Document Number: AFT09MP055N
Rev. 0, 7/2013

RoHS

RF Power LDMOS Transistors

High Ruggedness N-Channel Enhancement-Mode Lateral MOSFETs

Designed for mobile two-way radio applications with frequencies from 764 to 941 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.

AFT09MP055NR1
AFT09MP055GNR1

764-941 MHz, 55 W, 12.5 V
BROADBAND
RF POWER LDMOS TRANSISTORS

Narrowband Performance

(In Freescale Test Circuit: 12.5 Vdc, $I_{DQ(A+B)}$ = 550 mA, T_A = 25°C, CW)

Frequency (MHz)	G_{ps} (dB)	η_D (%)	P_{out} (W)
870	17.5	69.0	57

800 MHz Broadband Performance

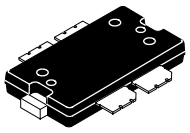
(In Freescale Reference Circuit: 12.5 Vdc, $I_{DQ(A+B)}$ = 800 mA, P_{in} = 1.5 W, T_A = 25°C, CW)

Frequency (MHz)	G_{ps} (dB)	η_D (%)	P_{out} (W)
764	16.1	56.0	61
816	15.8	58.0	57
870	15.7	61.0	56

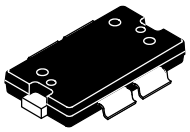
Load Mismatch/Ruggedness

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

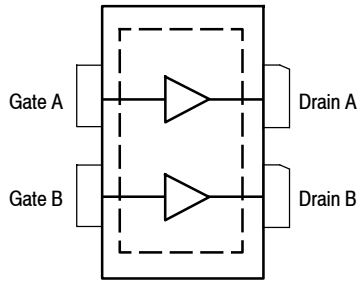
1. Measured in 764-870 MHz broadband test circuit.



TO-270WB-4
AFT09MP055NR1



TO-270WB-4 GULL
AFT09MP055GNR1



(Top View)

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

Figure 1. Pin Connections

Features

- Characterized for Operation from 764 to 941 MHz
- Integrated Input Matching Improves Broadband Performance
- Integrated ESD Protection
- Broadband — Full Power Across the Band (764-870 MHz)
- 225°C Capable Plastic Package
- Exceptional Thermal Performance
- Extreme Ruggedness
- High Linearity for: TETRA, SSB
- Cost-effective Over-molded Plastic Packaging
- In Tape and Reel. R1 Suffix = 500 Units, 44 mm Tape Width, 13-inch Reel.

Typical Applications

- Output Stage 800 MHz Band Mobile Radio
- Output Stage 700 MHz Band Mobile Radio

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}	19, +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	625 3.13	W W/°C

Table 2. Thermal Characteristics

Characteristic	Symbol	Value (2,3)	Unit
Thermal Resistance, Junction to Case Case Temperature 78°C, 55 W CW, 12.5 Vdc, $I_{DQ(A+B)}$ = 550 mA, 870 MHz	$R_{\theta JC}$	0.32	°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 150 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}	—	—	1	μAdc
On Characteristics					
Gate Threshold Voltage (V_{DS} = 10 Vdc, I_D = 270 μAdc)	$V_{GS(th)}$	1.6	2.1	2.6	Vdc
Drain-Source On-Voltage (V_{GS} = 10 Vdc, I_D = 2.85 Adc)	$V_{DS(on)}$	—	0.14	—	Vdc
Forward Transconductance (4) (V_{GS} = 10 Vdc, I_D = 7.5 Adc)	g_{fs}	—	7	—	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.

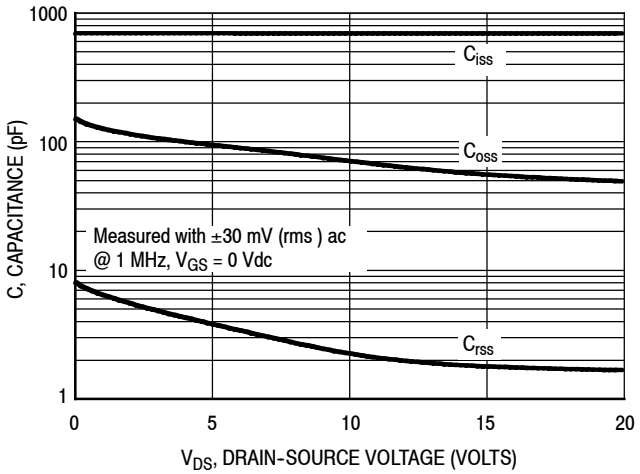
(continued)

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}	—	1.9	—	pF
Output Capacitance (V_{DS} = 12.5 Vdc ± 30 mV(rms)ac @ 1 MHz, V_{GS} = 0 Vdc)	C_{oss}	—	61	—	pF
Input Capacitance (V_{DS} = 12.5 Vdc, V_{GS} = 0 Vdc ± 30 mV(rms)ac @ 1 MHz)	C_{iss} (2)	—	690	—	pF
Functional Tests (3) (In Freescale Narrowband Test Fixture, 50 ohm system) V_{DD} = 12.5 Vdc, $I_{DQ(A+B)}$ = 550 mA, P_{in} = 1 W, f = 870 MHz					
Common-Source Amplifier Output Power	P_{out}	—	57	—	W
Drain Efficiency	η_D	—	69.0	—	%

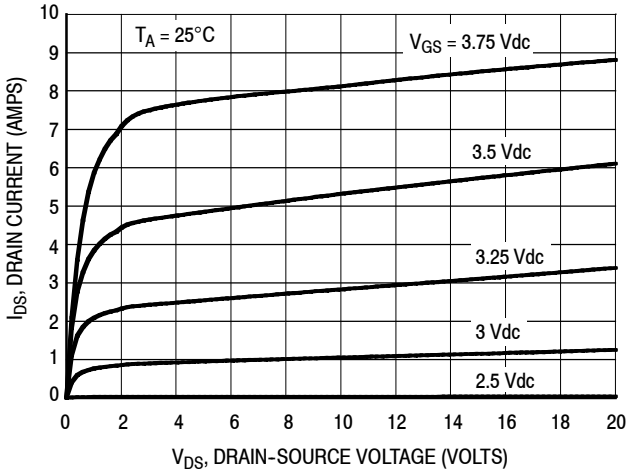
1. Each side of device measured separately.
2. Value includes input matching network.
3. Measurement made with device in straight lead configuration before any lead forming operation is applied. Lead forming is used for gull wing (GN) parts.

TYPICAL CHARACTERISTICS



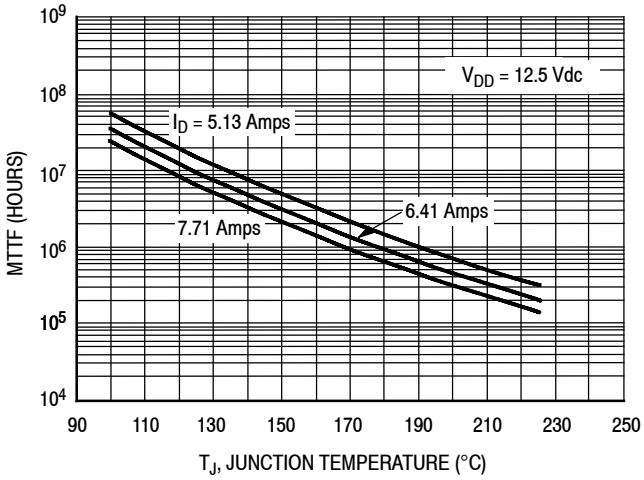
Note: Each side of device measured separately.
C_{iss} value includes input matching network.

