



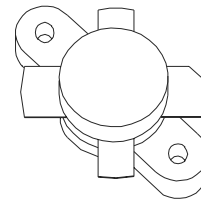
SD1405

RF & MICROWAVE TRANSISTORS HF SSB APPLICATIONS

- 30 MHz
- 12.5 VOLTS
- COMMON EMITTER
- IMD 32 dB
- GOLD METALLIZATION
- $P_{OUT} = 75 \text{ W MIN. WITH } 13 \text{ dB GAIN}$

DESCRIPTION

The SD1405 is a 12.5 V Class C epitaxial silicon NPN planar transistor designed primarily for HF communications. This device utilizes diffused emitter resistors to achieve infinite VSWR under rated operating conditions.

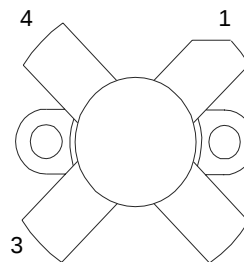


M174
epoxy sealed

ORDER CODE
SD1405

BRANDING
SD1405

PIN CONNECTION



1. Drain
2. Source

3. Gate
4. Source

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	36	V
V_{CEO}	Collector-Emitter Voltage	18	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	20	A
P_{DISS}	Power Dissipation	270	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	0.65	$^\circ\text{C/W}$
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ELECTRICAL SPECIFICATION (T_{CASE} = 25 °C)

STATIC

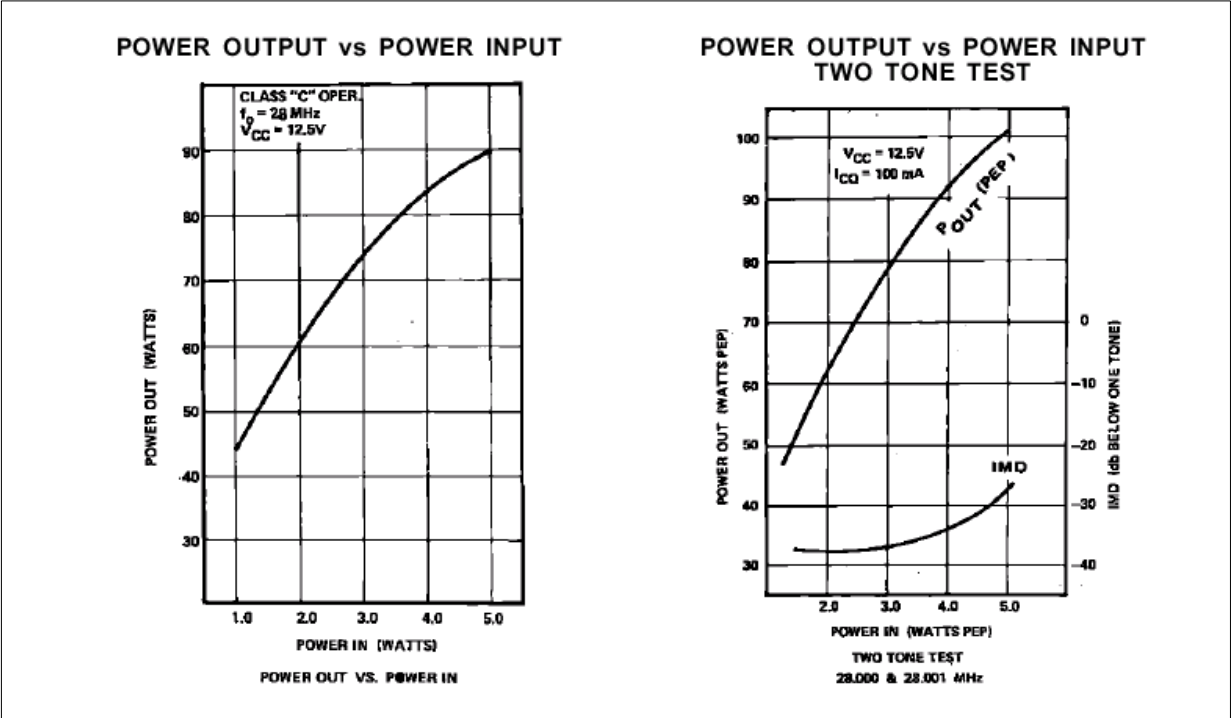
Symbol	Test Conditions	Min.	Typ.	Max.	Unit
BV _{CB0}	I _C = 50 mA I _E = 0 mA	36			V
BV _{CES}	I _C = 100 mA V _{BE} = 0 V	36			V
BV _{CEO}	I _C = 100 mA I _B = 0 mA	18			V
BV _{EBO}	I _E = 10 mA I _C = 0 mA	4.0			V
I _{CES}	V _{CE} = 15 V I _E = 0 mA			2	mA
h _{FE}	V _{CE} = 5 V I _C = 5 A	20		300	

