**Freescale Semiconductor**
Technical Data

Document Number: A2T26H165-24S
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RoHS

# RF Power LDMOS Transistor

## N-Channel Enhancement-Mode Lateral MOSFET

This 32 W asymmetrical Doherty RF power LDMOS transistor is designed for cellular base station applications covering the frequency range of 2496 to 2690 MHz.

**2600 MHz**

- Typical Doherty Single-Carrier W-CDMA Performance: $V_{DD}$ = 28 Vdc, $I_{DQA}$ = 400 mA, $V_{GSB}$ = 0.7 Vdc, $P_{out}$ = 32 W Avg., Input Signal PAR = 9.9 dB @ 0.01% Probability on CCDF.

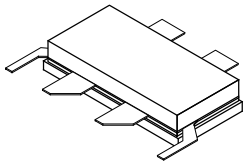
| Frequency | $G_{ps}$ (dB) | $\eta_D$ (%) | Output PAR (dB) | ACPR (dBc) |
|---|---|---|---|---|
| 2496 MHz | 14.7 | 45.4 | 7.8 | –30.1 |
| 2590 MHz | 15.0 | 45.1 | 8.1 | –35.6 |
| 2690 MHz | 15.0 | 45.6 | 7.5 | –37.3 |

**Features**

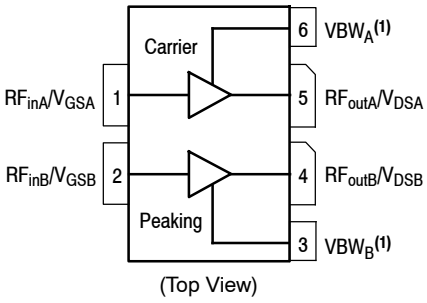
- Advanced High Performance In-Package Doherty
- Greater Negative Gate-Source Voltage Range for Improved Class C Operation
- Designed for Digital Predistortion Error Correction Systems

**A2T26H165-24SR3**

**2496–2690 MHz, 32 W AVG., 28 V AIRFAST RF POWER LDMOS TRANSISTOR**



**NI-780S-4L2L**




(Top View)

**Figure 1. Pin Connections**

1. Device cannot operate with $V_{DD}$ current supplied through pin 3 and pin 6.



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**Table 1. Maximum Ratings**

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DSS}$ | –0.5, +65 | Vdc |
| Gate-Source Voltage | $V_{GS}$ | –6.0, +10 | Vdc |
| Operating Voltage | $V_{DD}$ | 32, +0 | Vdc |
| Storage Temperature Range | $T_{stg}$ | –65 to +150 | °C |
| Case Operating Temperature Range | $T_C$ | –40 to +150 | °C |
| Operating Junction Temperature Range (1,2) | $T_J$ | –40 to +225 | °C |

**Table 2. Thermal Characteristics**

| Characteristic | Symbol | Value (2,3) | Unit |
|---|---|---|---|
| Thermal Resistance, Junction to Case<br>Case Temperature 73°C, 32 W Avg., W-CDMA, 28 Vdc, $I_{DQA}$ = 400 mA, $V_{GSB}$ = 0.7 Vdc, 2590 MHz | $R_{\theta JC}$ | 0.45 | °C/W |

**Table 3. ESD Protection Characteristics**

| Test Methodology | Class |
|---|---|
| Human Body Model (per JESD22-A114) | 2 |
| Machine Model (per EIA/JESD22-A115) | B |
| Charge Device Model (per JESD22-C101) | IV |

**Table 4. Electrical Characteristics** ($T_A$ = 25°C unless otherwise noted)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| **Off Characteristics (4)** | | | | | |
| Zero Gate Voltage Drain Leakage Current ($V_{DS}$ = 65 Vdc, $V_{GS}$ = 0 Vdc) | $I_{DSS}$ | — | — | 10 | μAdc |
| Zero Gate Voltage Drain Leakage Current ($V_{DS}$ = 32 Vdc, $V_{GS}$ = 0 Vdc) | $I_{DSS}$ | — | — | 1 | μAdc |
| Gate-Source Leakage Current ($V_{GS}$ = 5 Vdc, $V_{DS}$ = 0 Vdc) | $I_{GSS}$ | — | — | 1 | μAdc |
| **On Characteristics - Side A, Carrier** | | | | | |
| Gate Threshold Voltage ($V_{DS}$ = 10 Vdc, $I_D$ = 70 μAdc) | $V_{GS(th)}$ | 0.8 | 1.6 | 2.2 | Vdc |
| Gate Quiescent Voltage ($V_{DD}$ = 28 Vdc, $I_D$ = 400 mAdc, Measured in Functional Test) | $V_{GSA(Q)}$ | 2.2 | 2.5 | 3.0 | Vdc |
| Drain-Source On-Voltage ($V_{GS}$ = 10 Vdc, $I_D$ = 700 mAdc) | $V_{DS(on)}$ | 0.1 | 0.15 | 0.3 | Vdc |
| **On Characteristics - Side B, Peaking** | | | | | |
| Gate Threshold Voltage ($V_{DS}$ = 10 Vdc, $I_D$ = 120 μAdc) | $V_{GS(th)}$ | 0.8 | 1.6 | 1.6 | Vdc |
| Drain-Source On-Voltage ($V_{GS}$ = 10 Vdc, $I_D$ = 1200 mAdc) | $V_{DS(on)}$ | 0.1 | 0.15 | 0.3 | Vdc |

1. Continuous use at maximum temperature will affect MTTF.
2. MTTF calculator available at http://www.freescale.com/rf/calculators.
3. Refer to AN1955, *Thermal Measurement Methodology of RF Power Amplifiers.* Go to http://www.freescale.com/rf and search for AN1955.
4. Each side of device measured separately.

(continued)