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

870 MHz NARROWBAND PRODUCTION TEST FIXTURE

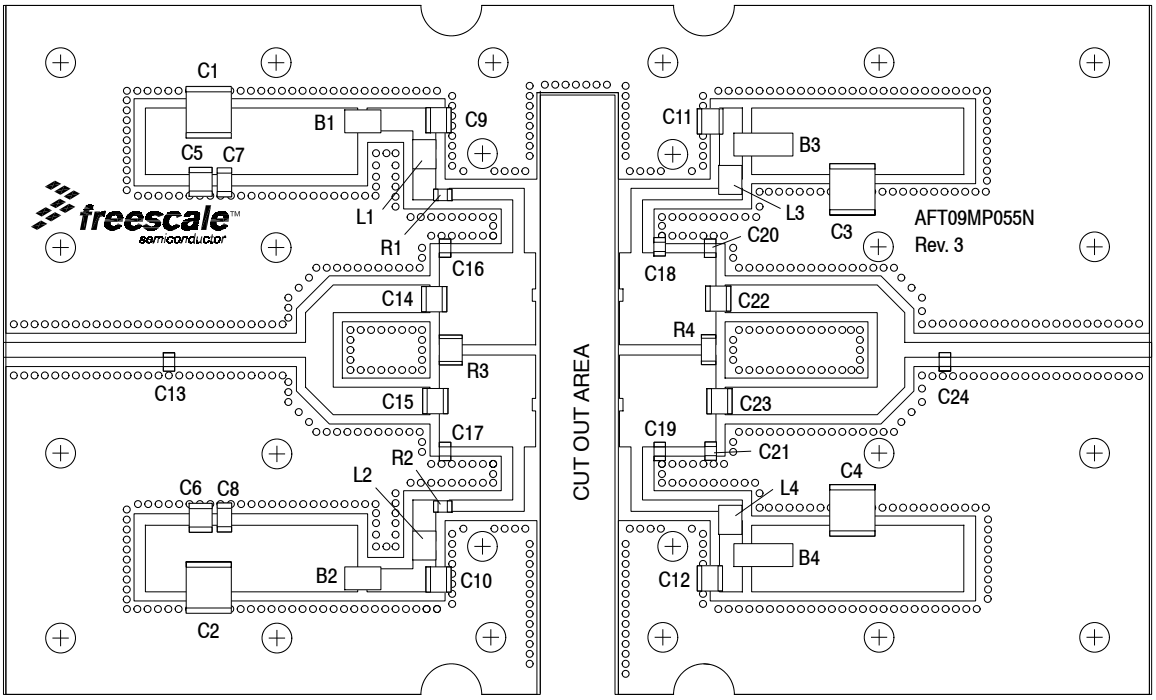


Figure 5. AFT09MP055NR1 Narrowband Test Circuit Component Layout — 870 MHz

Table 6. AFT09MP055NR1 Narrowband Test Circuit Component Designations and Values — 870 MHz

Part	Description	Part Number	Manufacturer
B1, B2	RF Beads, Short	2743019447	Fair-Rite
B3, B4	RF Beads, Long	2743021447	Fair-Rite
C1, C2, C3, C4	10 μF Chip Capacitors	GRM55DR61H106KA88L	Murata
C5, C6	0.1 μF Chip Capacitors	GRM32MR71H104JA01L	Murata
C7, C8	1 μF Chip Capacitors	GRM31MR71H105KA88L	Murata
C9, C10	68 pF Chip Capacitors	ATC100B680JT500XT	ATC
C11, C12, C22, C23	56 pF Chip Capacitors	ATC100B560CT500XT	ATC
C13	7.5 pF Chip Capacitor	GQM2195C2E7R5BB15	Murata
C14, C15	7.5 pF Chip Capacitors	ATC100B7R5CT500XT	ATC
C16, C17	12 pF Chip Capacitors	ATC600F120JT250XT	ATC
C18, C19, C20, C21	9.1 pF Chip Capacitors	GQM2195C2E9R1BB15	Murata
C24	3 pF Chip Capacitor	ATC600F3R0BT250XT	ATC
L1, L2, L3, L4	2.5 nH Inductors	A01TKLC	Coilcraft
R1, R2	10 Ω Chip Resistors	CRCW120610R0JNEA	Vishay
R3	2.0 Ω Chip Resistor	ERJ-14YJ2R0U	Panasonic
R4	5.9 Ω Chip Resistor	CRCW12065R90FKEA	Vishay
PCB	0.030″, ε_r = 4.8	RF35A2	Taconic

