

RF Power LDMOS Transistor

N-Channel Enhancement-Mode Lateral MOSFET

This 79 W RF power LDMOS transistor is designed for cellular base station applications covering the frequency range of 716 to 960 MHz.

900 MHz

- Typical Single-Carrier W-CDMA Performance: $V_{DD} = 48$ Vdc, $I_{DQ(A+B)} = 1200$ mA, $P_{out} = 79$ W Avg., Input Signal PAR = 9.9 dB @ 0.01% Probability on CCDF.

Frequency	G_{ps} (dB)	η_D (%)	Output PAR (dB)	ACPR (dBc)	IRL (dB)
920 MHz	21.5	34.4	7.1	-34.6	-13
940 MHz	21.6	34.7	7.0	-33.5	-14
960 MHz	21.5	34.7	6.8	-33.6	-14

800 MHz

- Typical Single-Carrier W-CDMA Performance: $V_{DD} = 48$ Vdc, $I_{DQ(A+B)} = 1200$ mA, $P_{out} = 79$ W Avg., Input Signal PAR = 9.9 dB @ 0.01% Probability on CCDF.

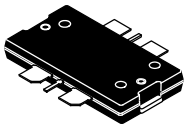
Frequency	G_{ps} (dB)	η_D (%)	Output PAR (dB)	ACPR (dBc)	IRL (dB)
790 MHz	21.4	35.3	7.2	-35.1	-18
806 MHz	21.6	35.7	7.1	-34.5	-19
821 MHz	21.6	36.0	6.9	-34.3	-16

Features

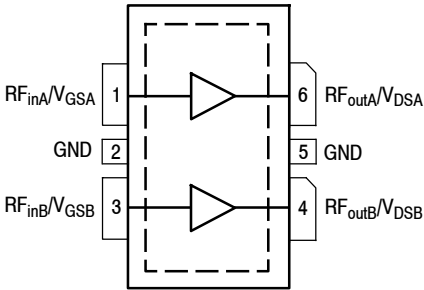
- Greater Negative Gate-Source Voltage Range for Improved Class C Operation
- Designed for Digital Predistortion Error Correction Systems
- Optimized for Doherty Applications

A2T09VD300NR1

**716–960 MHz, 79 W AVG., 48 V
AIRFAST RF POWER LDMOS
TRANSISTOR**



**TO-270WB-6A
PLASTIC**



(Top View)

Note: Exposed backside of the package is the source terminal for the transistors.

Figure 1. Pin Connections

Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain–Source Voltage	V_{DS}	–0.5, +105	Vdc
Gate–Source Voltage	V_{GS}	–6.0, +10	Vdc
Operating Voltage	V_{DD}	55, +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 Case Temperature 98°C, 79 W CW, 48 Vdc, $I_{DQ(A+B)} = 1200$ mA, 940 MHz	$R_{\theta JC}$	0.66	°C/W

Table 3. ESD Protection Characteristics

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

Table 4. Moisture Sensitivity Level

Test Methodology	Rating	Package Peak Temperature	Unit
Per JESD22-A113, IPC/JEDEC J-STD-020	3	260	°C

Table 5. Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
----------------	--------	-----	-----	-----	------

Off Characteristics⁽⁴⁾

Zero Gate Voltage Drain Leakage Current ($V_{DS} = 105$ Vdc, $V_{GS} = 0$ Vdc)	I_{DSS}	—	—	10	μAdc
Zero Gate Voltage Drain Leakage Current ($V_{DS} = 55$ 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⁽⁴⁾

Gate Threshold Voltage ($V_{DS} = 10$ Vdc, $I_D = 116$ μAdc)	$V_{GS(th)}$	1.3	1.8	2.3	Vdc
Gate Quiescent Voltage ($V_{DS} = 48$ Vdc, $I_{DQ(A+B)} = 1200$ mAdc)	$V_{GS(Q)}$	—	2.5	—	Vdc
Fixture Gate Quiescent Voltage ⁽⁵⁾ ($V_{DD} = 48$ Vdc, $I_{DQ(A+B)} = 1200$ mAdc, Measured in Functional Test)	$V_{GG(Q)}$	4.0	5.0	6.0	Vdc
Drain–Source On–Voltage ($V_{GS} = 10$ Vdc, $I_D = 1.16$ Adc)	$V_{DS(on)}$	0.1	0.21	0.5	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.
5. $V_{GG} = 2 \times V_{GS(Q)}$. Parameter measured on Freescale Test Fixture, due to resistor divider network on the board. Refer to Test Fixture Layout.

(continued)

Table 5. Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted) (continued)

Characteristic	Symbol	Min	Typ	Max	Unit
Functional Tests ^(1,2) (In Freescale Test Fixture, 50 ohm system) $V_{DD} = 48\text{ Vdc}$, $I_{DQ(A+B)} = 1200\text{ mA}$, $P_{out} = 79\text{ W Avg.}$, $f = 920\text{ MHz}$, 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 @ $\pm 5\text{ MHz}$ Offset.					
Power Gain	G_{ps}	20.0	21.5	23.0	dB
Drain Efficiency	η_D	31.5	34.4	—	%
Output Peak-to-Average Ratio @ 0.01% Probability on CCDF	PAR	6.6	7.1	—	dB
Adjacent Channel Power Ratio	ACPR	—	-34.6	-32.0	dBc
Input Return Loss	IRL	—	-13	-10	dB

Load Mismatch (In Freescale Test Fixture, 50 ohm system) $I_{DQ(A+B)} = 1200\text{ mA}$, $f = 940\text{ MHz}$, 12 $\mu\text{sec}(\text{on})$, 10% Cycle

VSWR 10:1 at 52 Vdc, 420 W Pulsed CW Output Power (3 dB Input Overdrive from 363 W Pulsed CW Rated Power)	No Device Degradation
--	-----------------------

Typical Performance (In Freescale Test Fixture, 50 ohm system) $V_{DD} = 48\text{ Vdc}$, $I_{DQ(A+B)} = 1200\text{ mA}$, 920–960 MHz Bandwidth

P_{out} @ 1 dB Compression Point, CW	P1dB	—	250	—	W
P_{out} @ 3 dB Compression Point ⁽³⁾	P3dB	—	398	—	W
AM/PM (Maximum value measured at the P3dB compression point across the 920–960 MHz frequency range)	Φ	—	-19	—	°
VBW Resonance Point (IMD Third Order Intermodulation Inflection Point)	VBW _{res}	—	90	—	MHz
Gain Flatness in 40 MHz Bandwidth @ $P_{out} = 79\text{ W Avg.}$	G_F	—	0.5	—	dB
Gain Variation over Temperature (-30°C to +85°C)	ΔG	—	0.012	—	dB/°C
Output Power Variation over Temperature (-30°C to +85°C)	$\Delta P1dB$	—	0.001	—	dB/°C

Table 6. Ordering Information

Device	Tape and Reel Information	Package
A2T09VD300NR1	R1 Suffix = 500 Units, 44 mm Tape Width, 13-inch Reel	TO-270WB-6A

- Part internally input matched.
- Measurement made with device in single-ended configuration.
- P3dB = $P_{avg} + 7.0\text{ dB}$ 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.

