LET20015

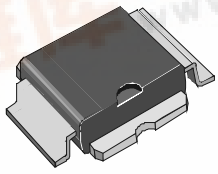
RF POWER TRANSISTORS

Ldmos Enhanced Technology in Plastic Package

TARGET DATA

Designed for GSM / EDGE / IS-97 applications

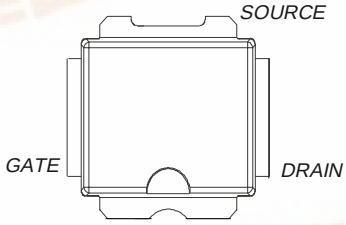
- EXCELLENT THERMAL STABILITY
- COMMON SOURCE CONFIGURATION
- P_{OUT} = 15 W with 11 dB gain @ 2000 MHz
- ESD PROTECTION
- IS-97 CDMA PERFORMANCES
  P_{OUT} = 2.5 W
  EFF. = 20 %



PowerSO-10RF
(formed lead)

ORDER CODE	BRANDING
LET90015	LET90015

PIN CONNECTION



DESCRIPTION

The LET20015 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 26 V in common source mode at frequencies up to 2 GHz. LET20015 boasts the excellent gain, linearity and reliability of ST's latest LDMOS technology mounted in the first true SMD plastic RF power package, PowerSO-10RF. LET20015's superior linearity performance makes it an ideal solution for base station applications.

The PowerSO-10 plastic package, designed to offer high reliability, is the first ST JEDEC approved, high power SMD package. It has been specially optimized for RF needs and offers excellent RF performances and ease of assembly.

Mounting recommendations are available in ***www.st.com/rf/*** *(look for application note AN1294)*

ABSOLUTE MAXIMUM RATINGS (T_{CASE} = 25 °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	2	A
P_{DISS}	Power Dissipation (@ Tc = 70 °C)	TBD	W
Tj	Max. Operating Junction Temperature	165	°C
T_{STG}	Storage Temperature	-65 to +175	°C

THERMAL DATA (T_{CASE} = 70 °C)

$R_{th(j-c)}$	Junction -Case Thermal Resistance	TBD	°C/W

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

STATIC

Symbol	Test Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)DSS}$	V_{GS} = 0 V I_{DS} = 1 mA	65			V
I_{DSS}	V_{GS} = 0 V V_{DS} = 26 V			1	µA
I_{GSS}	V_{GS} = 5 V V_{DS} = 0 V			1	µA
$V_{GS(Q)}$	V_{DS} = 26 V I_D = TBD	2.5		5.0	V
$V_{DS(ON)}$	V_{GS} = 10 V I_D = 1 A		TBD		V
G_{FS}	V_{DS} = 10 V I_D = 1 A		TBD		mho
C_{ISS}	V_{GS} = 0 V V_{DS} = 26 V f = 1 MHz		TBD		pF
C_{OSS}	V_{GS} = 0 V V_{DS} = 26 V f = 1 MHz		TBD		pF
C_{RSS}	V_{GS} = 0 V V_{DS} = 26 V f = 1 MHz		TBD		pF

Symbol	Test Conditions	Min.	Typ.	Max.	Unit
DYNAMIC (*f = 2000 MHz*)					
P_{1dB}	V_{DD} = 26 V I_{DQ} = TBD	15			W
G_{PS}	V_{DD} = 26 V I_{DQ} = TBD P_{OUT} = 15 W	11	13		dB
η_D	V_{DD} = 26 V I_{DQ} = TBD P_{OUT} = 15 W	45	50		%
IMD3(1)	V_{DD} = 26 V I_{DQ} = TBD P_{OUT} = 15 W PEP		-32	-28	dBc
Load mismatch	V_{DD} = 26 V I_{DQ} = TBD P_{OUT} = 15 W ALL PHASE ANGLES			10:1	VSWR
DYNAMIC (*f = 1930 - 1990 MHz*)					
P_{OUT}(2)	V_{DD} = 26 V I_{DQ} = TBD	10	15		W
G_{PS}	V_{DD} = 26 V I_{DQ} = TBD P_{OUT} = 15 W	11	13		dB
η_D(2)	V_{DD} = 26 V I_{DQ} = TBD P_{OUT} = 15 W	40	45		%
$P_{OUT(CDMA)}$(3)	885 KHz < -47 dBc 1.25 MHz < -55 dBc 2.25 MHz < -55 dBc		2.5		W
$\eta_{D(CDMA)}$(3)	885 KHz < -47 dBc 1.25 MHz < -55 dBc 2.25 MHz < -55 dBc		20		%

