



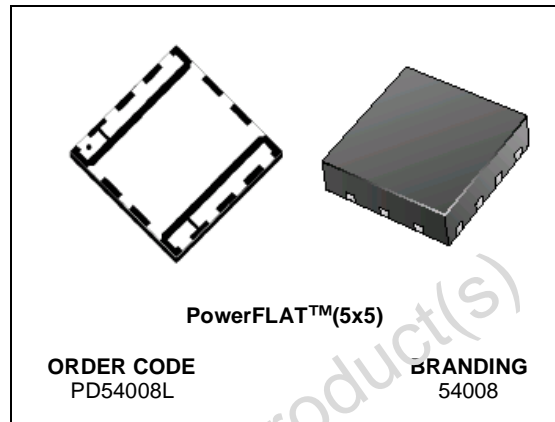
PD54008L

RF POWER TRANSISTORS The *LdmoST* PLASTIC FAMILY

ADVANCED DATA

N-CHANNEL ENHANCEMENT-MODE LATERAL MOSFETs

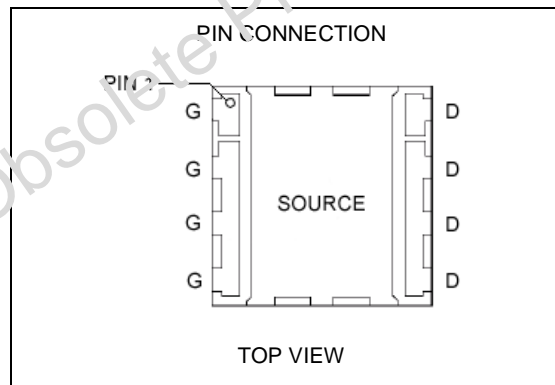
- EXCELLENT THERMAL STABILITY
- COMMON SOURCE CONFIGURATION
- BROADBAND PERFORMANCES
P_{OUT} = 8 W WITH 15 dB GAIN @ 500 MHz
- NEW LEADLESS PLASTIC PACKAGE
- ESD PROTECTION
- SUPPLIED IN TAPE & REEL OF 3K UNITS



DESCRIPTION

The PD54008L is a common source N-Channel, enhancement-mode lateral Field-Effect RF power transistor. It is designed for high gain, broad band commercial and industrial applications. It operates at 7 V in common source mode at frequencies of up to 1 GHz. PD54008L boasts the excellent gain, linearity and reliability of STH1LV latest LDMOS technology mounted in the innovative leadless SMD plastic package, PowerFLAT™.

PD54008L's superior linearity performance makes it an ideal solution for portable radio.



ABSOLUTE MAXIMUM RATINGS (T_{CASE} = 25 °C)

Symbol	Parameter	Value	Unit
V _{BR(DSS)}	Drain-Source Voltage	25	V
V _{GS}	Gate-Source Voltage	-0.5 to +15	V
I _D	Drain Current	5	A
P _{DISS}	Power Dissipation (@ T _c = 70°C)	26.7	W
T _j	Max. Operating Junction Temperature	150	°C
T _{STG}	Storage Temperature	-65 to +150	°C

THERMAL DATA

R _{th(j-c)}	Junction -Case Thermal Resistance	3	°C/W
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PD54008L

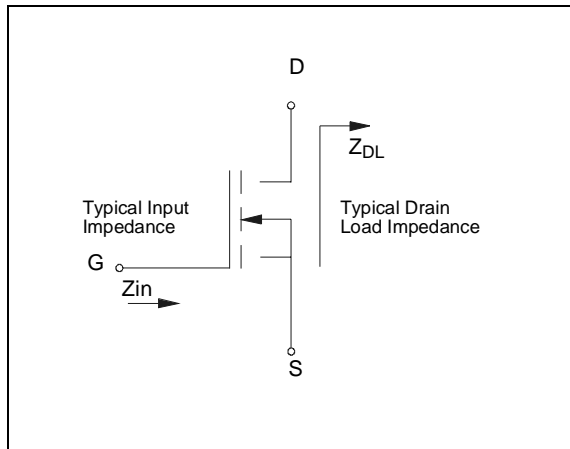
ELECTRICAL SPECIFICATION (T_{CASE} = 25 °C)