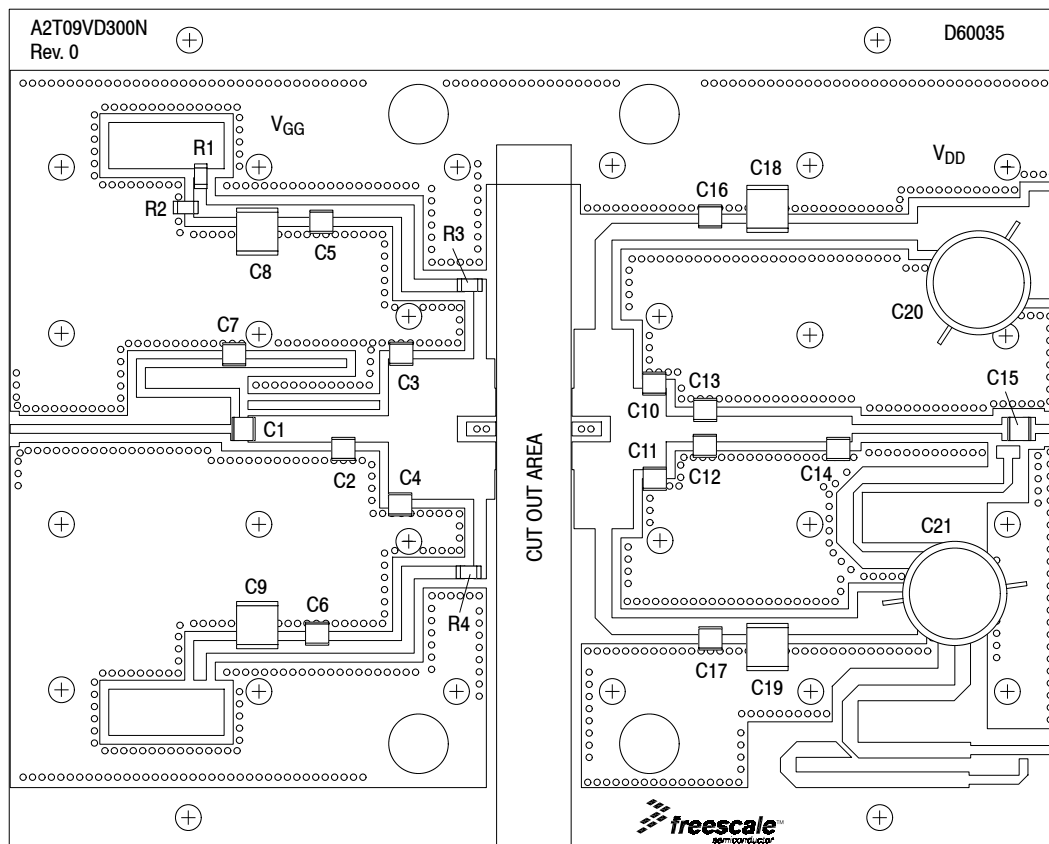


Figure 2. A2T09VD300NR1 Test Circuit Component Layout

Table 7. A2T09VD300NR1 Test Circuit Component Designations and Values

Part	Description	Part Number	Manufacturer
C1, C3, C4	3.3 pF Chip Capacitors	ATC800B3R3BT500XT	ATC
C2	2.7 pF Chip Capacitor	ATC800B2R7BT500XT	ATC
C5, C6, C7, C15, C16, C17	47 pF Chip Capacitors	ATC800B470JT500XT	ATC
C8, C9	1 μ F Chip Capacitors	C5750X7R2A105K230KM	TDK
C10, C11	15 pF Chip Capacitors	ATC800B150JT500XT	ATC
C12, C13	3 pF Chip Capacitors	ATC800B3R0BT500XT	ATC
C14	5.6 pF Chip Capacitor	ATC800B5R6BT500XT	ATC
C18, C19	10 μ F Chip Capacitors	C5750X7S2A106M230KB	TDK
C20, C21	220 μ F, 100 V Electrolytic Capacitors	MCGPR100V227M16X26-RH	Multicomp
R1, R2	1000 Ω , 1/4 W Chip Resistors	CRCW12061K00FKEA	Vishay
R3, R4	10 Ω , 1/4 W Chip Resistors	CRCW120610R0JNEA	Vishay
PCB	Rogers RO4350B, 0.020", $\epsilon_r = 3.66$	D60035	MTL

TYPICAL CHARACTERISTICS

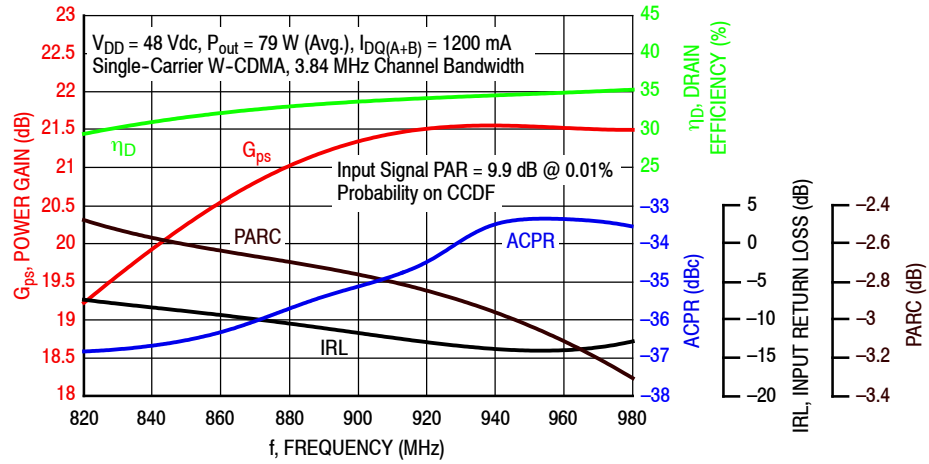


Figure 3. Single-Carrier Output Peak-to-Average Ratio Compression (PARC) Broadband Performance @ $P_{out} = 79$ Watts Avg.

