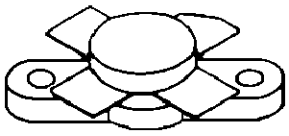
SGS-THOMSON MICROELECTRONICS

SD1407

RF & MICROWAVE TRANSISTORS HF SSB APPLICATIONS

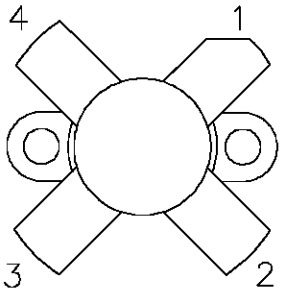
- 30 MHz
- 28 VOLTS
- IMD –30 dB
- COMMON EMITTER
- GOLD METALLIZATION
- P_{OUT} = 125 W MIN. WITH 15 dB GAIN



.500 4LFL (M174)
epoxy sealed

ORDER CODE	BRANDING
SD1407	1407

PIN CONNECTION



1. Collector
2. Emitter
3. Base
4. Emitter

DESCRIPTION

The SD1407 is a 28 V epitaxial silicon NPN planar transistor designed primarily for SSB communications. This device utilizes state-of-the-art diffused emitter ballasting for improved ruggedness and reliability.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	65	V
V_{CEO}	Collector-Emitter Voltage	36	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	20	A
P_{DISS}	Power Dissipation	270	W
T_J	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 SPECIFICATIONS (T_{case} = 25°C)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 100mA	I_E = 0mA	65	—	—	V
BV_{CES}	I_C = 100mA	V_{BE} = 0V	65	—	—	V
BV_{CEO}	I_C = 100mA	I_B = 0mA	35	—	—	V
BV_{EBO}	I_E = 10mA	I_C = 0mA	4.0	—	—	V
I_{CES}	V_{CE} = 30V	I_E = 0mA	—	—	15	mA
h_{FE}	V_{CE} = 5V	I_C = 5A	10	—	200	—

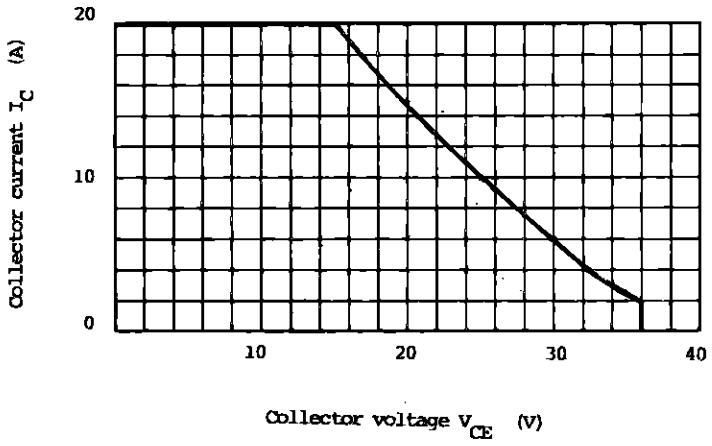
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 30 MHz	P_{IN} = 3.95 W	V_{CE} = 28 V	125	—	—	W
G_P	f = 30 MHz	P_{IN} = 3.95 W	V_{CE} = 28 V	15	16	—	dB
IMD*	f = 30 MHz	V_{CE} = 28 V	I_{CQ} = 100 mA	—	–34	–30	dB
C_{OB}	f = 1 MHz	V_{CB} = 30 V		—	250	—	pF

