



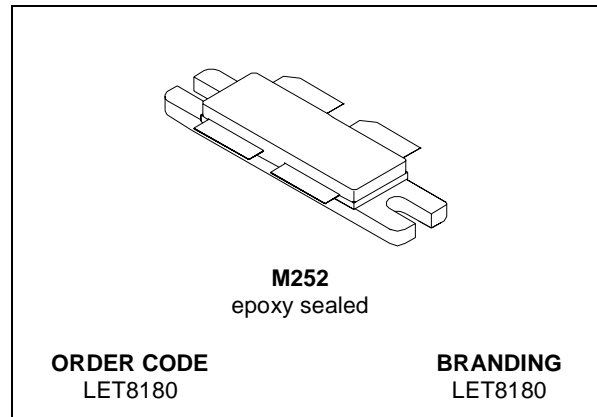
# LET8180

## RF POWER TRANSISTORS *Ldmos Enhanced Technology*

### TARGET DATA

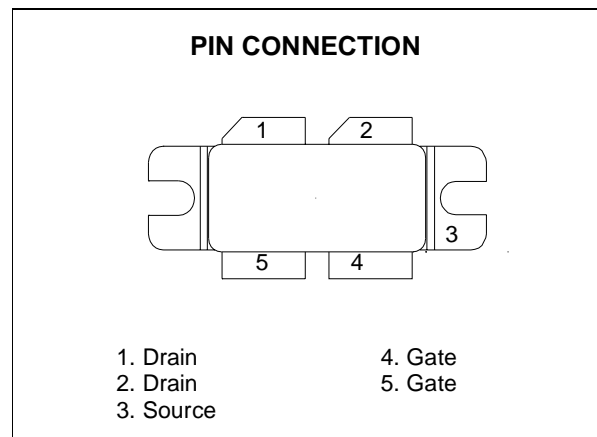
#### N-CHANNEL ENHANCEMENT-MODE LATERAL MOSFETs

- EXCELLENT THERMAL STABILITY
- COMMON SOURCE CONFIGURATION, PUSH-PULL
- $P_{OUT} = 220\text{ W}$  with 17 dB TYP. gain @ 860 MHz
- BeO FREE PACKAGE
- INTERNAL INPUT MATCHING
- ESD PROTECTION



#### DESCRIPTION

The LET8180 is a common source N-Channel enhancement-mode lateral Field-Effect RF power transistor designed for broadband commercial and industrial applications at frequencies up to 1.0 GHz. The LET8180 is designed for high gain and broadband performance operating in common source mode at 32 V. Its internal matching makes it ideal for base station applications requiring high linearity.



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

Symbol	Parameter	Value	Unit
$V_{(BR)DSS}$	Drain-Source Voltage	65	V
$V_{GS}$	Gate-Source Voltage	-0.5 to +15	V
$I_D$	Drain Current	18	A
$P_{DISS}$	Power Dissipation (@ $T_c = +70\text{ }^{\circ}\text{C}$ )	289	W
$T_j$	Max. Operating Junction Temperature	200	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature	-65 to +150	$^{\circ}\text{C}$

#### THERMAL DATA

$R_{th(j-c)}$	Junction -Case Thermal Resistance	0.45	$^{\circ}\text{C}/\text{W}$
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# LET8180

## ELECTRICAL SPECIFICATION (T<sub>CASE</sub> = 25 °C)

### STATIC (Per Section)

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0 V	I <sub>D</sub> = 10 μA	65			V
I <sub>DSS</sub>	V <sub>GS</sub> = 0 V	V <sub>DS</sub> = 32 V			10	μA
I <sub>GSS</sub>	V <sub>GS</sub> = 5 V	V <sub>DS</sub> = 0 V			1	μA
V <sub>GS(Q)</sub>	V <sub>DS</sub> = 32 V	I <sub>D</sub> = TBD	2.5		4.5	V
V <sub>DS(ON)</sub>	V <sub>GS</sub> = 10 V	I <sub>D</sub> = 3 A		0.28	0.45	V
G <sub>FS</sub>	V <sub>DS</sub> = 10 V	I <sub>D</sub> = 3 A		2.6		mho
C <sub>ISS</sub> *	V <sub>GS</sub> = 0 V	V <sub>DS</sub> = 32 V		TBD		pF
C <sub>OSS</sub>	V <sub>GS</sub> = 0 V	V <sub>DS</sub> = 32 V			70	pF
C <sub>RSS</sub>	V <sub>GS</sub> = 0 V	V <sub>DS</sub> = 32 V		2.5		pF

\* Includes Internal Input Moscap.

