Freescale Semiconductor
Technical Data

Document Number: AFT05MP075N
Rev. 1, 8/2014

RoHS

RF Power LDMOS Transistors

High Ruggedness N-Channel Enhancement-Mode Lateral MOSFETs

Designed for mobile two-way radio applications with frequencies from 136 to 520 MHz. The high gain, ruggedness and broadband performance of these devices make them ideal for large-signal, common source amplifier applications in mobile radio equipment.

Typical Performance: 12.5 V, T_A = 25°C, CW

Frequency	G_{ps} (dB)	η_D (%)	P_{out} (W)
136 MHz	21.0	68.0	76
450–520 MHz (1)	14.6	65.8	75
520 MHz (2)	18.5	68.5	70

Load Mismatch/Ruggedness

Frequency (MHz)	Signal Type	VSWR	P_{in} (W)	Test Voltage	Result
520 (2)	CW	> 65:1 at all Phase Angles	2 (3 dB Overdrive)	17	No Device Degradation

1. Measured in 450–520 MHz UHF broadband reference circuit.
2. Measured in 520 MHz narrowband test circuit.

Features

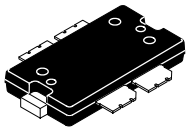
- Characterized for Operation from 136 to 520 MHz
- Unmatched Input and Output Allowing Wide Frequency Range Utilization
- Integrated ESD Protection
- Integrated Stability Enhancements
- Wideband — Full Power Across the Band
- Exceptional Thermal Performance
- Extreme Ruggedness
- High Linearity for: TETRA, SSB, LTE
- In Tape and Reel. R1 Suffix = 500 Units, 44 mm Tape Width, 13-inch Reel.

Typical Applications

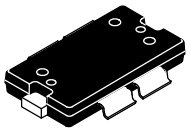
- Output Stage VHF Band Mobile Radio
- Output Stage UHF Band Mobile Radio

AFT05MP075NR1
AFT05MP075GNR1

136–520 MHz, 70 W, 12.5 V
BROADBAND
RF POWER LDMOS TRANSISTORS



TO-270WB-4
AFT05MP075NR1



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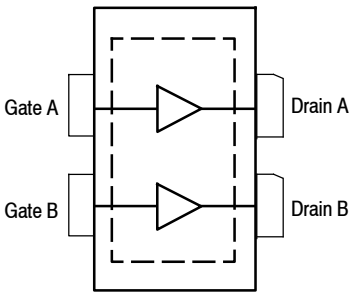


(Top View)

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

Figure 1. Pin Connections

freescale Airfast

Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	-0.5, +40	Vdc
Gate-Source Voltage	V_{GS}	-6.0, +12	Vdc
Operating Voltage	V_{DD}	17, +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
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	690 3.45	W W/°C

Table 2. Thermal Characteristics

Characteristic	Symbol	Value (2,3)	Unit
Thermal Resistance, Junction to Case Case Temperature 80°C, 70 W CW, 12.5 Vdc, $I_{DQ(A+B)}$ = 400 mA, 520 MHz	$R_{\theta JC}$	0.29	°C/W

Table 3. ESD Protection Characteristics

Test Methodology	Class
Human Body Model (per JESD22-A114)	2, passes 2500 V
Machine Model (per EIA/JESD22-A115)	A, passes 250 V
Charge Device Model (per JESD22-C101)	IV, passes 2000 V

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°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Off Characteristics					
Zero Gate Voltage Drain Leakage Current (V_{DS} = 40 Vdc, V_{GS} = 0 Vdc)	I_{DSS}	—	—	3	μAdc
Zero Gate Voltage Drain Leakage Current (V_{DS} = 12.5 Vdc, V_{GS} = 0 Vdc)	I_{DSS}	—	—	2	μAdc
Gate-Source Leakage Current (V_{GS} = 5 Vdc, V_{DS} = 0 Vdc)	I_{GSS}	—	—	600	nAdc
On Characteristics					
Gate Threshold Voltage (V_{DS} = 10 Vdc, I_D = 295 μAdc)	$V_{GS(th)}$	1.7	2.1	2.5	Vdc
Drain-Source On-Voltage (V_{GS} = 10 Vdc, I_D = 3.0 Adc)	$V_{DS(on)}$	—	0.14	—	Vdc
Forward Transconductance (4) (V_{GS} = 10 Vdc, I_D = 8 Adc)	g_{fs}	—	7.3	—	S

1. Continuous use at maximum temperature will affect MTTF.
2. MTTF calculator available at http://www.freescale.com/rf. Select Software & Tools/Development Tools/Calculators to access MTTF calculators by product.
3. Refer to AN1955, *Thermal Measurement Methodology of RF Power Amplifiers.* Go to http://www.freescale.com/rf. Select Documentation/Application Notes - AN1955.
4. Each side of device measured separately.

(continued)

Table 5. Electrical Characteristics (T_A = 25°C unless otherwise noted) **(continued)**

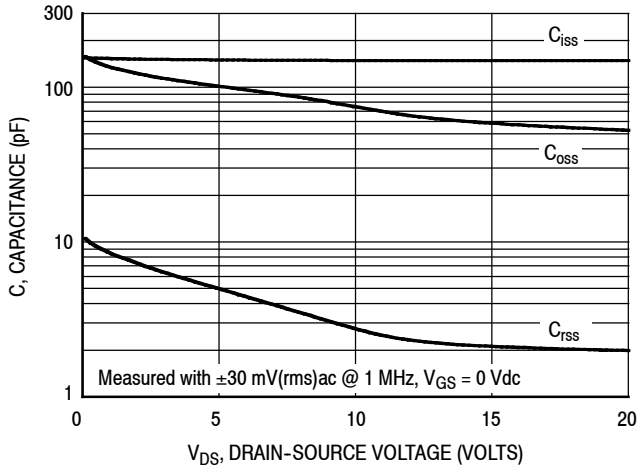
Characteristic	Symbol	Min	Typ	Max	Unit
Dynamic Characteristics (1)					
Reverse Transfer Capacitance (V_{DS} = 12.5 Vdc ± 30 mV(rms)ac @ 1 MHz, V_{GS} = 0 Vdc)	C_{rss}	—	2.3	—	pF
Output Capacitance (V_{DS} = 12.5 Vdc ± 30 mV(rms)ac @ 1 MHz, V_{GS} = 0 Vdc)	C_{oss}	—	64	—	pF
Input Capacitance (V_{DS} = 12.5 Vdc, V_{GS} = 0 Vdc ± 30 mV(rms)ac @ 1 MHz)	C_{iss}	—	148	—	pF
Functional Tests (2) (In Freescale Test Fixture, 50 ohm system) V_{DD} = 12.5 Vdc, $I_{DQ(A+B)}$ = 400 mA, P_{in} = 1 W, f = 520 MHz					
Common−Source Amplifier Output Power	P_{out}	—	70	—	W
Drain Efficiency	η_D	—	68.5	—	%

Load Mismatch/Ruggedness (In Freescale Test Fixture, 50 ohm system) $I_{DQ(A+B)}$ = 400 mA

Frequency (MHz)	Signal Type	VSWR	P_{in} (W)	Test Voltage, V_{DD}	Result
520	CW	> 65:1 at all Phase Angles	2 (3 dB Overdrive)	17	No Device Degradation

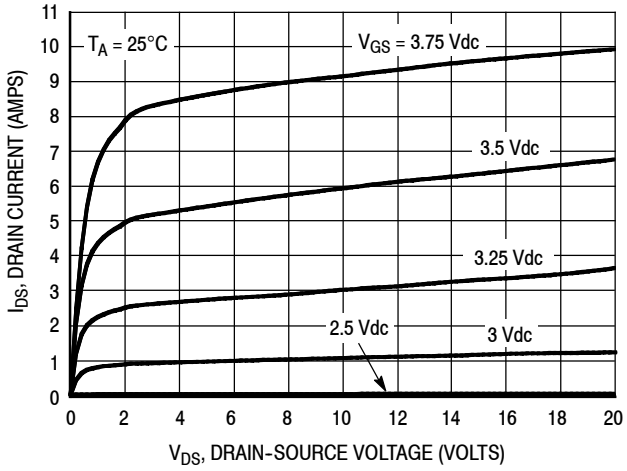
1. Each side of device measured separately.
2. Measurements made with device in straight lead configuration before any lead forming operation is applied. Lead forming is used for gull wing (GN) parts.

