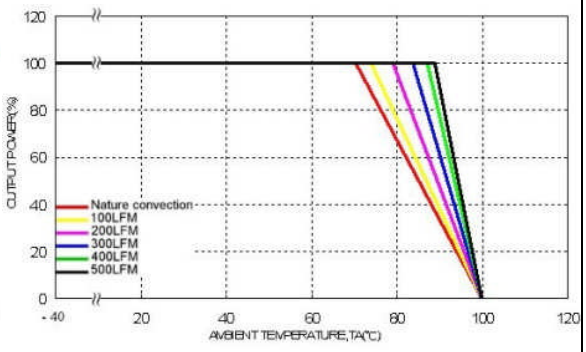
Efficiency Versus Output Current



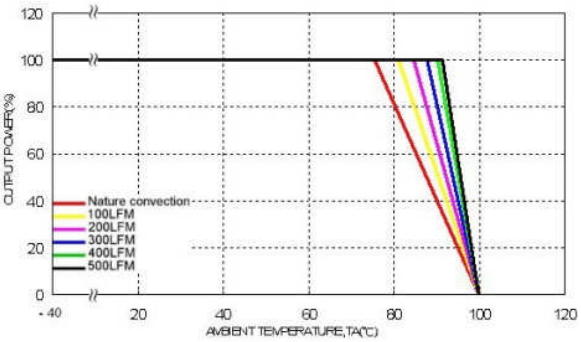
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



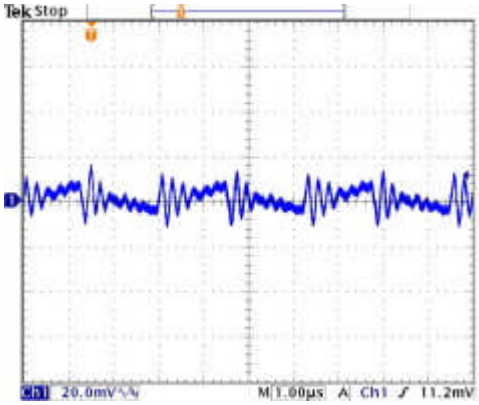
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

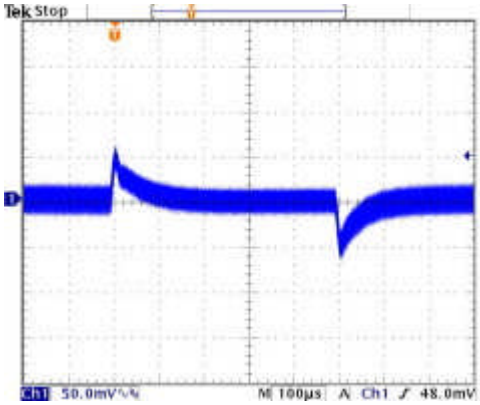
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-48S3P3

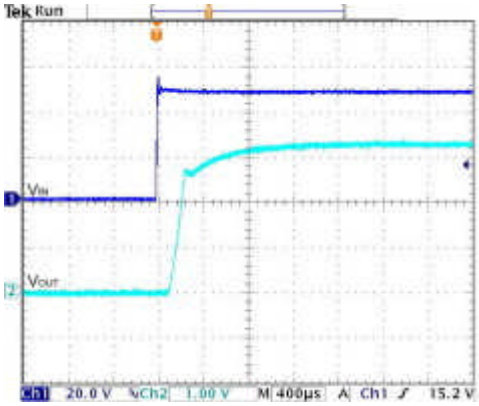


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

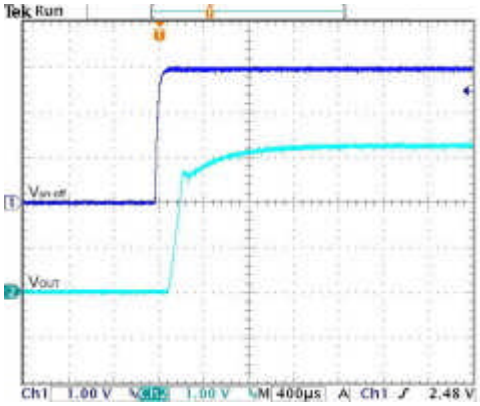


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



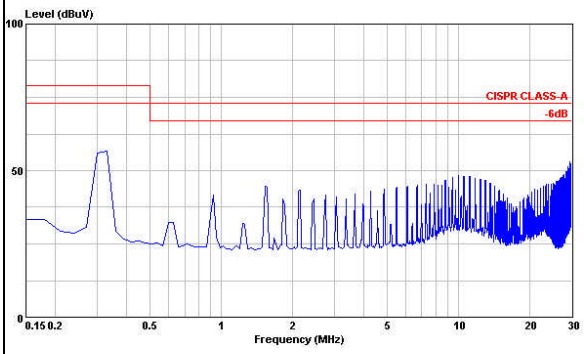
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



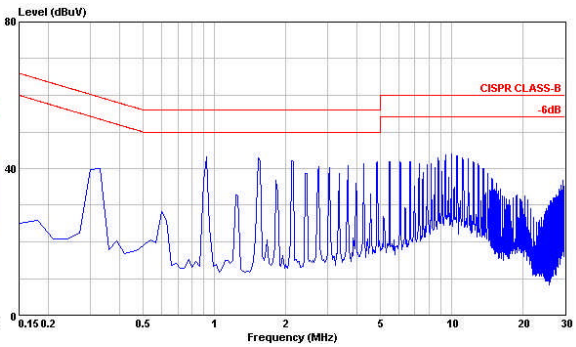
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

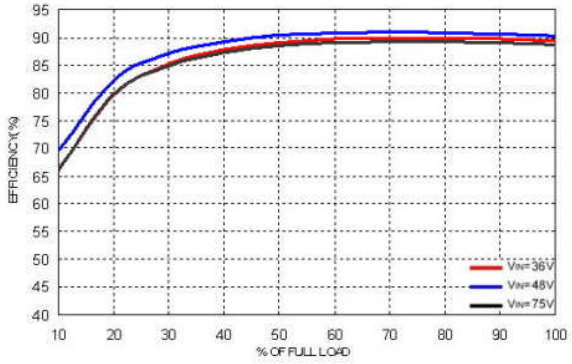


Conduction Emission of EN55022 Class B

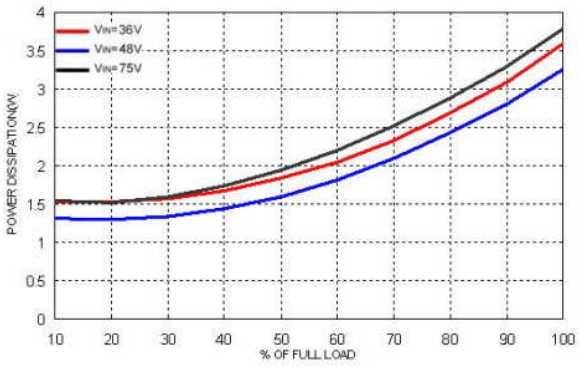
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

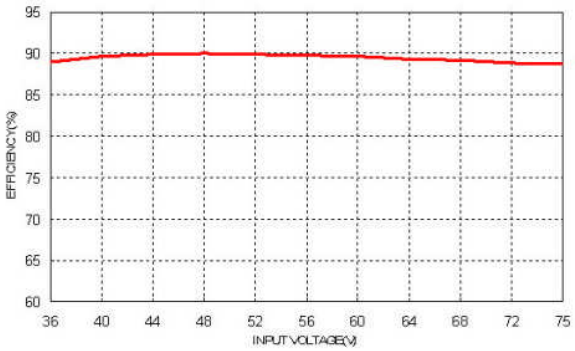
All test conditions are at 25°C.The figures are for PXE30-48S05