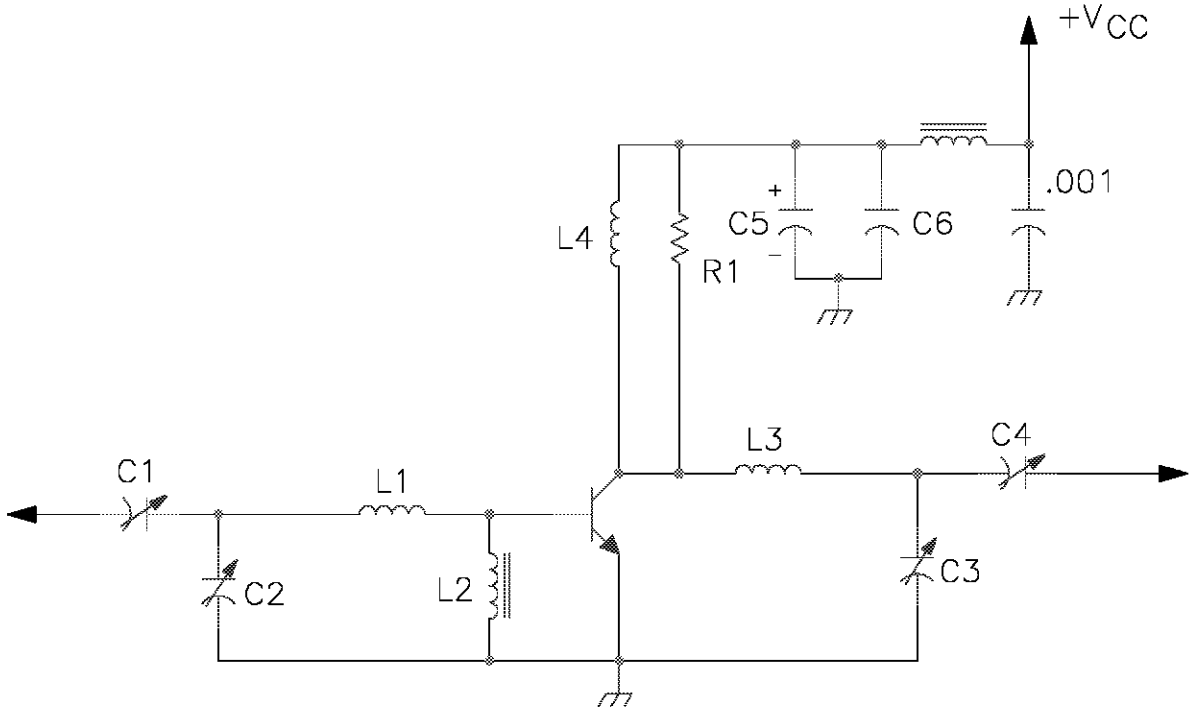
Note: *P_{OUT} = 100W PEP, f_O = 30 + 30.001 MHz

TYPICAL PERFORMANCE

SAFE OPERATING AREA



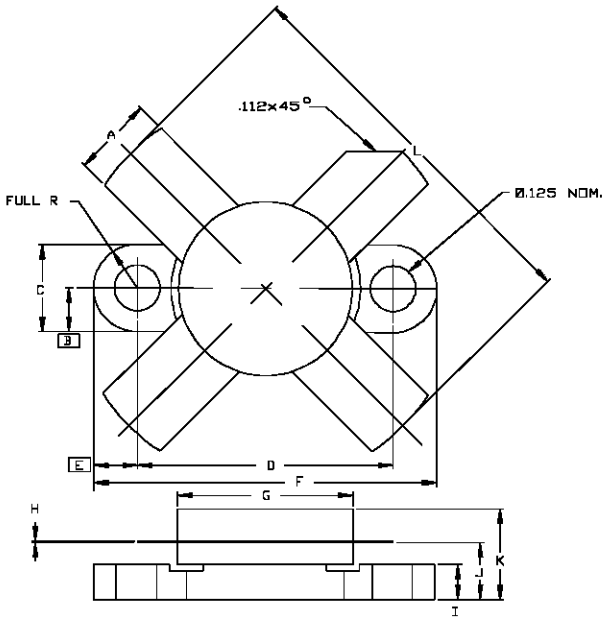
TEST CIRCUIT



C1	:	24 - 200pF Arco 425	L1	:	4 Turns, #16 AWG, Tinned, 0.40” I.D.
C2,C4	:	50 - 380pF Arco 465	L2,L5	:	1 Turn, #22 AWG, Tinned, formed with VK-200 #4B Ferroxcube
C3	:	9 - 180pF Arco 463			
C5	:	10µF, Electrolytic, 35Vdc	L4	:	17 Turns, #18 Enameled Wire Wrapped Around R1
C6	:	0.01µF, 100V, Ceramic	R1	:	390Ω Resistor (2 Watt)

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0174



SGS-THOMSON MICROELECTRONICS		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.220/5,59	.230/5,84
B	.125/3,18	
C	.245/6,22	.255/6,48
D	.720/18,28	.730/18,54
E	.125/3,18	
F	.970/24,64	.980/24,89
G	.495/12,57	.505/12,83
H	.003/0,08	.007/0,18
I	.090/2,29	.110/2,79
J	.160/4,06	.175/4,45

CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
K		.280/7,11
L		1.050/26,67