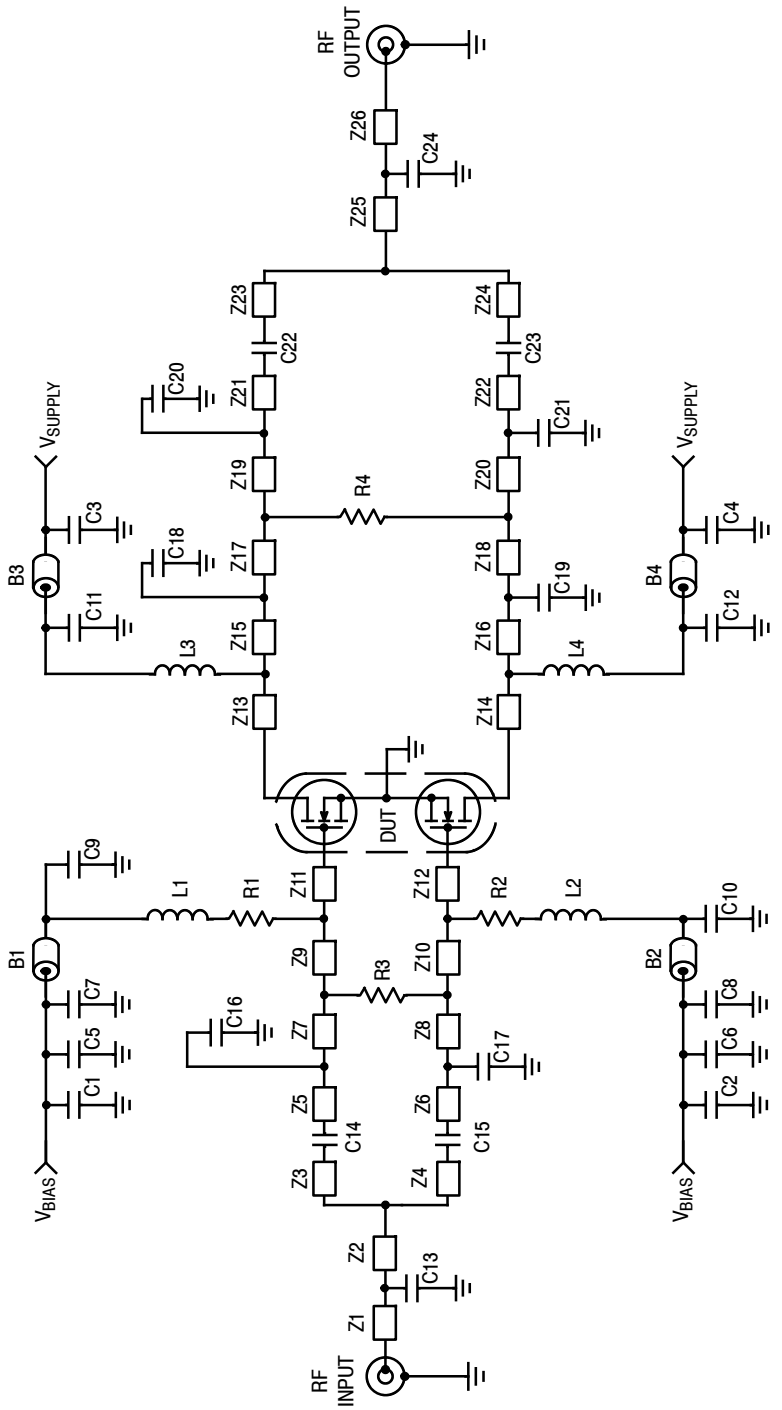


Figure 6. AFT09MP055NR1 Narrowband Test Circuit Schematic — 870 MHz

Table 7. AFT09MP055NR1 Narrowband Test Circuit Microstrips — 870 MHz

Microstrip	Description
Z1	0.721″ × 0.065″ Microstrip
Z2	0.595″ × 0.065″ Microstrip
Z3*, Z4*	0.670″ × 0.120″ Microstrip
Z5, Z6	0.025″ × 0.400″ Microstrip
Z7, Z8	0.025″ × 0.400″ Microstrip
Z9, Z10	0.295″ × 0.400″ Microstrip
Z11, Z12	0.075″ × 0.400″ Microstrip
Z13, Z14	0.075″ × 0.400″ Microstrip
Z15, Z16	0.100″ × 0.400″ Microstrip
Z17, Z18	0.213″ × 0.400″ Microstrip
Z19, Z20	0.007″ × 0.400″ Microstrip
Z21, Z22	0.025″ × 0.400″ Microstrip
Z23*, Z24*	0.885″ × 0.120″ Microstrip
Z25	0.175″ × 0.065″ Microstrip
Z26	0.901″ × 0.065″ Microstrip

* Line length includes microstrip bends

TYPICAL CHARACTERISTICS — 870 MHz

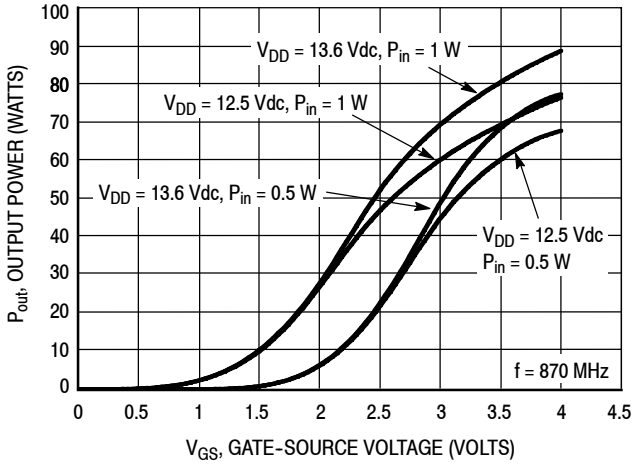


Figure 7. Output Power versus Gate-Source Voltage at a Constant Input Power

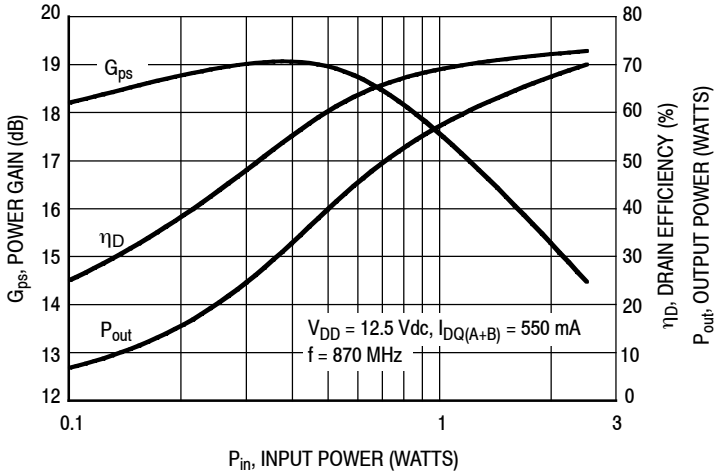


Figure 8. Power Gain, Drain Efficiency and Output Power versus Input Power

V_{DD} = 12.5 Vdc, $I_{DQ(A+B)}$ = 550 mA, P_{out} = 57 W Avg.

f MHz	Z_{source} Ω	Z_{load} Ω
870	1.40 – j1.00	0.61 – j0.14

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

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

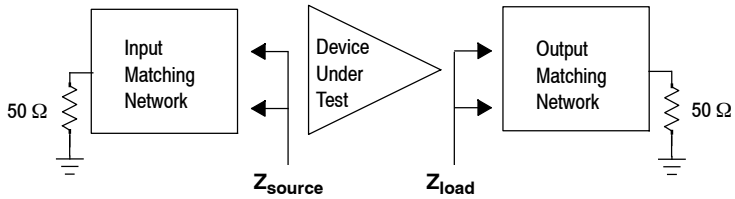


Figure 9. Narrowband Series Equivalent Source and Load Impedance — 870 MHz

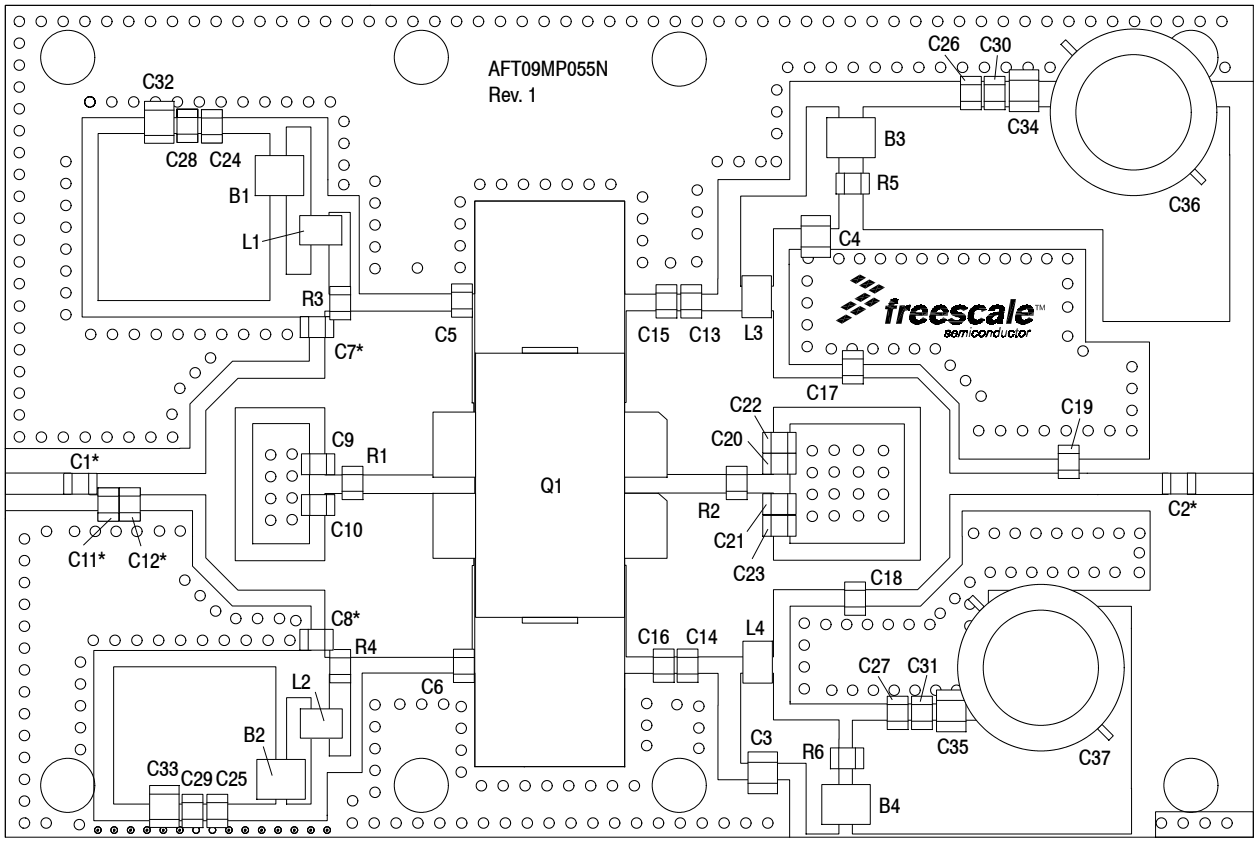
Table 8. 764–870 MHz Broadband Performance (In Freescale Reference Circuit, 50 ohm system)
V_{DD} = 12.5 Vdc, $I_{DQ(A+B)}$ = 800 mA, P_{out} = 55 W, T_A = 25°C, CW

