



PD55003-01

RF POWER TRANSISTORS

The LdmoST Plastic FAMILY

TARGET DATA

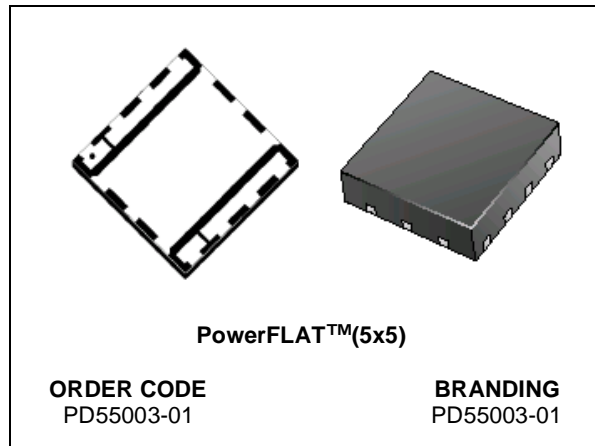
N-CHANNEL ENHANCEMENT-MODE LATERAL MOSFETs

- EXCELLENT THERMAL STABILITY
- COMMON SOURCE CONFIGURATION
- $P_{OUT} = 3\text{ W}$ with 17 dB gain @ 500 MHz / 12.5 V
- NEW LEADLESS PLASTIC PACKAGE

DESCRIPTION

The PD55003-01 is a common source N-Channel, enhancement-mode lateral Field-Effect RF power transistor. It is designed for high gain, broadband commercial and industrial applications. It operates at 12 V in common source mode at frequencies of up to 1 GHz. PD55003-01 boasts the excellent gain, linearity and reliability of ST's latest LDMOS technology mounted in the innovative leadless SMD plastic package, PowerFLAT™.

PD55003-01's superior linearity performance makes it an ideal solution for car mobile radio.



ABSOLUTE MAXIMUM RATINGS ($T_{CASE} = 25\text{ }^{\circ}\text{C}$)

Symbol	Parameter	Value	Unit
$V_{(BR)DSS}$	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current	2.5	A
P_{DISS}	Power Dissipation (@ $T_c = 70\text{ }^{\circ}\text{C}$)	TBD	W
T_j	Max. Operating Junction Temperature	150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	-65 to +150	$^{\circ}\text{C}$

THERMAL DATA

$R_{th(j-c)}$	Junction -Case Thermal Resistance	TBD	$^{\circ}\text{C/W}$
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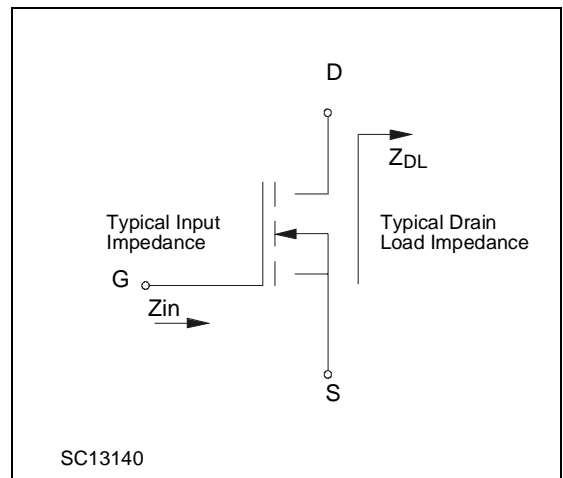
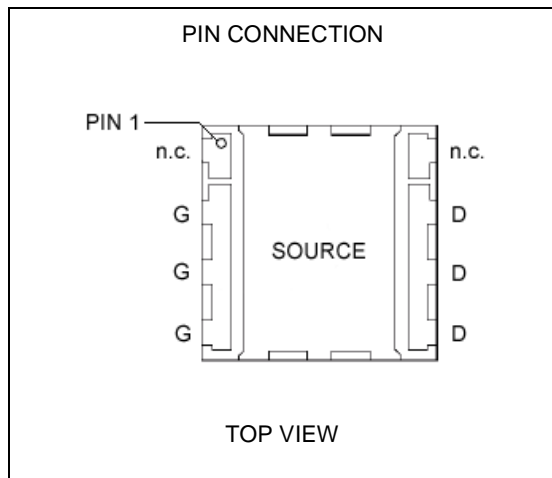
ELECTRICAL SPECIFICATION (T_{CASE} = 25 °C)