DYNAMIC

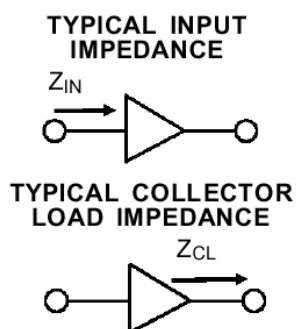
Symbol	Test Conditions	Min.	Typ.	Max.	Unit
P _{OUT}	f = 30 MHz P _{IN} = 3.8 W V _{CE} = 12.5 V	75			W
G _P	f = 30 MHz P _{IN} = 3.8 W V _{CE} = 12.5 V	13			dB
IMD*	f = 30 MHz V _{CE} = 12.5 V I _{CQ} = 100 mA	32			dB
C _{OB}	f = 1 MHz V _{CB} = 12 V		350		pF

* P_{OUT} = 60 W PEP, f₀ = 30 + 30.001 MHz

TYPICAL PERFORMANCE

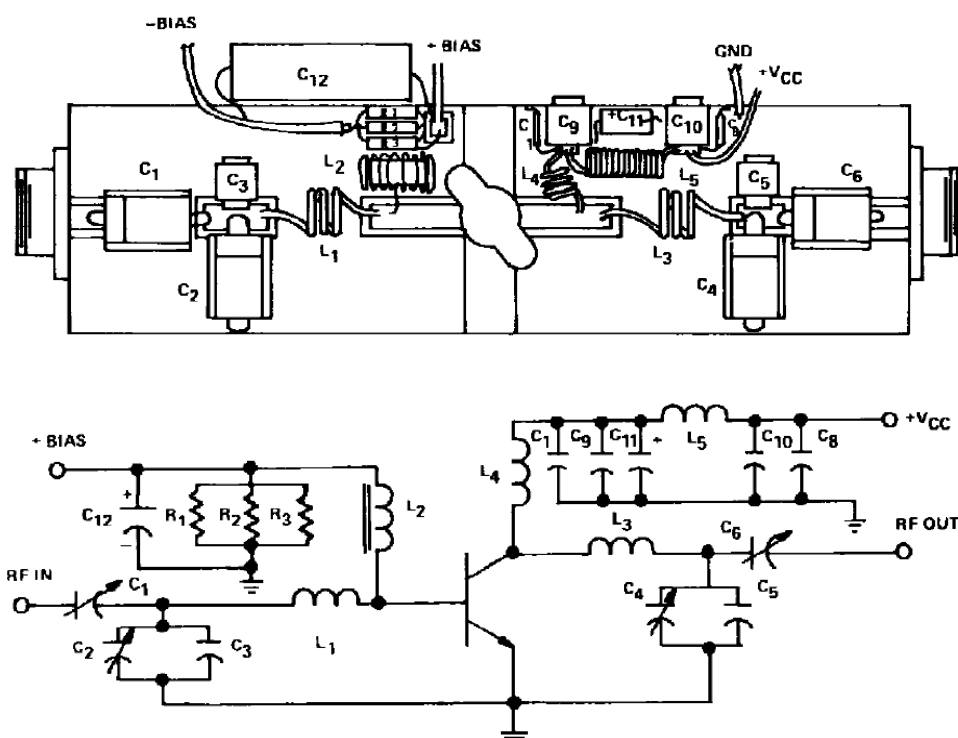


IMPEDANCE DATA



FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
30 MHz	$0.70 - j 0.75$	$1.2 + j 1.0$
40 MHz	$0.65 - j 0.70$	$1.1 + j 0.8$
50 MHz	$0.60 - j 0.65$	$1.0 + j 0.7$

