



LET9085

RF POWER TRANSISTORS

Ldmos Enhanced Technology

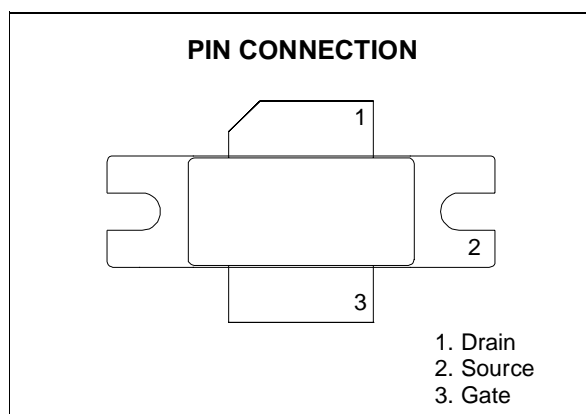
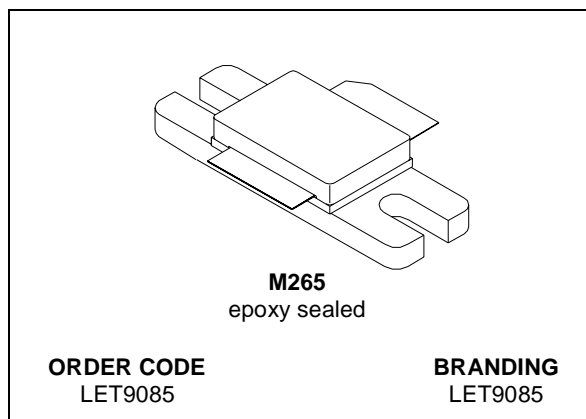
TARGET DATA

N-CHANNEL ENHANCEMENT-MODE LATERAL MOSFETs

- IS-95 CDMA PERFORMANCES
 $P_{OUT} = 20\text{ W}$
 $EFF. = 28\%$
- EDGE PERFORMANCES
 $P_{OUT} = 35\text{ W}$
 $EFF. = 35\%$
- GSM PERFORMANCES
 $P_{OUT} = 75\text{ W}$
 $EFF. = 55\%$
- EXCELLENT THERMAL STABILITY
- BeO FREE PACKAGE
- INTERNAL INPUT MATCHING
- ESD PROTECTION

DESCRIPTION

The LET9085 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 LET9085 is designed for high gain and broadband performance operating in common source mode at 26 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	12	A
P_{DISS}	Power Dissipation (@ $T_c = 70\text{ }^{\circ}\text{C}$)	186	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	0.7	$^{\circ}\text{C/W}$
---------------	-----------------------------------	-----	----------------------

ELECTRICAL SPECIFICATION ($T_{CASE} = 25\text{ }^{\circ}\text{C}$)

STATIC (Per Section)

Symbol	Test Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}$ $I_D = 10\text{ }\mu\text{A}$	65			V
I_{DSS}	$V_{GS} = 0\text{ V}$ $V_{DS} = 26\text{ V}$			1	μA
I_{DSS}	$V_{GS} = 0\text{ V}$ $V_{DS} = 65\text{ V}$			10	μA
I_{GSS}	$V_{GS} = 5\text{ V}$ $V_{DS} = 0\text{ V}$			1	μA
$V_{GS(Q)}$	$V_{DS} = 26\text{ V}$ $I_D = \text{TBD}$		TBD		V
$V_{DS(ON)}$	$V_{GS} = 10\text{ V}$ $I_D = 2\text{ A}$		0.19	0.4	V
G_{FS}	$V_{DS} = 10\text{ V}$ $I_D = 6\text{ A}$		8		mho
C_{ISS}^*	$V_{GS} = 0\text{ V}$ $V_{DS} = 28\text{ V}$ $f = 1\text{ MHz}$		TBD		pF
C_{OSS}	$V_{GS} = 0\text{ V}$ $V_{DS} = 28\text{ V}$ $f = 1\text{ MHz}$			75	pF
C_{RSS}	$V_{GS} = 0\text{ V}$ $V_{DS} = 28\text{ V}$ $f = 1\text{ MHz}$		2.9		pF

* Includes Internal Input Moscap.

DYNAMIC ($f = 865 - 895\text{ MHz}$)

Symbol	Test Conditions	Min.	Typ.	Max.	Unit
P_{1dB}	$V_{DD} = 26\text{ V}$ $I_{DQ} = \text{TBD}$	90	105		W
η_D	$V_{DD} = 26\text{ V}$ $I_{DQ} = \text{TBD}$ $P_{OUT} = 90\text{ W}$	50	55		%
G_P	$V_{DD} = 26\text{ V}$ $I_{DQ} = \text{TBD}$ $P_{OUT} = 90\text{ W PEP}$	17			dB
IMD3	$V_{DD} = 26\text{ V}$ $I_{DQ} = \text{TBD}$ $P_{OUT} = 90\text{ W PEP}$		-31	-28	dBc
Load mismatch	$V_{DD} = 26\text{ V}$ $I_{DQ} = \text{TBD}$ $P_{OUT} = 90\text{ W}$ ALL PHASE ANGLES			10:1	VSWR
$P_{OUT(CDMA)}^{(1)}$	750 KHz ACPR: -45dBc 1.98 MHz ACPR: -60dBc		20		W
$\eta_D(CDMA)^{(1)}$	750 KHz ACPR: -45dBc 1.98 MHz ACPR: -60dBc		28		%