STATIC (Per Section)

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I _{DSS}	V _{GS} = 0 V	V _{DS} = 25 V			1	μA
I _{GSS}	V _{GS} = 5 V	V _{DS} = 0 V			1	μA
V _{GS(Q)}	V _{DS} = 10 V	I _D = 50 mA	2.0		5.0	V
V _{DS(ON)}	V _{GS} = 10 V	I _D = 0.5 A		0.09		V
C _{ISS}	V _{GS} = 0 V	V _{DS} = 7.5 V		80		pF
C _{OSS}	V _{GS} = 0 V	V _{DS} = 7.5 V		60		pF
C _{RSS}	V _{GS} = 0 V	V _{DS} = 7.5 V		6.6		pF

DYNAMIC

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
P _{1dB}	V _{DD} = 7.5 V	I _{DQ} = 200 mA	f = 500 MHz	8		W
G _{PS}	V _{DD} = 7.5 V	I _{DQ} = 200 mA	P _{OUT} = 8 W	f = 500 MHz	15	dB
η _D	V _{DD} = 7.5 V	I _{DQ} = 200 mA	P _{OUT} = 8 W	f = 500 MHz	50	%
Load mismatch	V _{DD} = 9.5 V	I _{DQ} = 200 mA	P _{OUT} = 8 W	f = 500 MHz	20:1	VSWR
	ALL PHASE ANGLES					



IMPEDANCE DATA ⁽¹⁾

FREQ. (MHz)	Z _{IN} (Ω)	Z _{DL} (Ω)
480	1.12 - j 2.02	2.01 + j 0.13
500	1.3 - j 2.01	1.84 + j 0.7
520	1.66 - j 2.55	1.66 + j 1.51

(1) In Broadband amplifier

ESD PROTECTION CHARACTERISTICS

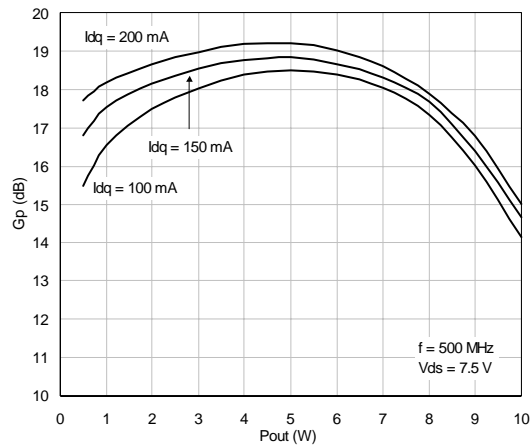
Test Conditions	Class
Human Body Model	2
Machine Model	M3

MOISTURE SENSITIVITY LEVEL

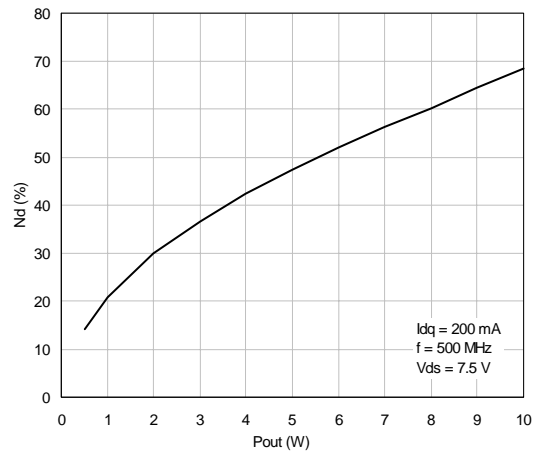
Test Methodology	Rating
J-STD-020B	MSL 3