STATIC

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I _{DSS}	V _{GS} = 0 V	V _{DS} = 28 V			1	μA
I _{GSS}	V _{GS} = 20 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			0.36	V
g _{FS}	V _{DS} = 10 V	I _D = 1 A		1.0		mho
C _{ISS}	V _{GS} = 0 V	V _{DS} = 12.5 V		33		pF
C _{OSS}	V _{GS} = 0 V	V _{DS} = 12.5 V		17		pF
C _{RSS}	V _{GS} = 0 V	V _{DS} = 12.5 V		1.2		pF

DYNAMIC

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
P _{1dB}	V _{DD} = 12.5 V	I _{DQ} = 50 mA	f = 500 MHz	3		W
G _P	V _{DD} = 12.5 V	I _{DQ} = 50 mA	P _{OUT} = 3 W	14	17	dB
η _D	V _{DD} = 12.5 V	I _{DQ} = 50 mA	P _{OUT} = 3 W	45	52	%
Load mismatch	V _{DD} = 15.5 V	I _{DQ} = 50 mA	P _{OUT} = 3 W	20:1		VSWR
	ALL PHASE ANGLES					

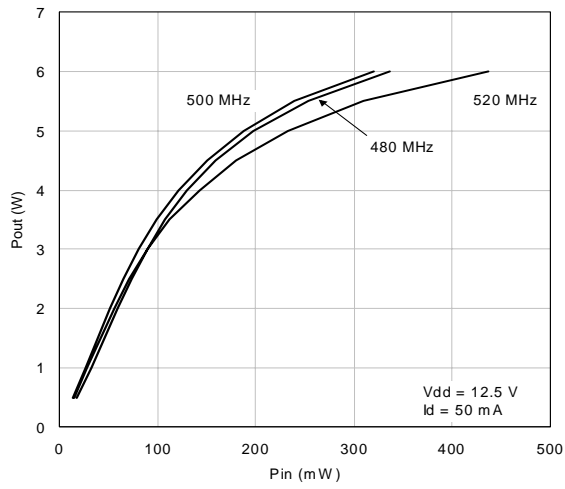


IMPEDANCE DATA

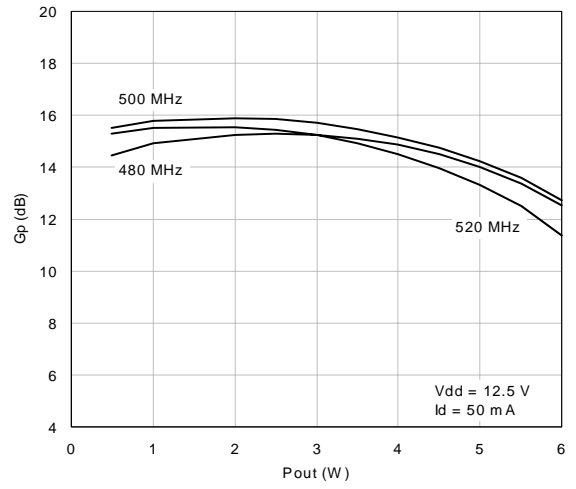
FREQ. MHz	Z _{IN} (Ω)	Z _{DL} (Ω)
480	TBD	TBD
500	TBD	TBD
520	TBD	TBD
860	TBD	TBD

TYPICAL PERFORMANCE (BROADBAND DATA)