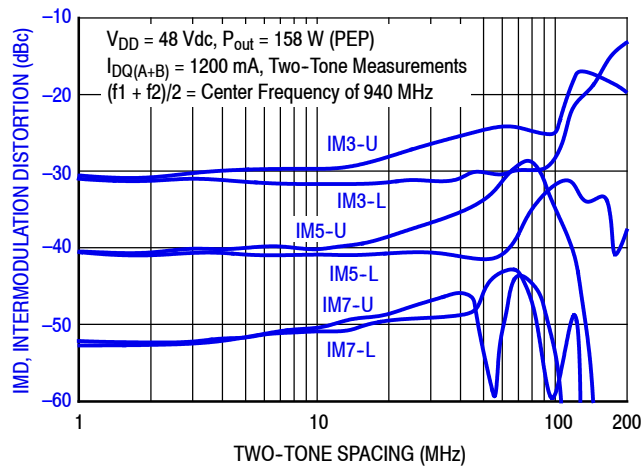


Figure 4. Intermodulation Distortion Products versus Two-Tone Spacing

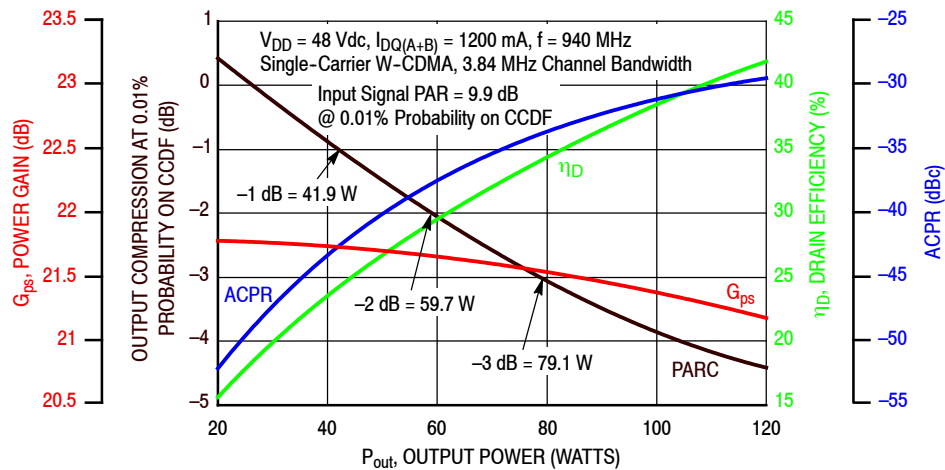


Figure 5. Output Peak-to-Average Ratio Compression (PARC) versus Output Power

TYPICAL CHARACTERISTICS

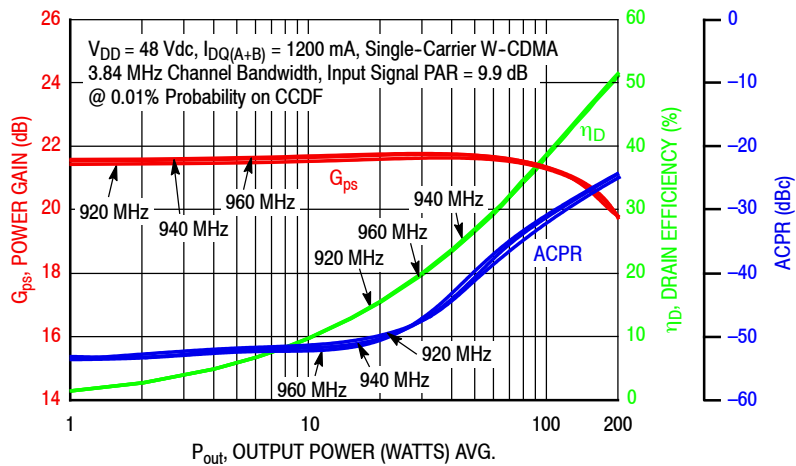


Figure 6. Single-Carrier W-CDMA Power Gain, Drain Efficiency and ACPR versus Output Power

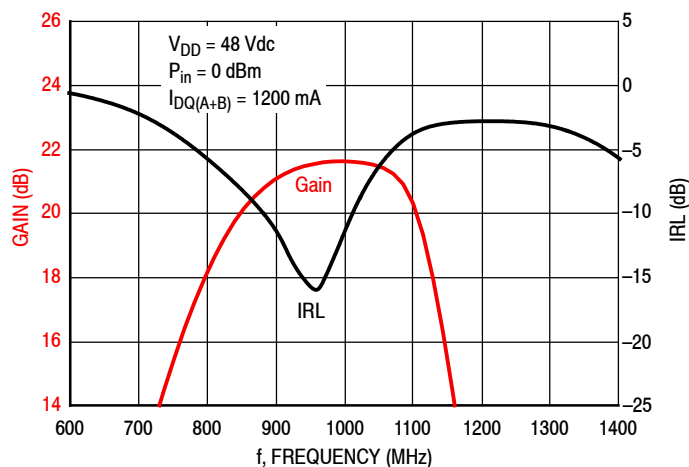


Figure 7. Broadband Frequency Response

Table 8. Single Side Load Pull Performance — Maximum Power Tuning
 $V_{DD} = 48 \text{ Vdc}$, $I_{DQ} = 582 \text{ mA}$, Pulsed CW, 10 $\mu\text{sec}(\text{on})$, 10% Duty Cycle

f (MHz)	Z_{source} (Ω)	Z_{in} (Ω)	Max Output Power					
			P1dB					
			$Z_{\text{load}}^{(1)}$ (Ω)	Gain (dB)	(dBm)	(W)	η_D (%)	AM/PM (°)
920	$2.52 - j4.77$	$2.79 + j5.52$	$2.53 + j0.15$	20.3	53.1	202	60.0	-13
940	$2.87 - j5.36$	$2.92 + j6.17$	$2.46 - j0.13$	20.3	53.1	202	60.3	-12
960	$3.52 - j5.36$	$2.87 + j6.65$	$2.24 - j0.21$	20.3	53.0	200	60.3	-11

f (MHz)	Z_{source} (Ω)	Z_{in} (Ω)	Max Output Power					
			P3dB					
			$Z_{\text{load}}^{(2)}$ (Ω)	Gain (dB)	(dBm)	(W)	η_D (%)	AM/PM (°)
920	$2.52 - j4.77$	$2.58 + j5.79$	$2.76 - j0.03$	18.1	53.8	239	61.3	-18
940	$2.87 - j5.36$	$2.68 + j6.48$	$2.68 - j0.25$	18.2	53.8	238	61.5	-17
960	$3.52 - j5.36$	$2.65 + j7.01$	$2.60 - j0.48$	18.1	53.7	236	60.8	-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 9. Single Side Load Pull Performance — Maximum Drain Efficiency Tuning
 $V_{DD} = 48 \text{ Vdc}$, $I_{DQ} = 582 \text{ mA}$, Pulsed CW, 10 $\mu\text{sec}(\text{on})$, 10% Duty Cycle

f (MHz)	Z_{source} (Ω)	Z_{in} (Ω)	Max Drain Efficiency					
			P1dB					
			$Z_{\text{load}}^{(1)}$ (Ω)	Gain (dB)	(dBm)	(W)	η_D (%)	AM/PM (°)
920	$2.52 - j4.77$	$2.43 + j5.57$	$1.96 + j2.30$	22.7	50.9	124	70.1	-18
940	$2.87 - j5.36$	$2.56 + j6.19$	$1.89 + j2.08$	22.8	50.8	121	70.8	-18
960	$3.52 - j5.36$	$2.55 + j6.68$	$1.83 + j1.71$	22.4	51.0	125	70.2	-16

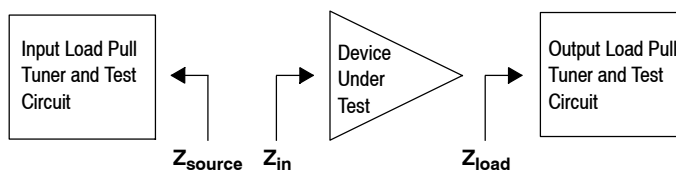
f (MHz)	Z_{source} (Ω)	Z_{in} (Ω)	Max Drain Efficiency					
			P3dB					
			$Z_{\text{load}}^{(2)}$ (Ω)	Gain (dB)	(dBm)	(W)	η_D (%)	AM/PM (°)
920	$2.52 - j4.77$	$2.37 + j5.85$	$2.31 + j1.99$	20.3	52.3	170	71.6	-25
940	$2.87 - j5.36$	$2.45 + j6.49$	$2.15 + j1.71$	20.3	52.2	167	71.5	-25
960	$3.52 - j5.36$	$2.42 + j7.01$	$2.02 + j1.46$	20.2	52.2	165	71.2	-24

(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 LOAD PULL CONTOURS — 940 MHz

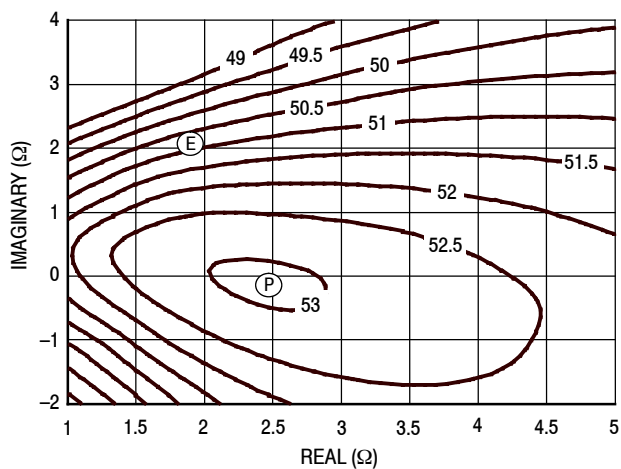


Figure 8. P1dB Load Pull Output Power Contours (dBm)