**Table 4. Electrical Characteristics** ($T_A$ = 25°C unless otherwise noted) **(continued)**

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| **Functional Tests** [1,2] (In Freescale Doherty Test Fixture, 50 ohm system) $V_{DD}$ = 28 Vdc, $I_{DQA}$ = 400 mA, $V_{GSB}$ = 0.7 Vdc, $P_{out}$ = 32 W Avg., f = 2496 MHz, Single-Carrier W-CDMA, IQ Magnitude Clipping, Input Signal PAR = 9.9 dB @ 0.01% Probability on CCDF. ACPR measured in 3.84 MHz Channel Bandwidth @ ±5 MHz Offset. | | | | | |
| Power Gain | $G_{ps}$ | 14.0 | 14.7 | 17.0 | dB |
| Drain Efficiency | $\eta_D$ | 42.0 | 45.4 | — | % |
| Output Peak-to-Average Ratio @ 0.01% Probability on CCDF | PAR | 7.2 | 7.8 | — | dB |
| Adjacent Channel Power Ratio | ACPR | — | –30.1 | –27.0 | dBc |
| **Load Mismatch** [2] (In Freescale Doherty Test Fixture, 50 ohm system) $I_{DQA}$ = 400 mA, $V_{GSB}$ = 0.7 Vdc, f = 2590 MHz, 10 μsec(on), 10% Duty Cycle | | | | | |
| VSWR 10:1 at 32 Vdc, 209 W Pulsed CW Output Power (3 dB Input Overdrive from 155 W Pulsed CW Rated Power) | No Device Degradation | | | | |
| **Typical Performance** [2] (In Freescale Doherty Test Fixture, 50 ohm system) $V_{DD}$ = 28 Vdc, $I_{DQA}$ = 400 mA, $V_{GSB}$ = 0.7 Vdc, 2496–2690 MHz Bandwidth | | | | | |
| $P_{out}$ @ 1 dB Compression Point, CW | P1dB | — | 141 | — | W |
| $P_{out}$ @ 3 dB Compression Point [3] | P3dB | — | 191 | — | W |
| AM/PM (Maximum value measured at the P3dB compression point across the 2496–2690 MHz frequency range) | Φ | — | –28 | — | ° |
| VBW Resonance Point (IMD Third Order Intermodulation Inflection Point) | $VBW_{res}$ | — | 110 | — | MHz |
| Gain Flatness in 194 MHz Bandwidth @ $P_{out}$ = 32 W Avg. | $G_F$ | — | 0.3 | — | dB |
| Gain Variation over Temperature (–30°C to +85°C) | ΔG | — | 0.01 | — | dB/°C |
| Output Power Variation over Temperature (–30°C to +85°C) | ΔP1dB | — | 0.007 | — | dB/°C |

**Table 5. Ordering Information**

| Device | Tape and Reel Information | Package |
|---|---|---|
| A2T26H165-24SR3 | R3 Suffix = 250 Units, 44 mm Tape Width, 13-inch Reel | NI-780S-4L2L |

1. Part internally matched both on input and output.
2. Measurements made with device in an asymmetrical Doherty configuration.
3. P3dB = $P_{avg}$ + 7.0 dB where $P_{avg}$ is the average output power measured using an unclipped W-CDMA single-carrier input signal where output PAR is compressed to 7.0 dB @ 0.01% probability on CCDF.

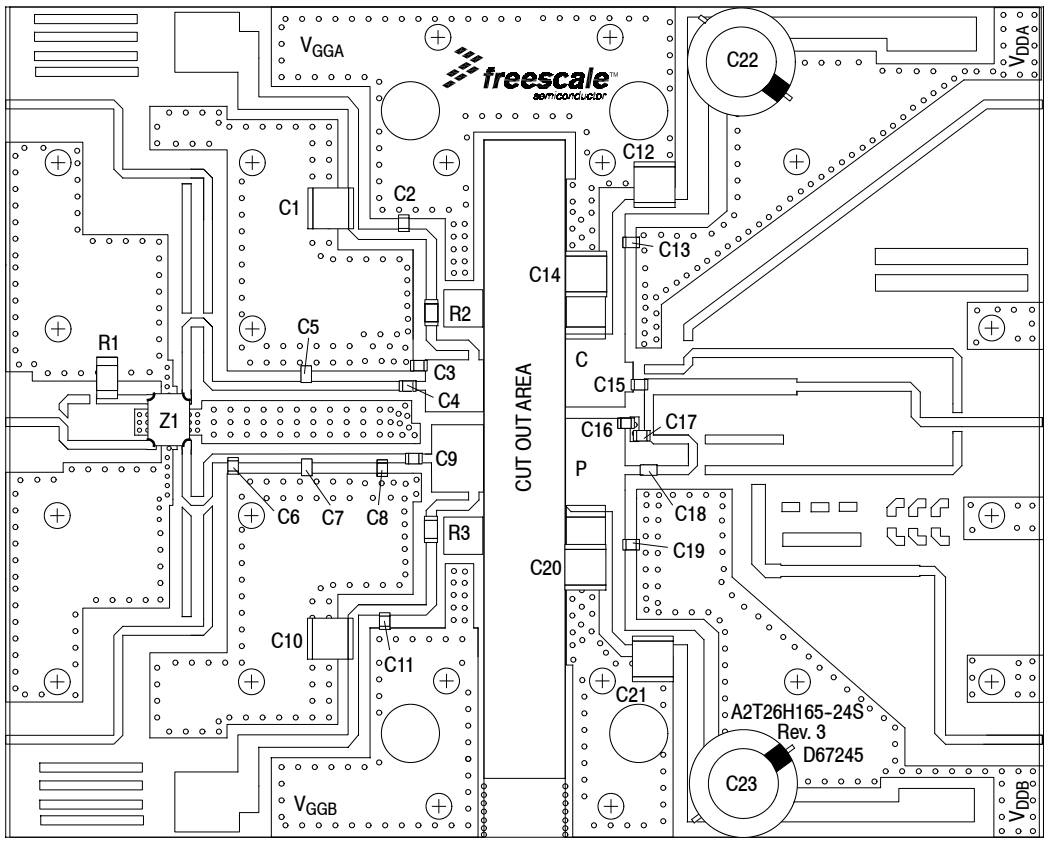



**Figure 2. A2T26H165-24SR3 Test Circuit Component Layout**

**Table 6. A2T26H165-24SR3 Test Circuit Component Designations and Values**

| Part | Description | Part Number | Manufacturer |
|---|---|---|---|
| C1, C10, C12, C14, C20, C21 | 10 μF Chip Capacitors | C5750X7S2A106M230KB | TDK |
| C2, C4, C9 | 7.5 pF Chip Capacitors | ATC600F7R5BT250XT | ATC |
| C3, C5 | 0.5 pF Chip Capacitors | ATC600F0R5BT250XT | ATC |
| C6 | 0.3 pF Chip Capacitor | ATC600F0R3BT250XT | ATC |
| C7 | 0.8 pF Chip Capacitor | ATC600F0R8BT250XT | ATC |
| C8 | 0.7 pF Chip Capacitor | ATC600F0R7BT250XT | ATC |
| C11, C13, C18, C19 | 8.2 pF Chip Capacitors | ATC600F8R2BT250XT | ATC |
| C15 | 5.6 pF Chip Capacitor | ATC600F5R6BT250XT | ATC |
| C16 | 0.9 pF Chip Capacitor | ATC600F0R9BT250XT | ATC |
| C17 | 0.2 pF Chip Capacitor | ATC600F0R2BT250XT | ATC |
| C22, C23 | 470 μF, 63 V Electrolytic Capacitors | MCGPR63V470M | Multicomp |
| R1 | 50 Ω, 10 W Termination | CW12010T0050GBK | ATC |
| R2, R3 | 6.2 Ω, 1/4 W Chip Resistors | CRCW12066R20FKEA | Vishay |
| Z1 | 2300–2700 MHz Band, 90°, 2 dB Hybrid Coupler | X3C25P1-02S | Anaren |
| PCB | Rogers RO4350B, 0.020″, $\varepsilon_r$ = 3.66 | D67245 | MTL |