TYPICAL CHARACTERISTICS



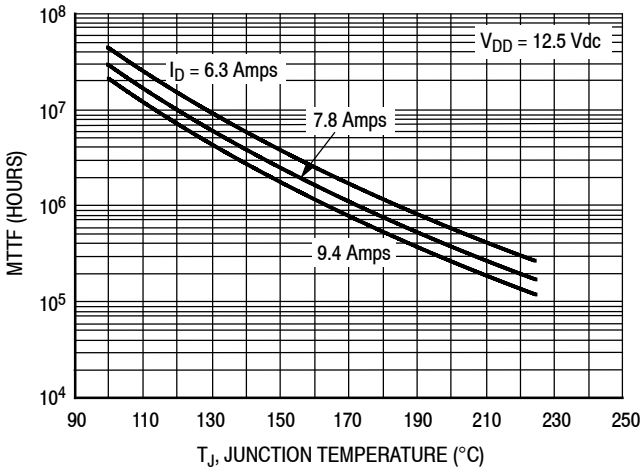
Note: Each side of device measured separately.

Figure 2. Capacitance versus Drain-Source Voltage



Note: Measured with both sides of the transistor tied together.

Figure 3. Drain Current versus Drain-Source Voltage

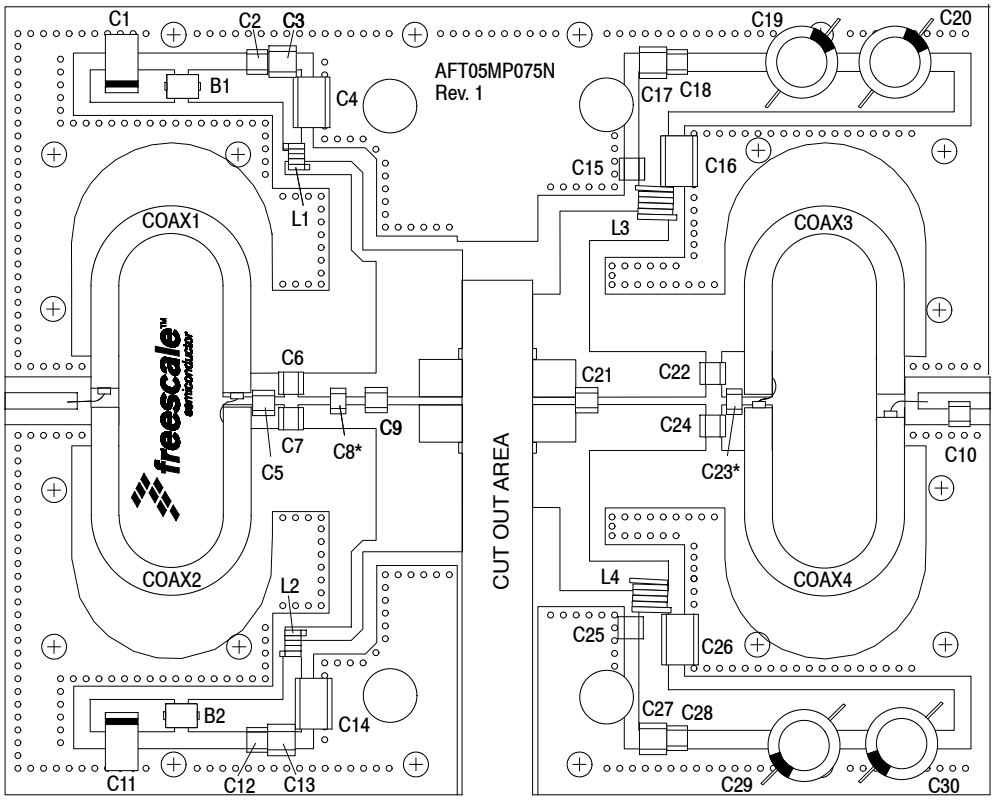


Note: MTTF value represents the total cumulative operating time under indicated test conditions.

MTTF calculator available at http://www.freescale.com/rf. Select Software & Tools/Development Tools/Calculators to access MTTF calculators by product.

Figure 4. MTTF versus Junction Temperature - CW

520 MHz NARROWBAND PRODUCTION TEST FIXTURE



*C8 and C23 are mounted vertically.

Figure 5. AFT05MP075NR1 Narrowband Test Circuit Component Layout — 520 MHz

Table 6. AFT05MP075NR1 Narrowband Test Circuit Component Designations and Values — 520 MHz

Part	Description	Part Number	Manufacturer
B1, B2	Ferrite Beads	2743019447	Fair-Rite
C1, C11	22 μF, 35 V, Tantalum Capacitors	T491X226K035AT	Kemet
C2, C12, C18, C28	0.1 μF Chip Capacitors	CDR33BX104AKWS	AVX
C3, C13	220 nF Chip Capacitors	C1812C224K5RAC-TU	Kemet
C4, C14	2.2 μF Chip Capacitors	C1825C225J5RAC-TU	Kemet
C5	5.1 pF Chip Capacitor	ATC100B5R1CT500XT	ATC
C6, C7	20 pF Chip Capacitors	ATC100B200JT500XT	ATC
C8	16 pF Chip Capacitor	ATC100B160JT500XT	ATC
C9	36 pF Chip Capacitor	ATC100B360JT500XT	ATC
C10	2.7 pF Chip Capacitor	ATC100B2R7BT500XT	ATC
C15, C25	240 pF Chip Capacitors	ATC100B241JT200XT	ATC
C16, C26	2.2 μF Chip Capacitors	G2225X7R225KT3AB	ATC
C17, C27	0.1 μF Chip Capacitors	C1812F104K1RAC−TU	Kemet
C19, C20, C29, C30	470 μF, 63 V Electrolytic Capacitors	MCGPR63V477M13X26-RH	Multicomp
C21	51 pF Chip Capacitor	ATC100B510GT500XT	ATC
C22, C24	100 pF Chip Capacitors	ATC100B101JT500XT	ATC
C23	24 pF Chip Capacitor	ATC100B240JT500XT	ATC
L1, L2	5.0 nH Inductors	A02TKLC	Coilcraft
L3, L4	17.5 nH Inductors	GA3095−ALC	Coilcraft
Coax1, 2, 3, 4	25 Ω Semi Rigid Coax, 2.4″ Shield Length	UT-141C-25	Micro-Coax
PCB	0.030″, ε_r = 2.55	AD255A	Arlon