TYPICAL PERFORMANCE

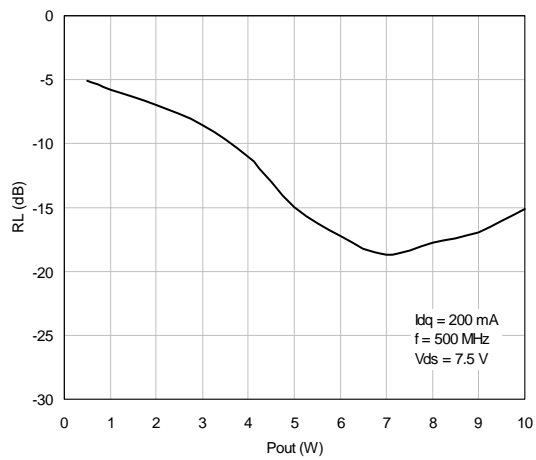
Power Gain Vs Output Power



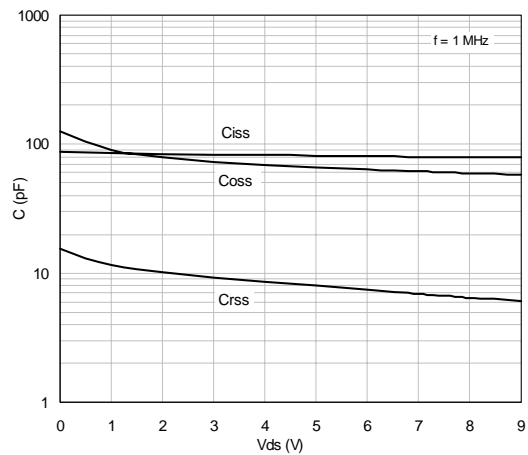
Efficiency Vs Output Power



Return Loss Vs Output Power



Capacitance Vs Supply Voltage

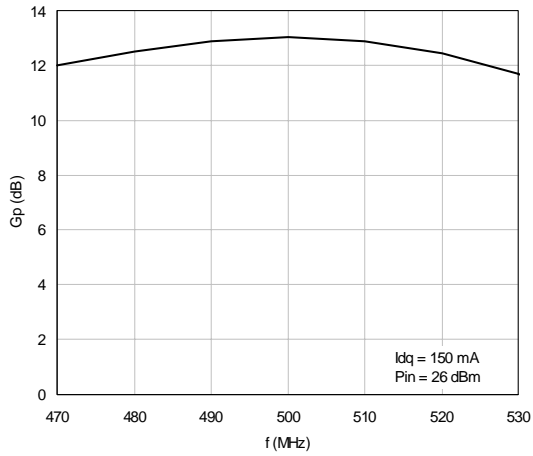


Obsolete Product

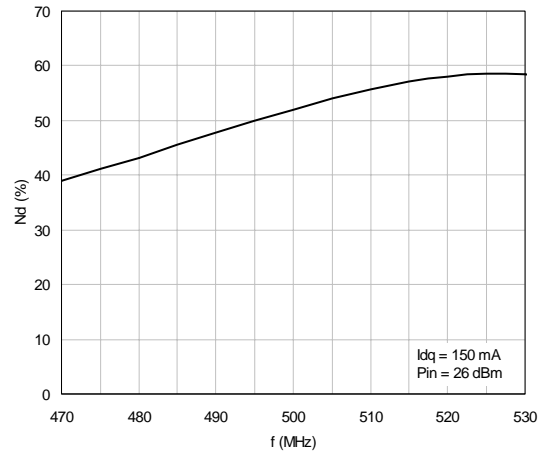
PD54008L

TYPICAL PERFORMANCE

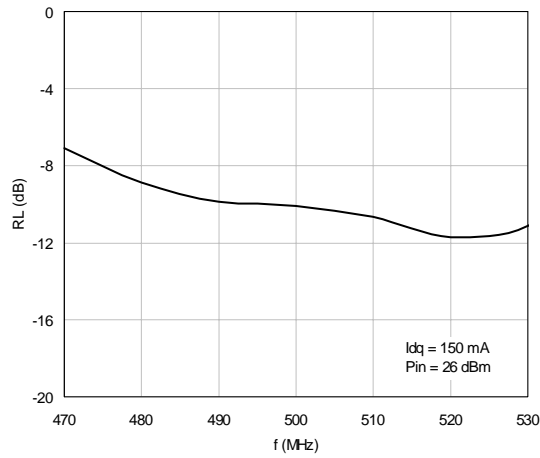
Power Gain Vs Frequency (BROADBAND)



