



# SD56120

## RF POWER TRANSISTORS The *LdmoST* FAMILY

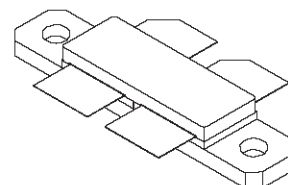
### TARGET DATA

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

- EXCELLENT THERMAL STABILITY
- COMMON SOURCE CONFIGURATION, PUSH-PULL
- $P_{OUT} = 100$  W PEP WITH 13 dB GAIN @ 860 MHz
- BeO FREE PACKAGE

#### DESCRIPTION

The SD56120 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 SD56120 is designed for high gain and broadband performance operating in common source mode at 28V. It is ideal for broadcast applications from 470 to 860 MHz requiring high linearity.



**M246**

epoxy sealed

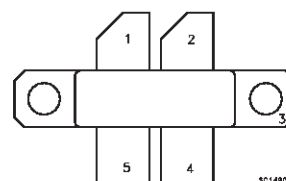
#### ORDER CODE

SD56120

#### BRANDING

XSD56120

#### PIN CONNECTION



1. Drain  
2. Drain  
3. Source

4. Gate  
5. Gate

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

Symbol	Parameter	Value	Unit
$V_{(BR)DSS}$	Drain Source Voltage	65	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D$	Drain Current	14	A
$P_{DISS}$	Power Dissipation (@ $T_c = 70^{\circ}C$ )	260	W
$T_j$	Max. Operating Junction Temperature	200	$^{\circ}C$
$T_{STG}$	Storage Temperature	-65 to 150	$^{\circ}C$

#### THERMAL DATA

$R_{th(j-c)}$	Junction-Case Thermal Resistance	0.5	$^{\circ}C/W$
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**ELECTRICAL SPECIFICATION** ( $T_{\text{case}} = 25\text{ }^{\circ}\text{C}$ )**STATIC** (Per Section)

Symbol	Parameter			Min.	Typ.	Max.	Unit
$V_{(\text{BR})\text{DSS}}$	$V_{\text{GS}} = 0\text{V}$	$I_{\text{DS}} = 10\text{ mA}$		65			V
$I_{\text{DSS}}$	$V_{\text{GS}} = 0\text{V}$	$V_{\text{DS}} = 28\text{ V}$				1	$\mu\text{A}$
$I_{\text{GSS}}$	$V_{\text{GS}} = 20\text{V}$	$V_{\text{DS}} = 0\text{ V}$				1	$\mu\text{A}$
$V_{\text{GS(Q)}}$	$V_{\text{DS}} = 28\text{V}$	$I_{\text{D}} = 100\text{ mA}$		3.0		5.0	V
$V_{\text{DS(ON)}}$	$V_{\text{GS}} = 10\text{V}$	$I_{\text{D}} = 3\text{ A}$			0.7	0.8	V
$G_{\text{FS}}$	$V_{\text{DS}} = 10\text{V}$	$I_{\text{D}} = 3\text{ A}$			3		mho
$C_{\text{ISS}}$	$V_{\text{GS}} = 0\text{V}$	$V_{\text{DS}} = 28\text{ V}$	$f = 1\text{ MHz}$		88		pF
$C_{\text{OSS}}$	$V_{\text{GS}} = 0\text{V}$	$V_{\text{DS}} = 28\text{ V}$	$f = 1\text{ MHz}$		44		pF
$C_{\text{RSS}}$	$V_{\text{GS}} = 0\text{V}$	$V_{\text{DS}} = 28\text{ V}$	$f = 1\text{ MHz}$		1.7		pF