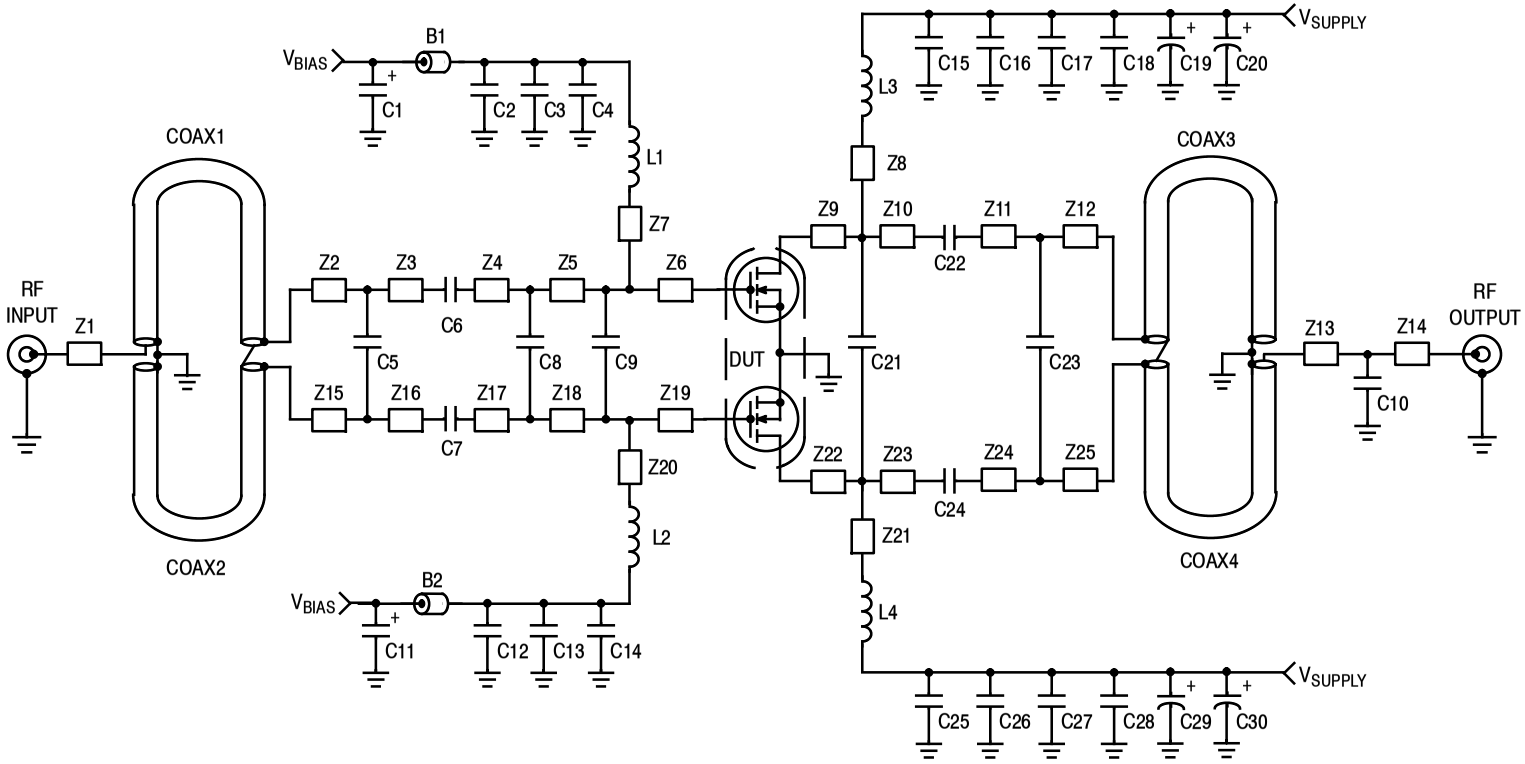


Figure 6. AFT05MP075NR1 Narrowband Test Circuit Schematic — 520 MHz

Table 7. AFT05MP075NR1 Narrowband Test Circuit Microstrips — 520 MHz

Microstrip	Description
Z1	0.366″ × 0.082″ Microstrip
Z2, Z15	0.010″ × 0.125″ Microstrip
Z3, Z16	0.018″ × 0.125″ Microstrip
Z4, Z17	0.135″ × 0.125″ Microstrip
Z5, Z18	0.100″ × 0.125″ Microstrip
Z6, Z19	0.430″ × 0.740″ Microstrip
Z7*, Z20*	0.726″ × 0.058″ Microstrip

Microstrip	Description
Z8*, Z21*	0.672″ × 0.150″ Microstrip
Z9, Z22	0.290″ × 0.522″ Microstrip
Z10, Z23	0.590″ × 0.230″ Microstrip
Z11, Z24	0.030″ × 0.230″ Microstrip
Z12, Z25	0.010″ × 0.230″ Microstrip
Z13	0.154″ × 0.082″ Microstrip
Z14	0.100″ × 0.082″ Microstrip

* Line length includes microstrip bends

TYPICAL CHARACTERISTICS — 520 MHz

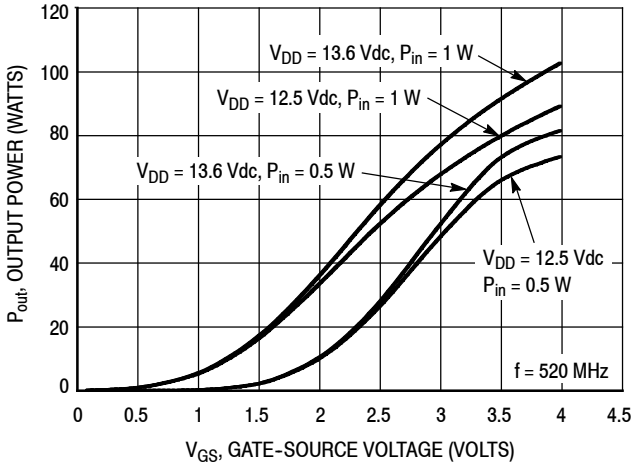


Figure 7. Output Power versus Gate-Source Voltage

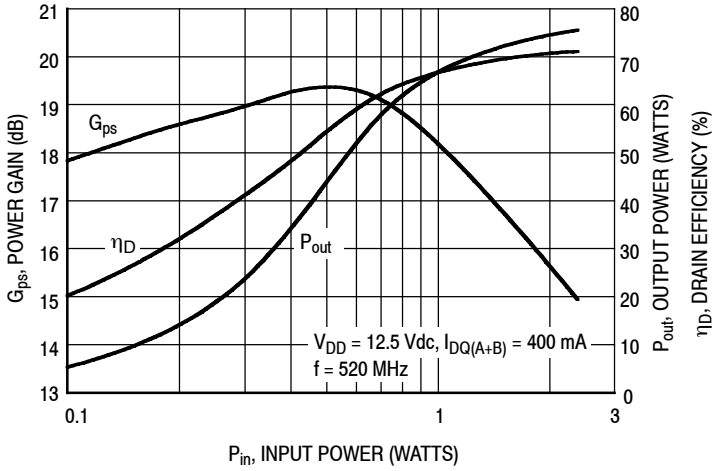


Figure 8. Power Gain, Output Power and Drain Efficiency versus Input Power

V_{DD} = 12.5 Vdc, $I_{DQ(A+B)}$ = 400 mA, P_{out} = 70 W

f MHz	Z_{source} Ω	Z_{load} Ω
520	0.91 + j2.37	2.56 + j0.27

Z_{source} = Test circuit impedance as measured from gate to gate, balanced configuration.

Z_{load} = Test circuit impedance as measured from drain to drain, balanced configuration.