Frequency (MHz)	G_{ps} (dB)	η_D (%)	P_{out} (W)
764	16.6	54.2	55
816	16.0	59.2	55
870	15.8	61.1	55

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

Frequency (MHz)	Signal Type	VSWR	P_{in} (W)	Test Voltage, V_{DD}	Result
764	CW	>65:1 at all Phase Angles	3 (3 dB Overdrive)	15	No Device Degradation

764–870 MHz BROADBAND REFERENCE CIRCUIT



*C1, C2, C7, C8, C11 and C12 are mounted vertically.

Figure 10. AFT09MP055NR1 Broadband Reference Circuit Component Layout — 764–870 MHz

Table 10. AFT09MP055NR1 Broadband Reference Circuit Component Designations and Values — 764–870 MHz

Part	Description	Part Number	Manufacturer
B1, B2, B3, B4	RF Beads, Short	2743019447	Fair-Rite
C1, C2, C3, C4	56 pF Chip Capacitors	ATC100B560GT1500XT	ATC
C5, C6, C7, C8	10 pF Chip Capacitors	ATC600F100GT250XT	ATC
C9, C10	8.2 pF Chip Capacitors	ATC600F8R2JT250XT	ATC
C11	4.7 pF Chip Capacitor	ATC600F4R7GT250XT	ATC
C12	5.6 pF Chip Capacitor	ATC600F5R6GT250XT	ATC
C13, C14	15 pF Chip Capacitors	ATC600F150JT250XT	ATC
C15, C16, C17, C18	3.9 pF Chip Capacitors	ATC600F3R9GT250XT	ATC
C19	6.8 pF Chip Capacitor	ATC600F6R8GT250XT	ATC
C20, C21	2.2 pF Chip Capacitors	ATC600F2R2GT250XT	ATC
C22, C23	1.5 pF Chip Capacitors	ATC600F1R5GT250XT	ATC
C24, C25, C26, C27	0.1 μF Chip Capacitors	GRM32MR71H104JA01L	Murata
C28, C29, C30, C31	1 μF Chip Capacitors	GRM31MR71H105KA88L	Murata
C32, C33, C34, C35	10 μF Chip Capacitors	GRM55DR61H106KA88L	Murata
C36, C37	470 μF, 63 V Electrolytic Capacitors	MCGPR63V477M13X26-RH	Multicomp
L1, L2, L3, L4	12.5 nH Chip Inductors	A04TKLC	Coilcraft
Q1	RF Power LDMOS Transistor	AFT09MP055NR1	Freescale
R1, R2, R3, R4, R5, R6	10 Ω, Chip Resistors	CRCW201010R0FKEF	Vishay
PCB	0.030″, ε_r = 4.8	S1000-2	Shengyi