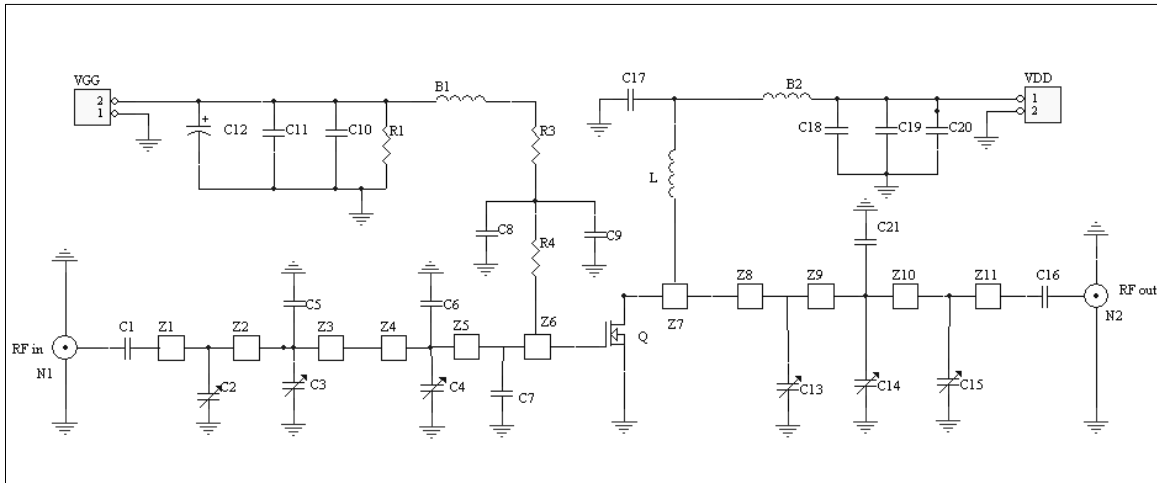
Efficiency Vs Frequency (BROADBAND)



Return Loss Vs Frequency (BROADBAND)