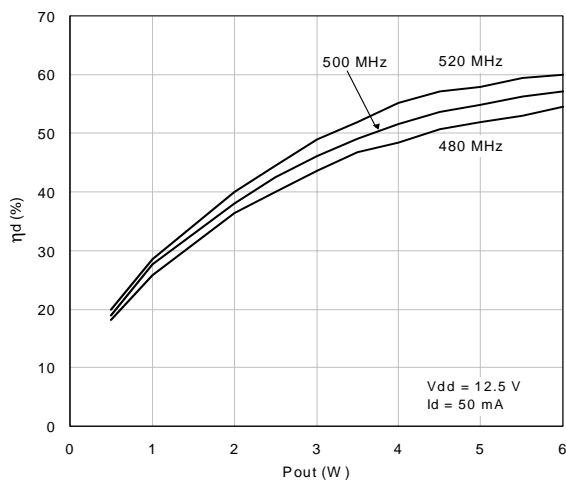
Output Power vs. Input Power



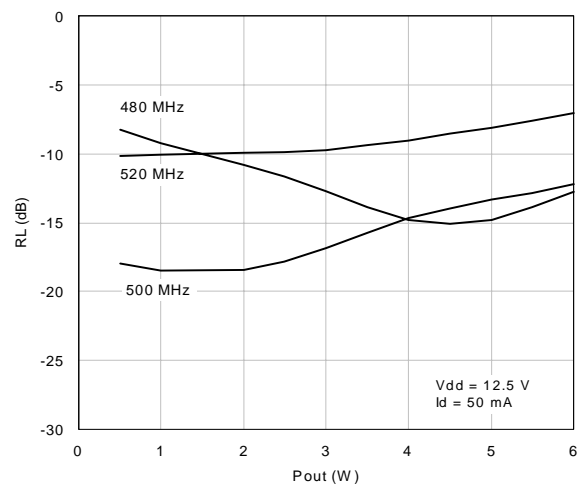
Power Gain vs. Output Power



Efficiency vs. Output Power

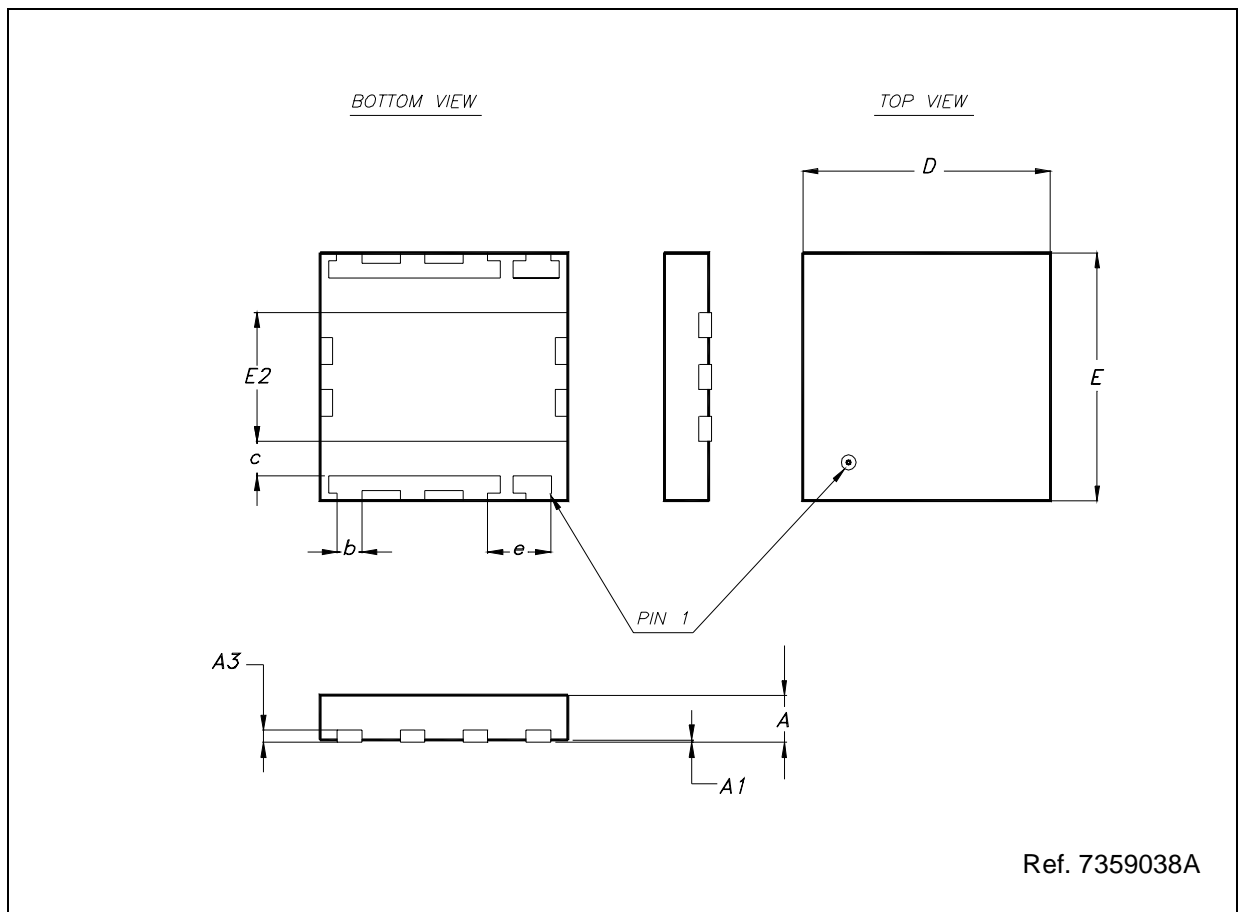


Return Loss vs. Output Power



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	
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	
E		5.00			0.197	
E2	2.49	2.57	2.64	0.098	0.101	0.104
e		1.27			0.050	



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