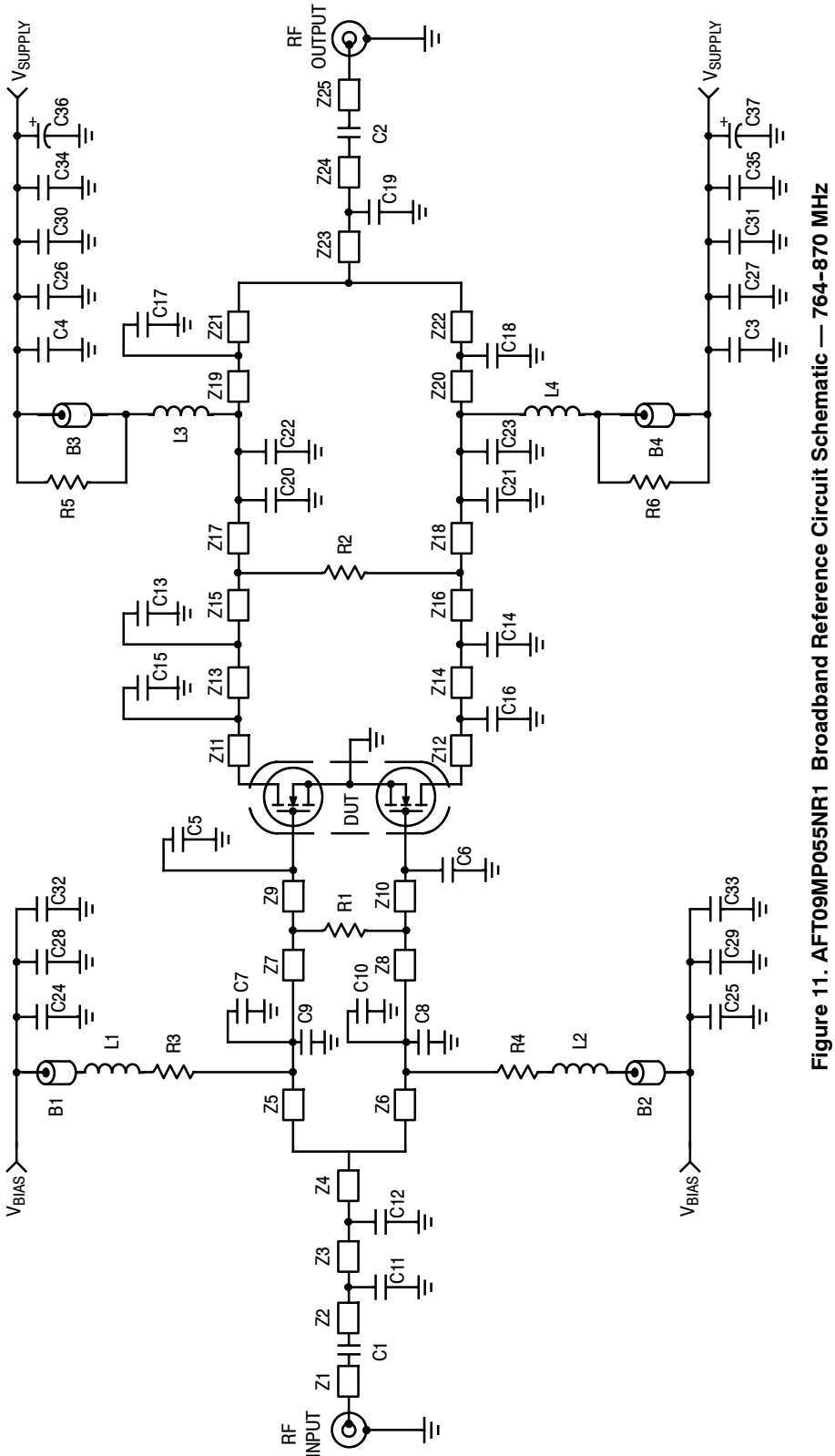


Figure 11. AFT09MP055NR1 Broadband Reference Circuit Schematic — 764–870 MHz

Table 11. AFT09MP055NR1 Broadband Reference Circuit Microstrips — 764–870 MHz

Microstrip	Description
Z1	0.157″ × 0.051″ Microstrip
Z2	0.043″ × 0.051″ Microstrip
Z3	0.052″ × 0.051″ Microstrip
Z4	0.185″ × 0.051″ Microstrip
Z5*, Z6*	0.408″ × 0.071″ Microstrip
Z7, Z8	0.035″ × 0.393″ Microstrip
Z9, Z10	0.319″ × 0.393″ Microstrip
Z11, Z12	0.097″ × 0.393″ Microstrip
Z13, Z14	0.052″ × 0.393″ Microstrip
Z15, Z16	0.119″ × 0.393″ Microstrip
Z17, Z18	0.083″ × 0.393″ Microstrip
Z19, Z20	0.190″ × 0.071″ Microstrip
Z21*, Z22*	0.500″ × 0.071″ Microstrip
Z23	0.240″ × 0.051″ Microstrip
Z24	0.280″ × 0.051″ Microstrip
Z25	0.157″ × 0.051″ Microstrip

* Line length includes microstrip bends

TYPICAL CHARACTERISTICS — 764–870 MHz BROADBAND REFERENCE CIRCUIT

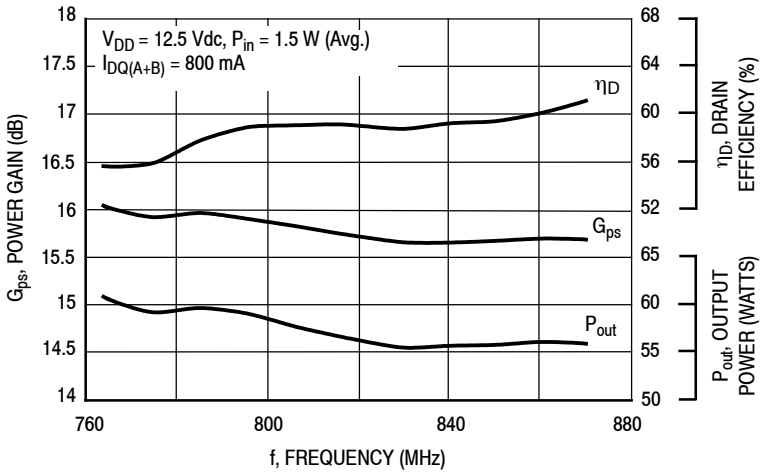


Figure 12. Power Gain, Output Power and Drain Efficiency versus Frequency at a Constant Input Power — 12.5 Vdc

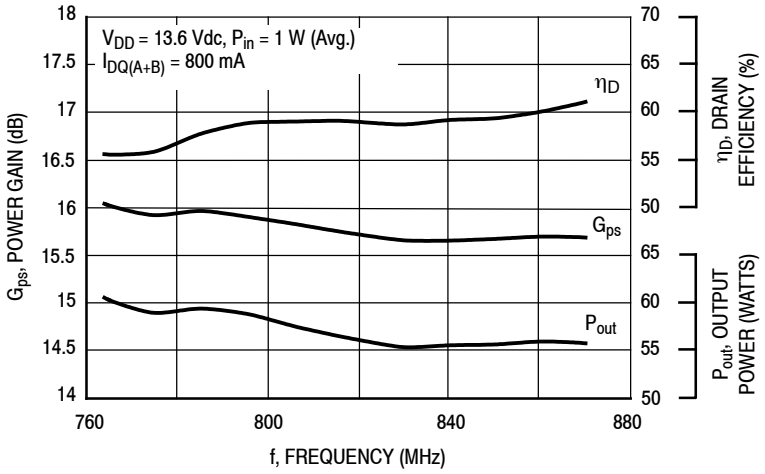


Figure 13. Power Gain, Output Power and Drain Efficiency versus Frequency at a Constant Input Power — 13.6 Vdc