TEST CIRCUIT SCHEMATIC

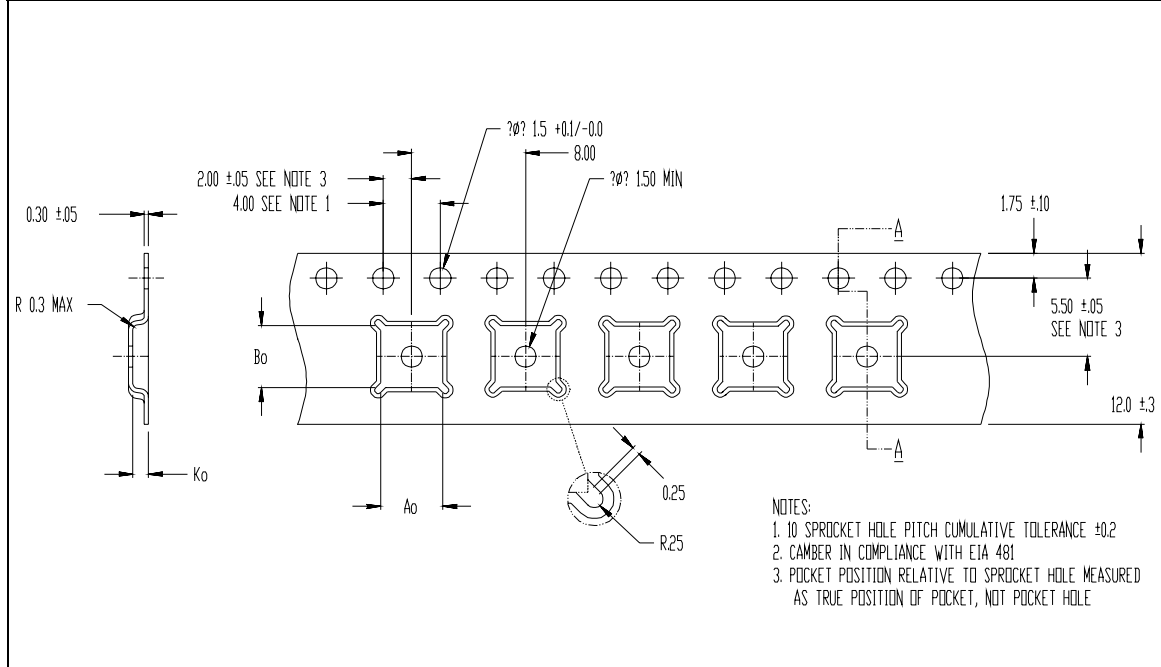


TEST CIRCUIT COMPONENT PART LIST

COMPONENT	DESCRIPTION
B1, B2	Ferrite bead
C1, C16	300 pF, 100 mil ATC
C2, C3, C4, C13, C14	1 :- 20 pF Trimmer cap - JOHANSON
C15	0.8 :- 10 pF Trimmer cap - JOHANSON
C5	36 pF, 100 mil ATC
C6	51 pF, 100 mil ATC
C7	62 pF, 100 mil ATC
C8, C17	150 pF, 100 mil CHIP CAP
C9	1 nF, 100 mil CHIP CAP
C10, C18	1000 pF, 100 mil CHIP CAP
C11, C19	0.1 nF, 100 mil CHIP CAP
C12, C20	10 μ F 50 V Electrolytic Capacitor
C21	15 pF, 100 mil ATC
L	43nH, Coilcraft
R1	33 K Ω , 1W CHIP Resistor
R3	1 K Ω , 1W CHIP Resistor
R4	15 Ω , 1W CHIP Resistor
Z1	0.49" X 0.080" MICROSTRIP
Z2	1.024" X 0.080" MICROSTRIP
Z3	0.079" X 0.080" MICROSTRIP
Z4	0.24" X 0.223" MICROSTRIP
Z5	0.079" X 0.223" MICROSTRIP
Z6	0.138" X 0.223" MICROSTRIP
Z7	0.259" X 0.223" MICROSTRIP
Z8	0.079" X 0.080" MICROSTRIP
Z9	0.413" X 0.080" MICROSTRIP
Z10	0.756" X 0.080" MICROSTRIP
Z11	0.61" X 0.080" MICROSTRIP
N1, N2	Type N Flange Mount
Board	ROGER, ULTRA LAM 2000 THK 0.030", $\epsilon_r = 2.55$ 2oz. ED cu SIDES