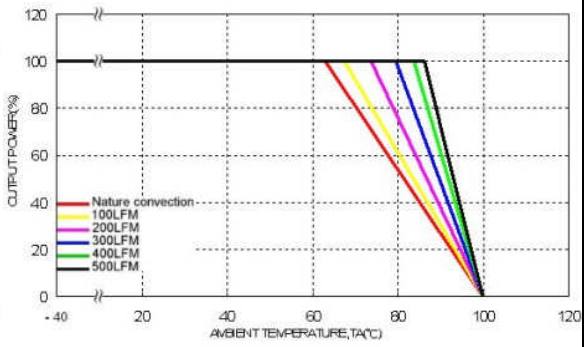
Efficiency Versus Output Current



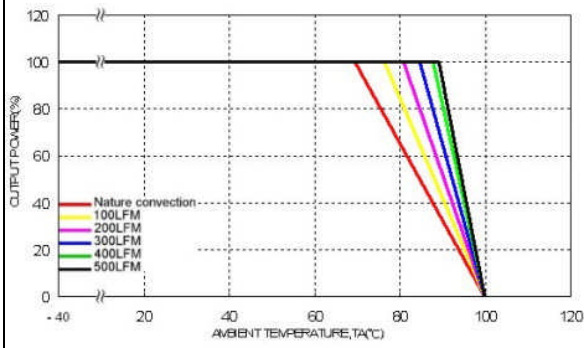
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



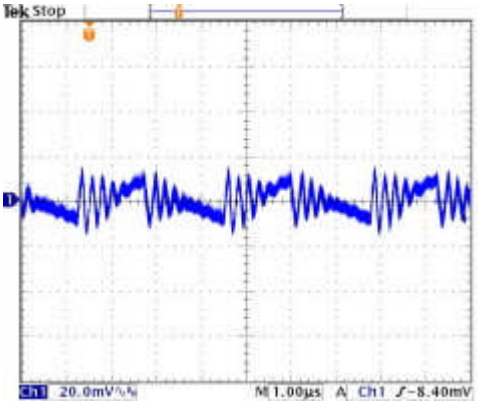
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

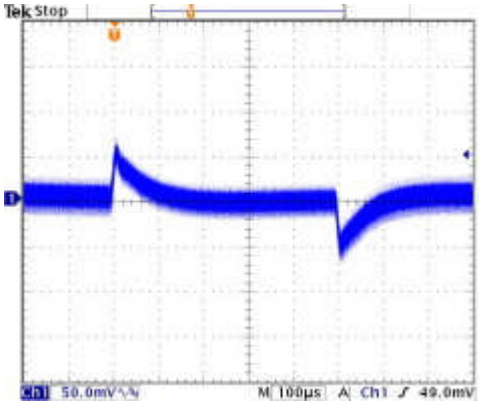
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-48S05

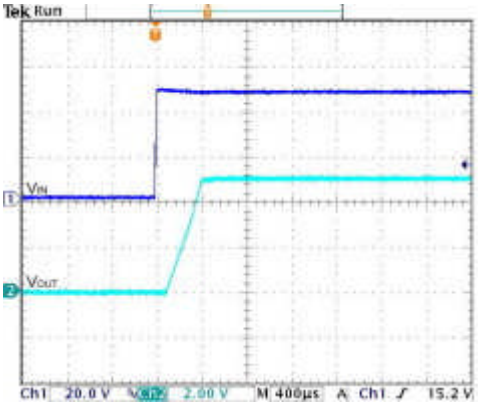


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

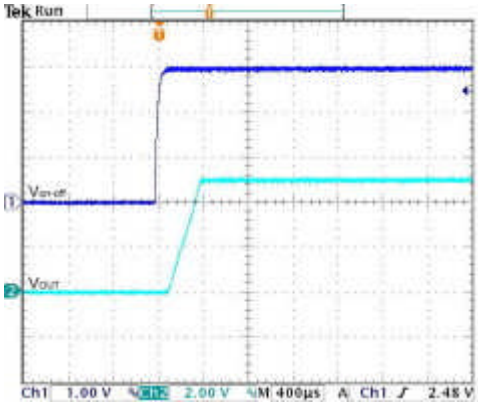


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



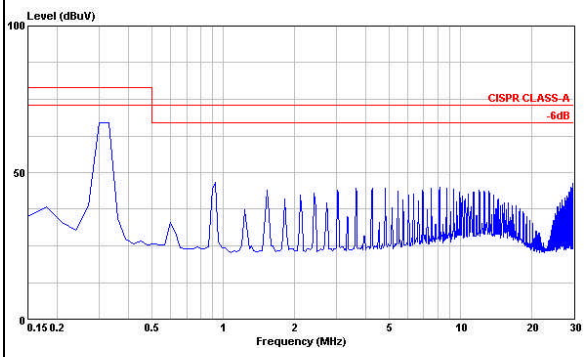
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



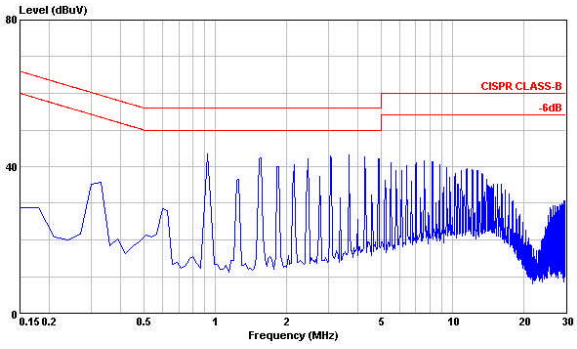
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

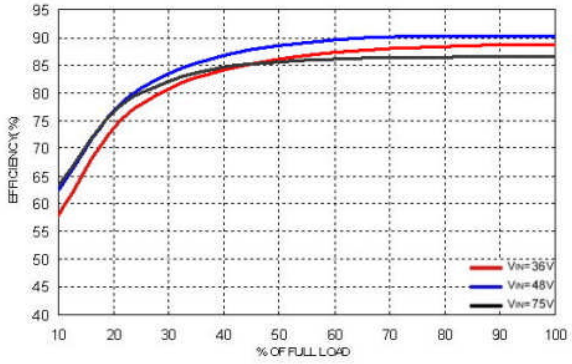


Conduction Emission of EN55022 Class B

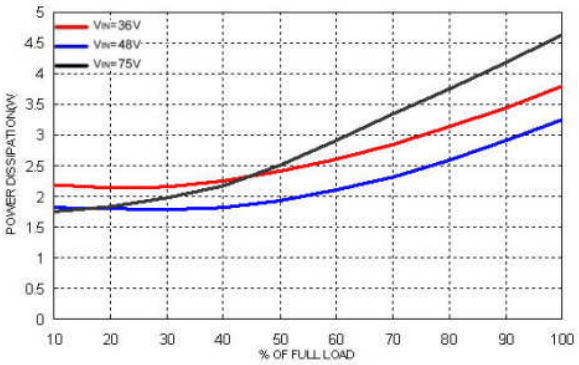
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

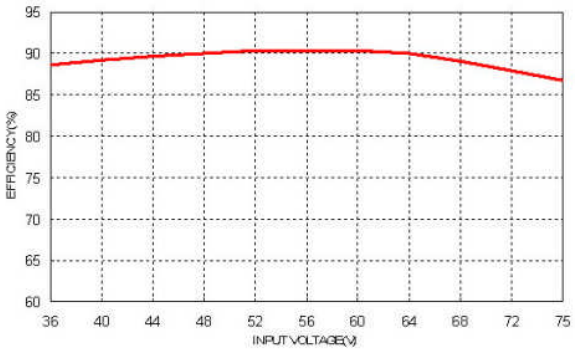
All test conditions are at 25°C.The figures are for PXE30-48S12