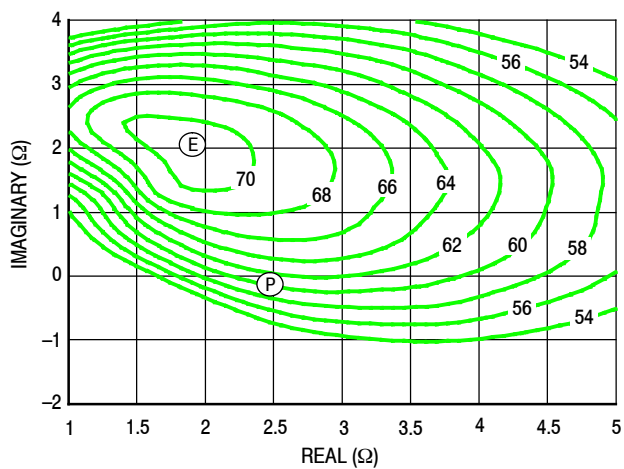


Figure 9. P1dB Load Pull Efficiency Contours (%)

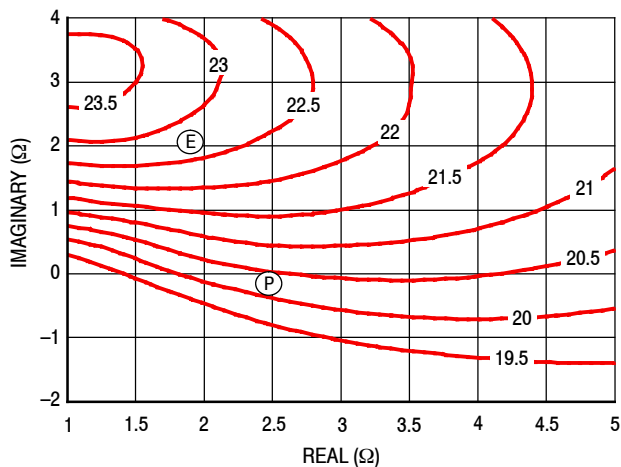


Figure 10. P1dB Load Pull Gain Contours (dB)

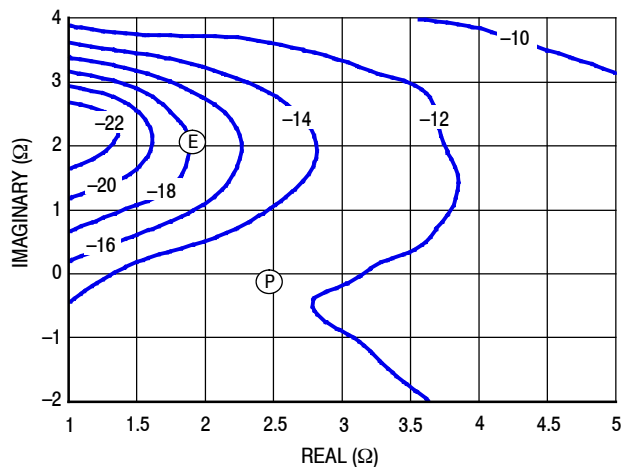


Figure 11. P1dB Load Pull AM/PM Contours (°)

NOTE: (P) = Maximum Output Power
(E) = Maximum Drain Efficiency

- Gain
- Drain Efficiency
- Linearity
- Output Power

P3dB – TYPICAL LOAD PULL CONTOURS — 940 MHz

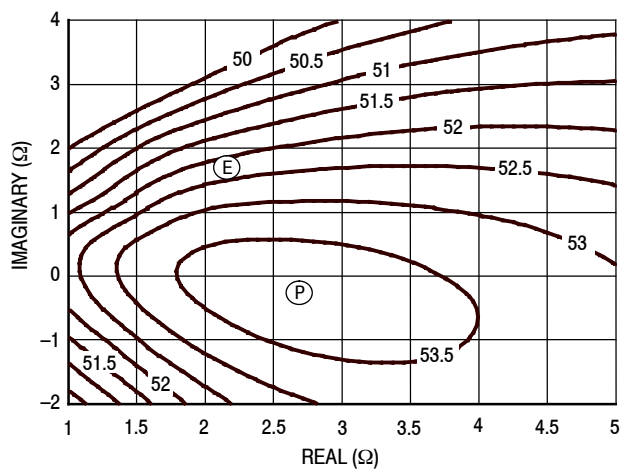


Figure 12. P3dB Load Pull Output Power Contours (dBm)

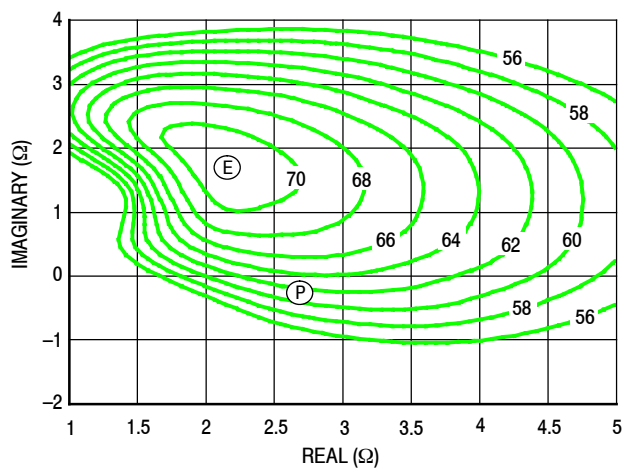


Figure 13. P3dB Load Pull Efficiency Contours (%)

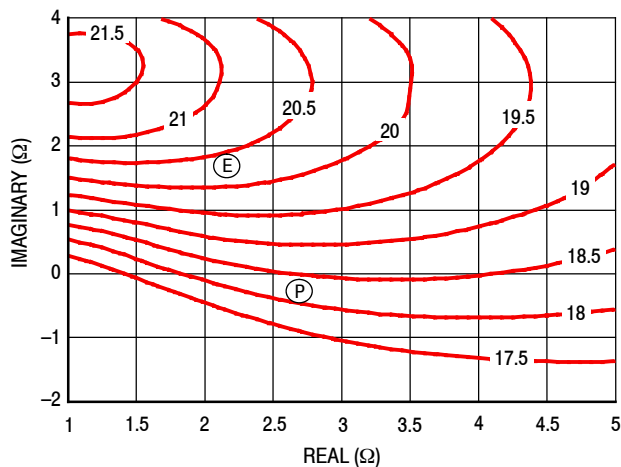


Figure 14. P3dB Load Pull Gain Contours (dB)

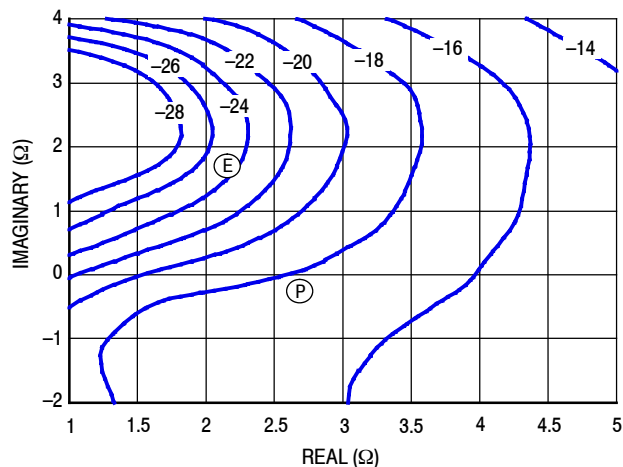


Figure 15. P3dB Load Pull AM/PM Contours (°)

