

LET9060F

RF power transistor from the LdmoST family of n-channel enhancement-mode lateral MOSFETs

Features

- Excellent thermal stability
- Common source configuration
- P_{OUT} (@ 28 V)= 60 W with 18 dB gain @ 945 MHz
- P_{OUT} (@ 36 V)= 90 W with 18 dB gain @ 945 MHz
- BeO free package
- In compliance with the 2002/95/EC european directive

Description

The LET9060F 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 LET9060F is designed for high gain and broadband performance operating in common source mode at 28 V. It is ideal for base station applications requiring high linearity.







Table 1. Device summary

Order code	Package	Branding
LET9060F	M250	LET9060F

1 Maximum ratings

	Absolute maximum ratings (TCASE = 23°C)		
Symbol	Parameter	Value	Unit
V _{(BR)DSS}	Drain-source voltage	80	V
V _{GS}	Gate-source voltage	-0.5 to +15	V
۱ _D	Drain current	12	А
P _{DISS}	Power dissipation (@ $T_C = 70 \ ^{\circ}C$)	130	W
TJ	Max. operating junction temperature	200	°C
T _{STG}	Storage temperature	-65 to +150	°C

Table 2. Absolute maximum ratings ($T_{CASE} = 25 \ ^{\circ}C$)

Table 3. Thermal dat

S	ymbol	Parameter	Value	Unit
F	R _{th(JC)}	Junction-case thermal resistance	1.0	°C/W



2 Electrical characteristics

T_C = 25 °C

Table 4. Static

Symbol	Test conditions	Min.	Тур.	Max.	Unit
V _{(BR)DSS}	V_{GS} = 0 V; I _{DS} = 10 mA	80			V
I _{DSS}	$V_{GS} = 0 V; V_{DS} = 28 V$			1	μA
I _{GSS}	$V_{GS} = 5 V; V_{DS} = 0 V$			1	μA
V _{GS(Q)}	V _{DS} = 28 V; I _D = 100 mA	2.0		5.0	V
V _{DS(ON)}	V_{GS} = 10 V; I _D = 3 A		0.8	1.2	V
G _{FS}	V _{DS} = 10 V; I _D = 3 A	2.5			mho
C _{ISS}	$V_{GS} = 0 \text{ V}; V_{DS} = 28 \text{ V}; f = 1 \text{ MHz}$		77		pF
C _{OSS}	$V_{GS} = 0 \text{ V}; V_{DS} = 28 \text{ V}; f = 1 \text{ MHz}$		39		pF
C _{RSS}	$V_{GS} = 0 \text{ V}; V_{DS} = 28 \text{ V}; \text{ f} = 1 \text{ MHz}$		1.2		pF

Table 5.	Dynamic
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Symbol	Test conditions	Min.	Тур.	Max.	Unit
P _{OUT}	V_{DD} = 28 V; I_{DQ} = 400 mA; P_{IN} = 1.5 W; f = 945 MHz	60	75	-	W
G _{PS}	V_{DD} = 28 V; I_{DQ} = 400 mA; P_{OUT} = 60 W; f = 945 MHz	16	18	-	dB
h _D	V_{DD} = 28 V; I_{DQ} = 400 mA; P_{IN} = 1.5 W; f = 945 MHz	60	70	-	%
Load mismatch	V_{DD} = 35 V; I_{DQ} = 400 mA; P_{OUT} = 100 W; f = 945 MHz All phase angles		20:1		VSWR



3 Impedance data

Figure 2. Impedance data



Table 6.Impedance data

Frequency	Z _{IN} (Ω)	Ζ_{DL} (Ω)
945	0.34 - j 0.31	2.78 + j 0.66



4 Typical performances

Figure 3. Gain vs output power freq = 945 MHz, Vdd = 28 V



Figure 4.





Gain and efficiency vs output















5 Package mechanical data

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Dim.	Dim. mm.			Inch		
	Min	Тур	Max	Min	Тур	Max
А	5.21		5.71	0.205		0.225
В	2.16		2.92	0.085		0.115
С	5.59		6.09	0.220		0.240
D	8.89		9.40	0.350		0.370
E	9.40		9.91	0.370		0.390
F	0.11		0.15	0.004		0.006
G	0.89		1.14	0.035		0.045
Н	1.45		1.70	0.057		0.067
I	2.67		3.94	0.105		0.155

Table 9.M250 (.230 x .360 2L N/HERM W/FLG) mechanical data

Figure 7.	M250 package dimensions	
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6 Revision history

Table 10.	Document	revision	historv

Date	Revision	Changes
03-Dec-2009	1	Initial release.
11-Feb-2010	2	Changed test condition for V _{(BR)DSS} in <i>Table 4: Static</i> .
04-Apr-2011	3	Updated features on cover page.



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