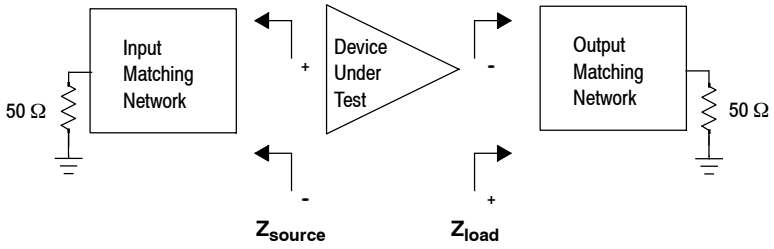


Figure 9. Narrowband Series Equivalent Source and Load Impedance — 520 MHz

450–520 MHz UHF BROADBAND REFERENCE CIRCUIT

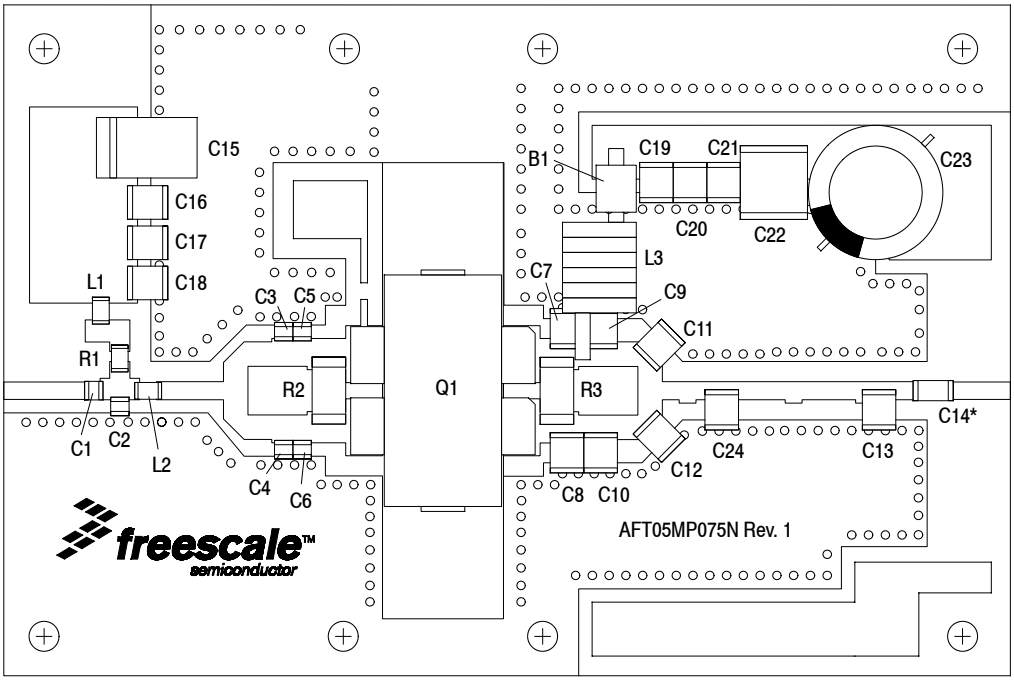
Table 8. 450–520 MHz UHF Broadband Performance (In Freescale Reference Circuit, 50 ohm system)
V_{DD} = 12.5 Volts, $I_{DQ(A+B)}$ = 500 mA, T_A = 25°C, CW

Frequency (MHz)	G_{ps} (dB)	η_D (%)	P_{out} (W)
450	15.9	65.8	75
485	14.6	72.9	75
520	15.1	71.1	75

Table 9. Load Mismatch/Ruggedness (In Freescale Reference Circuit)

Frequency (MHz)	Signal Type	VSWR	P_{in} (W)	Test Voltage, V_{DD}	Result
485	CW	> 65:1 at all Phase Angles	6 (3 dB Overdrive)	17	No Device Degradation

450–520 MHz UHF BROADBAND REFERENCE CIRCUIT



*C14 is mounted vertically.

Figure 10. AFT05MP075NR1 UHF Broadband Reference Circuit Component Layout — 450–520 MHz

Table 10. AFT05MP075NR1 UHF Broadband Reference Circuit Component Designations and Values — 450–520 MHz

Part	Description	Part Number	Manufacturer
B1	Ferrite Bead	2661000101	Fair-Rite
C1, C3, C4	10 pF Chip Capacitors	ATC600F100JT250XT	ATC
C2	15 pF Chip Capacitor	ATC600F150JT250XT	ATC
C5, C6	56 pF Chip Capacitors	ATC600F560JT250XT	ATC
C7, C8	33 pF Chip Capacitors	ATC800B330JT500XT	ATC
C9, C10	30 pF Chip Capacitors	ATC800B300JT500XT	ATC
C11, C12	5.6 pF Chip Capacitors	ATC800B5R6CT500XT	ATC
C13	16 pF Chip Capacitor	ATC800B160JT500XT	ATC
C14	100 pF Chip Capacitor	ATC800B101JT500XT	ATC
C15	47 μF, 16 V Tantalum Capacitor	T491D476K016AT	Kemet
C16, C21	1000 pF Chip Capacitors	ATC100B102JT50XT	ATC
C17, C20	200 pF Chip Capacitors	ATC100B201JT300XT	ATC
C18, C19	100 pF Chip Capacitors	ATC100B101JT500XT	ATC
C22	10 μF Chip Capacitor	GRM55DR61H106KA88L	Murata
C23	330 μF, 35 V Electrolytic Capacitor	MCGPR35V337M10X16-RH	Multicomp
C24	1.5 pF Chip Capacitor	ATC800B1R5CT500XT	ATC
L1	120 nH Chip Inductor	0805CS-121X-LB	CoilCraft
L2	2.55 nH, 3 Turn Inductor	0906-3JLC	CoilCraft
L3	6 Turns, #22 AWG, 0.125″ ID	8075 Copper Magnetic Wire	Beldon
Q1	RF Power LDMOS Transistor	AFT05MP075NR1	Freescale
R1	180 Ω, 1/10 W Chip Resistor	RR1220P-181-B-T5	Vishay
R2, R3	10 Ω, 3/4 W Chip Resistors	CRCW201010R0FKEF	Vishay
PCB	0.030″, ε_r = 4.8	S1000-2, FR4	Shengyi

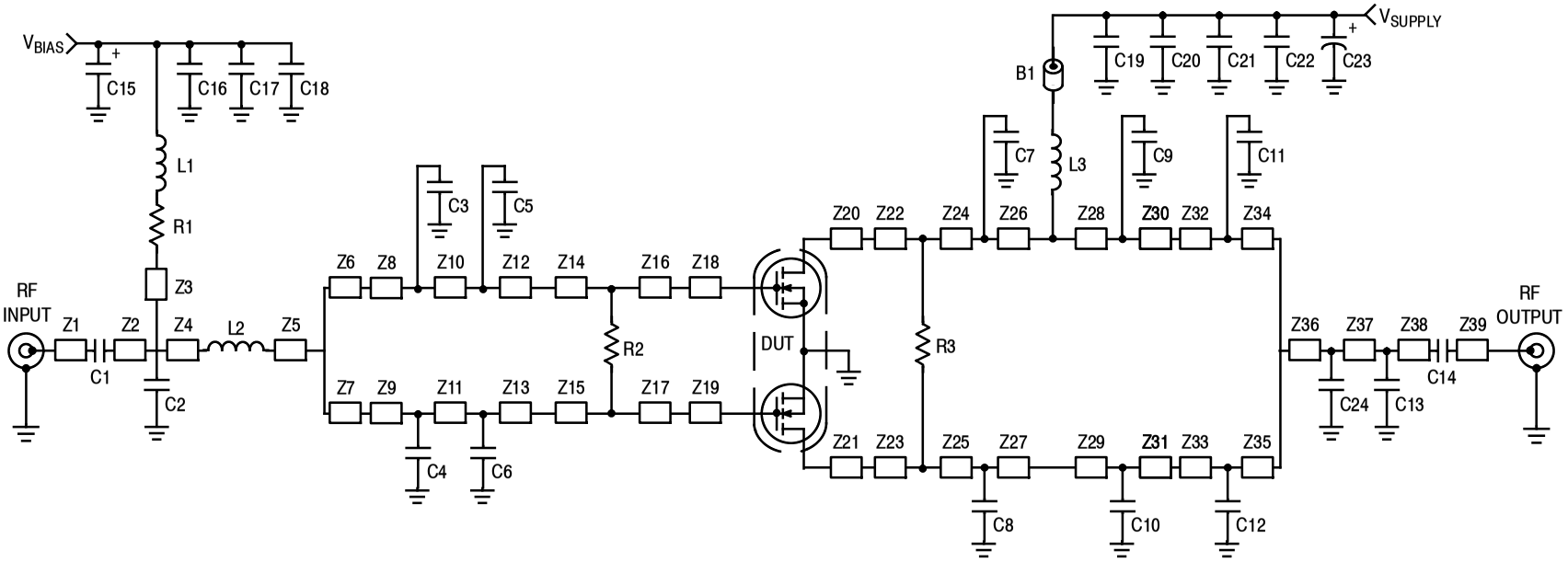


Figure 11. AFT05MP075NR1 UHF Broadband Reference Circuit Schematic — 450-520 MHz

Table 11. AFT05MP075NR1 UHF Broadband Reference Circuit Microstrips — 450-520 MHz

Microstrip	Description
Z1	0.250″ × 0.052″ Microstrip
Z2	0.059″ × 0.064″ Microstrip
Z3	0.060″ × 0.050″ Microstrip
Z4	0.054″ × 0.064″ Microstrip
Z5	0.200″ × 0.054″ Microstrip
Z6*, Z7*	0.195″ × 0.073″ Microstrip
Z8, Z9	0.035″ × 0.083″ Microstrip
Z10, Z11	0.055″ × 0.083″ Microstrip