NOTE: (P) = Maximum Output Power
(E) = Maximum Drain Efficiency

- Gain
- Drain Efficiency
- Linearity
- Output Power

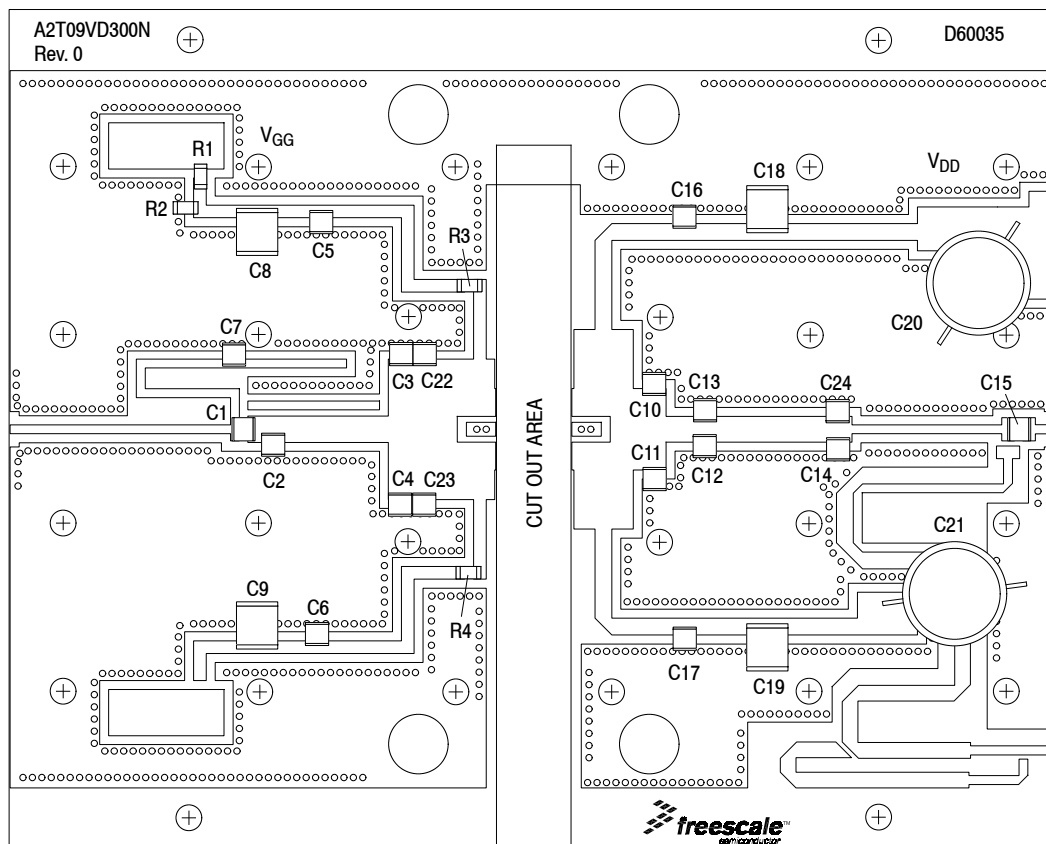


Figure 16. A2T09VD300NR1 Test Circuit Component Layout — 790–821 MHz

Table 10. A2T09VD300NR1 Test Circuit Component Designations and Values — 790–821 MHz

Part	Description	Part Number	Manufacturer
C1, C3, C4, C22, C23	3.3 pF Chip Capacitors	ATC800B3R3BT500XT	ATC
C2	3.9 pF Chip Capacitor	ATC800B3R9BT500XT	ATC
C5, C6, C7, C15, C16, C17	47 pF Chip Capacitors	ATC800B470JT500XT	ATC
C8, C9	1 μ F Chip Capacitors	C5750X7R2A105K230KM	TDK
C10, C11	18 pF Chip Capacitors	ATC800B180JT500XT	ATC
C12, C13	3.6 pF Chip Capacitors	ATC800B3R6BT500XT	ATC
C14	6.8 pF Chip Capacitor	ATC800B6R8BT500XT	ATC
C18, C19	10 μ F Chip Capacitors	C5750X7S2A106M230KB	TDK
C20, C21	220 μ F, 100 V Electrolytic Capacitors	MCGPR100V227M16X26-RH	Multicomp
C24	0.5 pF Chip Capacitor	ATC800B0R5BT500XT	ATC
R1, R2	1000 Ω , 1/4 W Chip Resistors	CRCW12061K00FKEA	Vishay
R3, R4	10 Ω , 1/4 W Chip Resistors	CRCW120610R0JNEA	Vishay
PCB	Rogers RO4350B, 0.020", $\epsilon_r = 3.66$	D60035	MTL

TYPICAL CHARACTERISTICS — 790–821 MHz

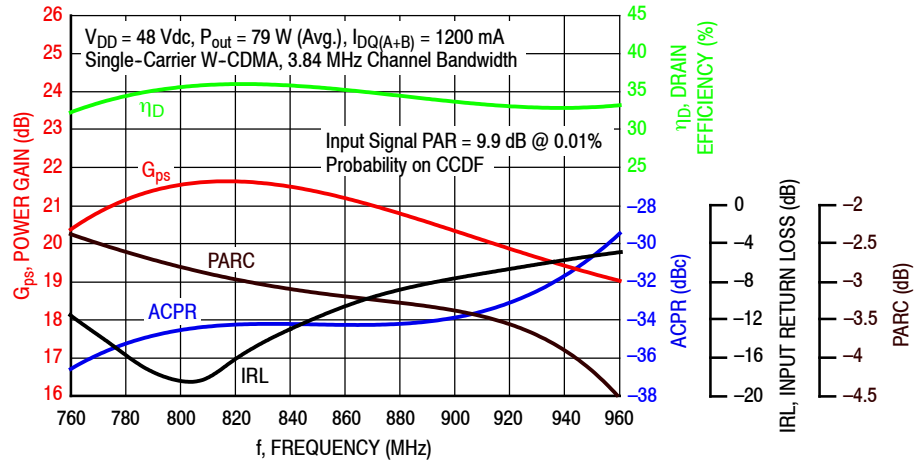


Figure 17. Single-Carrier Output Peak-to-Average Ratio Compression (PARC) Broadband Performance @ $P_{out} = 79$ Watts Avg.

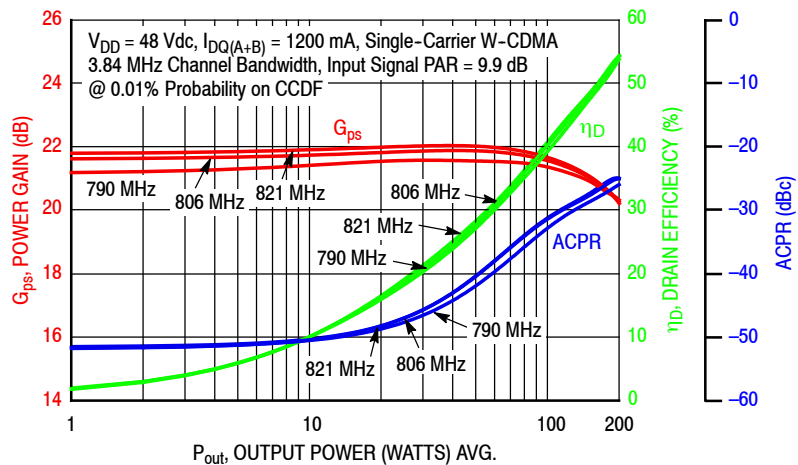


Figure 18. Single-Carrier W-CDMA Power Gain, Drain Efficiency and ACPR versus Output Power

