



SD2931

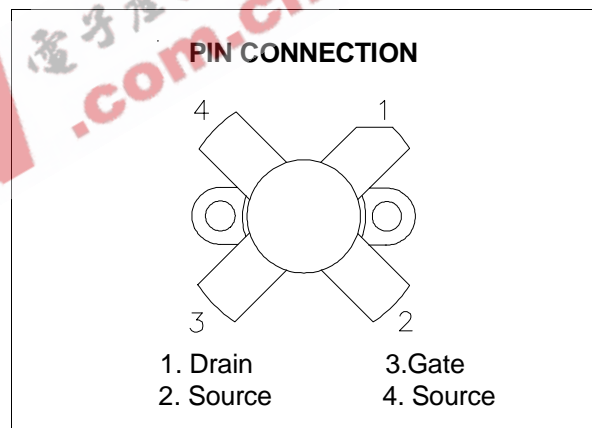
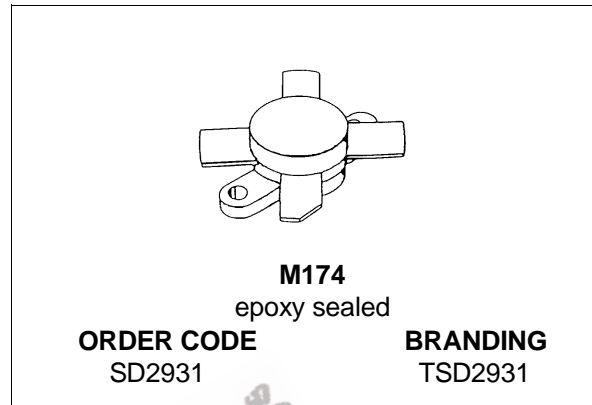
RF POWER TRANSISTORS HF/VHF/UHF N-CHANNEL MOSFETs

TARGET DATA

- GOLD METALLIZATION
- EXCELLENT THERMAL STABILITY
- COMMON SOURCE CONFIGURATION
- POUT = 150W MIN. WITH 14 dB GAIN @175 MHz

DESCRIPTION

The SD2931 is a gold metallized N-Channel MOS field-effect RF power transistor. The SD2931 is intended for use in 50V dc large signal applications up to 230 MHz



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

Symbol	Parameter	Value	Unit
$V_{(BR)DSS}$	Drain Source Voltage	125	V
V_{DGR}	Drain-Gate Voltage ($R_{GS} = 1M\Omega$)	125	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current	16	A
P_{DISS}	Power Dissipation	292	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	0.6	$^{\circ}\text{C}/\text{W}$
$R_{th(c-s)}$	Case-Heatsink Thermal Resistance *	0.2	$^{\circ}\text{C}/\text{W}$

* Determined using a flat aluminum or copper heatsink with thermal compound applied (Dow Corning 340 or equivalent).

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

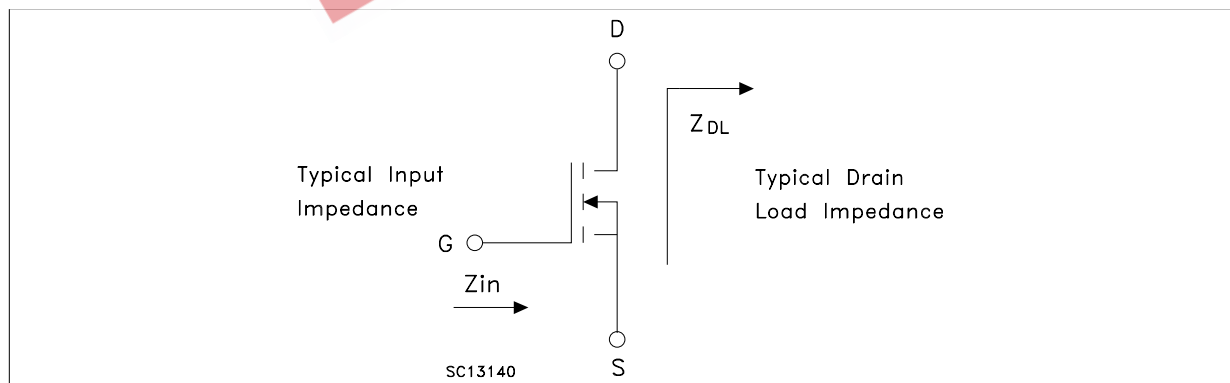
STATIC

Symbol	Parameter		Min.	Typ.	Max.	Unit
$V_{(BR)DSS}$	$V_{GS} = 0V$	$I_{DS} = 100\text{ mA}$	125			V
I_{DSS}	$V_{GS} = 0V$	$V_{DS} = 50\text{ V}$			5	mA
I_{GSS}	$V_{GS} = 20V$	$V_{DS} = 0\text{ V}$			5	μA
$V_{GS(Q)}$	$V_{DS} = 10V$	$I_D = 250\text{ mA}$	2		5	V
$V_{DS(ON)}$	$V_{GS} = 10V$	$I_D = 10\text{ A}$		2.7	3	V
G_{FS}	$V_{DS} = 10V$	$I_D = 5\text{ A}$	5			mho
C_{ISS}	$V_{GS} = 0V$	$V_{DS} = 50\text{ V}$		480		pF
C_{OSS}	$V_{GS} = 0V$	$V_{DS} = 50\text{ V}$		180		pF
C_{RSS}	$V_{GS} = 0V$	$V_{DS} = 50\text{ V}$		15		pF