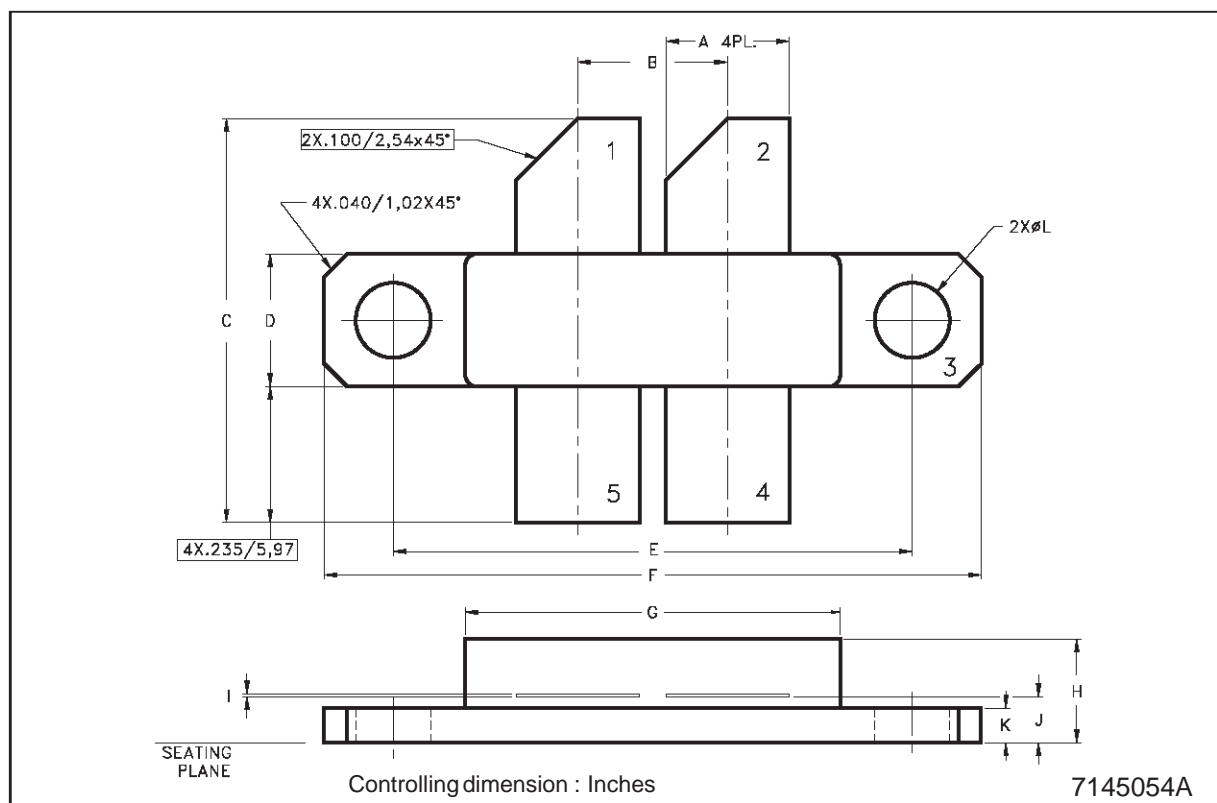
**DYNAMIC**

Symbol	Parameter			Min.	Typ.	Max.	Unit
$P_{\text{OUT}}$	$V_{\text{DD}} = 28\text{V}$	$f = 860\text{ MHz}$	$I_{\text{DQ}} = 400\text{ mA}$	100			W
$G_{\text{PS}}$	$V_{\text{DD}} = 28\text{ V}$	$P_{\text{out}} = 100\text{W PEP}$	$I_{\text{DQ}} = 400\text{ mA}$	13			dB
$\eta_{\text{D}}$	$V_{\text{DD}} = 28\text{ V}$	$P_{\text{out}} = 100\text{W PEP}$	$I_{\text{DQ}} = 400\text{ mA}$	30	36		%
IMD	$V_{\text{DD}} = 28\text{ V}$	$P_{\text{out}} = 100\text{W PEP}$	$I_{\text{DQ}} = 400\text{ mA}$		31		dB
Load Mismatch	$f = 860\text{ MHz}$ $I_{\text{DQ}} = 400\text{ mA}$	$V_{\text{DD}} = 28\text{ V}$ ALL PHASE ANGLES	$P_{\text{out}} = 100\text{W PEP}$	5:1			VSWR

Note :  $f_1 = 860\text{ MHz}$   
 $f_2 = 860.1\text{ MHz}$

**M246 (.230 x .650 WIDE 4/L BAL N/HERM W/FLG) MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	5.33		5.59	0.210		0.220
B	6.48		6.73	0.255		0.265
C	17.27		18.29	0.680		0.720
D	5.72		5.97	0.225		0.235
E		22.86			0.900	
F	28.83		29.08	1.135		1.145
G	16.26		16.76	0.640		0.660
H	4.19		5.08	0.165		0.200
I	0.08		0.15	0.003		0.006
J	1.83		2.24	0.072		0.088
K	1.40		1.65	0.055		0.065
L	3.18		3.43	0.125		0.135



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