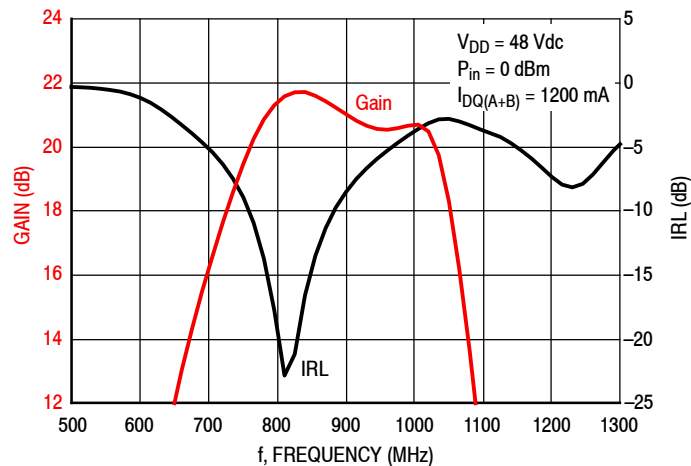


Figure 19. Broadband Frequency Response

Table 11. Single Side Load Pull Performance — Maximum Power Tuning
 $V_{DD} = 48 \text{ Vdc}$, $I_{DQ} = 588 \text{ mA}$, Pulsed CW, 10 $\mu\text{sec}(\text{on})$, 10% Duty Cycle

f (MHz)	Z_{source} (Ω)	Z_{in} (Ω)	Max Output Power					
			P1dB					
			$Z_{\text{load}}^{(1)}$ (Ω)	Gain (dB)	(dBm)	(W)	η_D (%)	AM/PM (°)
790	$3.02 - j2.72$	$2.66 + j3.14$	$2.84 + j1.14$	19.9	53.5	223	63.7	-10
806	$3.29 - j2.85$	$2.58 + j3.43$	$2.70 + j1.24$	20.1	53.4	218	62.9	-11
821	$3.26 - j3.34$	$2.47 + j3.75$	$2.65 + j1.27$	20.3	53.3	215	63.3	-11

f (MHz)	Z_{source} (Ω)	Z_{in} (Ω)	Max Output Power					
			P3dB					
			$Z_{\text{load}}^{(2)}$ (Ω)	Gain (dB)	(dBm)	(W)	η_D (%)	AM/PM (°)
790	$3.02 - j2.72$	$2.48 + j3.26$	$2.94 + j1.04$	17.9	54.1	259	65.9	-14
806	$3.29 - j2.85$	$2.42 + j3.58$	$2.99 + j1.01$	18.0	54.1	255	64.8	-14
821	$3.26 - j3.34$	$2.31 + j3.89$	$2.82 + j0.99$	18.0	54.0	253	64.3	-14

(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 12. Single Side Load Pull Performance — Maximum Drain Efficiency Tuning
 $V_{DD} = 48 \text{ Vdc}$, $I_{DQ} = 588 \text{ mA}$, Pulsed CW, 10 $\mu\text{sec}(\text{on})$, 10% Duty Cycle

f (MHz)	Z_{source} (Ω)	Z_{in} (Ω)	Max Drain Efficiency					
			P1dB					
			$Z_{\text{load}}^{(1)}$ (Ω)	Gain (dB)	(dBm)	(W)	η_D (%)	AM/PM (°)
790	$3.02 - j2.72$	$2.12 + j3.24$	$2.51 + j4.27$	22.9	50.6	115	76.2	-17
806	$3.29 - j2.85$	$2.22 + j3.55$	$2.82 + j3.70$	22.4	51.5	141	74.7	-15
821	$3.26 - j3.34$	$2.19 + j3.86$	$2.83 + j3.42$	22.3	51.7	148	74.1	-15

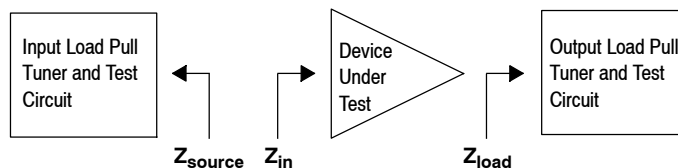
f (MHz)	Z_{source} (Ω)	Z_{in} (Ω)	Max Drain Efficiency					
			P3dB					
			$Z_{\text{load}}^{(2)}$ (Ω)	Gain (dB)	(dBm)	(W)	η_D (%)	AM/PM (°)
790	$3.02 - j2.72$	$2.29 + j3.37$	$3.54 + j3.22$	19.7	52.8	189	74.2	-18
806	$3.29 - j2.85$	$2.14 + j3.73$	$3.06 + j3.78$	20.3	52.1	164	74.5	-20
821	$3.26 - j3.34$	$2.07 + j4.04$	$2.96 + j3.63$	20.4	52.2	165	74.8	-21

(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 LOAD PULL CONTOURS — 806 MHz

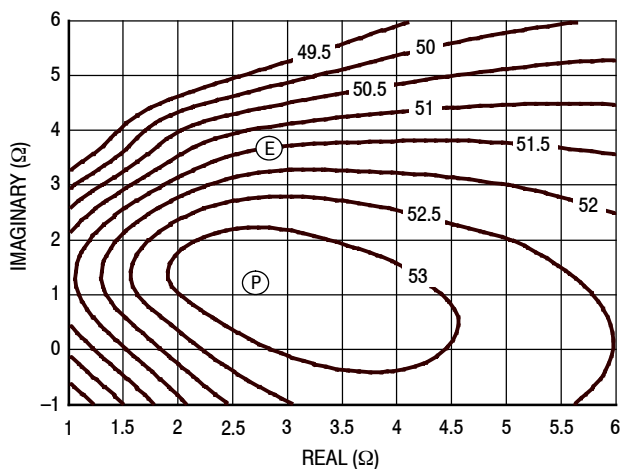


Figure 20. P1dB Load Pull Output Power Contours (dBm)

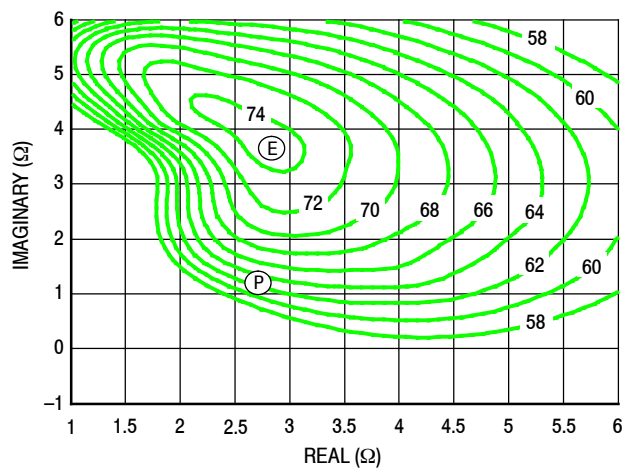


Figure 21. P1dB Load Pull Efficiency Contours (%)

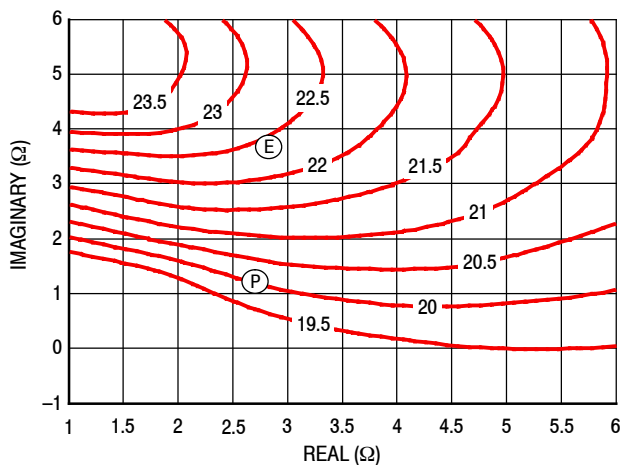


Figure 22. P1dB Load Pull Gain Contours (dB)

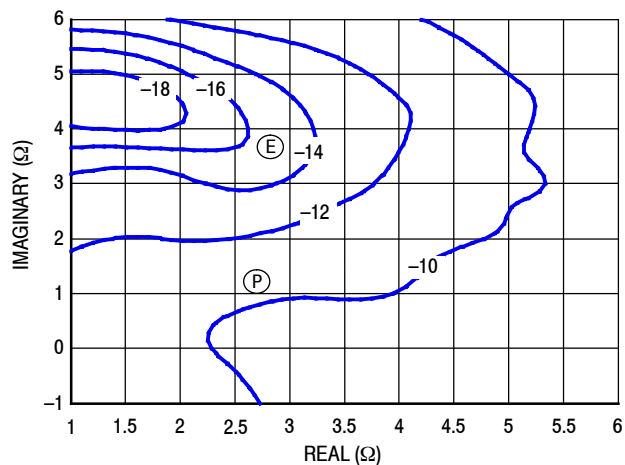


Figure 23. P1dB Load Pull AM/PM Contours (°)