(1) IS-95 CDMA Pilot, Sync, Paging, Traffic, Codes 8 Thru 13

DYNAMIC ($f = 920 - 960\text{ MHz}$)

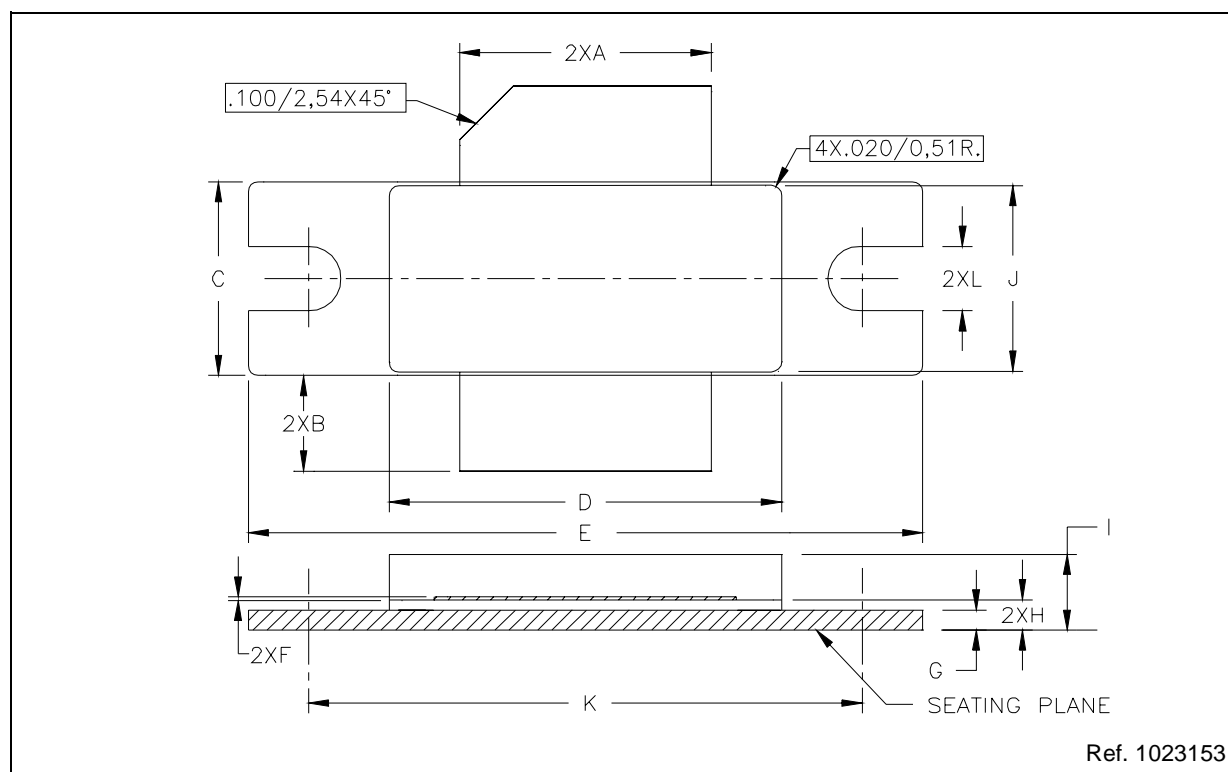
P_{1dB}	$V_{DD} = 26\text{ V}$ $I_{DQ} = \text{TBD}$	70	75		W
G_P	$V_{DD} = 26\text{ V}$ $I_{DQ} = \text{TBD}$ $P_{OUT} = 70\text{ W}$	15	16		dB
η_D	$V_{DD} = 26\text{ V}$ $I_{DQ} = \text{TBD}$ $P_{OUT} = 70\text{ W}$	50	55		%
Load mismatch	$V_{DD} = 26\text{ V}$ $I_{DQ} = \text{TBD}$ $P_{OUT} = 85\text{ W}$ ALL PHASE ANGLES			10:1	VSWR
$P_{OUT(EDGE)}$	400 KHz < -60 dBc 600 KHz < -70 dBc $EVM < 3\%$		35		W
$\eta_D(EDGE)$	400 KHz < -60 dBc 600 KHz < -70 dBc $EVM < 3\%$		35		%

ESD PROTECTION CHARACTERISTICS

Test Conditions	Class
Human Body Model	2
Machine Model	M3

M265 (.370 x .780 WIDE 2/L N/HERM W/FLG) MECHANICAL DATA

DIM.	mm			Inch		
	MIN.	TYP.	MAX	MIN.	TYP.	MAX
A	12.57		12.83	.495		.505
B	4.32		5.33	.170		.210
C	9.65		9.91	.380		.390
D	19.61		20.02	.772		.788
E	33.91		34.16	1.335		1.345
F	0.08		0.15	.003		.006
G	0.89		1.14	.035		.045
H	1.45		1.70	.057		.067
I	3.18		4.32	.125		.170
J	9.27		9.53	.365		.375
K	27.69		28.19	1.090		1.110
L	3.00		3.51	.118		.138



Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is registered trademark of STMicroelectronics
® 2003 STMicroelectronics - All Rights Reserved

All other names are the property of their respective owners.

Australia - Brazil - Canada - China - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan -
Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - U.S.A.

<http://www.st.com>