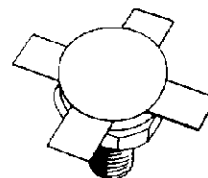


RF & MICROWAVE TRANSISTORS TV/LINEAR APPLICATIONS

- 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

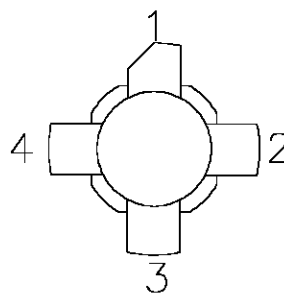
ORDER CODE
SD1459

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	$^{\circ}\text{C/W}$
---------------	----------------------------------	-----	----------------------

ELECTRICAL SPECIFICATIONS ($T_{\text{case}} = 25^{\circ}\text{C}$)**STATIC**

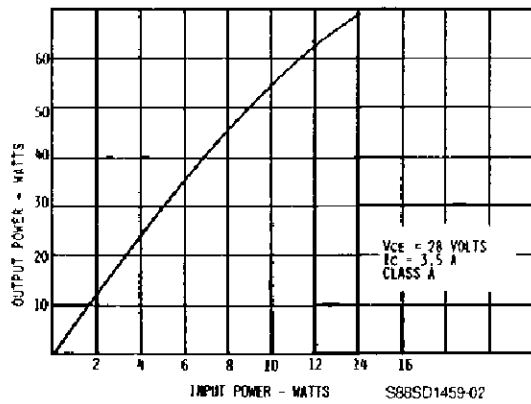
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_C = 100\text{ mA}$	$I_E = 0\text{ mA}$	60	—	—	V
BV_{CEO}	$I_C = 100\text{ mA}$	$I_B = 0\text{ mA}$	30	—	—	V
BV_{CER}	$I_C = 100\text{ mA}$	$R_{BE} = 10\Omega$	60	—	—	V
BV_{EBO}	$I_E = 20\text{ mA}$	$I_C = 0\text{ mA}$	4.0	—	—	V
h_{FE}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

DYNAMIC

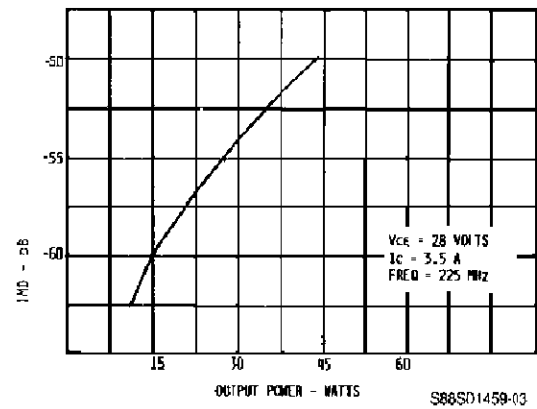
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 225\text{ MHz}$	$V_{CE} = 28\text{ V}$	$I_C = 3.5\text{ A}$	20	—	—	W
G_P	$f = 225\text{ MHz}$	$V_{CE} = 28\text{ V}$	$I_C = 3.5\text{ A}$	7.5	—	8.0	dB
C_{OB}	$f = 1\text{ MHz}$	$V_{CB} = 30\text{ V}$		—	—	150	pf
Load Mismatch	$f =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

TYPICAL PERFORMANCE

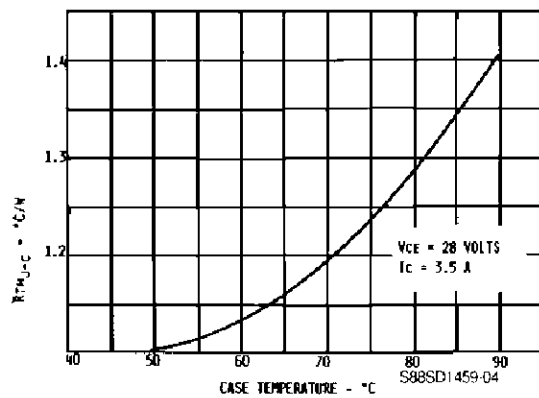
OUTPUT POWER vs INPUT POWER



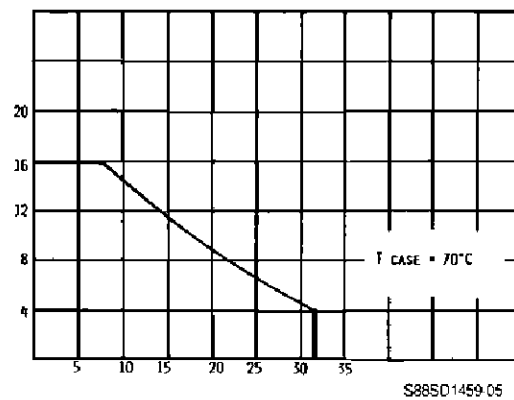
INTERMODULATION DISTORTION vs OUTPUT POWER