NOTE: (P) = Maximum Output Power
(E) = Maximum Drain Efficiency

- Gain
- Drain Efficiency
- Linearity
- Output Power

P3dB – TYPICAL CARRIER LOAD PULL CONTOURS — 806 MHz

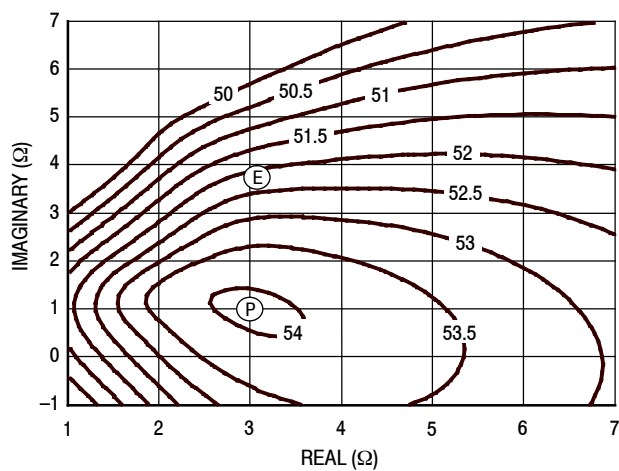


Figure 24. P3dB Load Pull Output Power Contours (dBm)

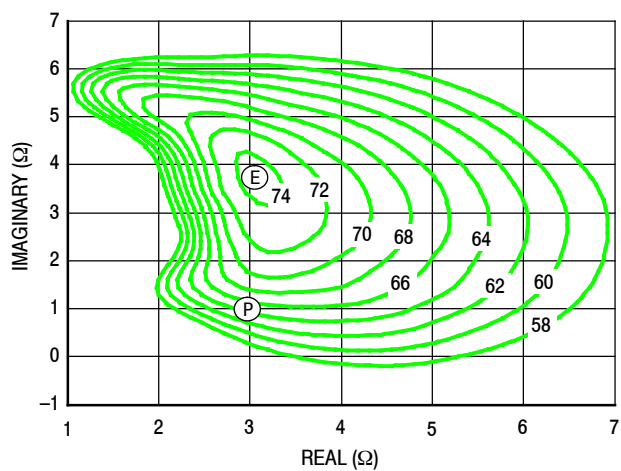


Figure 25. P3dB Load Pull Efficiency Contours (%)

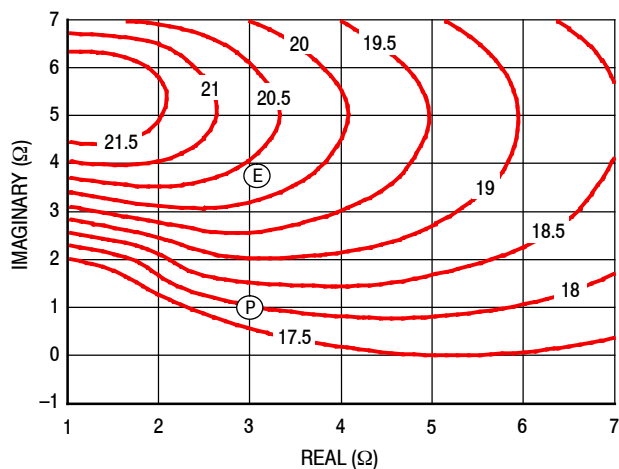


Figure 26. P3dB Load Pull Gain Contours (dB)

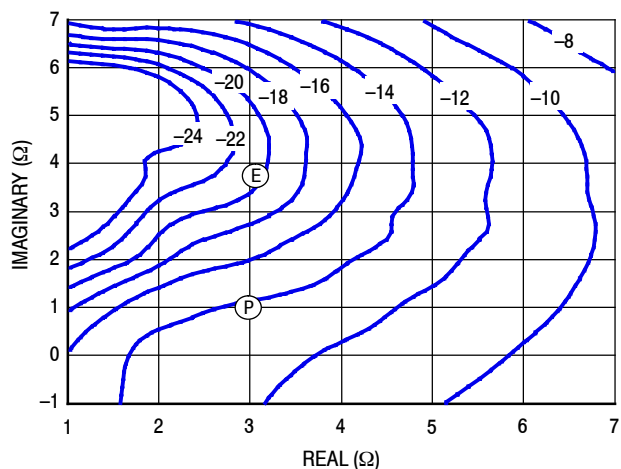
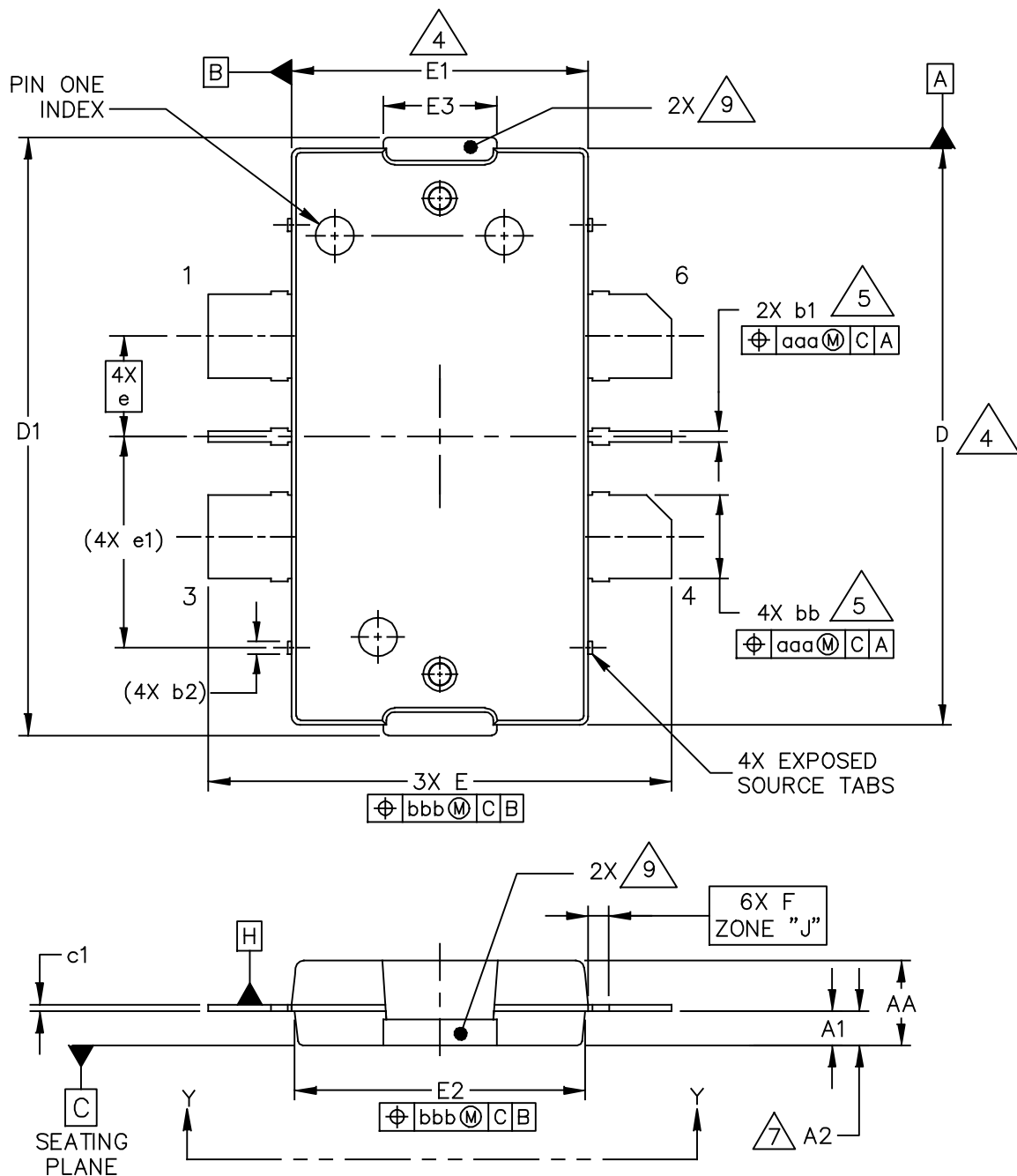


