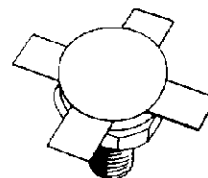


RF & MICROWAVE TRANSISTORS TV/LINEAR APPLICATIONS

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



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

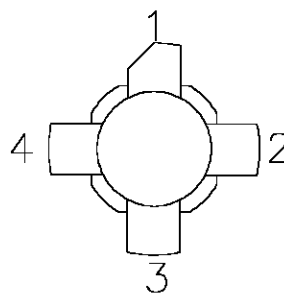
ORDER CODE
SD1459

BRANDING
SD1459

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.

PIN CONNECTION



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

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

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	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	- 65 to +150	$^{\circ}\text{C}$

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	1.2	$^{\circ}\text{C/W}$
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ELECTRICAL SPECIFICATIONS ($T_{\text{case}} = 25^{\circ}\text{C}$)**STATIC**

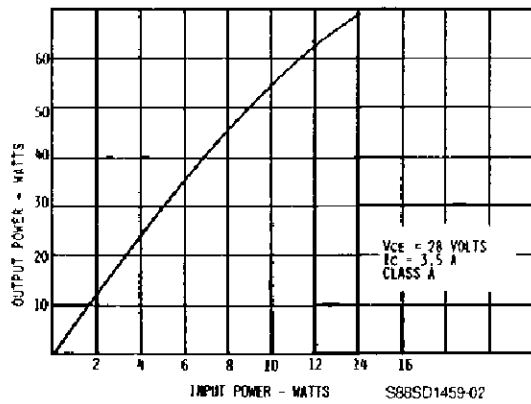
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 100 \text{ mA}$	$I_{\text{E}} = 0 \text{ mA}$	60	—	—	V
BV_{CEO}	$I_{\text{C}} = 100 \text{ mA}$	$I_{\text{B}} = 0 \text{ mA}$	30	—	—	V
BV_{CER}	$I_{\text{C}} = 100 \text{ mA}$	$R_{\text{BE}} = 10\Omega$	60	—	—	V
BV_{EBO}	$I_{\text{E}} = 20 \text{ mA}$	$I_{\text{C}} = 0 \text{ mA}$	4.0	—	—	V
h_{FE}	$V_{\text{CE}} = 5 \text{ V}$	$I_{\text{C}} = 1 \text{ A}$	10	—	120	—

DYNAMIC

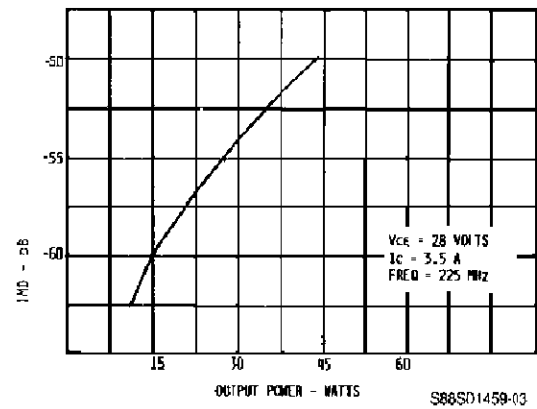
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 225 \text{ MHz}$	$V_{\text{CE}} = 28 \text{ V}$	$I_{\text{C}} = 3.5 \text{ A}$	20	—	—	W
G_{P}	$f = 225 \text{ MHz}$	$V_{\text{CE}} = 28 \text{ V}$	$I_{\text{C}} = 3.5 \text{ A}$	7.5	—	8.0	dB
C_{OB}	$f = 1 \text{ MHz}$	$V_{\text{CB}} = 30 \text{ V}$		—	—	150	pf
Load Mismatch	$f = 225 \text{ MHz}$	$V_{\text{CE}} = 28 \text{ V}$	$I_{\text{C}} = 3.5 \text{ A}$	$\infty:1$	—	—	VSWR

TYPICAL PERFORMANCE

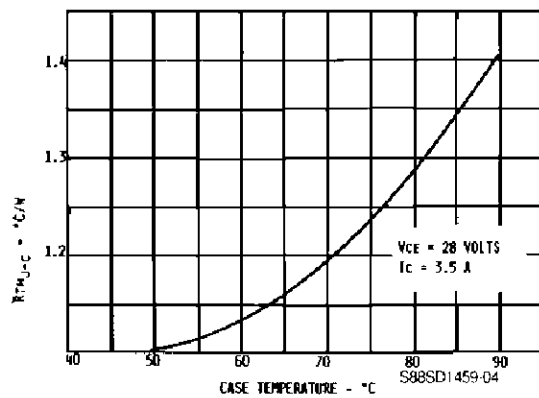
OUTPUT POWER vs INPUT POWER



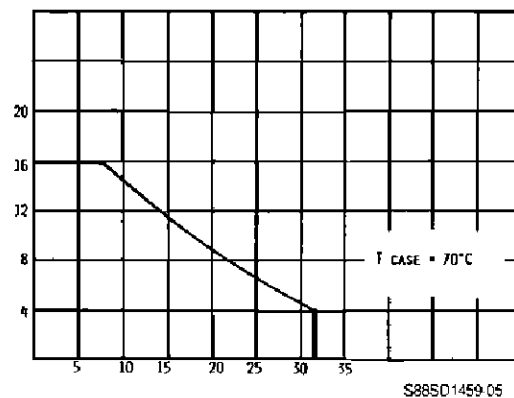
INTERMODULATION DISTORTION vs OUTPUT POWER