TYPICAL CHARACTERISTICS — 764–870 MHz BROADBAND REFERENCE CIRCUIT

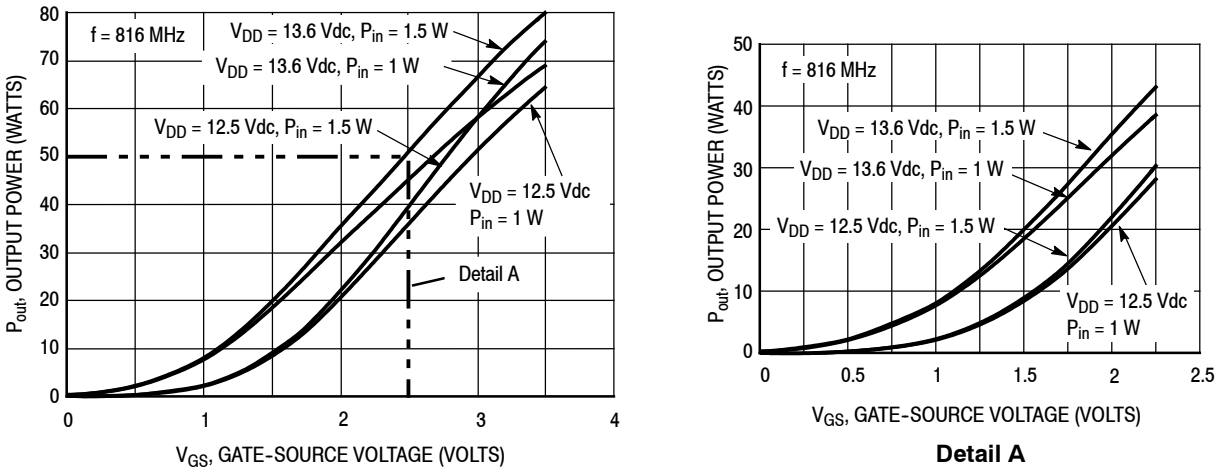


Figure 14. Output Power versus Gate–Source Voltage

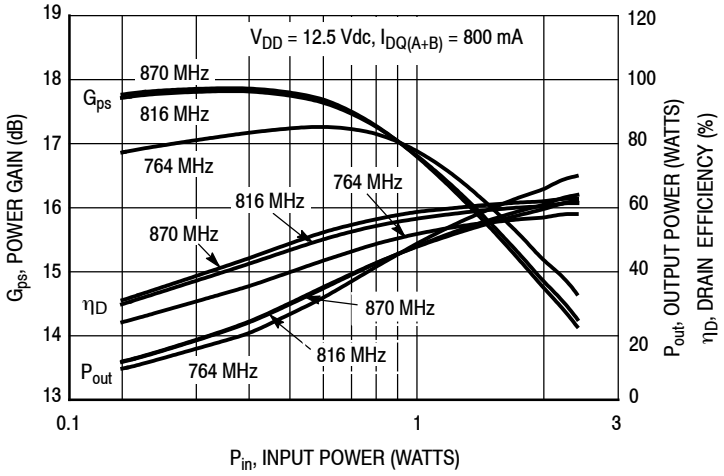
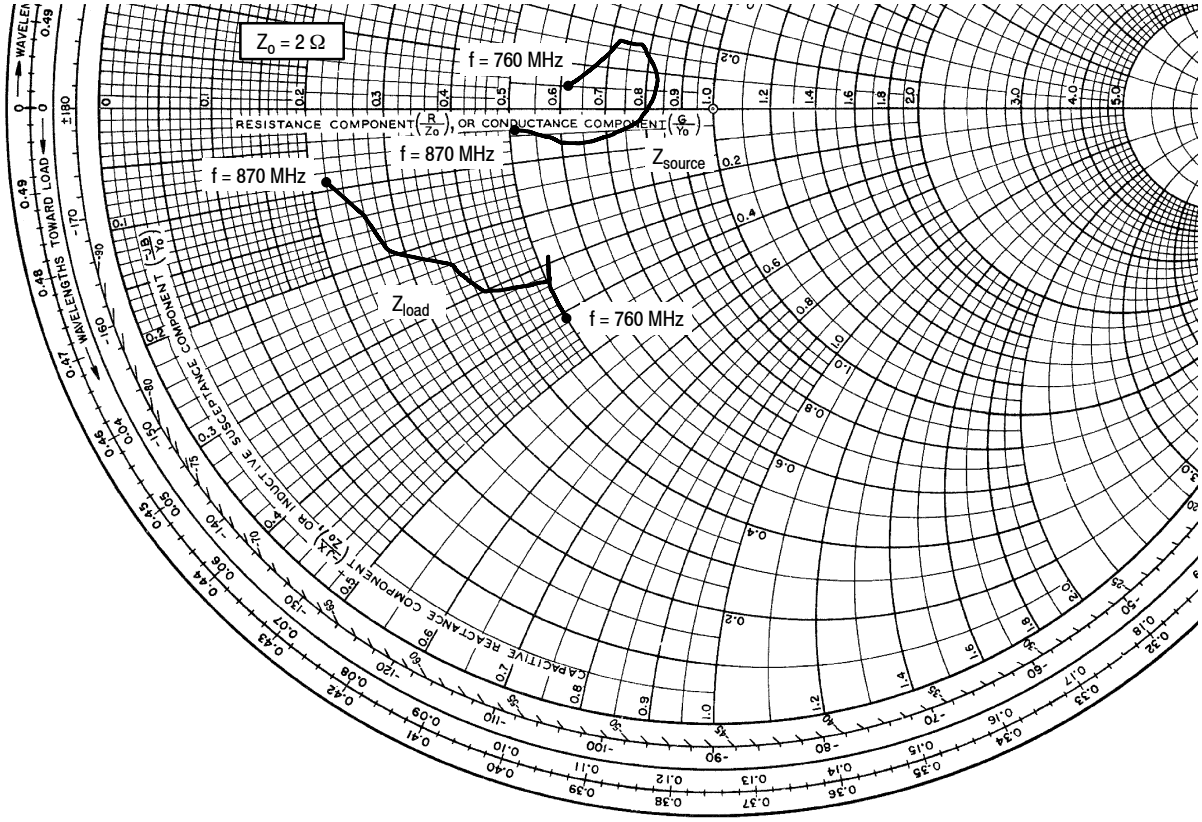


Figure 15. Power Gain, Output Power and Drain Efficiency versus Input Power and Frequency



V_{DD} = 12.5 Vdc, $I_{DQ(A+B)}$ = 800 mA, P_{out} = 55 W Avg.

f MHz	Z_{source} Ω	Z_{load} Ω
760	1.24 + j0.09	1.00 – j0.81
770	1.30 + j0.15	1.00 – j0.75
780	1.35 + j0.21	1.00 - j0.72
790	1.43 + j0.34	1.01 - j0.61
800	1.54 + j0.34	1.03 - j0.58
810	1.66 + j0.18	0.99 - j0.65
820	1.63 + j0.06	0.90 - j0.63
830	1.55 - j0.07	0.78 - j0.60
840	1.42 - j0.12	0.71 - j0.48
850	1.21 - j0.13	0.56 - j0.37
860	1.15 - j0.12	0.52 - j0.28
870	1.01 - j0.10	0.43 - j0.17

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

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

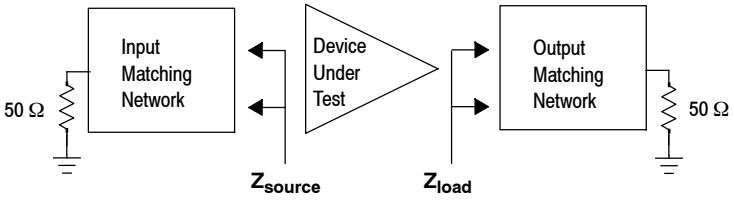
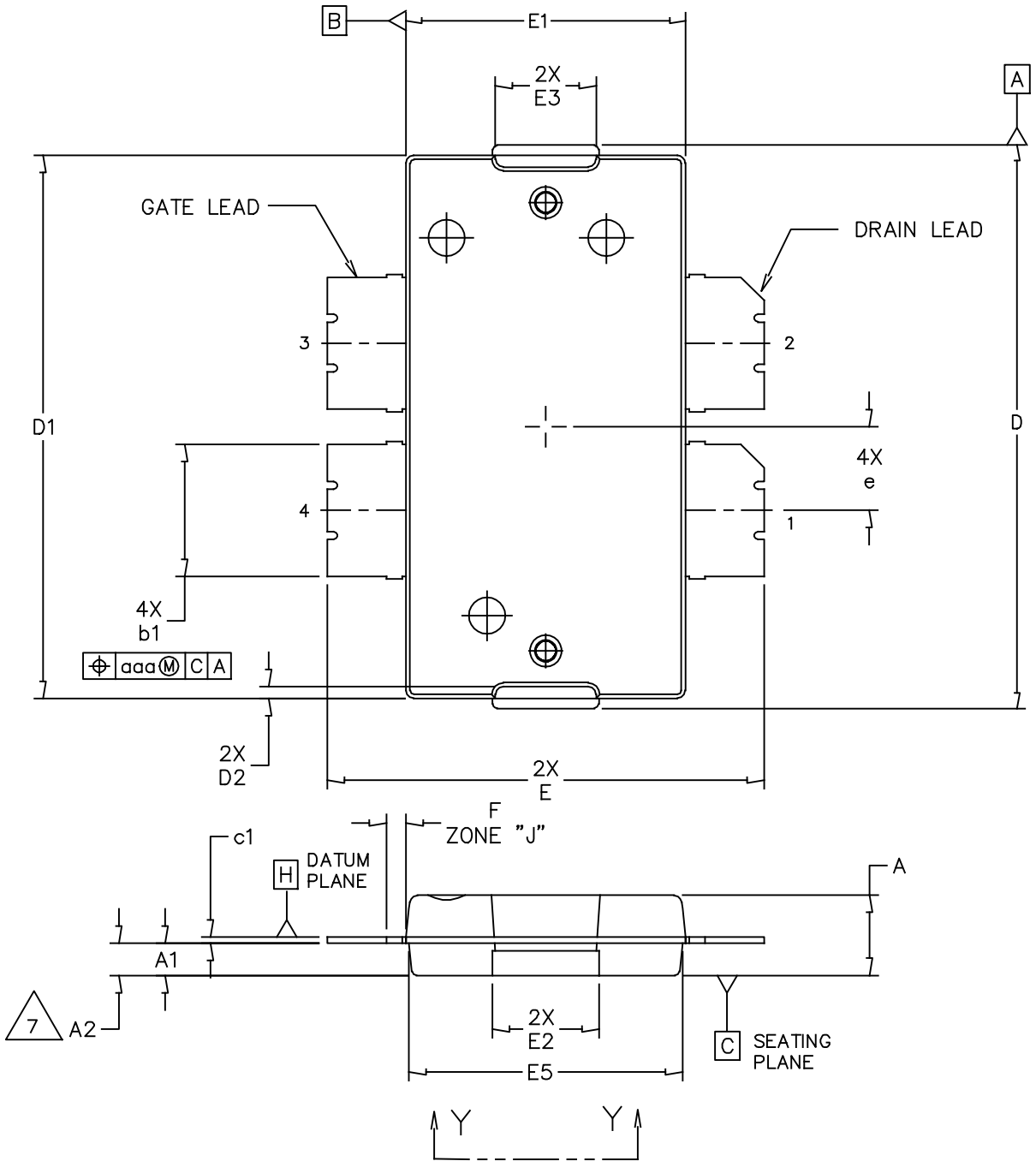
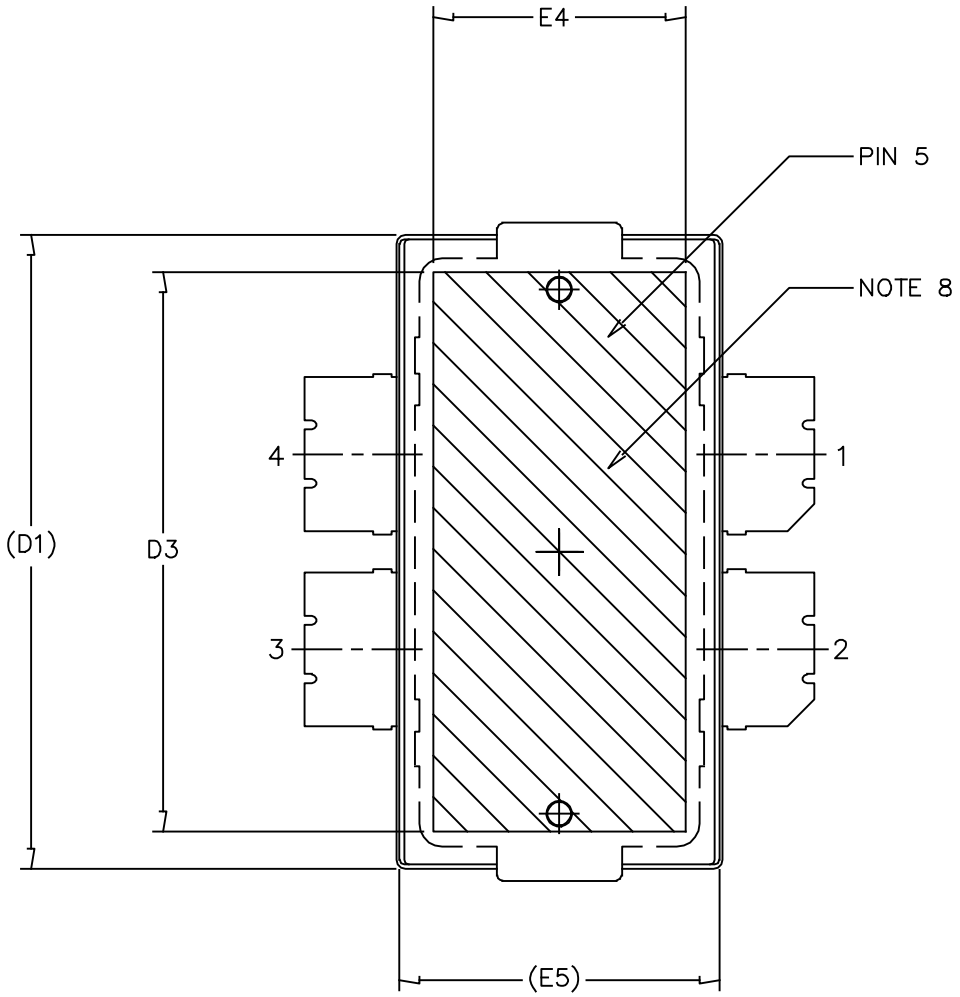