## TYPICAL CHARACTERISTICS

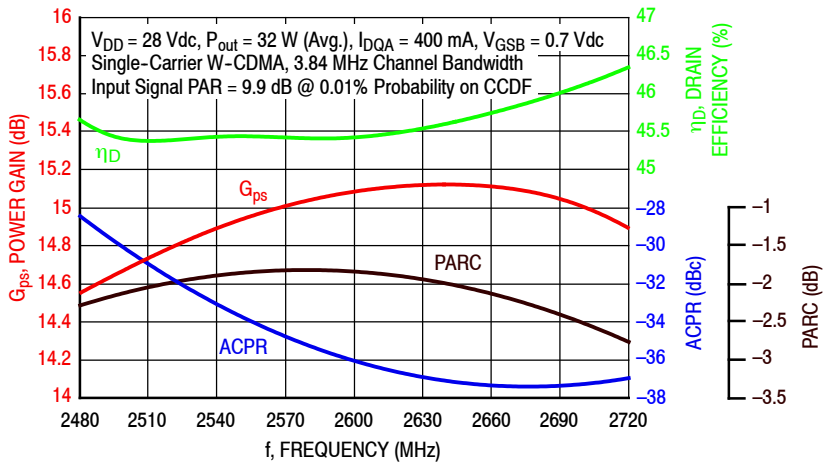



**Figure 3. Single-Carrier Output Peak-to-Average Ratio Compression (PARC) Broadband Performance @ $P_{out}$ = 32 Watts Avg.**

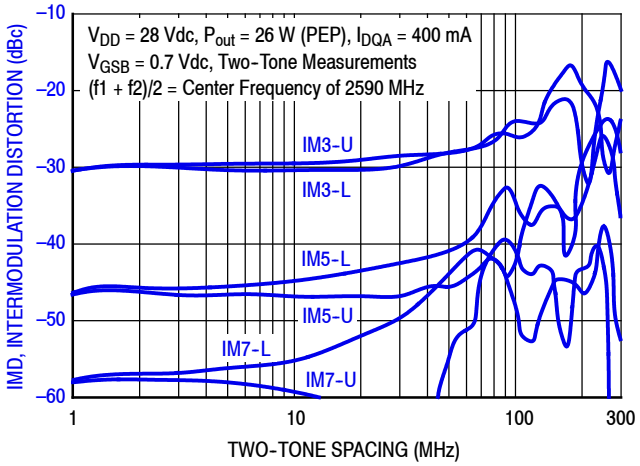



**Figure 4. Intermodulation Distortion Products versus Two-Tone Spacing**

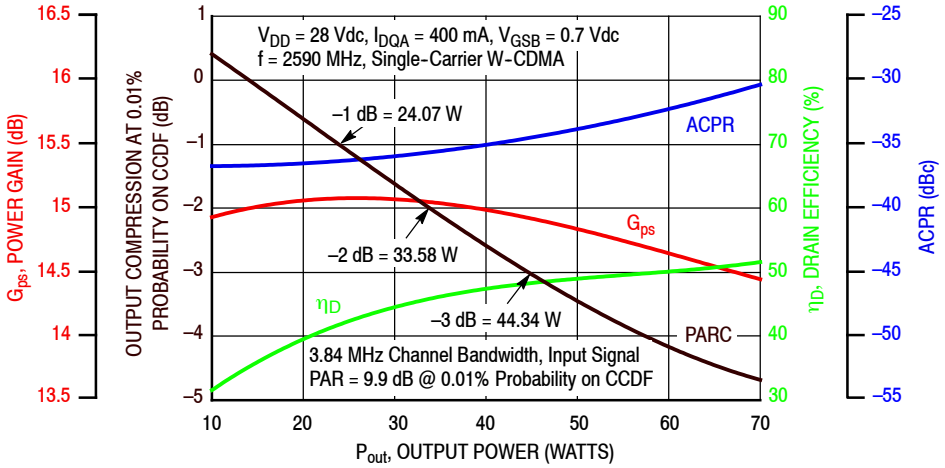



**Figure 5. Output Peak-to-Average Ratio Compression (PARC) versus Output Power**

## TYPICAL CHARACTERISTICS

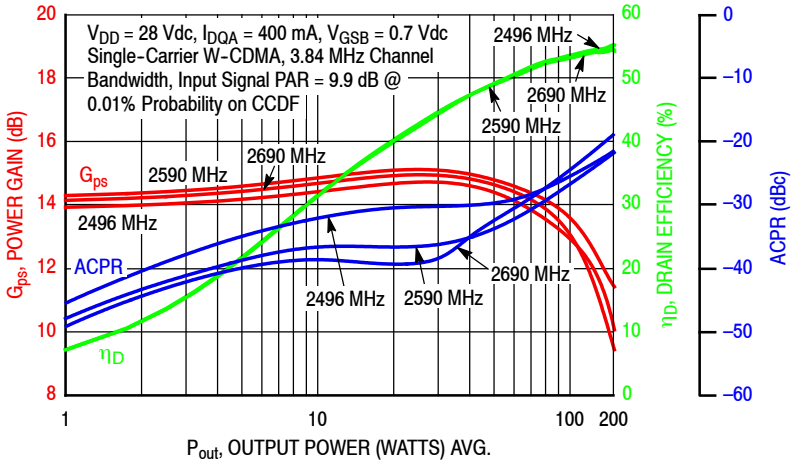



**Figure 6. Single-Carrier W-CDMA Power Gain, Drain Efficiency and ACPR versus Output Power**

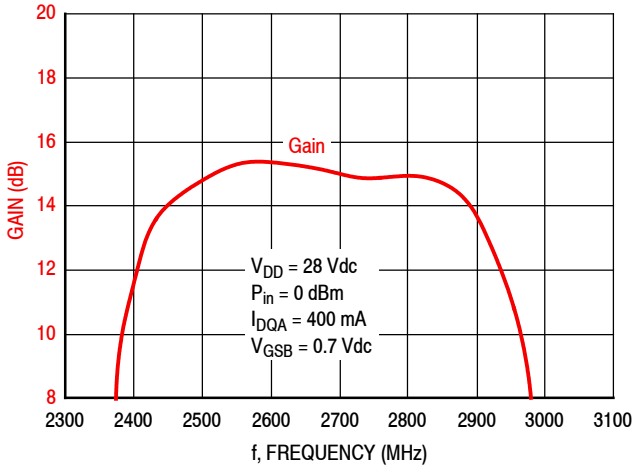



**Figure 7. Broadband Frequency Response**

**Table 7. Carrier Side Load Pull Performance — Maximum Power Tuning**

$V_{DD}$ = 28 Vdc, $I_{DQA}$ = 441 mA, Pulsed CW, 10 μsec(on), 10% Duty Cycle

| | | | Max Output Power | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | P1dB | | | | | |
| f (MHz) | $Z_{source}$ (Ω) | $Z_{in}$ (Ω) | $Z_{load}$ (1) (Ω) | Gain (dB) | (dBm) | (W) | $\eta_D$ (%) | AM/PM (°) |
| 2496 | 2.52 – j13.3 | 2.69 + j12.3 | 4.68 – j10.6 | 16.8 | 49.0 | 80 | 54.5 | –12 |
| 2590 | 3.83 – j13.4 | 3.80 + j12.5 | 4.42 – j11.0 | 17.3 | 49.0 | 79 | 54.0 | –12 |
| 2690 | 6.63 – j12.9 | 6.03 + j11.8 | 4.49 – j12.1 | 17.3 | 49.0 | 80 | 54.7 | –13 |