TAPE & REEL DIMENSIONS

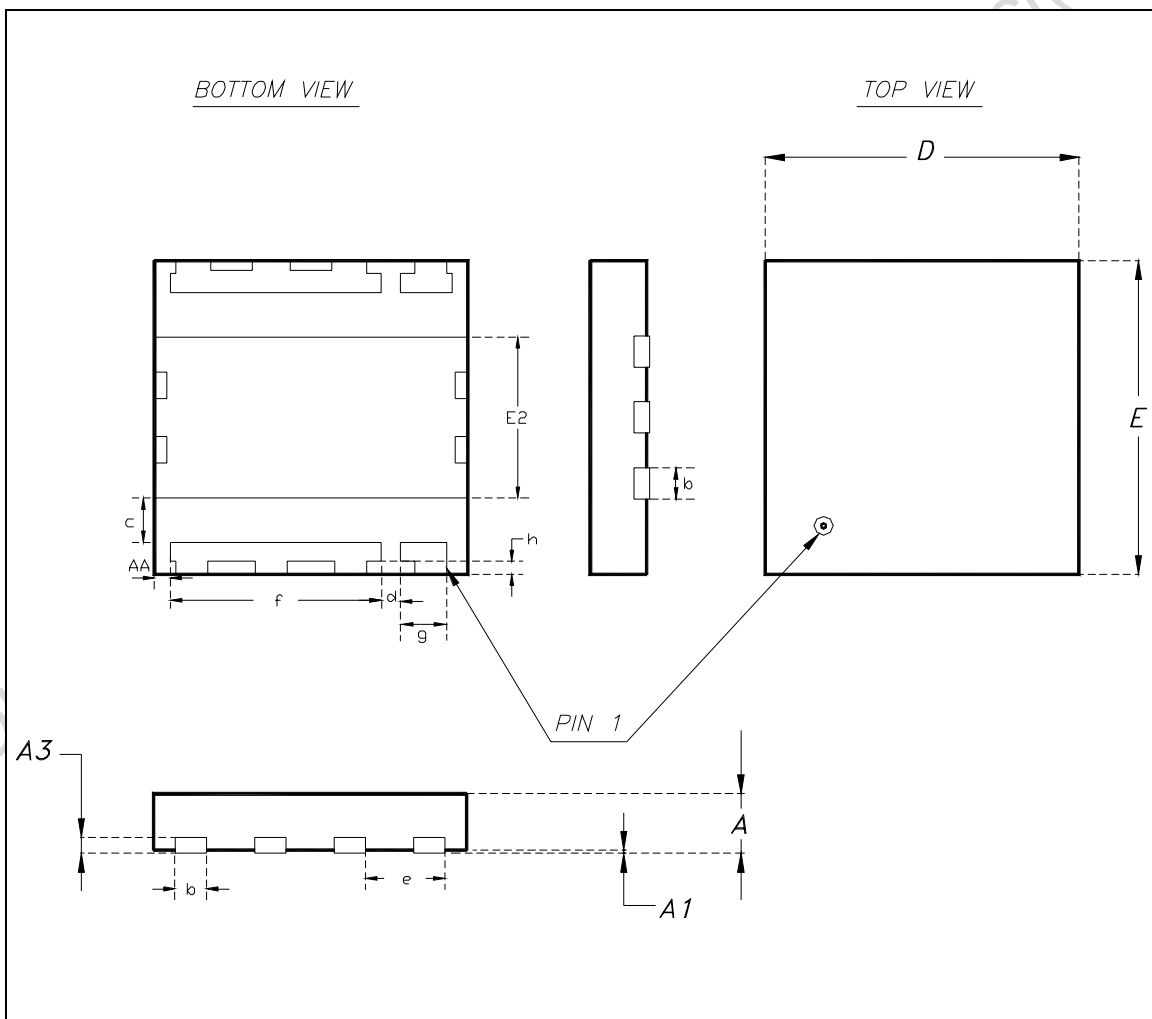
	mm		
	MIN.	TYP.	MAX
Ao	5.15	5.25	5.35
Bo	5.15	5.25	5.35
Ko	1.0	1.1	1.2



Obsolete Product(s) - C

PowerFLAT™ MECHANICAL DATA

DIM.	mm			Inch		
	MIN.	TYP.	MAX	MIN.	TYP.	MAX
A		0.90	1.00		0.035	0.039
A1		0.02	0.05		0.001	0.002
A3		0.24			0.009	
AA	0.15	0.25	0.35	0.006	0.01	0.014
b	0.43	0.51	0.58	0.017	0.020	0.023
c	0.64	0.71	0.79	0.025	0.028	0.031
D		5.00			0.197	
d		0.30			0.011	
E		5.00			0.197	
E2	2.49	2.57	2.64	0.098	0.101	0.104
e		1.27			0.050	
f		3.37			0.132	
g		0.74			0.03	
h		0.21			0.008	



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