Microstrip	Description
Z12, Z13	0.015″ × 0.083″ Microstrip
Z14, Z15	0.065″ × 0.093″ Microstrip
Z16, Z17	0.050″ × 0.093″ Microstrip
Z18, Z19	0.110″ × 0.170″ Microstrip
Z20, Z21	0.110″ × 0.170″ Microstrip
Z22, Z23	0.050″ × 0.093″ Microstrip
Z24, Z25	0.017″ × 0.093″ Microstrip
Z26, Z27	0.048″ × 0.093″ Microstrip

Microstrip	Description
Z28, Z29	0.075″ × 0.083″ Microstrip
Z30, Z31	0.030″ × 0.083″ Microstrip
Z32*, Z33*	0.108″ × 0.073″ Microstrip
Z34*, Z35*	0.109″ × 0.073″ Microstrip
Z36	0.177″ × 0.054″ Microstrip
Z37	0.470″ × 0.054″ Microstrip
Z38	0.130″ × 0.054″ Microstrip
Z39	0.200″ × 0.054″ Microstrip

* Line length includes microstrip bends

TYPICAL CHARACTERISTICS — 450–520 MHz UHF BROADBAND REFERENCE CIRCUIT

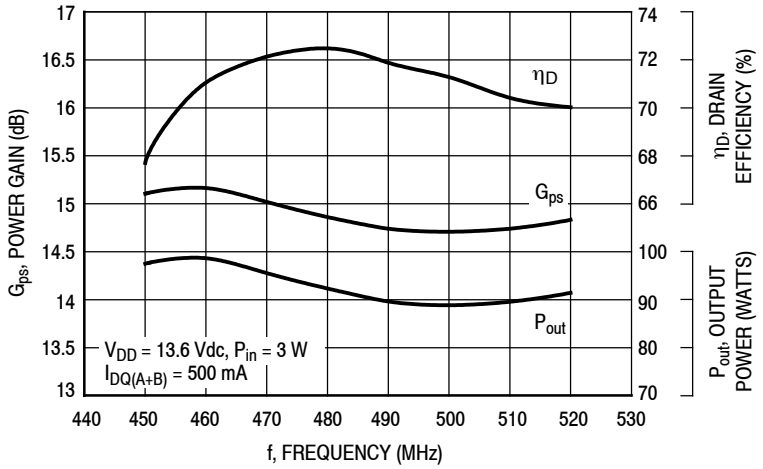


Figure 12. Power Gain, Drain Efficiency and Output Power versus Frequency at a Constant Input Power — 13.6 V

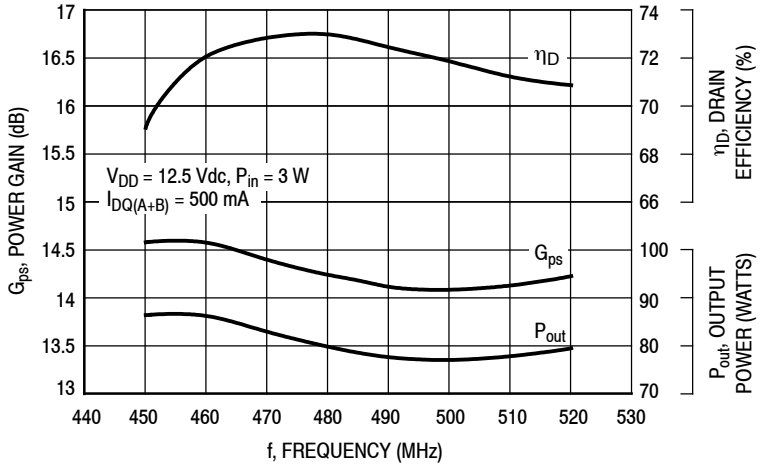


Figure 13. Power Gain, Drain Efficiency and Output Power versus Frequency at a Constant Input Power — 12.5 V

TYPICAL CHARACTERISTICS — 450–520 MHz UHF BROADBAND REFERENCE CIRCUIT

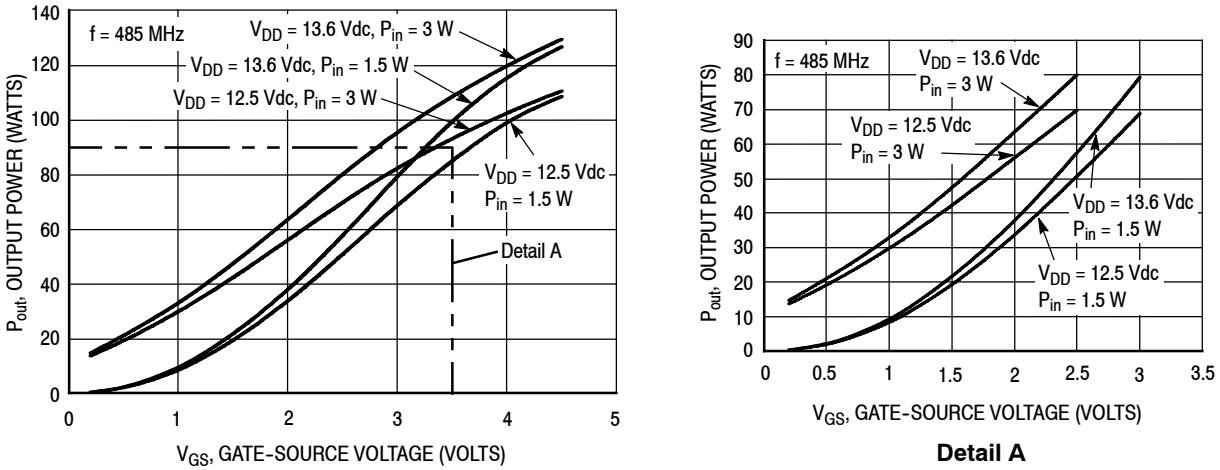


Figure 14. Output Power versus Gate–Source Voltage

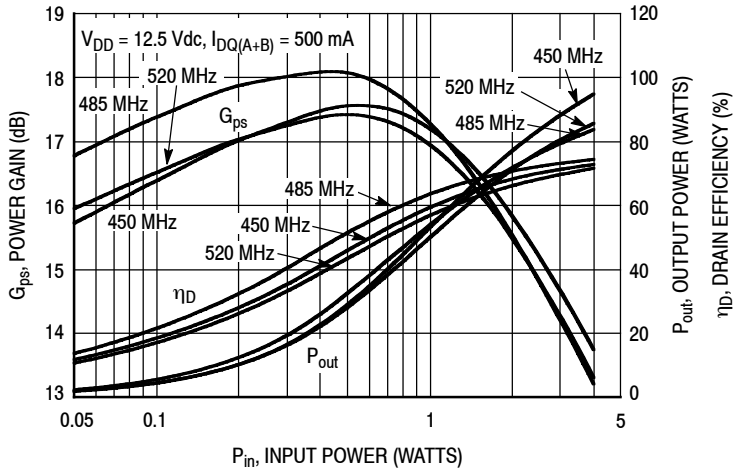
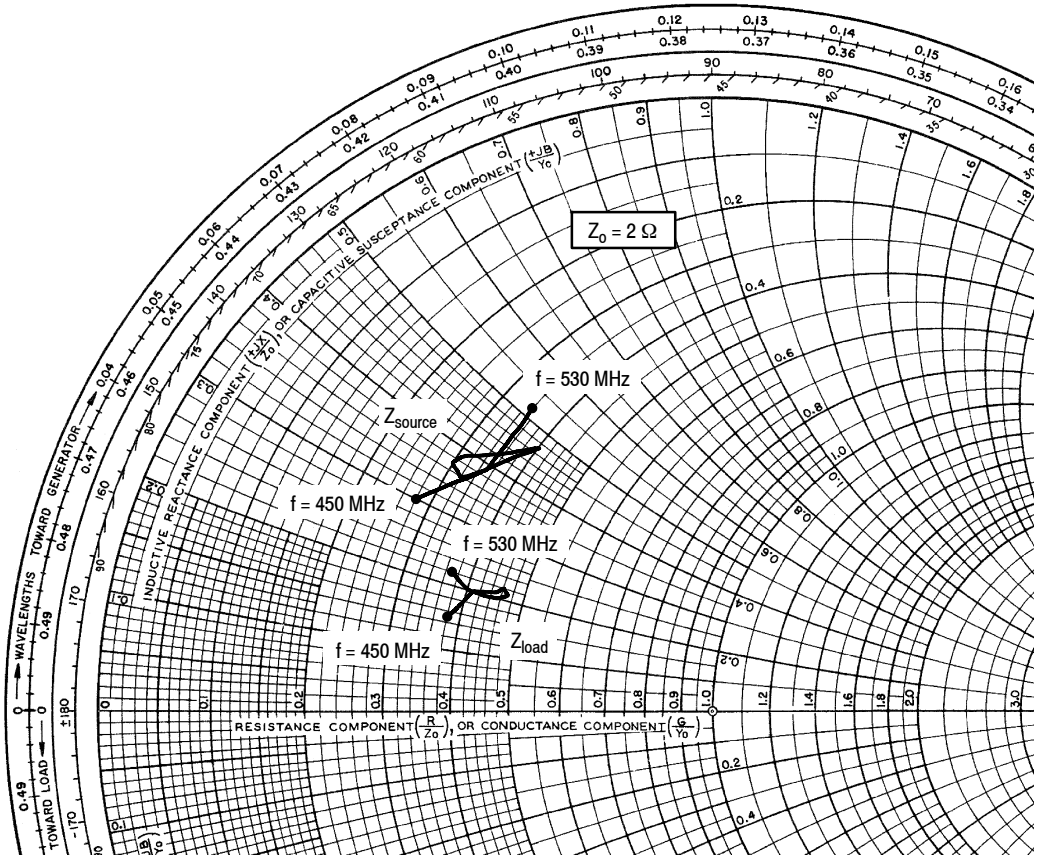


