

BSTLPA40-0309

LDMOS Power Amplifier

Data Sheet

I. Product Introduction

BSTLPA40-0309 is a 40-watt, unmatched LDMOS FETs, designed for radio applications at frequencies to 1.5GHz. It can be used in Class AB/B and Class C for all typical modulation formats.

There is no guarantee of performance when this part is used in application designed outside of these frequencies.

II. Product Features

- High Efficiency and Linear Gain Operation
- Integrated ESD Protection, Class 2 (HBM)
- Excellent Thermal Stability and Excellent Ruggedness
- Large Positive and Negative Gate/Source Voltage
- Broad Video Bandwidth

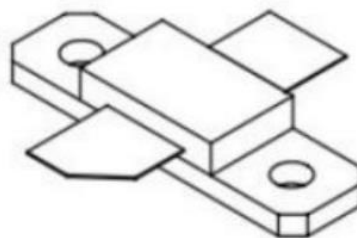


Figure 1

III. Absolute Maximum Ratings

Table 1.

RATING	SYMBOL	VALUE	UNIT
Drain-Source Voltage	V_{DSS}	+95	V
Gate-Source Voltage	V_{GS}	-10 ~ +10	V
Operating Voltage	V_{DD}	+32	V
Storage Temperature Range	T_{stg}	-65 ~ +150	°C
Cage Operating Temperature	T_C	+150	°C
Operating Junction Temperature	T_J	+225	°C

IV. Electrical performance table

Table 2. $V_{DD} = +28V$, $I_{DQ} = 200mA$, $T_A = +25^\circ C$, CW

FREQUENCY (MHZ)	GAIN (DB)	P-1DB (W)	EFF (%) @ P-1DB	P-3DB (W)	EFF (%) @ P-3DB
1300	16	31	50	40	54

Table 3. $V_{DD} = +24V$, $I_{DQ} = 50mA$, $T_A = +25^\circ C$, CW

FREQUENCY (MHZ)	GAIN (DB)	P-1DB (W)	EFF (%) @ P-1DB
1300	15	26	56

Capable of Handling 10:1 VSWR @ 28V, 1300MHz, 40Watts CW Output Power

Designed for Enhanced Ruggedness

Table 4. Thermal Characteristics

CHARACTERISTICS	SYMBOL	VALUE	UNIT
Thermal Resistance, Junction to Case Temperature 80°C, 40W CW, +28V, $I_{DQ} = 200mA$	R_{JC}	1.4	°C/W

Table 5. Electrical Characteristics

CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX	UNIT	CONDITIONS
DC Characteristics						
Zero Gate Threshold Drain Leakage Current	I_{DSS}			100	uA	$V_{DS} = 95V$, $V_{GS} = 0V$
Zero Gate Threshold Drain Leakage Current	I_{DSS}			1	uA	$V_{DS} = 28V$, $V_{GS} = 0V$

Gate-Source Leakage Current	I_{GSS}			1	μA	$V_{DS}=0V, V_{GS}=6V$
Gate Threshold Voltage	$V_{GS(th)}$		2.11		V	$V_{DS}=28V, I_D=300\mu A$
Gate Quiescent Voltage	$V_{GS(Q)}$		3.1		V	$V_{DS}=28V, I_D=200mA$
RF Characteristics ($T_A=+25^\circ C, F_0=1300MHz$ unless otherwise noted)						
1dB Compression Point Power	P_{-1dB}	35	40		W	
Drain Efficiency @ $P_{-1dB}, 1300MHz$	PAE		60		%	
Power Gain	G_P		20		dB	
Input Return Loss	I_{RL}		-7		dB	

Note: Measured in test fixture, 50Ohm system, $V_{DD}=+28V, I_{DQ}=200mA$, CW Signal.