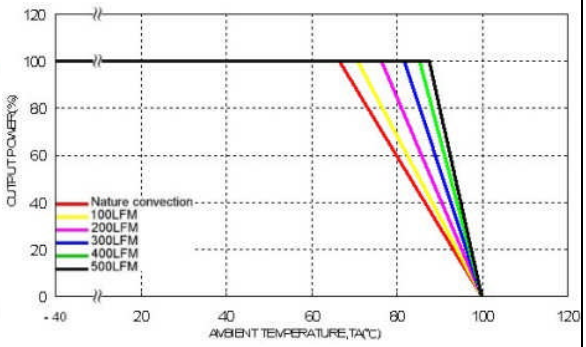
Efficiency Versus Output Current



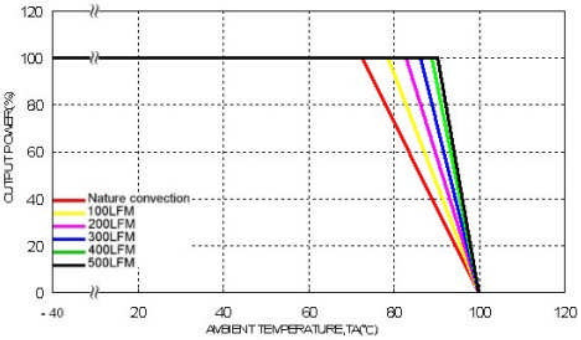
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



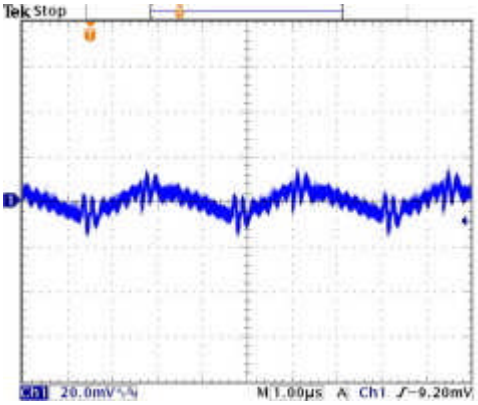
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

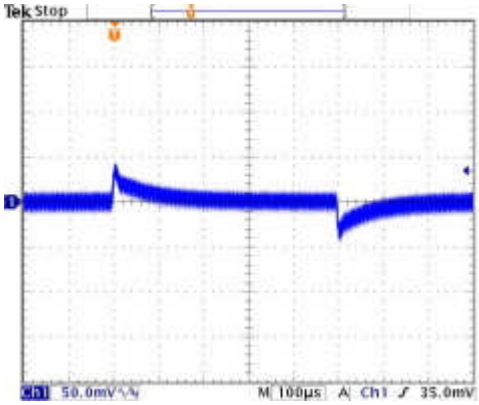
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-48S12

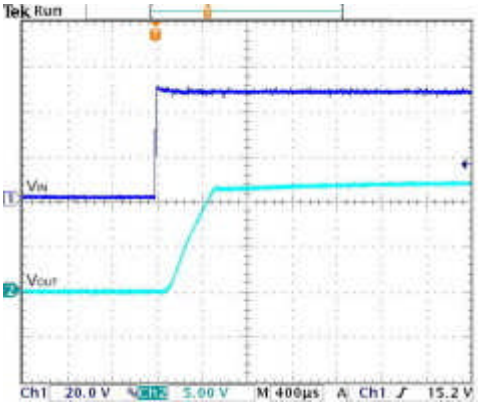


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

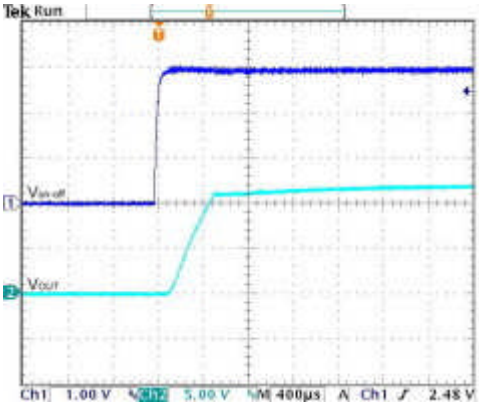


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



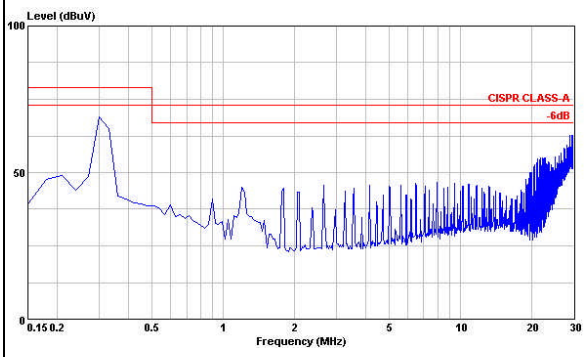
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



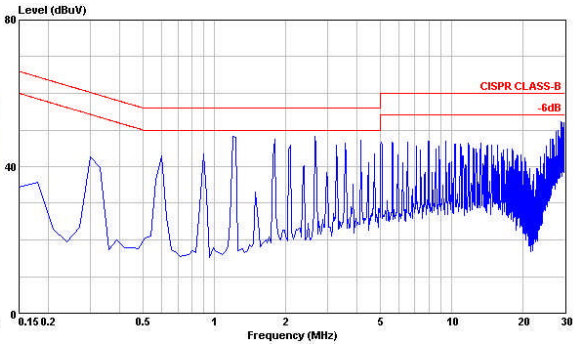
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

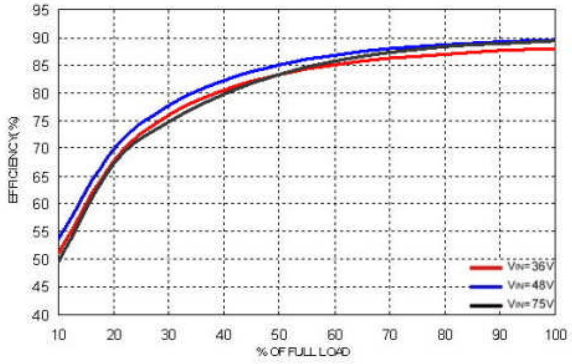


Conduction Emission of EN55022 Class B

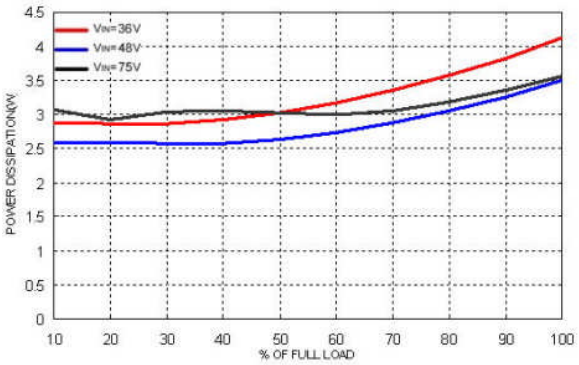
Vin=Vin(nom), Full Load

Characteristic Curves (Continued)

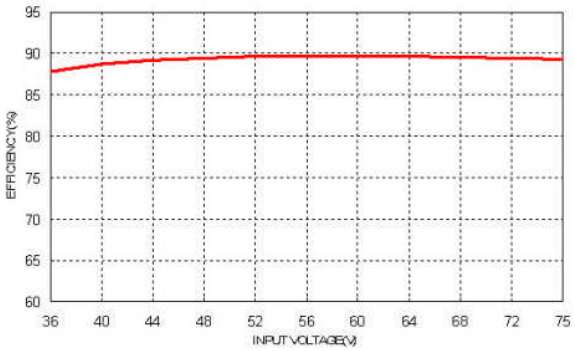
All test conditions are at 25°C.The figures are for PXE30-48S15



