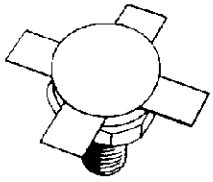
SGS-THOMSON MICROELECTRONICS

SD1459

RF & MICROWAVE TRANSISTORS TV/LINEAR APPLICATIONS

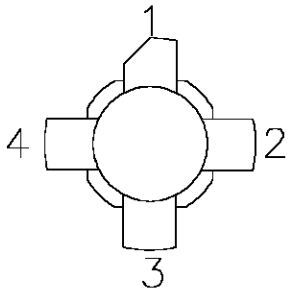
- 170 - 230 MHz
- 28 VOLTS
- COMMON EMITTER
- GOLD METALLIZATION
- HIGH SATURATED POWER CAPABILITY
- DIFFUSED EMITTER BALLAST RESISTORS
- P_{OUT} = 20 W MIN. WITH 7.5 dB GAIN



.500 Dia .550 4L STUD (M164)
epoxy sealed

ORDER CODE	BRANDING
SD1459	SD1459

PIN CONNECTION



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

DESCRIPTION

The SD1459 is a gold metallized epitaxial silicon NPN planar transistor using diffused emitter ballast resistors for high linearity Class A operation in VHF and Band III television transmitters and transposers.

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	30	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	16	A
P_{DISS}	Power Dissipation	150	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	1.2	°C/W

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)

STATIC

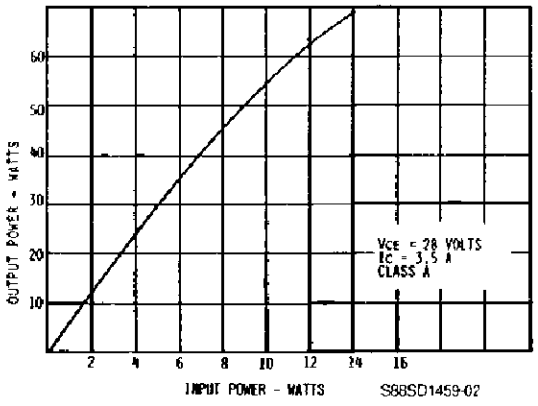
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 100 mA	I_E = 0 mA	60	—	—	V
BV_{CEO}	I_C = 100 mA	I_B = 0 mA	30	—	—	V
BV_{CER}	I_C = 100 mA	R_{BE} = 10Ω	60	—	—	V
BV_{EBO}	I_E = 20 mA	I_C = 0 mA	4.0	—	—	V
h_{FE}	V_{CE} = 5 V	I_C = 1 A	10	—	120	—

DYNAMIC

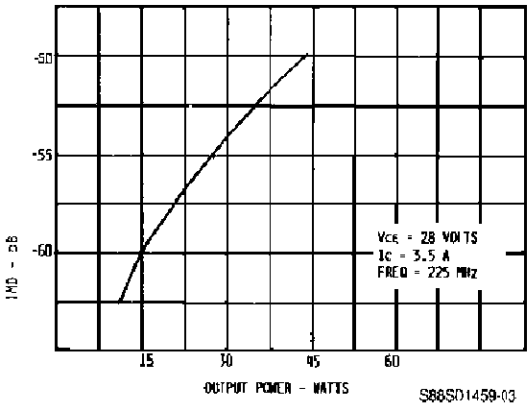
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 225 MHz	V_{CE} = 28 V	I_C = 3.5 A	20	—	—	W
G_P	f = 225 MHz	V_{CE} = 28 V	I_C = 3.5 A	7.5	—	8.0	dB
C_{OB}	f = 1 MHz	V_{CB} = 30 V		—	—	150	pf
Load Mismatch	f = 225 MHz	V_{CE} = 28 V	I_C = 3.5 A	∞:1	—	—	VSWR

TYPICAL PERFORMANCE

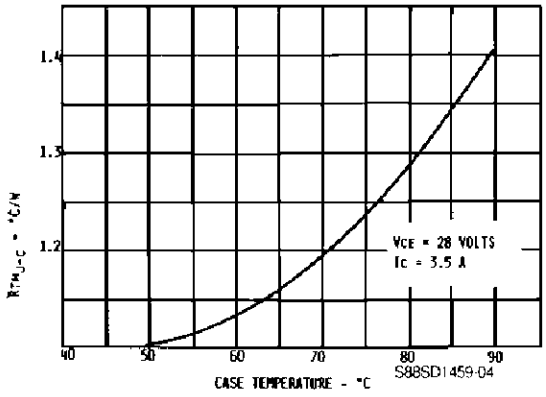
OUTPUT POWER vs INPUT POWER



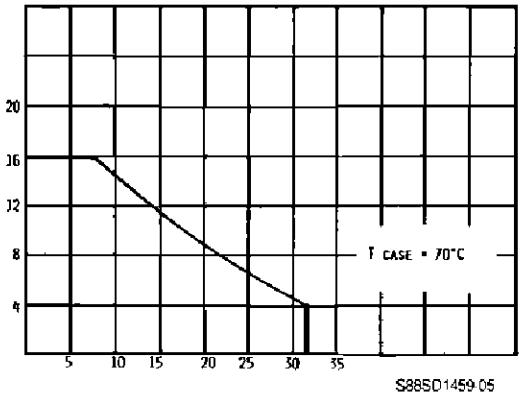
INTERMODULATION DISTORTION vs OUTPUT POWER