| | | | Max Output Power | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | P3dB | | | | | |
| f (MHz) | $Z_{source}$ (Ω) | $Z_{in}$ (Ω) | $Z_{load}$ (2) (Ω) | Gain (dB) | (dBm) | (W) | $\eta_D$ (%) | AM/PM (°) |
| 2496 | 2.52 – j13.3 | 2.62 + j12.6 | 4.48 – j11.2 | 14.6 | 49.7 | 94 | 55.5 | –15 |
| 2590 | 3.83 – j13.4 | 3.91 + j12.9 | 4.33 – j11.7 | 15.0 | 49.7 | 94 | 55.0 | –15 |
| 2690 | 6.63 – j12.9 | 6.61 + j12.3 | 4.49 – j12.4 | 15.1 | 49.7 | 94 | 56.0 | –16 |

(1) Load impedance for optimum P1dB power.
(2) Load impedance for optimum P3dB power.
$Z_{source}$ = Measured impedance presented to the input of the device at the package reference plane.
$Z_{in}$ = Impedance as measured from gate contact to ground.
$Z_{load}$ = Measured impedance presented to the output of the device at the package reference plane.

**Table 8. Carrier Load Pull Performance — Maximum Drain Efficiency Tuning**

$V_{DD}$ = 28 Vdc, $I_{DQA}$ = 441 mA, Pulsed CW, 10 μsec(on), 10% Duty Cycle

| | | | Max Drain Efficiency | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | P1dB | | | | | |
| f (MHz) | $Z_{source}$ (Ω) | $Z_{in}$ (Ω) | $Z_{load}$ (1) (Ω) | Gain (dB) | (dBm) | (W) | $\eta_D$ (%) | AM/PM (°) |
| 2496 | 2.52 – j13.3 | 2.86 + j12.5 | 11.2 – j8.23 | 19.9 | 47.1 | 51 | 65.5 | –20 |
| 2590 | 3.83 – j13.4 | 4.00 + j12.5 | 8.89 – j6.75 | 20.4 | 47.1 | 51 | 65.7 | –21 |
| 2690 | 6.63 – j12.9 | 6.11 + j11.6 | 7.24 – j7.37 | 20.3 | 47.2 | 52 | 65.4 | –21 |

| | | | Max Drain Efficiency | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | P3dB | | | | | |
| f (MHz) | $Z_{source}$ (Ω) | $Z_{in}$ (Ω) | $Z_{load}$ (2) (Ω) | Gain (dB) | (dBm) | (W) | $\eta_D$ (%) | AM/PM (°) |
| 2496 | 2.52 – j13.3 | 2.75 + j12.7 | 10.5 – j8.22 | 17.7 | 47.9 | 62 | 66.7 | –26 |
| 2590 | 3.83 – j13.4 | 4.07 + j12.9 | 8.73 – j7.25 | 18.2 | 47.9 | 62 | 66.8 | –26 |
| 2690 | 6.63 – j12.9 | 6.61 + j11.9 | 7.11 – j7.64 | 18.2 | 48.0 | 62 | 66.4 | –27 |

(1) Load impedance for optimum P1dB efficiency.
(2) Load impedance for optimum P3dB efficiency.
$Z_{source}$ = Measured impedance presented to the input of the device at the package reference plane.
$Z_{in}$ = Impedance as measured from gate contact to ground.
$Z_{load}$ = Measured impedance presented to the output of the device at the package reference plane.

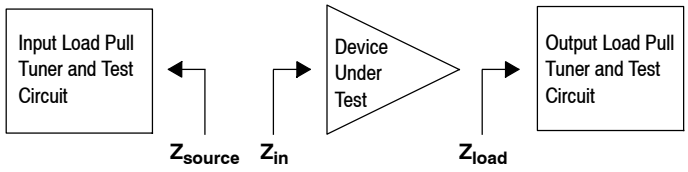


**Table 9. Peaking Side Load Pull Performance — Maximum Power Tuning**

$V_{DD}$ = 28 Vdc, $V_{GSB}$ = 0.6 Vdc, Pulsed CW, 10 μsec(on), 10% Duty Cycle

| | | | Max Output Power | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | P1dB | | | | | |
| f (MHz) | $Z_{source}$ (Ω) | $Z_{in}$ (Ω) | $Z_{load}$ (1) (Ω) | Gain (dB) | (dBm) | (W) | $\eta_D$ (%) | AM/PM (°) |
| 2496 | 4.38 – j16.1 | 4.48 + j16.2 | 3.21 – j10.5 | 13.4 | 51.2 | 131 | 54.4 | –29 |
| 2590 | 9.10 – j16.7 | 8.22 + j16.7 | 2.85 – j10.4 | 13.4 | 51.1 | 129 | 52.0 | –30 |
| 2690 | 14.3 – j9.20 | 14.6 + j10.3 | 2.86 – j11.6 | 13.4 | 51.2 | 133 | 52.9 | –30 |

| | | | Max Output Power | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | P3dB | | | | | |
| f (MHz) | $Z_{source}$ (Ω) | $Z_{in}$ (Ω) | $Z_{load}$ (2) (Ω) | Gain (dB) | (dBm) | (W) | $\eta_D$ (%) | AM/PM (°) |
| 2496 | 4.38 – j16.1 | 4.89 + j16.8 | 3.09 – j10.9 | 11.3 | 52.0 | 158 | 55.9 | –35 |
| 2590 | 9.10 – j16.7 | 9.59 + j17.1 | 2.90 – j11.5 | 11.1 | 51.9 | 155 | 52.4 | –35 |
| 2690 | 14.3 – j9.20 | 15.5 + j8.33 | 2.81 – j11.9 | 11.2 | 52.0 | 159 | 53.6 | –35 |

(1) Load impedance for optimum P1dB power.
(2) Load impedance for optimum P3dB power.
$Z_{source}$ = Measured impedance presented to the input of the device at the package reference plane.
$Z_{in}$ = Impedance as measured from gate contact to ground.
$Z_{load}$ = Measured impedance presented to the output of the device at the package reference plane.

