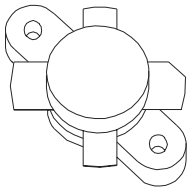
SD1405

RF & MICROWAVE TRANSISTORS
HF SSB APPLICATIONS

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



M174
epoxy sealed

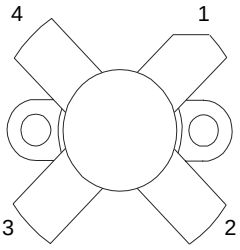
ORDER CODE
SD1405

BRANDING
SD1405

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 infinte VSWR under rated operating conditions.

PIN CONNECTION



1. Drain
2. Source
3. Gate
4. Source

ABSOLUTE MAXIMUM RATINGS (T_{CASE} = 25 °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	°C
T_{STG}	Storage Temperature	-65 to +150	°C

THERMAL DATA

$R_{th(j-c)}$	Junction -Case Thermal Resistance	0.65	°C/W

ELECTRICAL SPECIFICATION (T_{CASE} = 25 °C)

STATIC

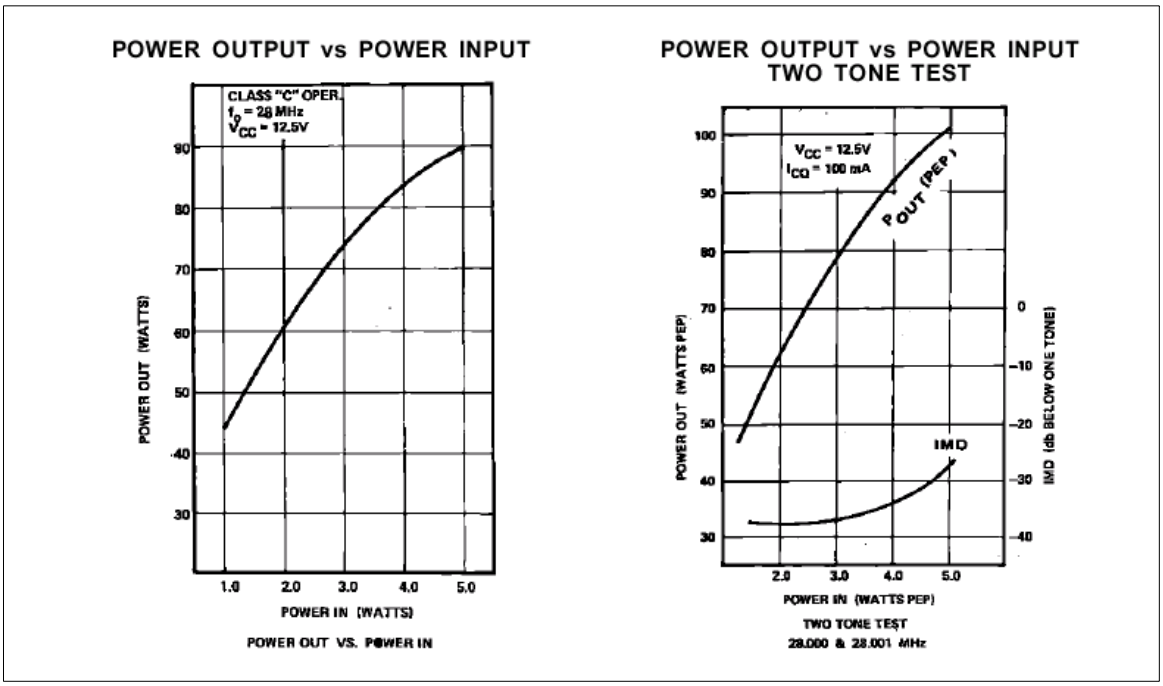
Symbol	Test Conditions	Min.	Typ.	Max.	Unit
BV_{CBO}	I_C = 50 mA I_E = 0 mA	36			V
BV_{CES}	I_C = 100 mA V_{BE} = 0 V	36			V
BV_{CEO}	I_C = 100 mA I_B = 0 mA	18			V
BV_{EBO}	I_E = 10 mA I_C = 0 mA	4.0			V
I_{CES}	V_{CE} = 15 V I_E = 0 mA			2	mA
h_{FE}	V_{CE} = 5 V I_C = 5 A	20		300	