DYNAMIC

Symbol	Parameter		Min.	Typ.	Max.	Unit
P_{OUT}	$f = 175\text{ MHz}$	$V_{DD} = 50\text{ V}$ $I_{DQ} = 250\text{ mA}$	150			W
G_{PS}	$f = 175\text{ MHz}$	$V_{DD} = 50\text{ V}$ $P_{out} = 150\text{ W}$ $I_{DQ} = 250\text{ mA}$	14	15		dB
η_D	$f = 175\text{ MHz}$	$V_{DD} = 50\text{ V}$ $P_{out} = 150\text{ W}$ $I_{DQ} = 250\text{ mA}$	55	65		%
Load Mismatch	$f = 175\text{ MHz}$	$V_{DD} = 50\text{ V}$ $P_{out} = 150\text{ W}$ $I_{DQ} = 250\text{ mA}$ All Phase Angles	10:1			VSWR

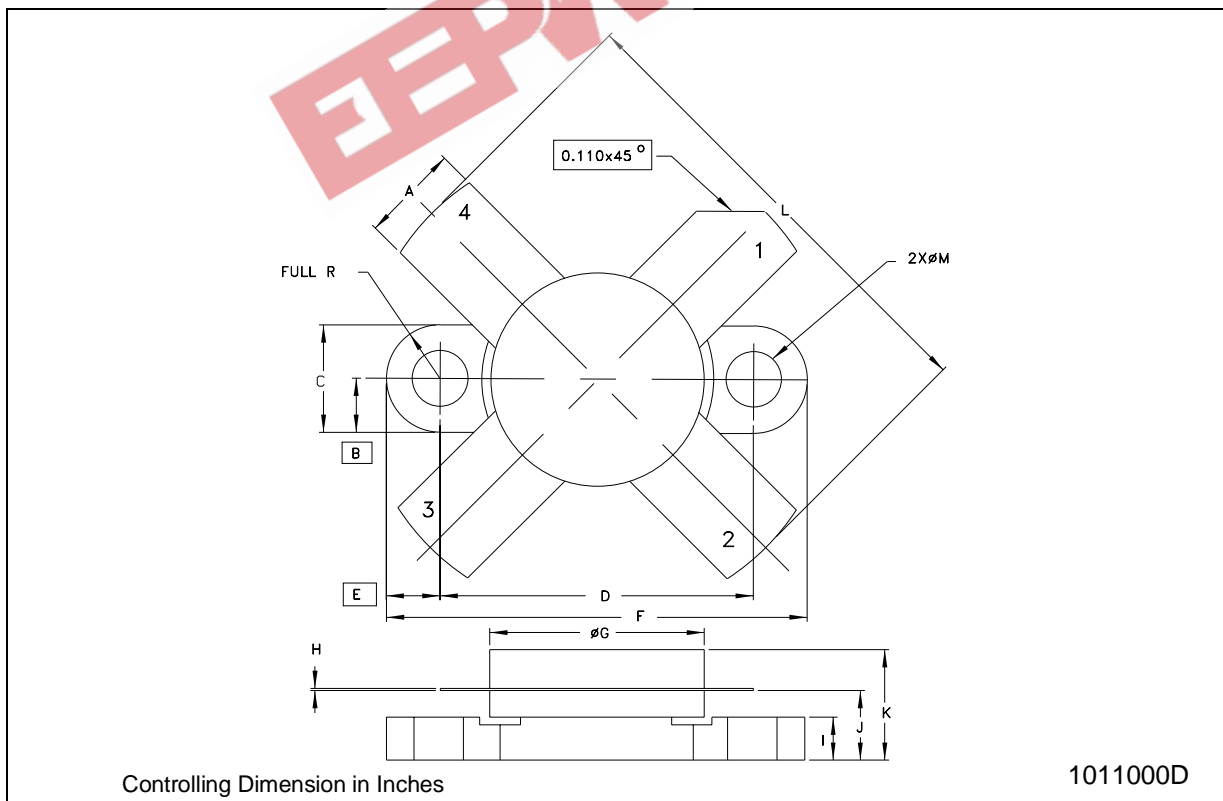
IMPEDANCE DATA



FREQ.	$Z_{IN} (\Omega)$	$Z_{DL} (\Omega)$
30 MHz	$1.7 - j 5.7$	$6.8 + j 0.9$
175 MHz	$1.2 - j 2.0$	$2.0 + j 2.4$

M174 (.500 DIA 4L N/HERM W/FLG) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	5.56		5.84	0.219		0.230
B		3.18			0.125	
C	6.22		6.48	0.245		0.255
D	18.28		18.54	0.720		0.730
E		3.18			0.125	
F	24.64		24.89	0.970		0.980
G	12.57		12.83	0.495		0.505
H	0.08		0.18	0.003		0.007
I	2.11		3.00	0.083		0.118
J	3.81		4.45	0.150		0.175
K			7.11			0.280
L	25.53		26.67	1.005		1.050
M	3.05		3.30	0.120		0.130



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