TEST CIRCUIT

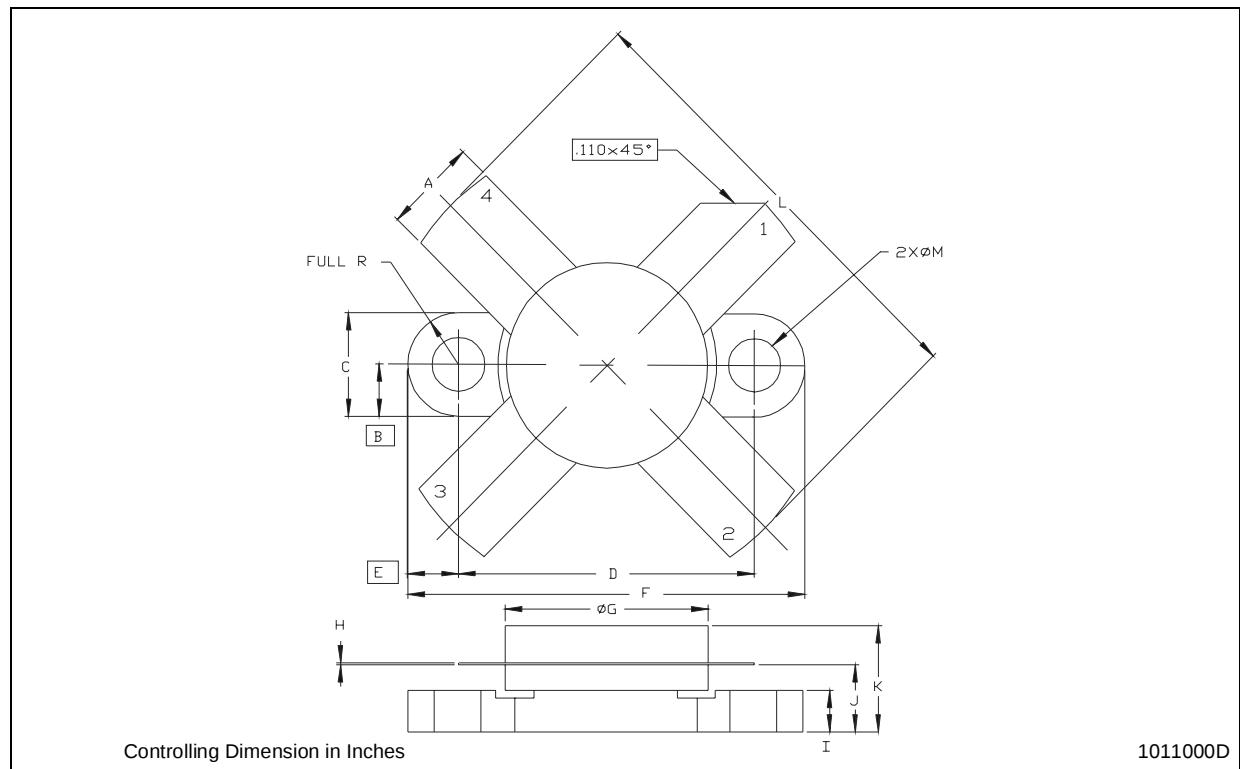


C1 : 9 - 180 pF, Arco 463
 C2, C4 : 5 - 380pF, Arco 465
 C3, C5 : 200pF, Unelco
 C6 : 110 - 580pF, Arco 467
 C7, C8 : 0.1 F Ceramic Disk
 C9, C10 : 1000pF, Unelco
 C11 : 10 F, Electrolytic, 35Vdc
 C12 : 1000 F, Electrolytic, 50Vdc

L1, L3 : 2 1/2 Turns, #14 AWG, 1/4" I.D. Loose Wound
 L2 : 16 Turns, #16 AWG, Enameled Wire On Micrometals Torroid #T-94
 L4 : 3 1/2 Turns, #16 AWG, Enameled Wire, 1/4" I.D.
 L5 : 14 Turns, #16 AWG, Enameled Wire, 1/4" I.D.
 R1, R2, R3 : 1.5 Ohm, 1 Watt Carbon

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

DIM.	mm			Inch		
	MIN.	TYP.	MAX	MIN.	TYP.	MAX
A	5.56		5.584	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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