Figure 27. P3dB Load Pull AM/PM Contours (°)

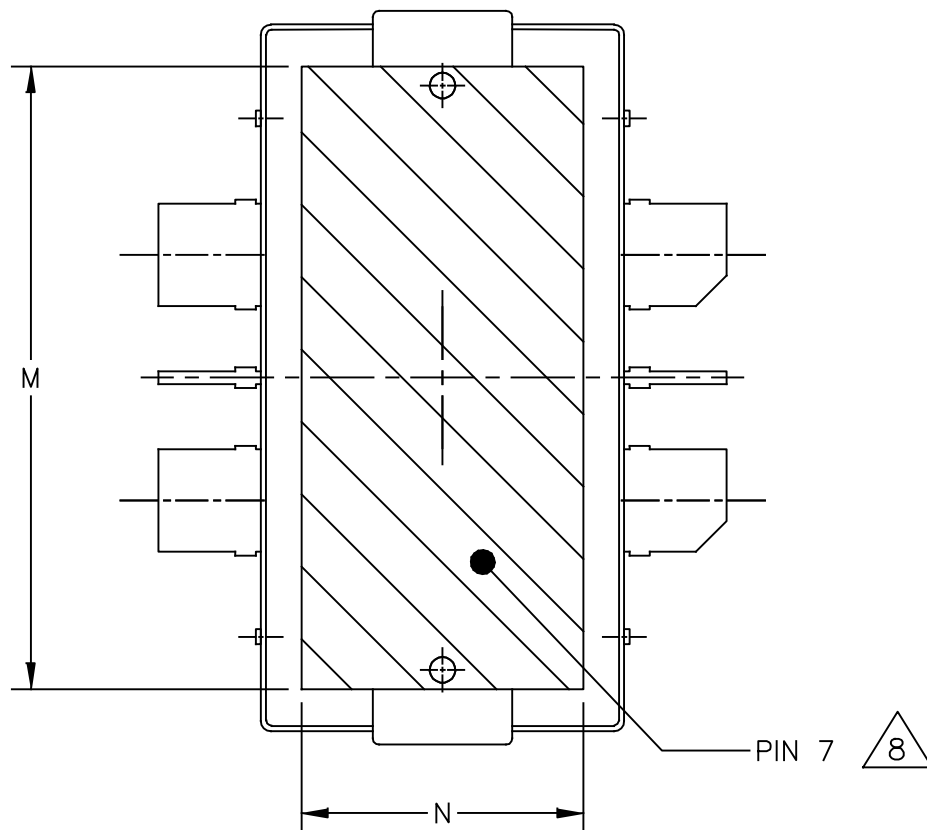
NOTE: (P) = Maximum Output Power
(E) = Maximum Drain Efficiency

- Gain
- Drain Efficiency
- Linearity
- Output Power

PACKAGE DIMENSIONS



© FREESCALE SEMICONDUCTOR, INC. ALL RIGHTS RESERVED.	MECHANICAL OUTLINE	PRINT VERSION NOT TO SCALE
TITLE: TO-270WB-6A	DOCUMENT NO: 98ASA00592D REV: 0	
	STANDARD: NON-JEDEC	
	18 JUN 2015	



VIEW Y-Y

© FREESCALE SEMICONDUCTOR, INC. ALL RIGHTS RESERVED.	MECHANICAL OUTLINE	PRINT VERSION NOT TO SCALE	
TITLE: TO-270WB-6A	DOCUMENT NO: 98ASA00592D		REV: 0
	STANDARD: NON-JEDEC		
			18 JUN 2015

NOTES:

1. CONTROLLING DIMENSION: INCH
2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M–1994.
3. DATUM PLANE H IS LOCATED AT THE TOP OF LEAD AND IS COINCIDENT WITH THE LEAD WHERE THE LEAD EXITS THE PLASTIC BODY AT THE TOP OF THE PARTING LINE.

4. DIMENSIONS D AND E1 DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE PROTRUSION IS .006 INCH (0.15 MM) PER SIDE. DIMENSIONS D AND E1 DO INCLUDE MOLD MISMATCH AND ARE DETERMINED AT DATUM PLANE H.

5. DIMENSIONS bb AND b1 DO NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE .005 INCH (0.13 MM) TOTAL IN EXCESS OF THE bb AND b1 DIMENSIONS AT MAXIMUM MATERIAL CONDITION.

6. DATUMS A AND B TO BE DETERMINED AT DATUM PLANE H.

7. DIMENSION A2 APPLIES WITHIN ZONE J ONLY.

8. HATCHING REPRESENTS THE EXPOSED AND SOLDERABLE AREA OF THE HEAT SLUG. DIMENSIONS M AND N REPRESENT THE VALUES BETWEEN THE TWO OPPOSITE POINTS ALONG THE EDGES OF EXPOSED AREA OF THE HEAT SLUG.

9. THESE SURFACES OF THE HEAT SLUG ARE NOT PART OF THE SOLDERABLE SURFACES AND MAY REMAIN UNPLATED.

INCH		MILLIMETER		INCH		MILLIMETER	
DIM	MIN	MAX	MIN	MAX	DIM	MIN	MAX
AA	.099	.105	2.51	2.67	M	.600	---
A1	.039	.043	0.99	1.09	N	.270	---
A2	.040	.042	1.02	1.07	bb	.097	.103
D	.688	.692	17.48	17.58	b1	.010	.016
D1	.712	.720	18.08	18.29	b2	---	.019
E	.551	.559	14.00	14.20	c1	.007	.011
E1	.353	.357	8.97	9.07	e	.120 BSC	
E2	.346	.350	8.79	8.89	e1	.253 INFO ONLY	
E3	.132	.140	3.35	3.56	aaa	.004	
F	.025 BSC		0.64 BSC		bbb	.008	
© FREESCALE SEMICONDUCTOR, INC. ALL RIGHTS RESERVED.			MECHANICAL OUTLINE			PRINT VERSION NOT TO SCALE	
TITLE: TO-270WB-6A					DOCUMENT NO: 98ASA00592D REV: 0		
					STANDARD: NON-JEDEC		
					18 JUN 2015		

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	Aug. 2015	• Initial Release of Data Sheet

How to Reach Us:

Home Page:
freescale.com

Web Support:
freescale.com/support

Information in this document is provided solely to enable system and software implementers to use Freescale products. There are no express or implied copyright licenses granted hereunder to design or fabricate any integrated circuits based on the information in this document.

Freescale reserves the right to make changes without further notice to any products herein. Freescale makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does Freescale assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters that may be provided in Freescale data sheets and/or specifications can and do vary in different applications, and actual performance may vary over time. All operating parameters, including "typicals," must be validated for each customer application by customer's technical experts. Freescale does not convey any license under its patent rights nor the rights of others. Freescale sells products pursuant to standard terms and conditions of sale, which can be found at the following address: freescale.com/SalesTermsandConditions.

Freescale and the Freescale logo are trademarks of Freescale Semiconductor, Inc., Reg. U.S. Pat. & Tm. Off. Airfast is a trademark of Freescale Semiconductor, Inc. All other product or service names are the property of their respective owners.

© 2015 Freescale Semiconductor, Inc.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.