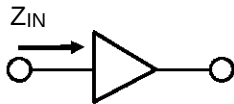
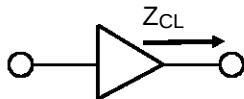
THERMAL RESISTANCE vs CASE TEMPERATURE



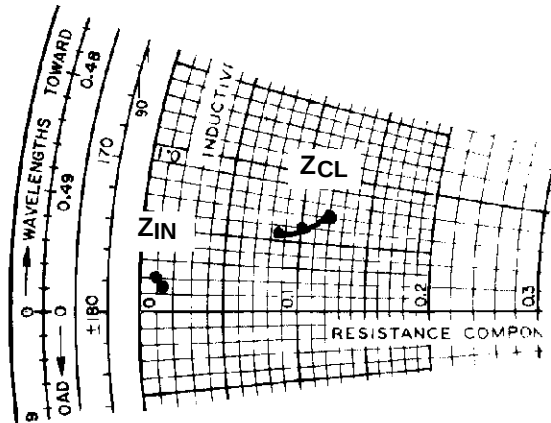
SAFE OPERATING AREA



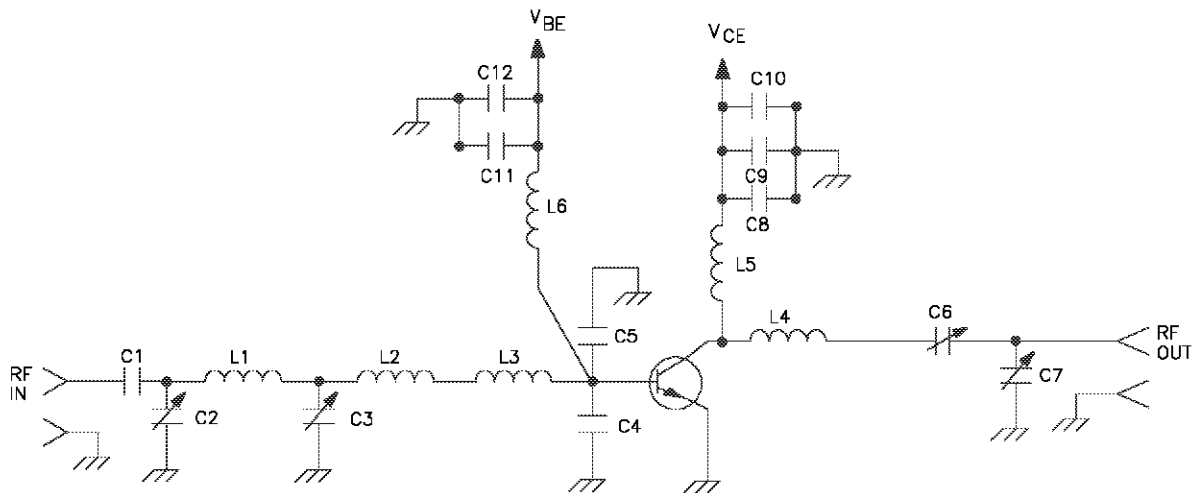
IMPEDANCE DATA

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



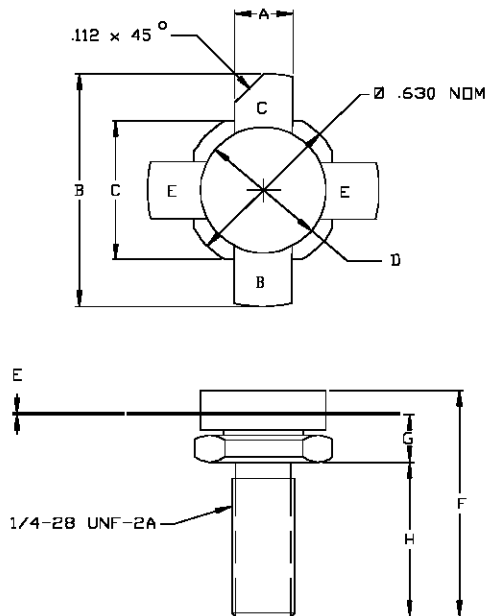
C1, C10 : 470 pF ATC 100 B Chip Capacitor
 C2 : 4 - 40pF Arco 403 Trimmer Capacitor
 C3 : 4 - 60pF Arco 404 Trimmer Capacitor
 C4, C5 : 82pF ATC 100B Chip Capacitor
 C6 : 24 - 200pF Arco 425 Trimmer Capacitor
 C7 : 10 - 80pF Arco 405 Trimmer Capacitor
 C8, C11 : 1μF LCC Chip Capacitor
 C9 : 100μF 63V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

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1994 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A