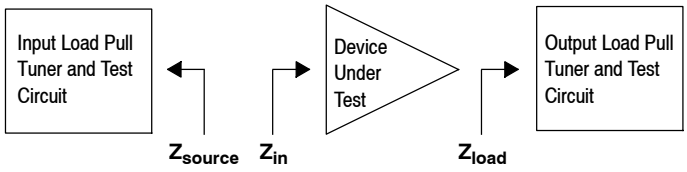
**Table 10. Peaking Side Load Pull Performance — Maximum Drain Efficiency Tuning**

$V_{DD}$ = 28 Vdc, $V_{GSB}$ = 0.6 Vdc, Pulsed CW, 10 μsec(on), 10% Duty Cycle

| | | | Max Drain Efficiency | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | P1dB | | | | | |
| f (MHz) | $Z_{source}$ (Ω) | $Z_{in}$ (Ω) | $Z_{load}$ (1) (Ω) | Gain (dB) | (dBm) | (W) | $\eta_D$ (%) | AM/PM (°) |
| 2496 | 4.38 – j16.1 | 4.03 + j16.3 | 7.25 – j9.48 | 14.5 | 49.7 | 94 | 62.3 | –37 |
| 2590 | 9.10 – j16.7 | 7.54 + j17.0 | 6.65 – j9.17 | 14.4 | 49.8 | 95 | 61.3 | –36 |
| 2690 | 14.3 – j9.20 | 14.3 + j12.1 | 5.07 – j8.46 | 14.5 | 49.7 | 94 | 62.5 | –38 |

| | | | Max Drain Efficiency | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | P3dB | | | | | |
| f (MHz) | $Z_{source}$ (Ω) | $Z_{in}$ (Ω) | $Z_{load}$ (2) (Ω) | Gain (dB) | (dBm) | (W) | $\eta_D$ (%) | AM/PM (°) |
| 2496 | 4.38 – j16.1 | 4.51 + j16.8 | 6.38 – j9.88 | 12.4 | 50.7 | 119 | 63.3 | –43 |
| 2590 | 9.10 – j16.7 | 8.95 + j17.5 | 6.25 – j9.36 | 12.4 | 50.6 | 116 | 62.4 | –43 |
| 2690 | 14.3 – j9.20 | 15.7 + j9.51 | 5.31 – j9.68 | 12.4 | 50.8 | 121 | 62.6 | –42 |

(1) Load impedance for optimum P1dB efficiency.
(2) Load impedance for optimum P3dB efficiency.
$Z_{source}$ = Measured impedance presented to the input of the device at the package reference plane.
$Z_{in}$ = Impedance as measured from gate contact to ground.
$Z_{load}$ = Measured impedance presented to the output of the device at the package reference plane.