DYNAMIC

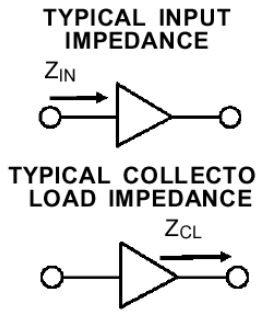
Symbol	Test Conditions	Min.	Typ.	Max.	Unit
P_{OUT}	f = 30 MHz P_{IN} = 3.8 W V_{CE} = 12.5 V	75			W
G_P	f = 30 MHz P_{IN} = 3.8 W V_{CE} = 12.5 V	13			dB
IMD*	f = 30 MHz V_{CE} = 12.5 V I_{CQ} = 100 mA	32			dB
C_{OB}	f = 1 MHz V_{CB} = 12 V		350		pF

* POUT = 60 W PEP, f0 = 30 + 30.001 MHz

TYPICAL PERFORMANCE

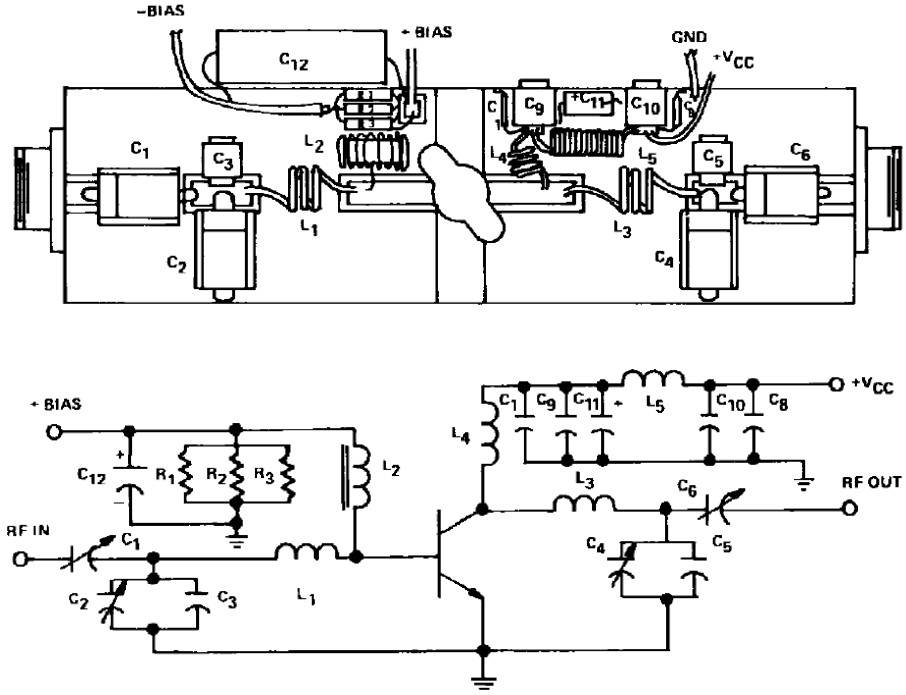


IMPEDANCE DATA



FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
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

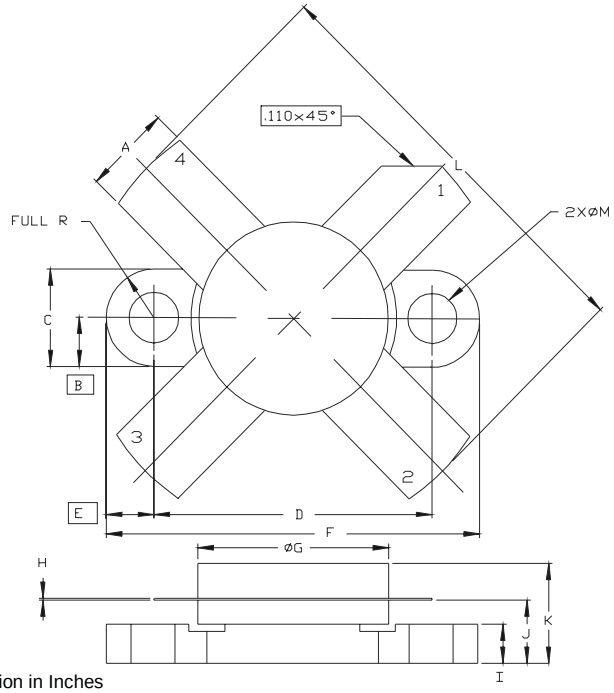


C1 : 9 - 180 pF, Arco 463
C2,C4 : 5 - 380pF, Arco 465
C3,C5 : 200pF, Unelco
C6 : 110 - 580pF, Arco 467
C7,C8 : 0.1 F Ceramic Disk
C9,C10 : 1000pF, Unelco
C11 : 10 F, Electrolytic, 35Vdc
C12 : 1000 F, Electrolytic, 50Vdc

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



Controlling Dimension in Inches

1011000D