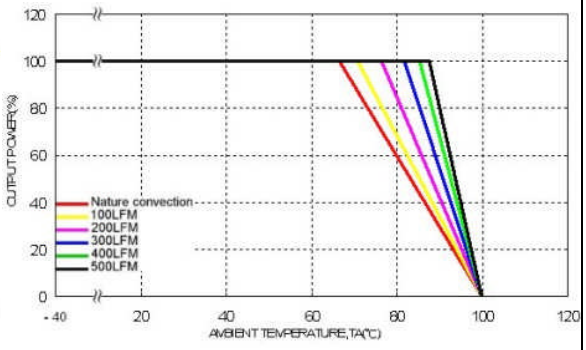
Efficiency Versus Output Current



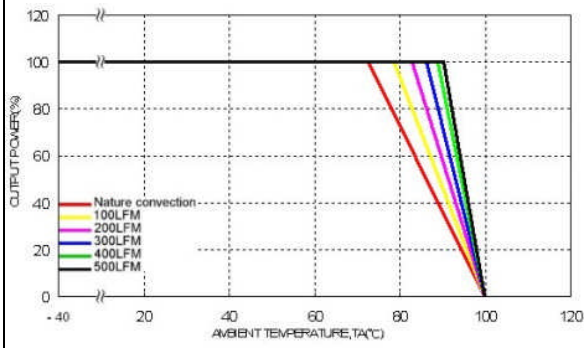
Power Dissipation Versus Output Current



Efficiency Versus Input Voltage. Full Load



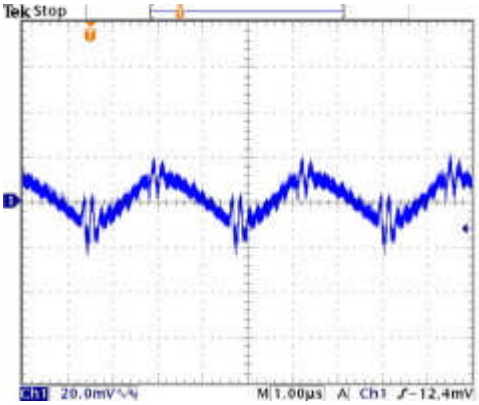
Derating Output Current Versus Ambient Temperature and Airflow Vin=Vin(nom)



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

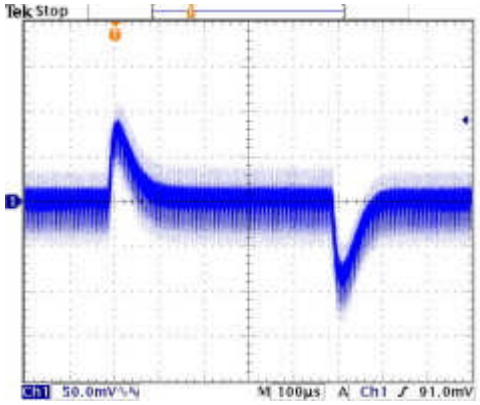
Characteristic Curves (Continued)

All test conditions are at 25°C.The figures are for PXE30-48S15

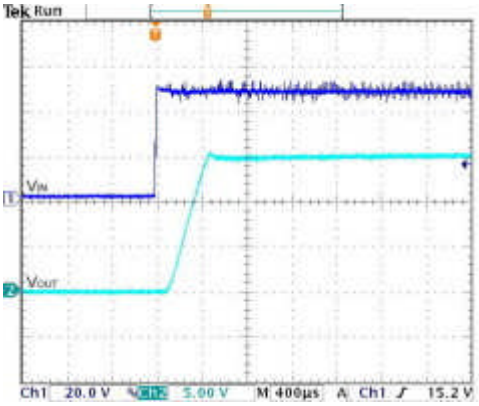


Typical Output Ripple and Noise.

Vin=Vin(nom), Full Load

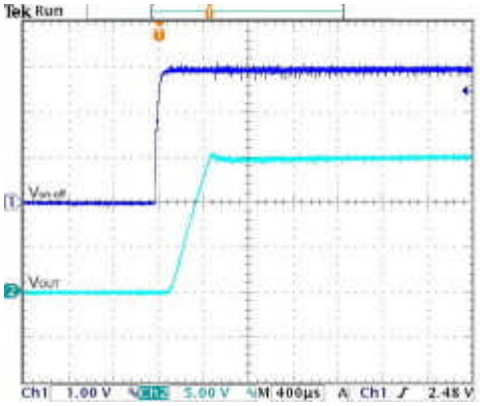


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin=Vin(nom)



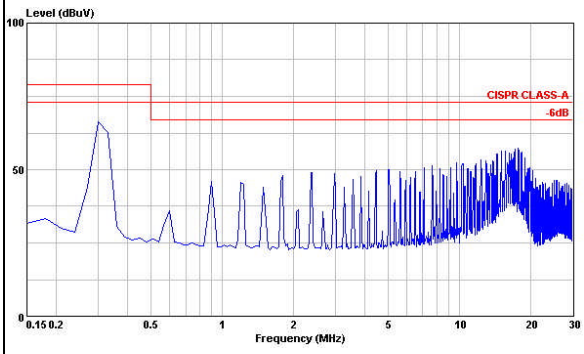
Typical Input Start-Up and Output Rise Characteristic

Vin=Vin(nom), Full Load



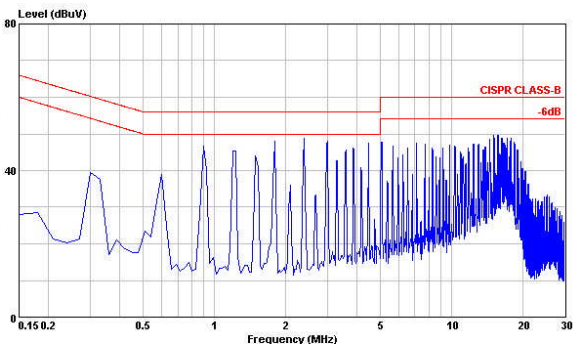
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin=Vin(nom), Full Load



Conduction Emission of EN55022 Class A

Vin=Vin(nom), Full Load

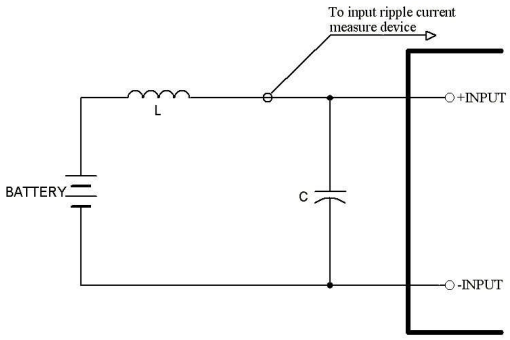


Conduction Emission of EN55022 Class B

Vin=Vin(nom), Full Load

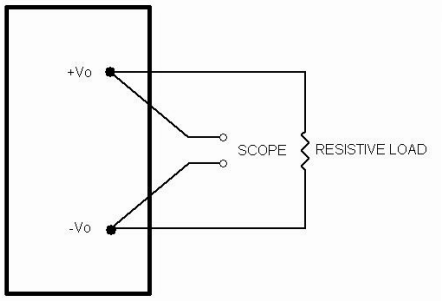
Test Configurations

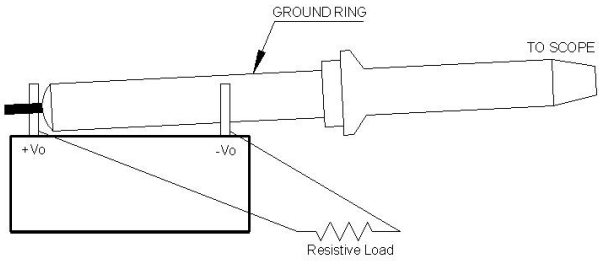
Input reflected-ripple current measurement test:



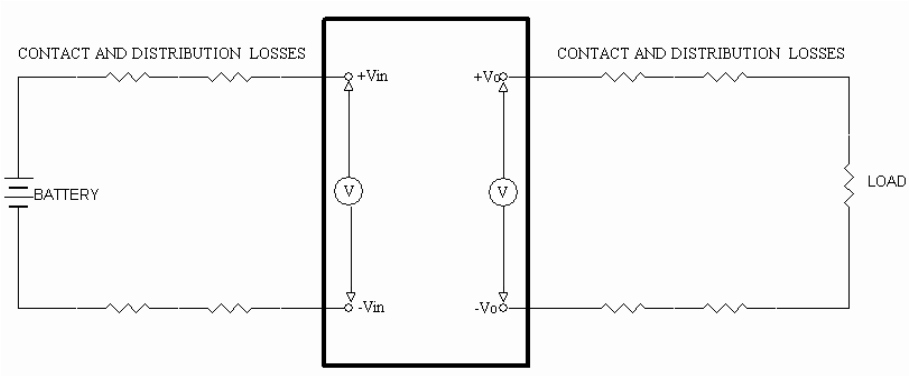
Component	Value	Voltage	Reference
L	12 μH	----	----
C	220 μF	100V	Aluminum Electrolytic Capacitor

Peak-to-peak output ripple & noise measurement test:





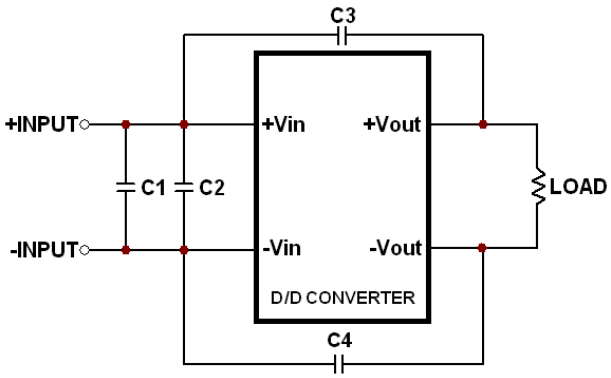
Output voltage and efficiency measurement test:



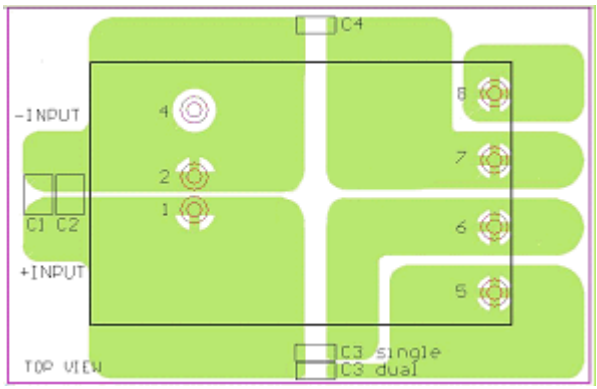
Note: All measurements are taken at the module terminals.

$$Efficiency = \left(\frac{V_o \times I_o}{V_{in} \times I_{in}} \right) \times 100\%$$

EMC Considerations



Suggested Schematic for EN55022 Conducted Emission Class A Limits



Recommended Layout with Input Filter

To meet conducted emissions EN55022 CLASS A needed the following components:

PXE30-12Sxx

Component	Value	Voltage	Reference
C1	6.8μF	50V	1812 MLCC
C3, C4	1000pF	2KV	1808 MLCC

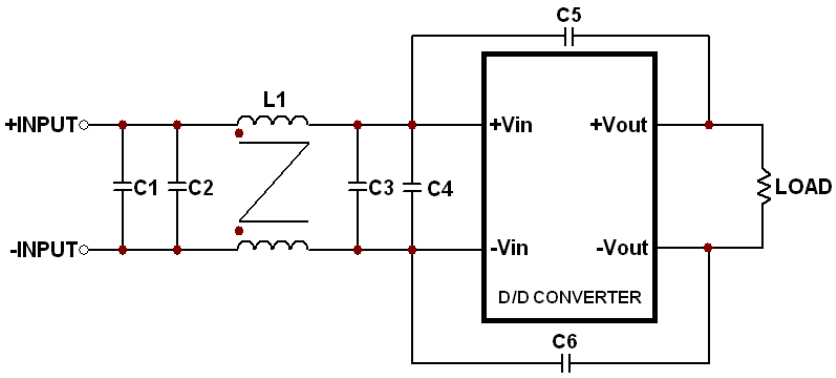
PXE30-24Sxx

Component	Value	Voltage	Reference
C1	6.8μF	50V	1812 MLCC
C3, C4	1000pF	2KV	1808 MLCC

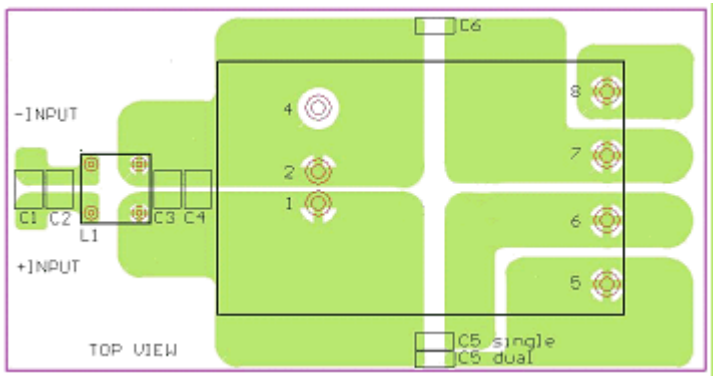
PXE30-48Sxx

Component	Value	Voltage	Reference
C1	2.2μF	100V	1812 MLCC
C3, C4	1000pF	2KV	1808 MLCC

EMC Considerations (Continued)



Suggested Schematic for EN55022 Conducted Emission Class B Limits



Recommended Layout with Input Filter

To meet conducted emissions EN55022 CLASS B needed the following components:

PXE30-12Sxx

Component	Value	Voltage	Reference
C1, C3	4.7μF	50V	1812 MLCC
C5, C6	1000pF	2KV	1808 MLCC
L1	450μH	----	Common Choke

PXE30-24Sxx

Component	Value	Voltage	Reference
C1, C3	6.8μF	50V	1812 MLCC
C5, C6	1000pF	2KV	1808 MLCC
L1	450μH	----	Common Choke

PXE30-48Sxx

Component	Value	Voltage	Reference
C1, C2	2.2μF	100V	1812 MLCC
C3, C4	2.2μF	100V	1812 MLCC
C5, C6	1000pF	2KV	1808 MLCC
L1	450μH	----	Common Choke

EMC Considerations (Continued)

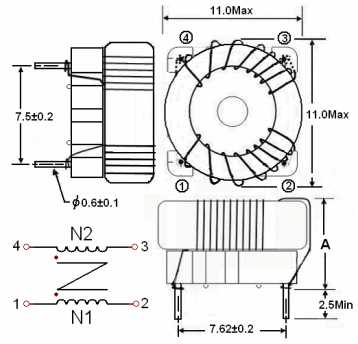
Common Choke L1 is defined as follows:

■

L: 450μH±35% / DCR: 25mΩ, max

A height: 9.8 mm, Max

■ All dimensions in millimeters



Input Source Impedance

The converter should be connected to a low impedance input source. Highly inductive source impedance can affect the stability of the converter. An input external L-C filter is recommended to minimize input reflected ripple current. The inductor has a simulated source impedance of 12μH and the capacitor is Nippon chemi-con KY series 220μF/100V. The capacitor must be located as close as possible to the input terminals of the power module for lowest impedance.