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
<b>DYNAMIC (f = 860 MHz)</b>						
P <sub>OUT</sub> <sup>(1)</sup>	V <sub>DD</sub> = 32 V	I <sub>DQ</sub> = TBD	200	220		W
η <sub>D</sub> <sup>(1)</sup>	V <sub>DD</sub> = 32 V	I <sub>DQ</sub> = TBD	50	60		%
G <sub>P</sub> <sup>(2)</sup>	V <sub>DD</sub> = 32 V	I <sub>DQ</sub> = TBD P <sub>OUT</sub> = 200 W PEP	16	17		dB
IMD <sub>3</sub> <sup>(2)</sup>	V <sub>DD</sub> = 32 V	I <sub>DQ</sub> = TBD P <sub>OUT</sub> = 200 W PEP		-31		dBc
Load mismatch	V <sub>DD</sub> = 32 V	I <sub>DQ</sub> = TBD P <sub>OUT</sub> = 200 W ALL PHASE ANGLES	10:1			VSWR
<b>DYNAMIC (f = 470 - 860 MHz)</b>						
P <sub>OUT</sub> <sup>(1)</sup>	V <sub>DD</sub> = 32 V	I <sub>DQ</sub> = TBD	180			W
η <sub>D</sub> <sup>(1)</sup>	V <sub>DD</sub> = 32 V	I <sub>DQ</sub> = TBD	50			%
G <sub>P</sub> <sup>(1)</sup>	V <sub>DD</sub> = 32 V	I <sub>DQ</sub> = TBD	14.5			dB

(1) 1 dB Compression point

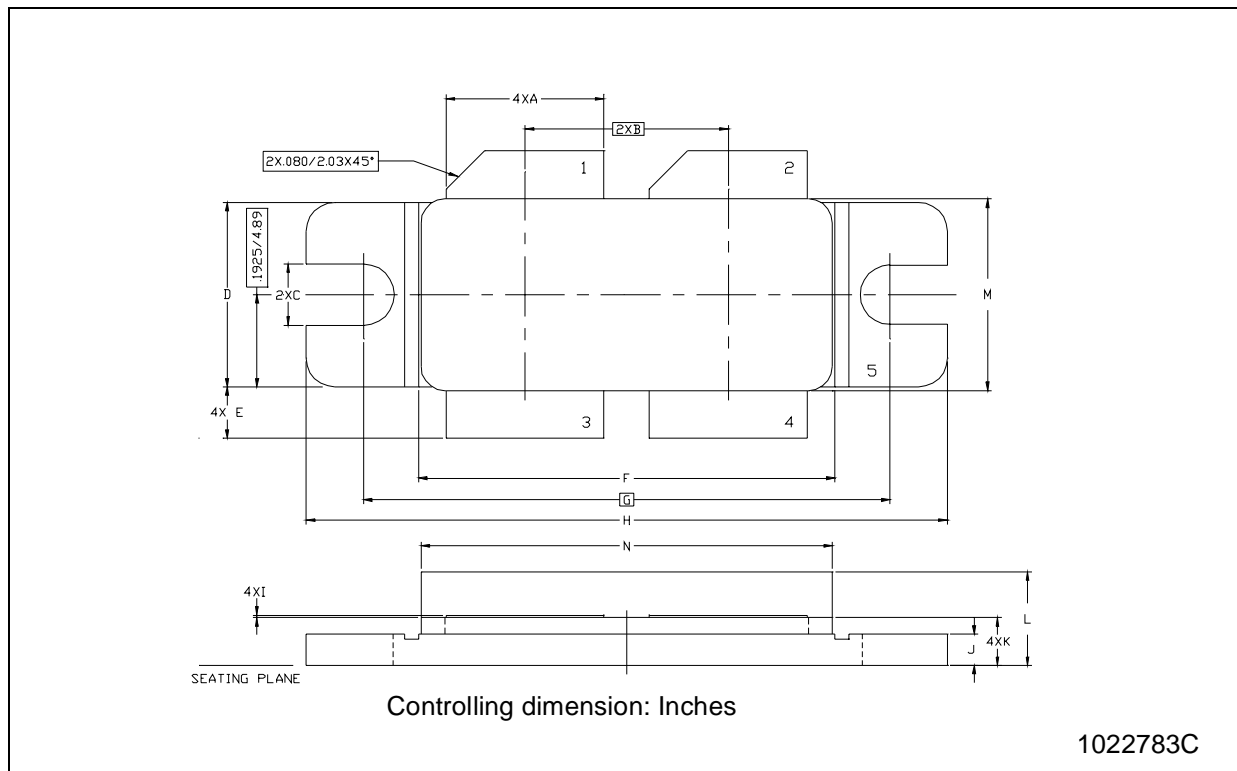
(2) f<sub>1</sub> = 860 MHz, f<sub>2</sub> = 860.1 MHz

### ESD PROTECTION CHARACTERISTICS

Test Conditions	Class
Human Body Model	2
Machine Model	M3

M252 (.400 x .860 4L BAL N/HERM W/FLG) MECHANICAL DATA

DIM.	mm			Inch		
	MIN.	TYP.	MAX	MIN.	TYP.	MAX
A	8.13		8.64	.320		.340
B		10.80			.425	
C	3.00		3.30	.118		.130
D	9.65		9.91	.380		.390
E	2.16		2.92	.085		.115
F	21.97		22.23	.865		.875
G		27.94			1.100	
H	33.91		34.16	1.335		1.345
I	0.10		0.15	.004		.006
J	1.52		1.78	.060		.070
K	2.36		2.74	.093		.108
L	4.57		5.33	.180		.210
M	9.96		10.34	.392		.407
N	21.64		22.05	.852		.868



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