Figure 15. Power Gain, Output Power and Drain Efficiency versus Input Power and Frequency

450–520 MHz UHF BROADBAND REFERENCE CIRCUIT



V_{DD} = 12.5 Vdc, $I_{DQ(A+B)}$ = 500 mA, P_{out} = 75 W

f MHz	Z_{source} Ω	Z_{load} Ω
450	0.55 + j0.59	0.75 + j0.30
460	0.72 + j0.81	0.82 + j0.39
470	0.79 + j0.93	0.90 + j0.42
480	0.71 + j0.86	0.92 + j0.44
490	0.62 + j0.78	0.93 + j0.41
500	0.60 + j0.74	0.89 + j0.39
510	0.64 + j0.72	0.85 + j0.39
520	0.69 + j0.78	0.79 + j0.39
530	0.70 + j1.03	0.74 + j0.43

Z_{source} = Test circuit impedance as measured from gate to ground.

Z_{load} = Test circuit impedance as measured from drain to ground.

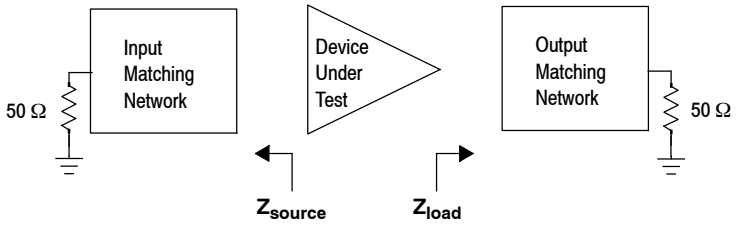
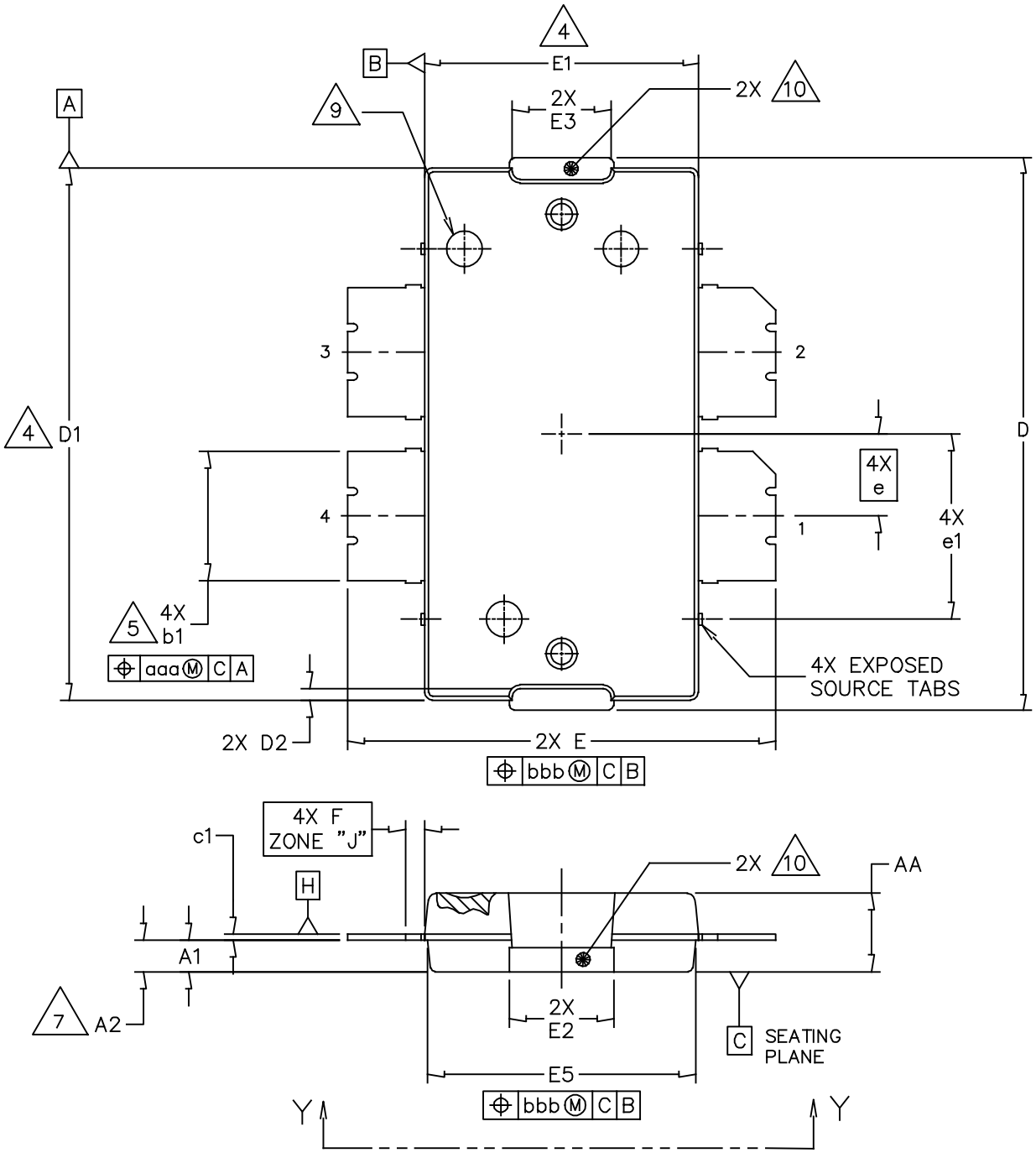


Figure 16. UHF Broadband Series Equivalent Source and Load Impedance — 450–520 MHz