Output Over Current Protection

When excessive output currents occur in the system, circuit protection is required on all converters. Normally, overload current is maintained at approximately 150 percent of rated current for PXF40-xxSxx series.

Hiccup-mode is a method of operation in a converter whose purpose is to protect the power supply from being damaged during an over-current fault condition. It also enables the converter to restart when the fault is removed. There are other ways of protecting the converter when it is over-loaded, such as the maximum current limiting or current foldback methods.

One of the problems resulting from over current is that excessive heat may be generated in power devices; especially MOSFET and Schottky diodes and the temperature of these devices may exceed their specified limits. A protection mechanism has to be used to prevent these power devices from being damaged.

The operation of hiccup is as follows. When the current sense circuit sees an over-current event, the controller shuts off the converter for a given time and then tries to start up the converter again. If the over-load condition has been removed, the converter will start up and operate normally; otherwise, the controller will see another over-current event and will shut off the converter again, repeating the previous cycle. Hiccup operation has none of the drawbacks of the other two protection methods, although its circuit is more complicated because it requires a timing circuit. The excess heat due to overload lasts for only a short duration in the hiccup cycle, hence the junction temperature of the power devices is much lower.

Output Over Voltage Protection

The output over-voltage protection consists of an output Zener diode that monitors the voltage on the output terminals. If the voltage on the output terminals exceeds the over-voltage protection threshold, then the Zener diode clamps the output voltage.

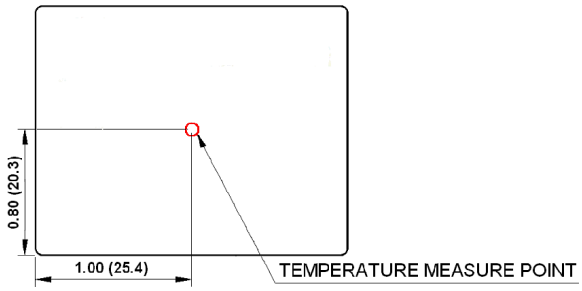
Short Circuit Protection

Continuous, hiccup and auto-recovery mode.

During a short circuit condition the converter will shut down. The average current during this condition will be very low.

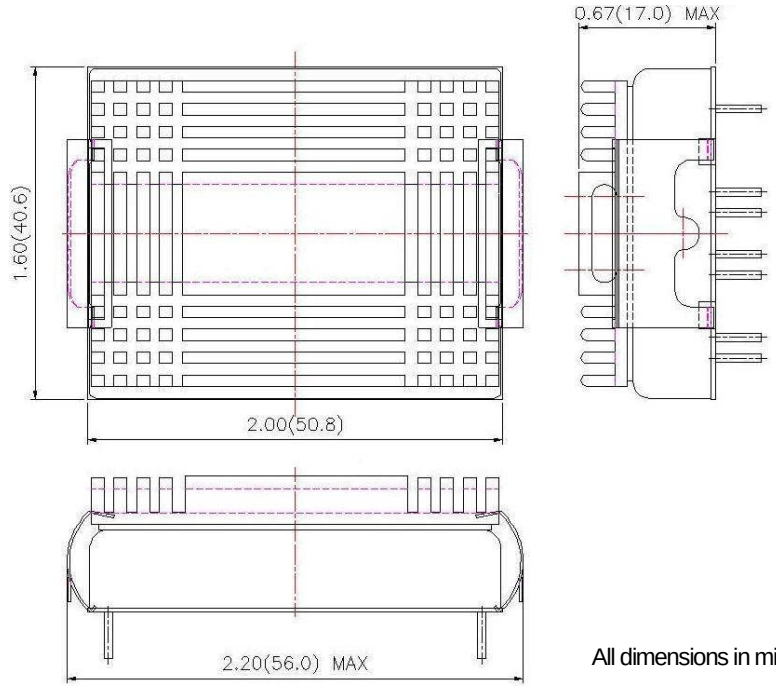
Thermal Consideration

The converter operates in a variety of thermal environments. However, sufficient cooling should be provided to help ensure reliable operation of the unit. Heat is removed by conduction, convection, and radiation to the surrounding environment. Proper cooling can be verified by measuring the point as the figure below. The temperature at this location should not exceed 100°C. When operating, adequate cooling must be provided to maintain the test point temperature at or below 100°C. Although the maximum point temperature of the converter is 100°C, limiting this temperature to a lower value will yield higher reliability.



Heat Sink Consideration

Use heat-sink (7G-0011C-F) f for lowering temperature and higher reliability of the module.

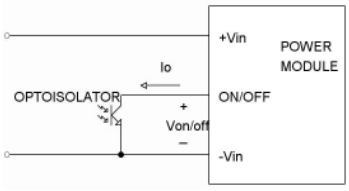


All dimensions in millimeters

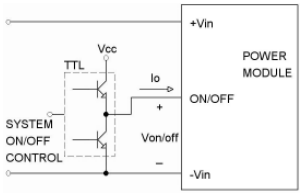
Remote ON/OFF Control

The Remote ON/OFF Pin is used to turn on and off the DC-DC converter. The user must use a switch to control the logic voltage (high or low level) of the ON/OFF pin, referenced to -Vi. The switch can be an open collector transistor, FET or Opto-Coupler that is capable of sinking up to 0.5 mA at low-level logic Voltage. High-level logic of the ON/OFF signal (maximum voltage): the allowable leakage current of the switch at 12V is 0.5mA.

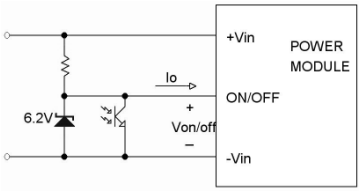
Remote ON/OFF Implementation Circuits



Isolated-Control Remote ON/OFF

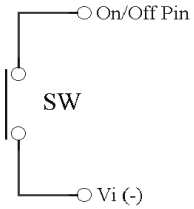


Level Control Using TTL Output

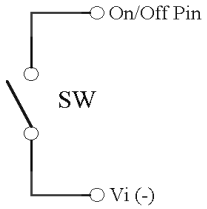


Level Control Using Line Voltage

Positive logic:

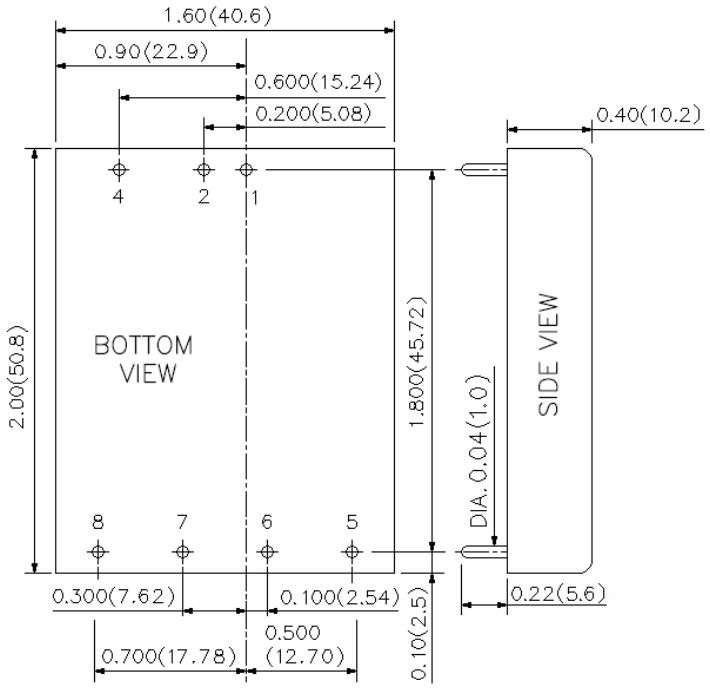


PXE30 module is turned off
Using Low-level logic



PXE30 module is turned on
using High-level logic

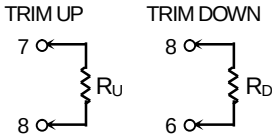
Mechanical Data



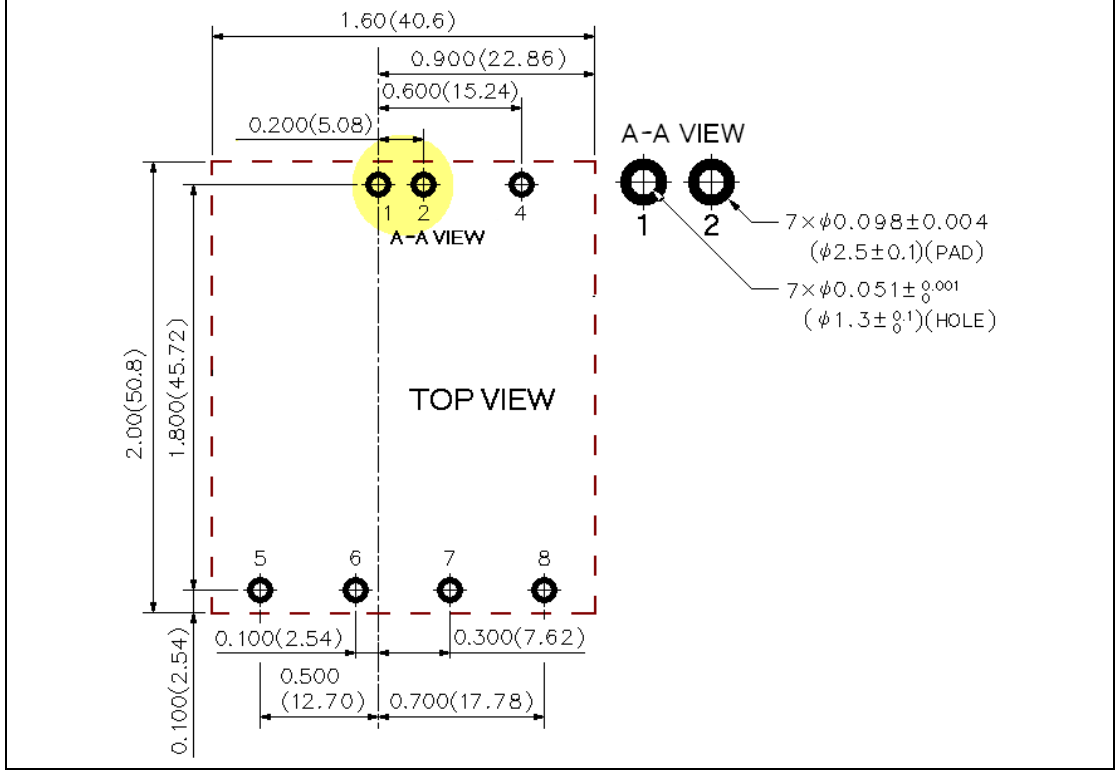
PIN CONNECTION	
PIN	FUNCTION
1	+INPUT
2	-INPUT
4	CTRL
5	NO PIN
6	+OUTPUT
7	-OUTPUT
8	TRIM

EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed by using the method shown below.

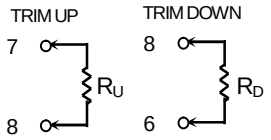


Recommended Pad Layout



Output Voltage Adjustment

Output voltage set point adjustment allows the user to increase or decrease the output voltage set point of a module. This is accomplished by connecting an external resistor between the TRIM pin and either the Vo(+) or Vo(-) pins. With an external resistor between the TRIM and Vo(-) pin, the output voltage set point increases. With an external resistor between the TRIM and Vo(+) pin, the output voltage set point decreases.



TRIM TABLE

PXE30-xxS1P5

Trim up (%)	1	2	3	4	5	6	7	8	9	10
V_{OUT} (Volts)=	1.515	1.53	1.545	1.56	1.575	1.59	1.605	1.62	1.635	1.65
R_U (K OhmS)=	4.578	2.605	1.227	0.808	0.557	0.389	0.27	0.18	0.11	0.054
Trim down (%)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
V_{OUT} (Volts)=	1.485	1.47	1.455	1.44	1.425	1.41	1.395	1.38	1.365	1.35
R_D (K OhmS)=	5.704	2.571	1.527	1.005	0.692	0.483	0.334	0.222	0.135	0.065

PXE30-xxS1P8

Trim up (%)	1	2	3	4	5	6	7	8	9	10
V_{OUT} (Volts)=	1.818	1.836	1.854	1.872	1.89	1.908	1.926	1.944	1.962	1.98
R_U (K OhmS)=	11.639	5.205	3.06	1.988	1.344	0.915	0.609	0.379	0.2	0.057
Trim down (%)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
V_{OUT} (Volts)=	1.782	1.764	1.746	1.728	1.71	1.692	1.674	1.656	1.638	1.62
R_D (K OhmS)=	14.66	6.57	3.874	2.525	1.716	1.177	0.792	0.503	0.278	0.098

PXE30-xxS2P5

Trim up (%)	1	2	3	4	5	6	7	8	9	10
V_{OUT} (Volts)=	2.525	2.55	2.575	2.6	2.625	2.65	2.675	2.7	2.725	2.75
R_U (K OhmS)=	37.076	16.675	9.874	6.474	4.434	3.074	2.102	1.374	0.807	0.354
Trim down (%)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
V_{OUT} (Volts)=	2.475	2.45	2.425	2.4	2.375	2.35	2.325	2.3	2.275	2.25
R_D (K OhmS)=	49.641	22.481	13.428	8.902	6.186	4.375	3.082	2.112	1.358	0.754

PXE30-xxS3P3

Trim up (%)	1	2	3	4	5	6	7	8	9	10
V_{OUT} (Volts)=	3.333	3.366	3.399	3.432	3.465	3.498	3.531	3.564	3.597	3.630
R_U (K OhmS)=	57.930	26.165	15.577	10.283	7.106	4.988	3.476	2.341	1.459	0.753
Trim down (%)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
V_{OUT} (Volts)=	3.267	3.234	3.201	3.168	3.135	3.102	3.069	3.036	3.003	2.970
R_D (K OhmS)=	69.470	31.235	18.490	12.117	8.294	5.745	3.924	2.559	1.497	0.647

Output Voltage Adjustment(Continued)

PXE30-xxS05

Trim up (%)	1	2	3	4	5	6	7	8	9	10
V_{OUT} (Volts)=	5.050	5.100	5.150	5.200	5.250	5.300	5.350	5.400	5.450	5.500
R_U (K OhmS)=	36.570	16.580	9.917	6.585	4.586	3.253	2.302	1.588	1.032	0.588
Trim down (%)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
V_{OUT} (Volts)=	4.950	4.900	4.850	4.800	4.750	4.700	4.650	4.600	4.550	4.500
R_D (K OhmS)=	45.533	20.612	12.306	8.152	5.660	3.999	2.812	1.922	1.230	0.676