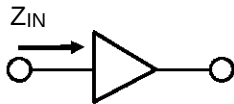
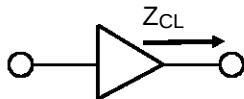
THERMAL RESISTANCE vs CASE TEMPERATURE



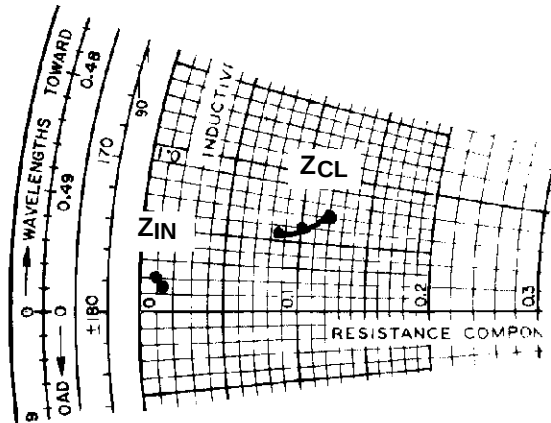
SAFE OPERATING AREA



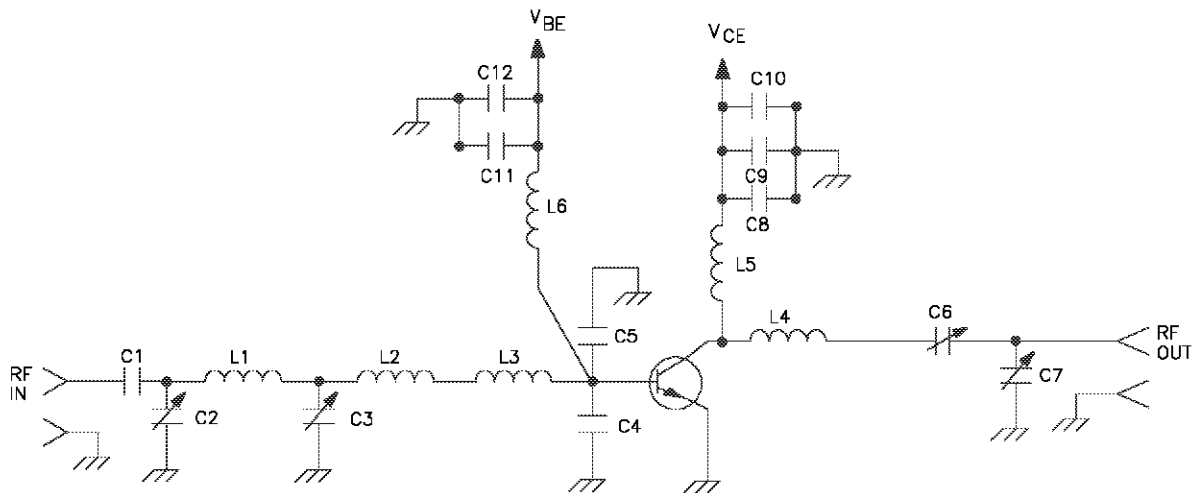
IMPEDANCE DATA

TYPICAL INPUT
IMPEDANCETYPICAL COLLECTOR
LOAD IMPEDANCE

FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
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



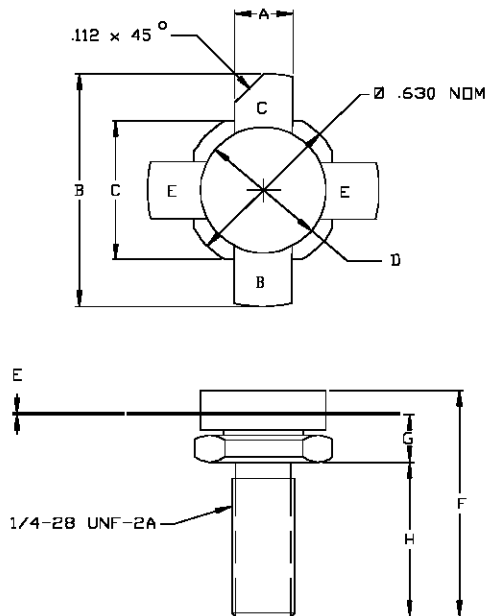
C1, C10 : 470 pF ATC 100 B Chip Capacitor
 C2 : 4 - 40pF Arco 403 Trimmer Capacitor
 C3 : 4 - 60pF Arco 404 Trimmer Capacitor
 C4, C5 : 82pF ATC 100B Chip Capacitor
 C6 : 24 - 200pF Arco 425 Trimmer Capacitor
 C7 : 10 - 80pF Arco 405 Trimmer Capacitor
 C8, C11 : 1 μ F LCC Chip Capacitor
 C9 : 100 μ F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

L1 : 1 1/2 Turns, 0.7mm Enameled Wire 4.5mm I.D.
 L2 : 21mm 50 Ω 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 I.D.

Material: Epoxy 63 Mils $\epsilon_r = 2.55$

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

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