Figure 16. Broadband Series Equivalent Source and Load Impedance — 764–870 MHz

PACKAGE DIMENSIONS



© FREESCALE SEMICONDUCTOR, INC. ALL RIGHTS RESERVED.	MECHANICAL OUTLINE	PRINT VERSION NOT TO SCALE
TITLE: TO-270 4 LEAD, WIDE BODY	DOCUMENT NO: 98ASA10577D	REV: D
	CASE NUMBER: 1486-03	13 AUG 2007
	STANDARD: NON-JEDEC	



© FREESCALE SEMICONDUCTOR, INC. ALL RIGHTS RESERVED.	MECHANICAL OUTLINE	PRINT VERSION NOT TO SCALE
TITLE: TO−270 4 LEAD, WIDE BODY	DOCUMENT NO: 98ASA10577D	REV: D
	CASE NUMBER: 1486−03	13 AUG 2007
	STANDARD: NON−JEDEC	

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 PER SIDE. DIMENSIONS "D" 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 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.

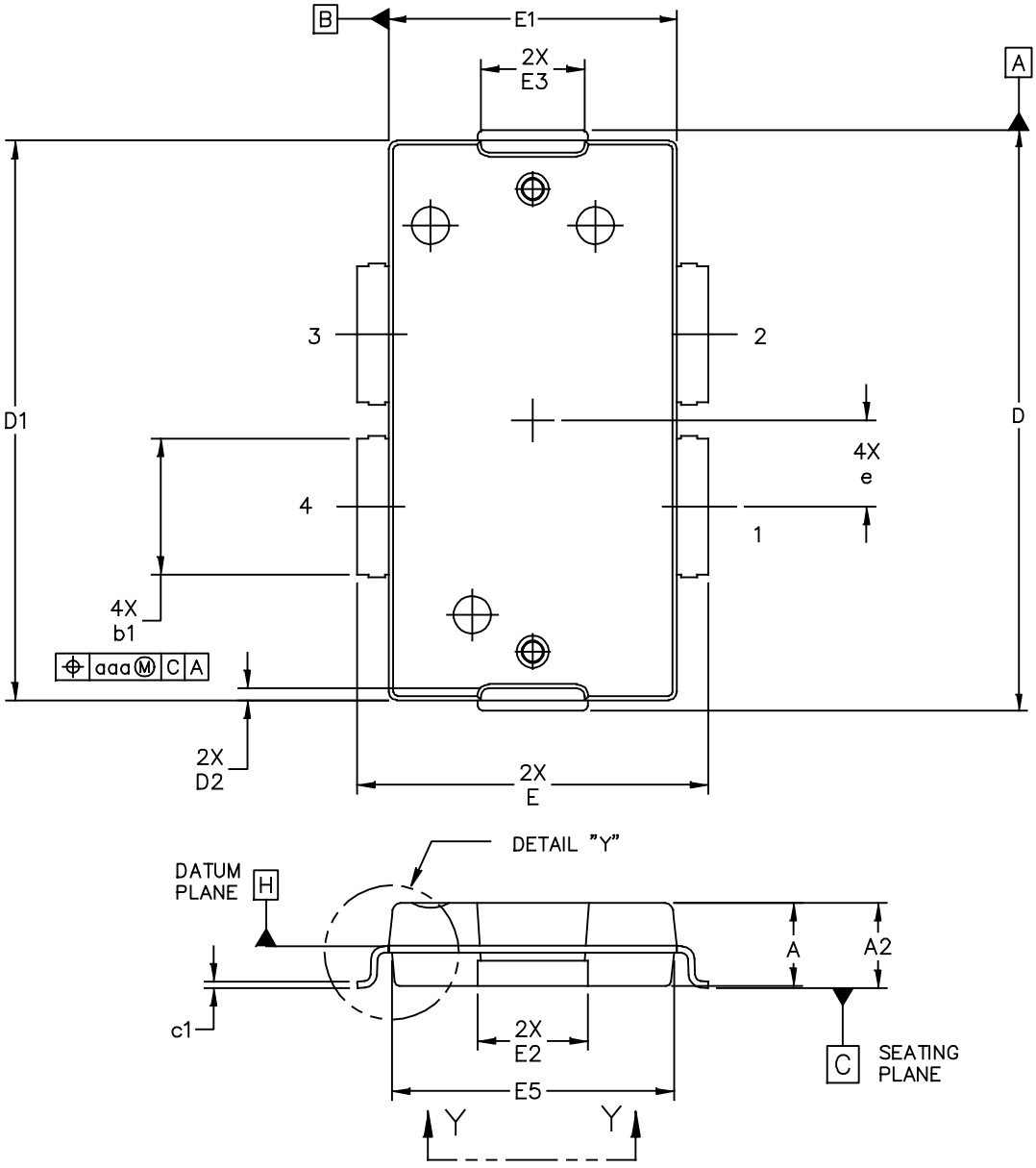
8. HATCHING REPRESENTS THE EXPOSED AREA OF THE HEAT SLUG.