## P1dB – TYPICAL CARRIER LOAD PULL CONTOURS — 2590 MHz

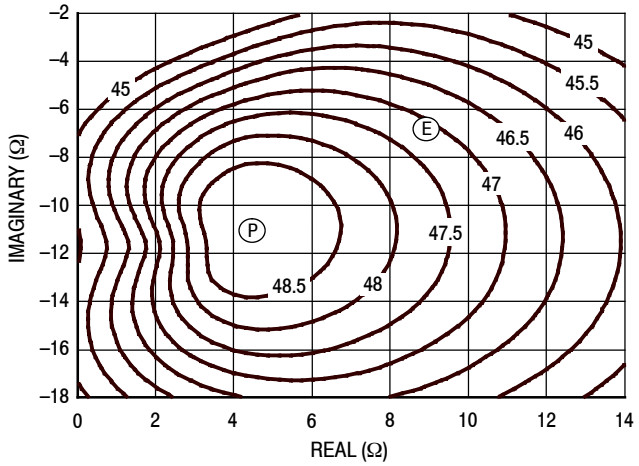



**Figure 8. P1dB Load Pull Output Power Contours (dBm)**

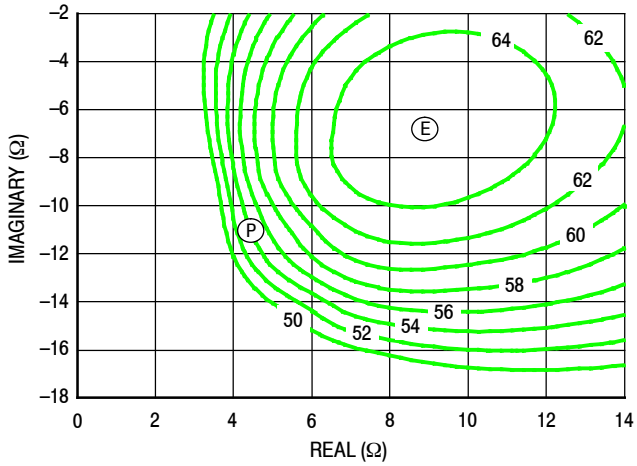



**Figure 9. P1dB Load Pull Efficiency Contours (%)**

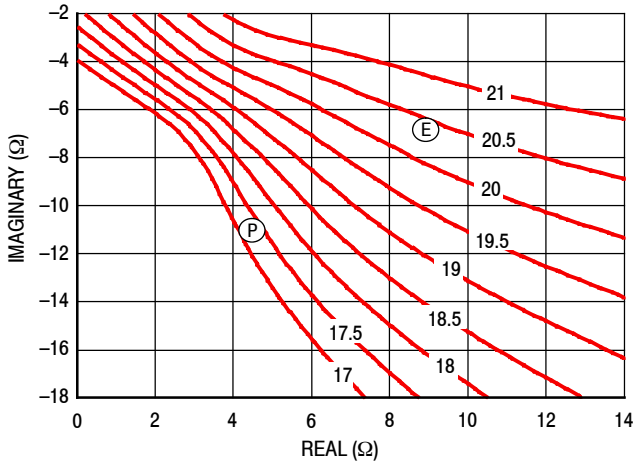



**Figure 10. P1dB Load Pull Gain Contours (dB)**

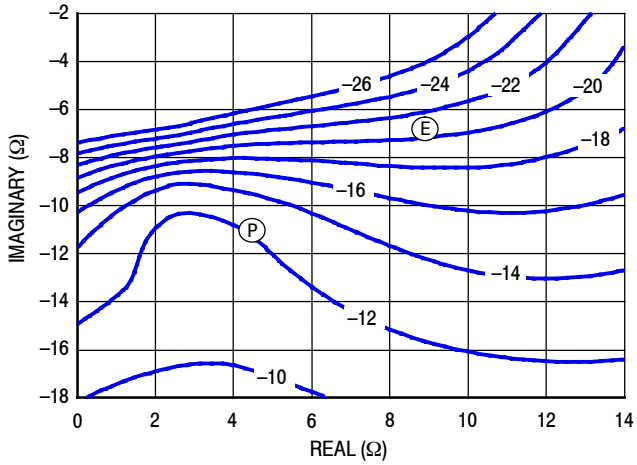



**Figure 11. P1dB Load Pull AM/PM Contours (°)**

**NOTE:** Ⓟ = Maximum Output Power

Ⓔ = Maximum Drain Efficiency

Gain

Drain Efficiency

Linearity

Output Power

## P3dB – TYPICAL CARRIER LOAD PULL CONTOURS — 2590 MHz

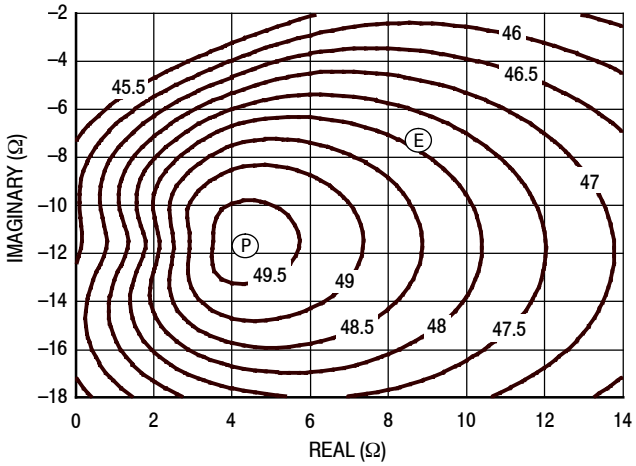



**Figure 12. P3dB Load Pull Output Power Contours (dBm)**

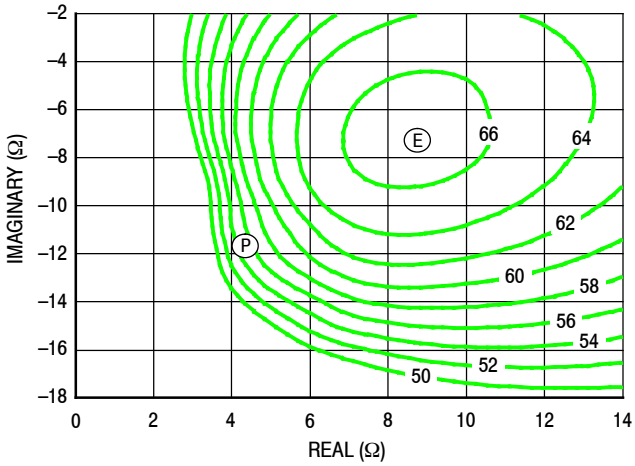



**Figure 13. P3dB Load Pull Efficiency Contours (%)**

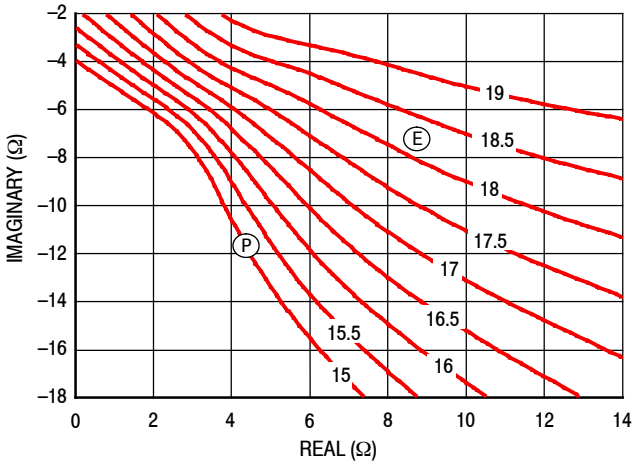



**Figure 14. P3dB Load Pull Gain Contours (dB)**

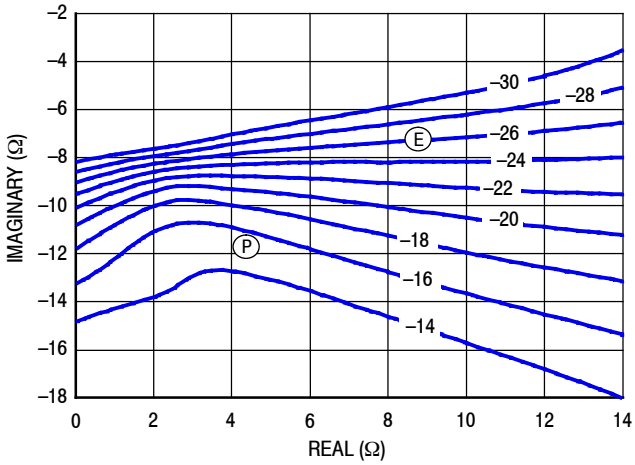



**Figure 15. P3dB Load Pull AM/PM Contours (°)**

**NOTE:** Ⓟ = Maximum Output Power

Ⓔ = Maximum Drain Efficiency

Gain

Drain Efficiency

Linearity

Output Power

## P1dB – TYPICAL PEAKING LOAD PULL CONTOURS — 2590 MHz

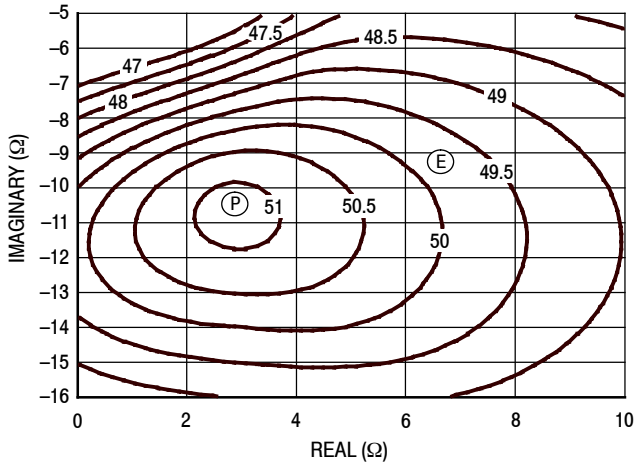



**Figure 16. P1dB Load Pull Output Power Contours (dBm)**

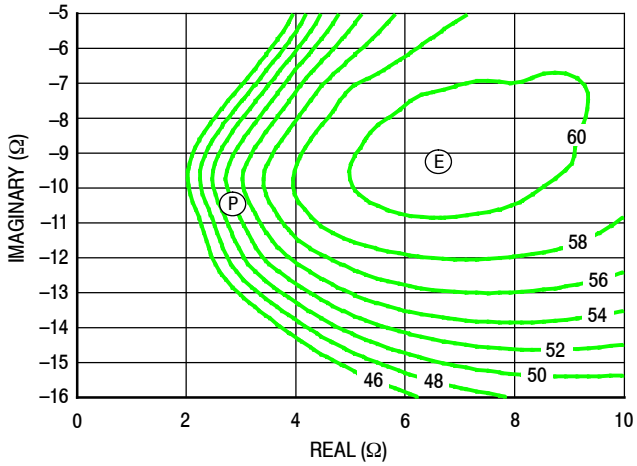



**Figure 17. P1dB Load Pull Efficiency Contours (%)**

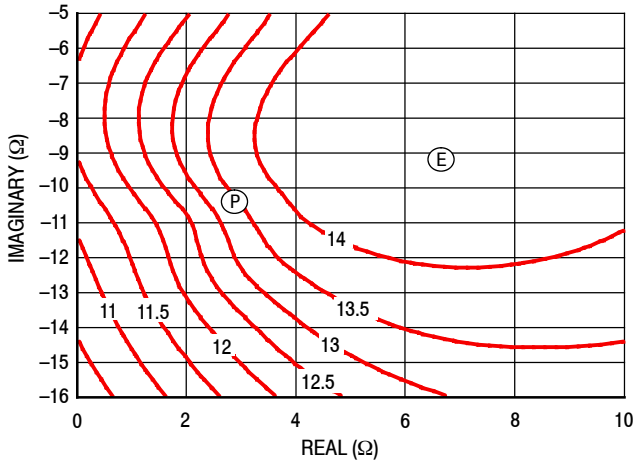



**Figure 18. P1dB Load Pull Gain Contours (dB)**

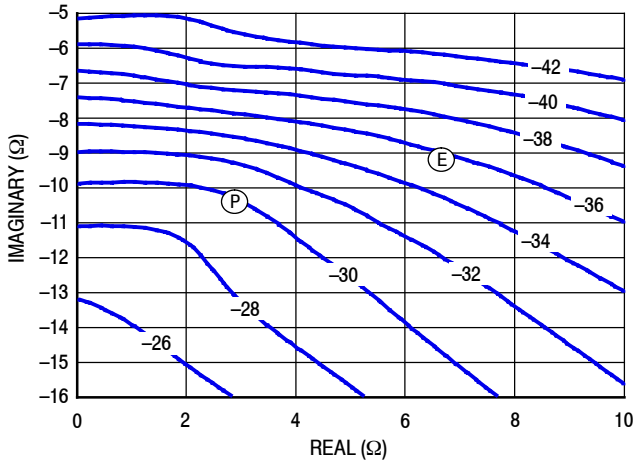