THERMAL RESISTANCE vs CASE TEMPERATURE

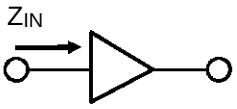


SAFE OPERATING AREA

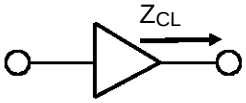


IMPEDANCE DATA

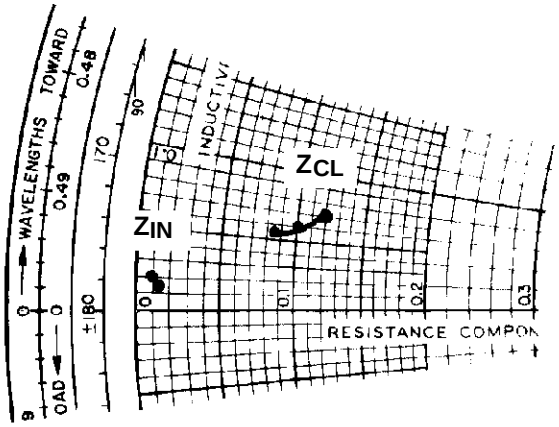
TYPICAL INPUT IMPEDANCE



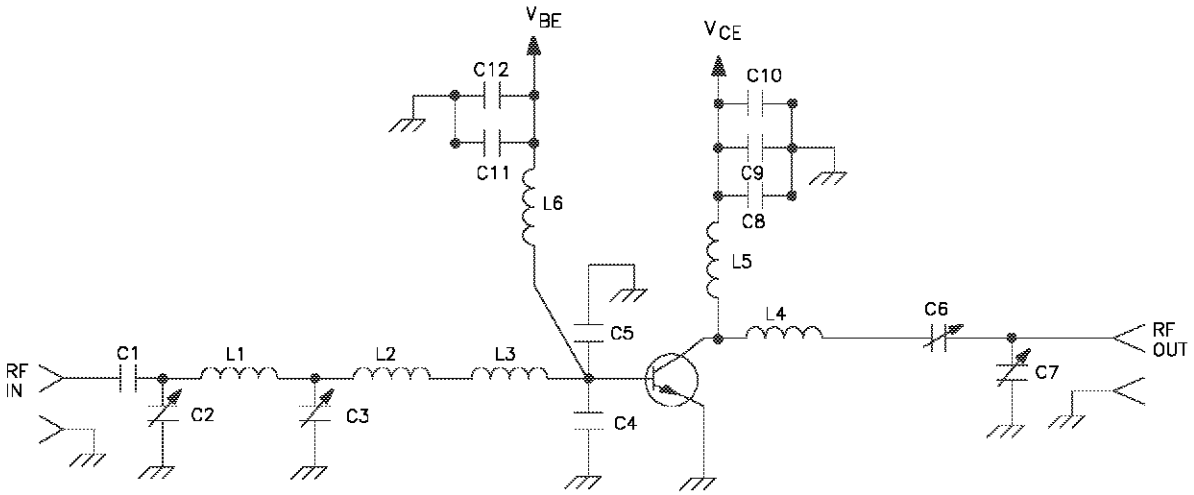
TYPICAL COLLECTOR LOAD IMPEDANCE



FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
170 MHz	0.6 + j 0.7	5.9 + j 3.5
200 MHz	0.55 + j 0.8	5.0 + j 3.0
230 MHz	0.5 + j 0.9	4.2 + j 2.8



TEST CIRCUIT FOR 225 MHz



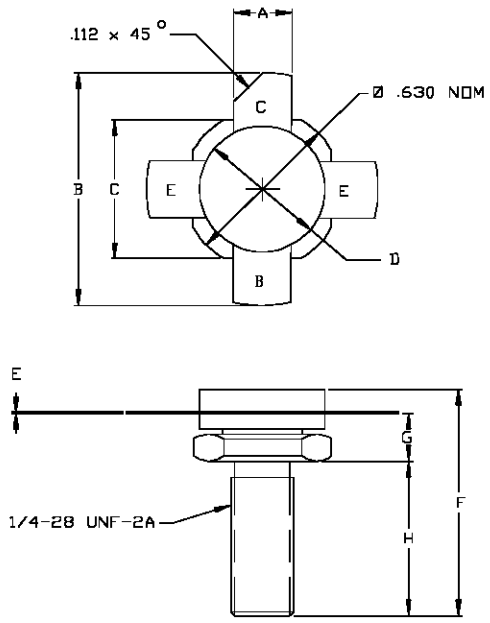
C1, C10	:	470 pF ATC 100 B Chip Capacitor
C2	:	4 - 40pF Arco 403 Trimmer Capacitor
C3	:	4 - 60pF Arco 404 Trimmer Capacitor
C4, C5	:	82pF ATC 100B Chip Capacitor
C6	:	24 - 200pF Arco 425 Trimmer Capacitor
C7	:	10 - 80pF Arco 405 Trimmer Capacitor
C8, C11	:	1µF LCC Chip Capacitor
C9	:	100µF 63V Electrolytic
C12	:	10mF LCC CPM13B

L1	:	1 1/2 Turns, 0.7mm Enameled Wire 4.5mm I.D.
L2	:	21mm 50Ω Line
L3	:	Length of the Base Lead
L4	:	Enameled Wire 1.6mm Diameter
L5	:	Enameled Wire 1.6mm Diameter
L6	:	9 Turns 0.7mm Enameled Wire 4.5mm 1.D.

Material: Epoxy 63 Mils Er = 2.55

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0164



SGS-THOMSON MICROELECTRONICS		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.220/5,59	.230/5,84
B		1.050/26,67
C	.545/13,84	.555/14,10
D	.495/12,57	.505/12,83
E	.003/0,08	.007/0,18
F		.830/21,08
G	.185/4,70	.198/5,03
H	.497/12,62	.530/13,46