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

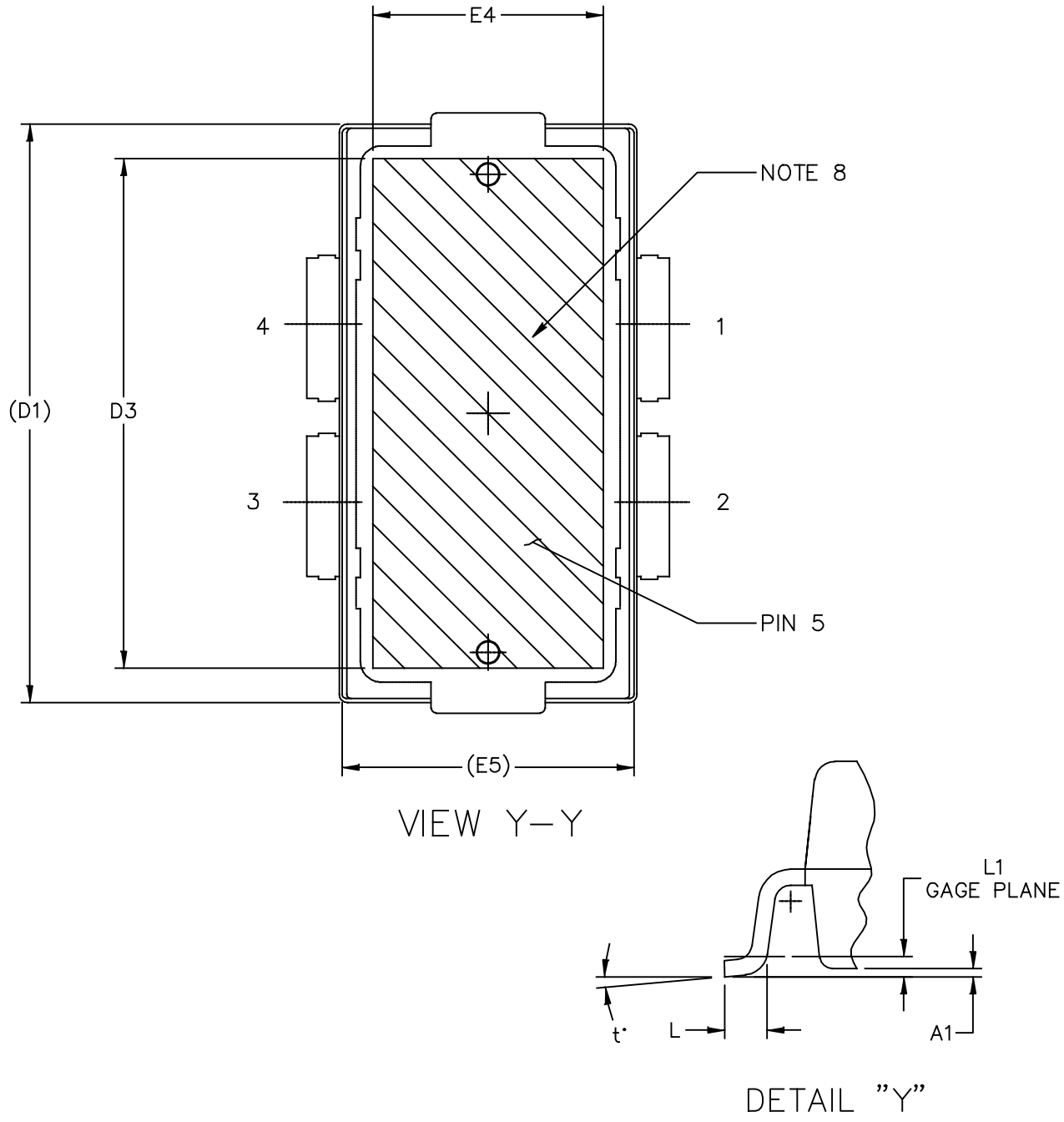
DIM	INCH MIN	INCH MAX	MILLIMETER MIN	MILLIMETER MAX	DIM	INCH MIN	INCH MAX	MILLIMETER MIN	MILLIMETER MAX
A	.100	.104	2.54	2.64	F	.025 BSC		0.64 BSC	
A1	.039	.043	0.99	1.09	b1	.164	.170	4.17	4.32
A2	.040	.042	1.02	1.07	c1	.007	.011	.18	.28
D	.712	.720	18.08	18.29	e	.106 BSC		2.69 BSC	
D1	.688	.692	17.48	17.58	aaa	.004		.10	
D2	.011	.019	0.28	0.48					
D3	.600	---	15.24	---					
E	.551	.559	14	14.2					
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: 98ASA10577D	REV: D
TO–270 4 LEAD WIDE BODY	CASE NUMBER: 1486–03	13 AUG 2007
	STANDARD: NON–JEDEC	



© FREESCALE SEMICONDUCTOR, INC. ALL RIGHTS RESERVED.	MECHANICAL OUTLINE	PRINT VERSION NOT TO SCALE
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	



© FREESCALE SEMICONDUCTOR, INC. ALL RIGHTS RESERVED.	MECHANICAL OUTLINE	PRINT VERSION NOT TO SCALE
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 documents, software and tools 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

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	July 2013	• Initial Release of Data Sheet

How to Reach Us:

Home Page:
freescale.com

Web Support:
freescale.com/support

Document Number: AFT09MP055N
Rev. 0, 7/2013

LifeElectronics
Живое партнерство

ООО «ЛайфЭлектроникс» **“LifeElectronics” LLC**

ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- *Конкурентоспособные цены и скидки постоянным клиентам.*
- *Специальные условия для постоянных клиентов.*
- *Подбор аналогов.*
- *Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.*

- *Приемлемые сроки поставки, возможна ускоренная поставка.*
- *Доставку товара в любую точку России и стран СНГ.*
- *Комплексную поставку.*
- *Работу по проектам и поставку образцов.*
- *Формирование склада под заказчика.*

- *Сертификаты соответствия на поставляемую продукцию (по желанию клиента).*
- *Тестирование поставляемой продукции.*
- *Поставку компонентов, требующих военную и космическую приемку.*
- *Входной контроль качества.*
- *Наличие сертификата ISO.*

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- *Регистрацию проекта у производителя компонентов.*
- *Техническую поддержку проекта.*
- *Защиту от снятия компонента с производства.*
- *Оценку стоимости проекта по компонентам.*
- *Изготовление тестовой платы монтаж и пусконаладочные работы.*

Тел: +7 (812) 336 43 04 (многоканальный)
Email: org@lifeelectronics.ru

www.lifeelectronics.ru