**Figure 19. P1dB Load Pull AM/PM Contours (°)**

**NOTE:** Ⓟ = Maximum Output Power

Ⓔ = Maximum Drain Efficiency

Gain

Drain Efficiency

Linearity

Output Power

## P3dB – TYPICAL PEAKING LOAD PULL CONTOURS — 2590 MHz

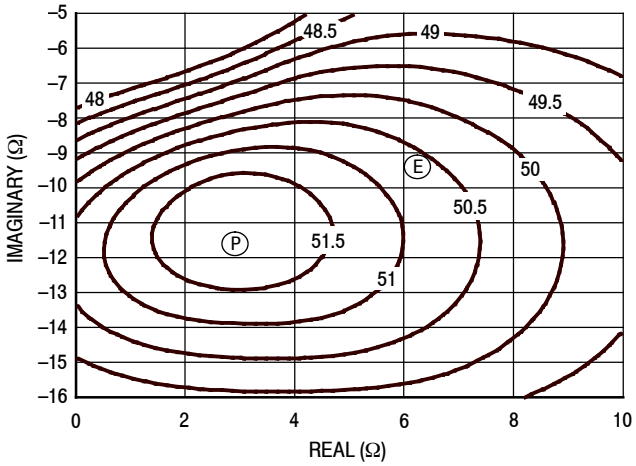



**Figure 20. P3dB Load Pull Output Power Contours (dBm)**

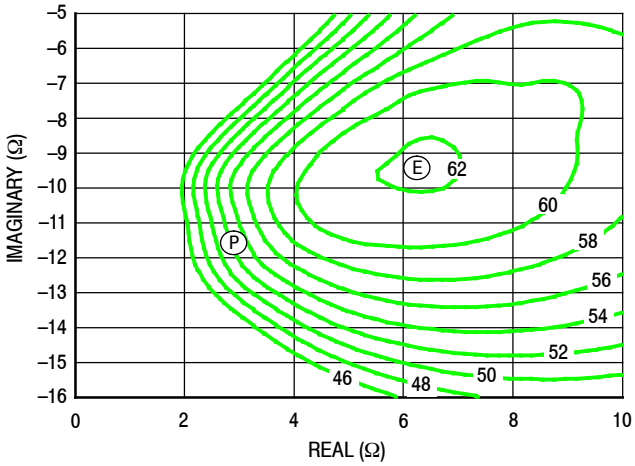



**Figure 21. P3dB Load Pull Efficiency Contours (%)**

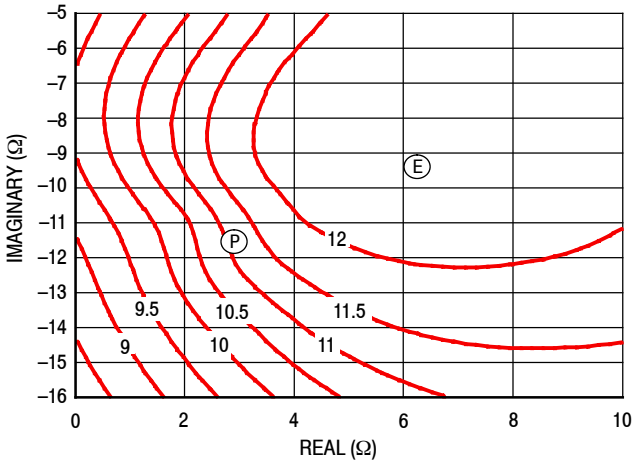



**Figure 22. P3dB Load Pull Gain Contours (dB)**

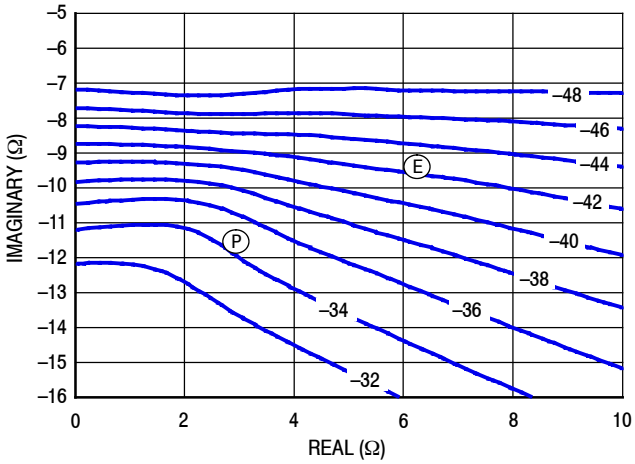



**Figure 23. P3dB Load Pull AM/PM Contours (°)**

**NOTE:** Ⓟ = Maximum Output Power

Ⓔ = Maximum Drain Efficiency

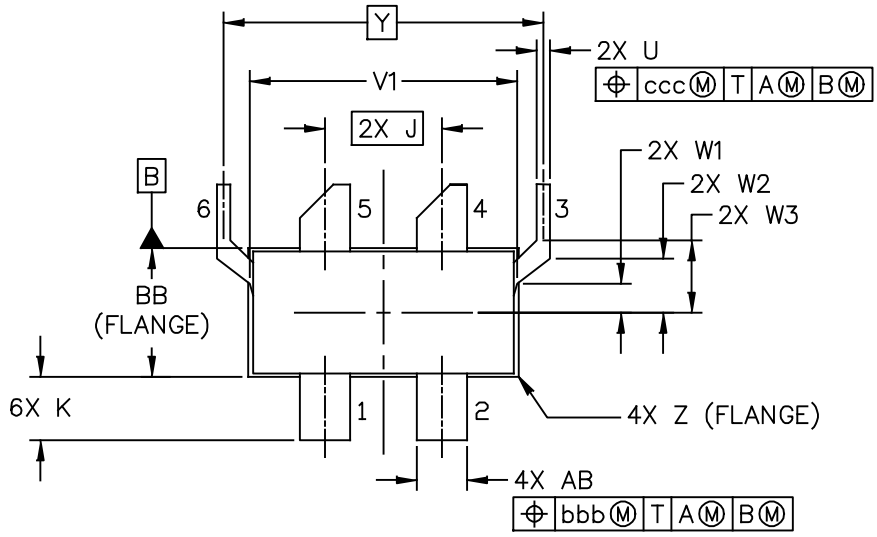
Gain

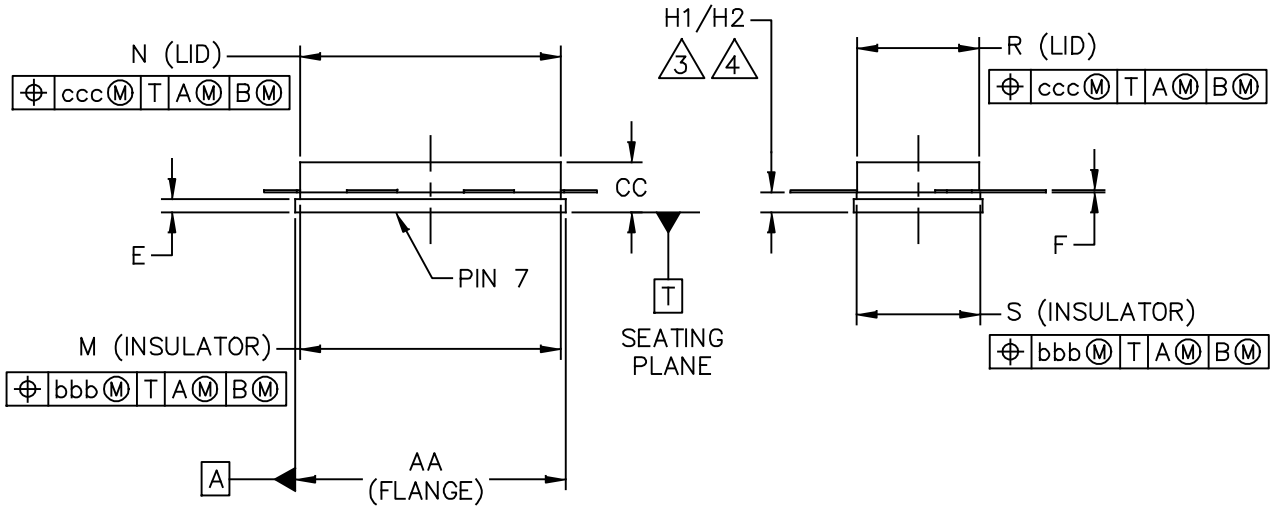
Drain Efficiency

Linearity

Output Power

## PACKAGE DIMENSIONS

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| | STANDARD: NON-JEDEC | |
| | 16 JAN 2014 | |

NOTES:

1. CONTROLLING DIMENSION: INCH.
2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M–1994.
3. DIMENSIONS H1 AND H2 ARE MEASURED .030 INCH (0.762 MM) AWAY FROM FLANGE PARALLEL TO DATUM B. H1 APPLIES TO PINS 1, 2, 4 & 5. H2 APPLIES TO PINS 3 & 6.
4. TOLERANCE OF DIMENSION H2 IS TENTATIVE.

| DIM | INCH MIN | INCH MAX | MILLIMETER MIN | MILLIMETER MAX | DIM | INCH MIN | INCH MAX | MILLIMETER MIN | MILLIMETER MAX |
|---|---|---|---|---|---|---|---|---|---|
| AA | .805 | .815 | 20.45 | 20.70 | R | .365 | .375 | 9.27 | 9.53 |
| BB | .380 | .390 | 9.65 | 9.91 | S | .365 | .375 | 9.27 | 9.53 |
| CC | .125 | .170 | 3.18 | 4.32 | U | .035 | .045 | 0.89 | 1.14 |