PXE30-xxS12

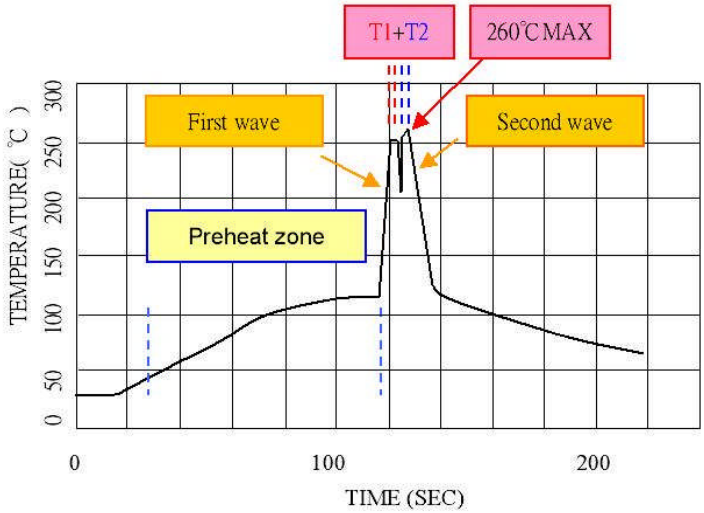
Trim up (%)	1	2	3	4	5	6	7	8	9	10
V_{OUT} (Volts)=	12.120	12.240	12.360	12.480	12.600	12.720	12.840	12.960	13.080	13.200
R_U (K OhmS)=	367.910	165.950	98.636	64.977	44.782	31.318	21.701	14.488	8.879	4.391
Trim down (%)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
V_{OUT} (Volts)=	11.880	11.760	11.640	11.520	11.400	11.280	11.160	11.040	10.920	10.800
R_D (K OhmS)=	460.990	207.950	123.600	81.423	56.118	39.249	27.199	18.162	11.132	5.509

PXE30-xxS15

Trim up (%)	1	2	3	4	5	6	7	8	9	10
V_{OUT} (Volts)=	15.150	15.300	15.450	15.600	15.750	15.900	16.050	16.200	16.350	16.500
R_U (K OhmS)=	404.180	180.590	106.060	68.796	46.437	31.531	20.883	12.898	6.687	1.718
Trim down (%)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
V_{OUT} (Volts)=	14.850	14.700	14.550	14.400	14.250	14.100	13.950	13.800	13.650	13.500
R_D (K OhmS)=	499.820	223.410	131.270	85.204	57.563	39.136	25.974	16.102	8.424	2.282

Soldering and Reflow Consideration

Lead free wave solder profile for PXE30-xxSxx DIP type



Zone	Reference Parameter
Preheat zone	Rise temp. speed : 3°C / sec max. Preheat temp. : 100~130°C
Actual heating	Peak temp. : 250~260°C Peak time (T1+T2 time) : 4~6 sec

Reference Solder: Sn-Ag-Cu / Sn-Cu

Hand Welding: Soldering iron - Power 90W

Welding Time: 2-4 sec

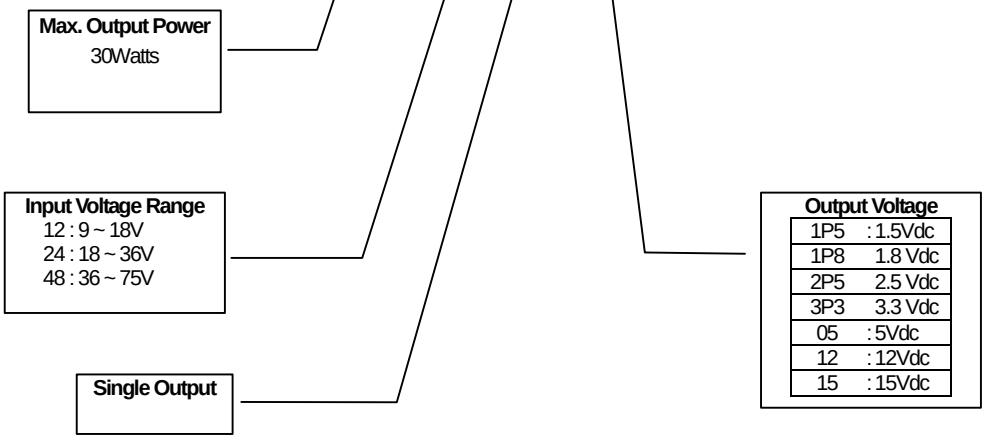
Temp.:380-400 °C

Packaging Information

12 PCS per TUBE

Part Number Structure

PXE 30 – 24 S 15



Model Number	Input Range	Output Voltage	Output Current		Input Current		Eff (3) (%)
			Min. load	Full Load	No load(1)	Full Load(2)	
PXE30-12S1P5	9 – 18 VDC	1.5 VDC	0mA	6000mA	100mA	1014mA	78
PXE30-12S1P8	9 – 18 VDC	1.8 VDC	0mA	6000mA	100mA	1169mA	81
PXE30-12S2P5	9 – 18 VDC	2.5 VDC	0mA	6000mA	110mA	1582mA	83
PXE30-12S3P3	9 – 18 VDC	3.3 VDC	0mA	6000mA	115mA	2037mA	85
PXE30-12S05	9 – 18 VDC	5 VDC	0mA	6000mA	95mA	3012mA	87
PXE30-12S12	9 – 18 VDC	12 VDC	0mA	2500mA	170mA	2976mA	88
PXE30-12S15	9 – 18 VDC	15 VDC	0mA	2000mA	210mA	2976Ma	88
PXE30-24S1P5	18 – 36 VDC	1.5 VDC	0mA	6000mA	50mA	493mA	80
PXE30-24S1P8	18 – 36 VDC	1.8 VDC	0mA	6000mA	35mA	580mA	82
PXE30-24S2P5	18 – 36 VDC	2.5 VDC	0mA	6000mA	45mA	780mA	84
PXE30-24S3P3	18 – 36 VDC	3.3 VDC	0mA	6000mA	50mA	1010mA	86
PXE30-24S05	18 – 36 VDC	5 VDC	0mA	6000mA	50mA	1490mA	88
PXE30-24S12	18 – 36 VDC	12 VDC	0mA	2500mA	80mA	1470mA	89
PXE30-24S15	18 – 36 VDC	15 VDC	0mA	2000mA	90mA	1470mA	89
PXE30-48S1P5	36 – 75 VDC	1.5 VDC	0mA	6000mA	20mA	244mA	81
PXE30-48S1P8	36 – 75 VDC	1.8 VDC	0mA	6000mA	20mA	290mA	83
PXE30-48S2P5	36 – 75 VDC	2.5 VDC	0mA	6000mA	25mA	390mA	85
PXE30-48S3P3	36 – 75 VDC	3.3 VDC	0mA	6000mA	30mA	500mA	87
PXE30-48S05	36 – 75 VDC	5 VDC	0mA	6000mA	35mA	740mA	89
PXE30-48S12	36 – 75 VDC	12 VDC	0mA	2500mA	35mA	730mA	90
PXE30-48S15	36 – 75 VDC	15 VDC	0mA	2000mA	55mA	730mA	90

Note 1. Typical value at nominal input voltage and no load.
Note 2. Maximum value at nominal input voltage and full load.
Note 3. Typical value at nominal input voltage and full load.

Safety and Installation Instruction

Fusing Consideration

Caution: This converter is not internally fused. An input line fuse must always be used.

This encapsulated converter can be used in a wide variety of applications, ranging from simple stand-alone operation to an integrated part of a sophisticated power architecture. For maximum flexibility, internal fusing is not included; however, to achieve maximum safety and system protection, always use an input line fuse. The safety agencies require a slow-blow fuse with maximum rating of 6A. Based on the information provided in this data sheet on Inrush energy and maximum DC input current; the same type of fuse with lower rating can be used. Refer to the fuse manufacturer's data for further information.

MTBF and Reliability

The MTBF of PXE30-xxSxx DC/DC converters has been calculated using:

Bellcore TR-NWT-000332 Case I: 50% stress, Operating Temperature at 40°C (Ground fixed and controlled environment). The resulting figure for MTBF is 1.316×10^6 hours.

MIL-HDBK-217F NOTICE2 FULL LOAD, Operating Temperature at 25°C ℃. The resulting figure for MTBF is 3.465×10^5 hours.