(1) f_1 = 2000 MHz, f_2 = 2000.1 MHz

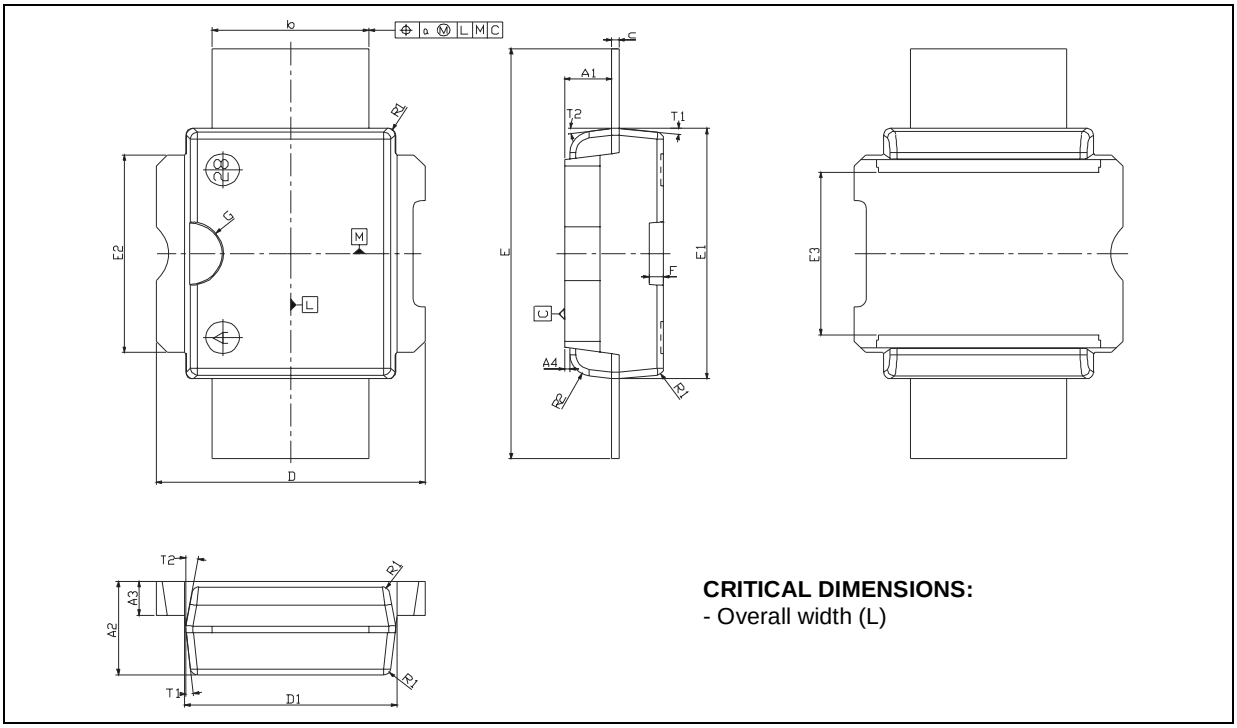
(2) 1 dB Compression point

(3) IS-97 CDMA Pilot, Sync, Paging, Traffic, Codes 8 Thru 13

PowerSO-10RF Straight Lead MECHANICAL DATA

DIM.	mm			Inch		
	MIN.	TYP.	MAX	MIN.	TYP.	MAX
A1	1.62	1.67	1.72	0.064	0.065	0.068
A2	3.4	3.5	3.6	0.134	0.137	0.142
A3	1.2	1.3	1.4	0.046	0.05	0.054
A4	0.15	0.2	0.25	0.005	0.007	0.009
a		0.2			0.007	
b	5.4	5.53	5.65	0.212	0.217	0.221
c	0.23	0.27	0.32	0.008	0.01	0.012
D	9.4	9.5	9.6	0.370	0.374	0.377
D1	7.4	7.5	7.6	0.290	0.295	0.298
E	15.15	15.4	15.65	0.595	0.606	0.615
E1	9.3	9.4	9.5	0.365	0.37	0.375
E2	7.3	7.4	7.5	0.286	0.292	0.294
E3	5.9	6.1	6.3	0.231	0.24	0.247
F		0.5			0.019	
G		1.2			0.047	
R1			0.25			0.01
R2		0.8			0.031	
T1		6 deg			6 deg	
T2		10 deg			10 deg	

Note (1): Resin protrusions not included (max value: 0.15 mm per side)



CRITICAL DIMENSIONS:
- Overall width (L)

PowerSO-10RF Formed Lead (Gull Wing) MECHANICAL DATA

DIM.	mm			Inch		
	MIN.	TYP.	MAX	MIN.	TYP.	MAX
A1	0	0.05	0.1	0.	0.0019	0.0038
A2	3.4	3.5	3.6	0.134	0.137	0.142
A3	1.2	1.3	1.4	0.046	0.05	0.054
A4	0.15	0.2	0.25	0.005	0.007	0.009
a		0.2			0.007	
b	5.4	5.53	5.65	0.212	0.217	0.221
c	0.23	0.27	0.32	0.008	0.01	0.012
D	9.4	9.5	9.6	0.370	0.374	0.377
D1	7.4	7.5	7.6	0.290	0.295	0.298
E	13.85	14.1	14.35	0.544	0.555	0.565
E1	9.3	9.4	9.5	0.365	0.37	0.375
E2	7.3	7.4	7.5	0.286	0.292	0.294
E3	5.9	6.1	6.3	0.231	0.24	0.247
F		0.5			0.019	
G		1.2			0.047	
L	0.8	1	1.1	0.030	0.039	0.042
R1			0.25			0.01
R2		0.8			0.031	
T	2 deg	5 deg	8 deg	2 deg	5 deg	8 deg
T1		6 deg			6 deg	
T2		10 deg			10 deg	

Note (1): Resin protrusions not included (max value: 0.15 mm per side)