| E | .035 | .045 | 0.89 | 1.14 | V1 | .795 | .805 | 20.19 | 20.45 |
| F | .004 | .007 | 0.10 | 0.18 | W1 | .080 | .090 | 2.03 | 2.29 |
| H1 | .057 | .067 | 1.45 | 1.70 | W2 | .155 | .165 | 3.94 | 4.19 |
| H2 | .054 | .070 | 1.37 | 1.78 | W3 | .210 | .220 | 5.33 | 5.59 |
| J | .350 BSC | | 8.89 BSC | | Y | .956 BSC | | 24.28 BSC | |
| K | .170 | .210 | 4.32 | 5.33 | Z | R.000 | R.040 | R0.00 | R1.02 |
| M | .774 | .786 | 19.66 | 19.96 | AB | .145 | .155 | 3.68 | 3.94 |
| N | .772 | .788 | 19.61 | 20.02 | aaa | .005 | | 0.13 | |
| | | | | | bbb | .010 | | 0.25 | |
| | | | | | ccc | .015 | | 0.38 | |



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## PRODUCT DOCUMENTATION, SOFTWARE AND TOOLS

Refer to the following resources to aid your design process.

**Application Notes**

- AN1955: Thermal Measurement Methodology of RF Power Amplifiers

**Engineering Bulletins**

- EB212: Using Data Sheet Impedances for RF LDMOS Devices

**Software**

- Electromigration MTTF Calculator
- RF High Power Model
- s2p File

**Development Tools**

- Printed Circuit Boards

**To Download Resources Specific to a Given Part Number:**

1. Go to http://www.freescale.com/rf
2. Search by part number
3. Click part number link
4. Choose the desired resource from the drop down menu

## REVISION HISTORY

The following table summarizes revisions to this document.

| Revision | Date | Description |
|---|---|---|
| 0 | Dec. 2015 | • Initial Release of Data Sheet |

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