PACKAGE DIMENSIONS



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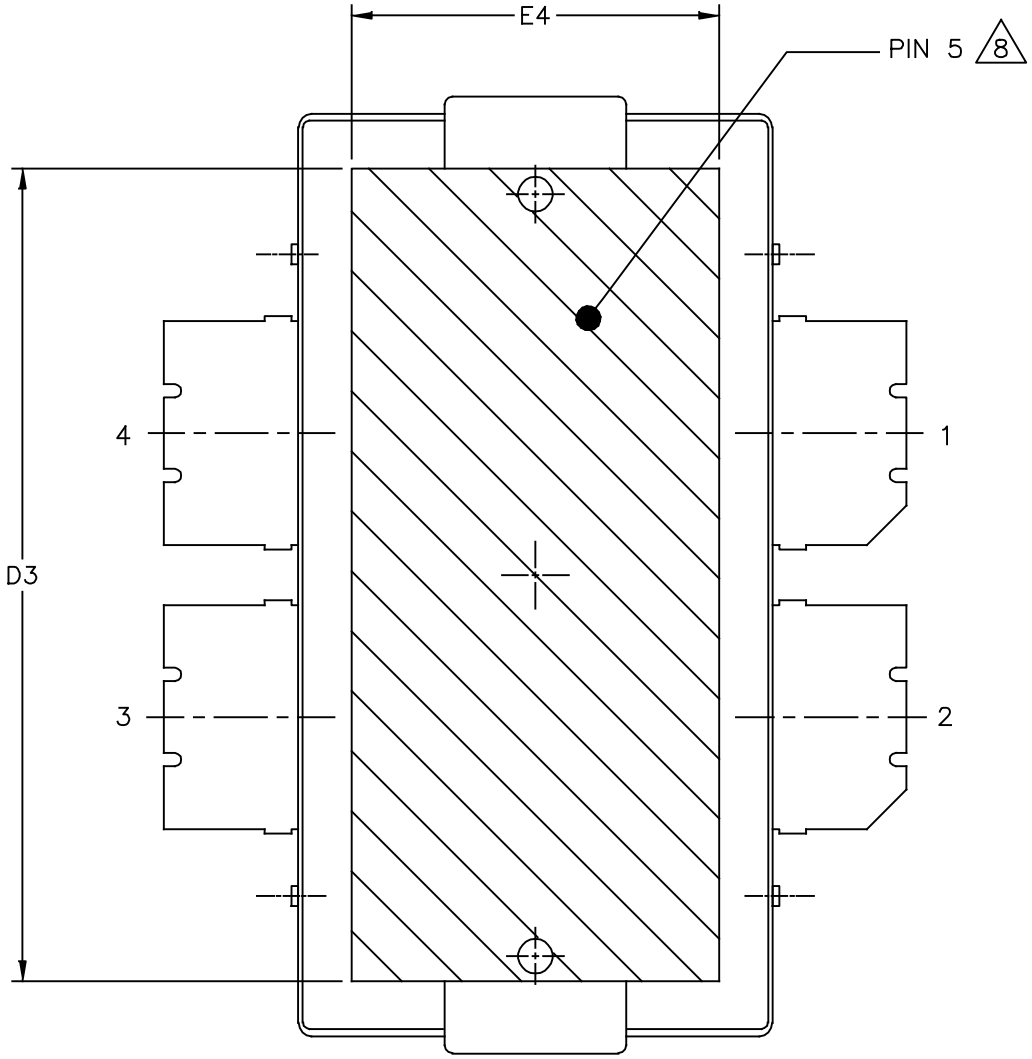
	27 AUG 2013	



VIEW Y–Y

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TITLE: TO–270WB–4	DOCUMENT NO: 98ASA10577D	REV: E
	STANDARD: NON–JEDEC	
	27 AUG 2013	

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 D1 AND E1 DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE PROTRUSION IS .006 INCH (0.15MM) PER SIDE. DIMENSIONS D1 AND E1 DO INCLUDE MOLD MISMATCH AND ARE DETERMINED AT DATUM PLANE H.

5. DIMENSIONS b1 DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE .005 INCH (0.13MM) TOTAL IN EXCESS OF THE b1 DIMENSION 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 AREA OF THE HEAT SLUG. DIMENSIONS D3 AND D4 REPRESENT THE VALUES BETWEEN THE TWO OPPOSITE POINTS ALONG THE EDGES OF EXPOSED AREA OF HEAT SLUG.

9. DIMPLED HOLE REPRESENTS INPUT SIDE.

10. 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	MIN	MAX
AA	.100	.104	2.54	2.64	F	.025 BSC		0.64 BSC	
A1	.039	.043	0.99	1.09	b1	.164	.170	4.17	4.32
A2	.040	.042	1.02	1.07	c1	.007	.011	0.18	0.28
D	.712	.720	18.08	18.29	e	.106 BSC		2.69 BSC	
D1	.688	.692	17.48	17.58	e1	.239 INFO ONLY		6.07 INFO ONLY	
D2	.011	.019	0.28	0.48	aaa	.004		0.10	
D3	.600	---	15.24	---	bbb	.008		0.20	
E	.551	.559	14.00	14.20					
E1	.353	.357	8.97	9.07					
E2	.132	.140	3.35	3.56					
E3	.124	.132	3.15	3.35					
E4	.270	---	6.86	---					
E5	.346	.350	8.79	8.89					

MECHANICAL OUTLINE | PRINT VERSION NOT TO SCALE

TITLE: TO–270WB–4

DOCUMENT NO: 98ASA10577D REV: E

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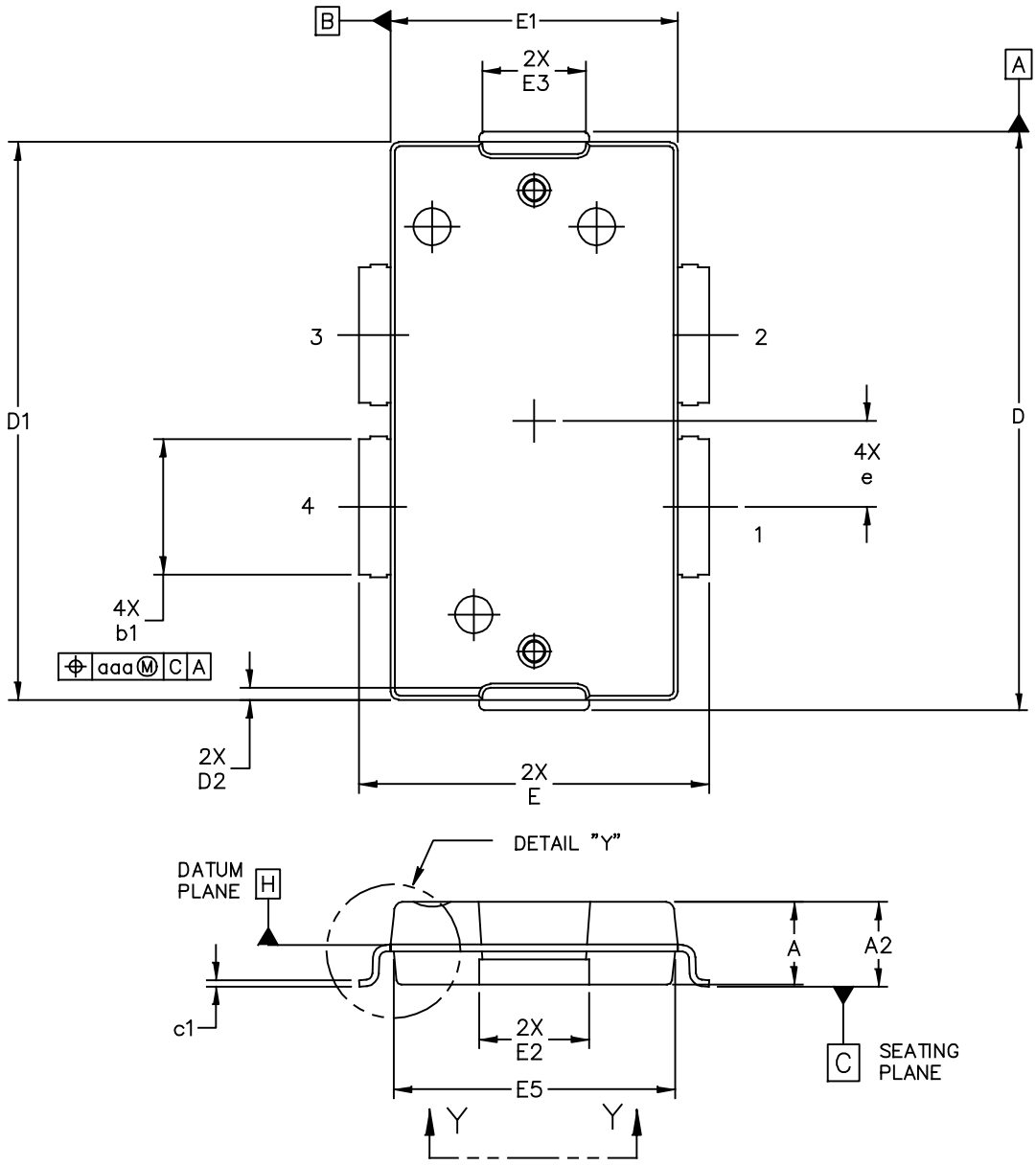
27 AUG 2013



