



SD56120

RF POWER TRANSISTORS The *LdmoST* FAMILY

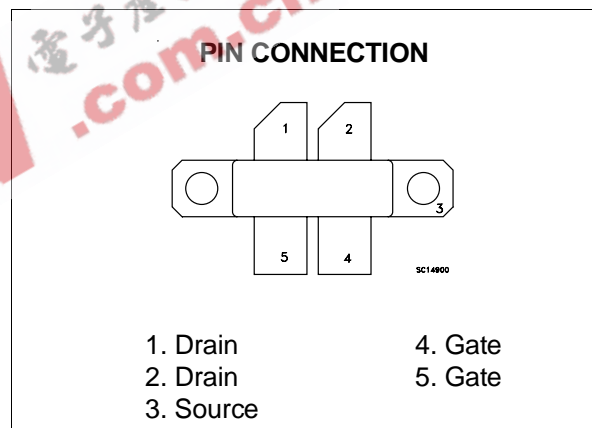
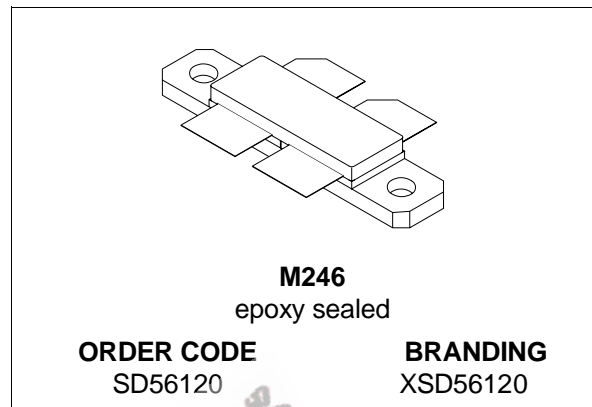
TARGET DATA

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.



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	± 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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SD56120

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_{DSS}	$V_{\text{GS}} = 0\text{V}$	$V_{\text{DS}} = 28\text{ V}$			1	μA
I_{GSS}	$V_{\text{GS}} = 20\text{V}$	$V_{\text{DS}} = 0\text{ V}$			1	μA
$V_{\text{GS(Q)}}$	$V_{\text{DS}} = 28\text{V}$	$I_{\text{D}} = 100\text{ mA}$	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_{FS}	$V_{\text{DS}} = 10\text{V}$	$I_{\text{D}} = 3\text{ A}$		3		mho
C_{ISS}	$V_{\text{GS}} = 0\text{V}$	$V_{\text{DS}} = 28\text{ V}$		88		pF
C_{OSS}	$V_{\text{GS}} = 0\text{V}$	$V_{\text{DS}} = 28\text{ V}$		44		pF
C_{RSS}	$V_{\text{GS}} = 0\text{V}$	$V_{\text{DS}} = 28\text{ V}$		1.7		pF

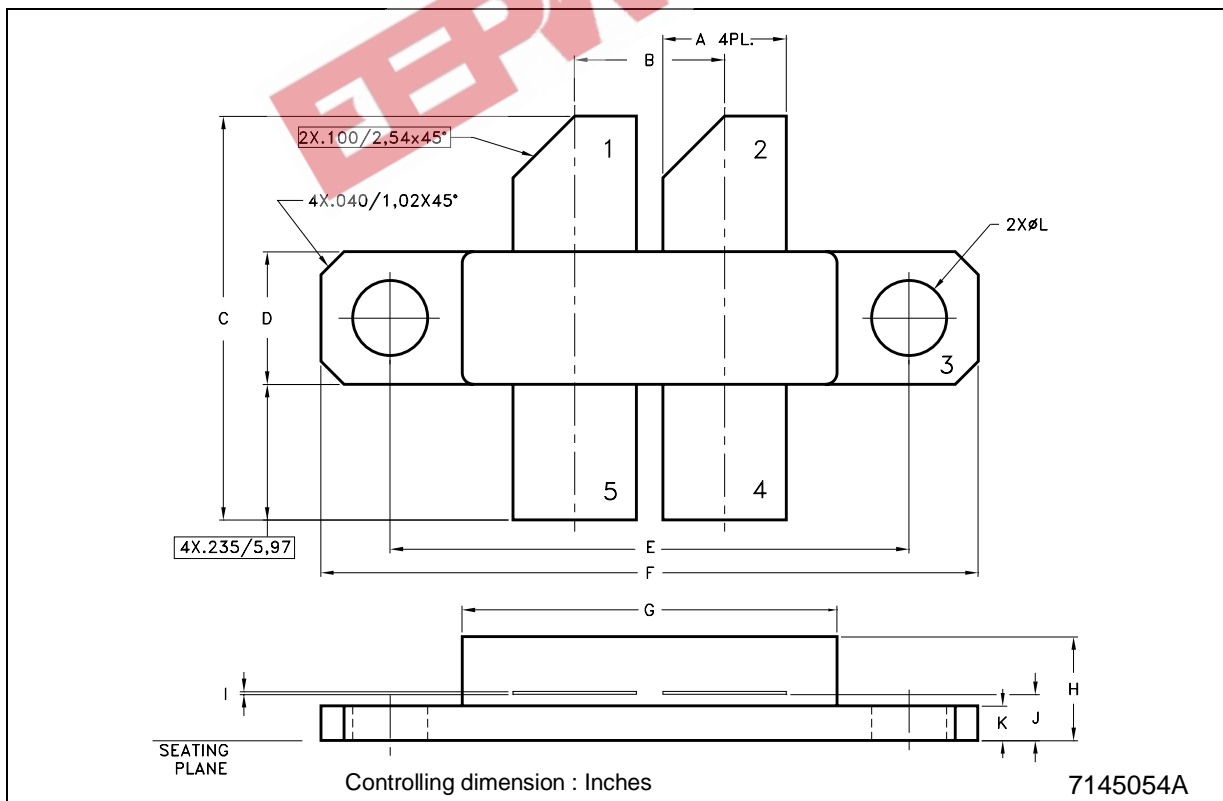
DYNAMIC

Symbol	Parameter		Min.	Typ.	Max.	Unit
P_{OUT}	$V_{\text{DD}} = 28\text{V}$	$f = 860\text{ MHz}$ $I_{\text{DQ}} = 400\text{ mA}$	100			W
G_{PS}	$V_{\text{DD}} = 28\text{ V}$	$P_{\text{out}} = 100\text{W PEP}$ $I_{\text{DQ}} = 400\text{ mA}$	13			dB
η_{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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