IV. Packaging Diagram

Flanged Ceramic Package, 2 leads

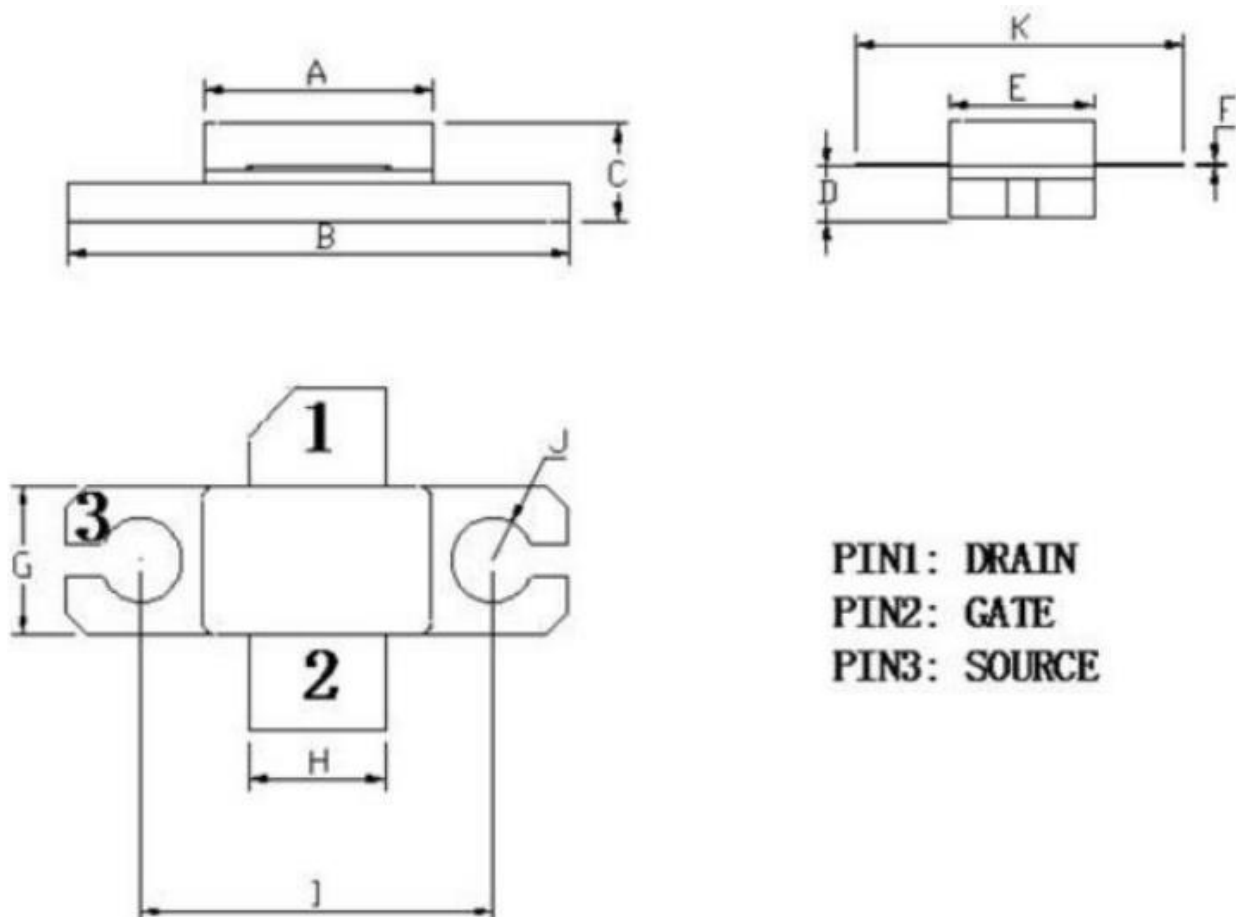


Figure 2. Dimensions

Table 6

Unit is millimeter

DIMENSION SYMBOLS	NUMERICAL	
	MINIMUM	MAXIMUM
A	9.15	9.2
B	20.17	20.43
C	3.62	4.14
D	1.95	2.21
E	5.75	5.8
F	0.11	0.15
G	5.67	5.93
H	5.37	5.93
I	14.07	14.33
J	3.05	3.55
K	10.3	11.3