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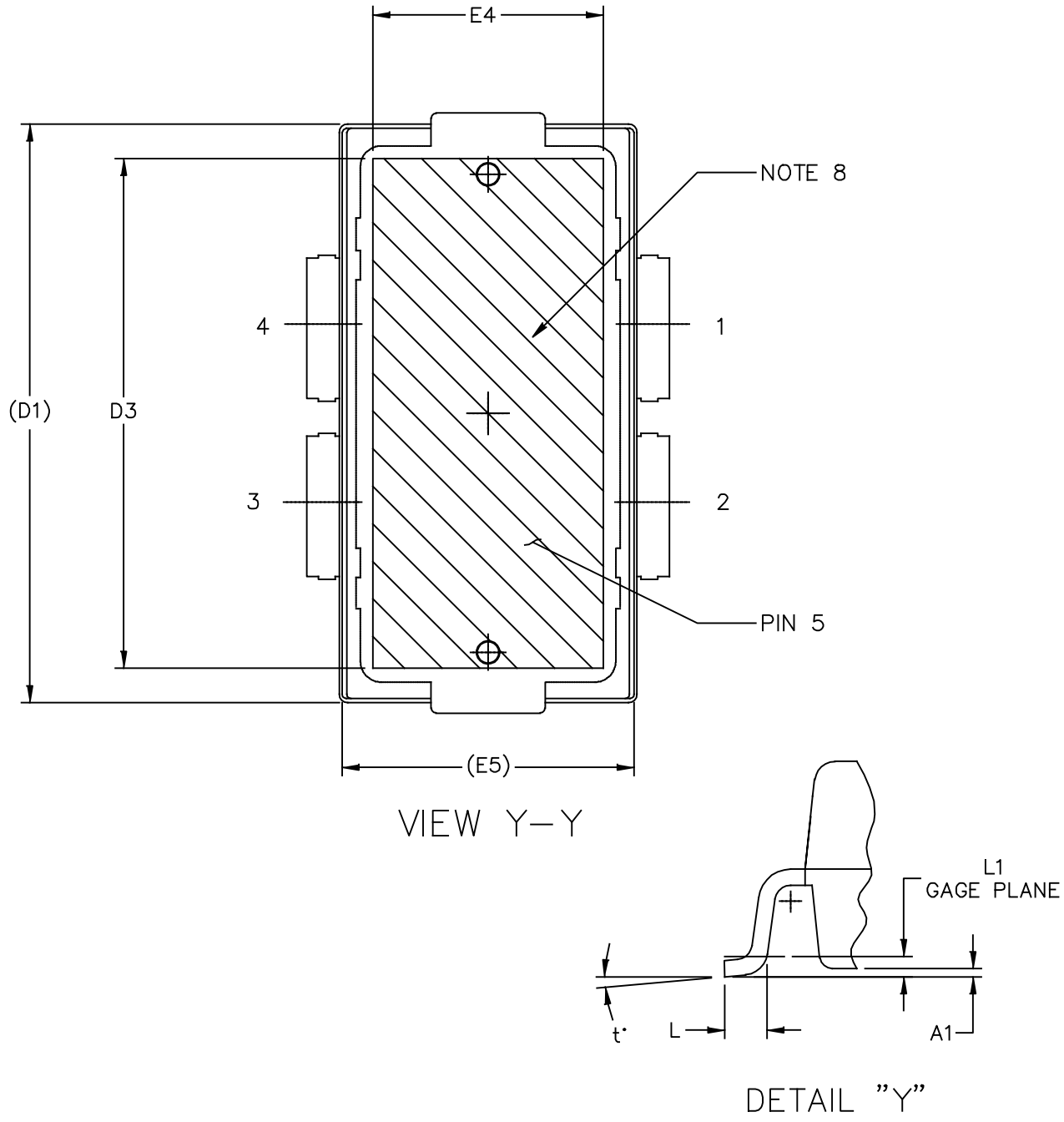
TITLE: TO−270 4 LEAD, WIDE BODY GULL WING	DOCUMENT NO: 98ASA10578D		REV: D
	CASE NUMBER: 1487−05		03 AUG 2007
	STANDARD: JEDEC TO−270 BB		



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TITLE: TO–270 4 LEAD, WIDE BODY GULL WING	DOCUMENT NO: 98ASA10578D	REV: D
	CASE NUMBER: 1487–05	03 AUG 2007
	STANDARD: JEDEC TO–270 BB	

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 (0.15) PER SIDE. DIMENSIONS "D" AND "E1" DO INCLUDE MOLD MISMATCH AND ARE DETERMINED AT DATUM PLANE –H–.

5. DIMENSION "b1" DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE .005 (0.13) TOTAL IN EXCESS OF THE "b1" DIMENSION AT MAXIMUM MATERIAL CONDITION.

6. HATCHING REPRESENTS THE EXPOSED AREA OF THE HEAT SLUG.

STYLE 1:
PIN 1 – DRAIN
PIN 2 – DRAIN
PIN 3 – GATE
PIN 4 – GATE
PIN 5 – SOURCE

DIM	INCH MIN	INCH MAX	MILLIMETER MIN	MILLIMETER MAX	DIM	INCH MIN	INCH MAX	MILLIMETER MIN	MILLIMETER MAX
A	.100	.104	2.54	2.64	L	.018	.024	0.46	0.61
A1	.001	.004	0.02	0.10	L1	.01 BSC		0.25 BSC	
A2	.101	.108	2.56	2.74	b1	.164	.170	4.17	4.32
D	.712	.720	18.08	18.29	c1	.007	.011	.18	.28
D1	.688	.692	17.48	17.58	e	.106 BSC		2.69 BSC	
D2	.011	.019	0.28	0.48	t	2°	8°	2°	8°
D3	.600	----	15.24	----	aaa	.004		0.1	
E	.429	.437	10.90	11.10					
E1	.353	.357	8.97	9.07					
E2	.132	.140	3.35	3.56					
E3	.124	.132	3.15	3.35					
E4	.270	----	6.86	----					
E5	.346	.350	8.79	8.89					

MECHANICAL OUTLINE	PRINT VERSION NOT TO SCALE

TITLE:	DOCUMENT NO: 98ASA10578D	REV: D
TO–270 4 LEAD, WIDE BODY GULL WING	CASE NUMBER: 1487–05	03 AUG 2007
	STANDARD: JEDEC TO–270 BB	

PRODUCT DOCUMENTATION, SOFTWARE AND TOOLS

Refer to the following resources to aid your design process.

Application Notes

- AN1907: Solder Reflow Attach Method for High Power RF Devices in Over-Molded Plastic Packages
- AN1955: Thermal Measurement Methodology of RF Power Amplifiers
- AN3789: Clamping of High Power RF Transistors and RFICs in Over-Molded Plastic Packages

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

For Software and Tools, do a Part Number search at http://www.freescale.com, and select the “Part Number” link. Go to the Software & Tools tab on the part’s Product Summary page to download the respective tool.

REVISION HISTORY

The following table summarizes revisions to this document.

Revision	Date	Description
0	Feb. 2013	• Initial Release of Data Sheet
1	Aug. 2014	• Tape and Reel information: corrected tape width information from 32-inch reel to 44-inch reel to reflect actual reel size, p. 1 • Replaced case outline TO-270WB-4, Issue D with Issue E, pp. 14–16. Added notes 9 and 10, four exposed source tabs, and a feature control frame to E and E5 on p. 14. Removed style and pin information from notes section on p. 16.

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