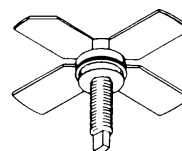


## RF & MICROWAVE TRANSISTORS UHF TV\LINEAR APPLICATIONS

- 860 MHz
- 20 VOLTS
- COMMON EMITTER
- GOLD METALLIZATION
- CLASS A LINEAR OPERATION
- $P_{OUT} = 1.0 \text{ W MIN. WITH } 10.0 \text{ dB GAIN}$



**.280 4L STUD (M122)**

epoxy sealed

**ORDER CODE**

SD1449

**BRANDING**

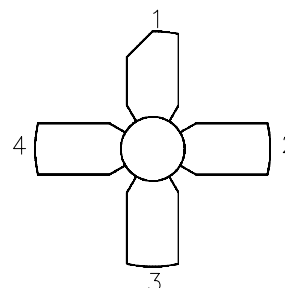
TCC597

### DESCRIPTION

The SD1449 is a silicon NPN bipolar device specifically designed for high linearity applications in the UHF frequency range including TV Bands IV and V.

Gold metallization and emitter ballasting assure high reliability under Class A linear amplifier operation.

### 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	45	V
$V_{CEO}$	Collector-Emitter Voltage	25	V
$V_{EBO}$	Emitter-Base Voltage	3.5	V
$I_C$	Device Current	1.2	A
$P_{DISS}$	Power Dissipation	19.4	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	9.0	$^{\circ}\text{C/W}$
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## SD1449 (TCC597)

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

#### STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{\text{CBO}}$	$I_{\text{C}} = 2 \text{ mA}$	$I_{\text{E}} = 0 \text{ mA}$	45	—	—	V
$BV_{\text{CER}}$	$I_{\text{C}} = 40 \text{ mA}$	$R_{\text{BE}} = 10 \Omega$	50	—	—	V
$BV_{\text{CEO}}$	$I_{\text{C}} = 40 \text{ mA}$	$I_{\text{B}} = 0 \text{ mA}$	24	—	—	V
$BV_{\text{EBO}}$	$I_{\text{E}} = .5 \text{ mA}$	$I_{\text{C}} = 0 \text{ mA}$	3.5	—	—	V
$I_{\text{CBO}}$	$V_{\text{CB}} = 28 \text{ V}$	$I_{\text{E}} = 0 \text{ mA}$	—	—	0.45	mA
$h_{\text{FE}}$	$V_{\text{CE}} = 5 \text{ V}$	$I_{\text{C}} = 200 \text{ mA}$	20	—	120	—

#### DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
$P_{\text{OUT}}^1$	$f = 860 \text{ MHz}$	$V_{\text{CE}} = 20 \text{ V}$	$I_{\text{C}} = 440 \text{ mA}$	1	—	—	W
$P_{\text{G}}^2$	$f = 860 \text{ MHz}$	$V_{\text{CE}} = 20 \text{ V}$	$I_{\text{C}} = 440 \text{ mA}$	10	—	—	dB
$\text{IMD}_3^3$	$P_{\text{SYNC}} = 1 \text{ W}$	$V_{\text{CE}} = 20 \text{ V}$	$I_{\text{C}} = 440 \text{ mA}$	—	—	-58	dBc
$\text{IMD}_3^3$	$P_{\text{SYNC}} = 2 \text{ W}$	$V_{\text{CE}} = 20 \text{ V}$	$I_{\text{C}} = 440 \text{ mA}$	—	—	-51	dBc
$C_{\text{OB}}$	$f = 1 \text{ MHz}$	$V_{\text{CB}} = 20 \text{ V}$		—	—	7	pF

Note 1:  $P_{\text{IN}} = 0.1 \text{ W}$

Note 2:  $P_{\text{OUT}} = 1 \text{ W}$

Note 3: Levels relative to  $P_{\text{SYNC}}$

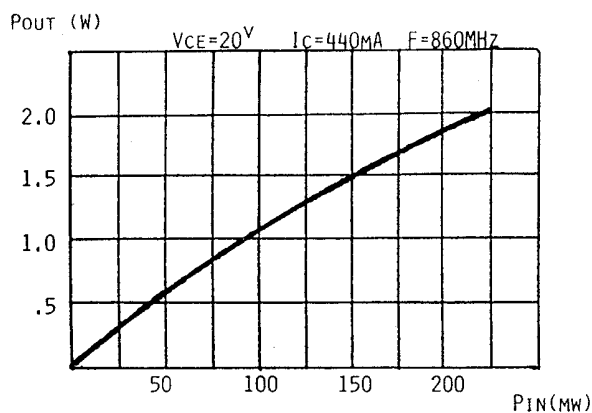
$f_1 = 860.0 \text{ MHz}$  -8dBc

$f_2 = 863.5 \text{ MHz}$  -16dBc

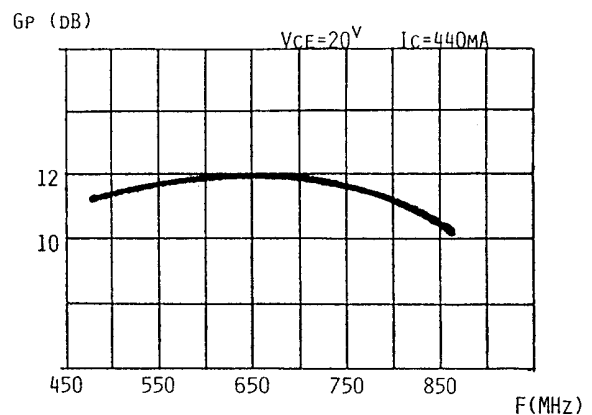
$f_3 = 864.5 \text{ MHz}$  -7dBc

#### TYPICAL PERFORMANCE

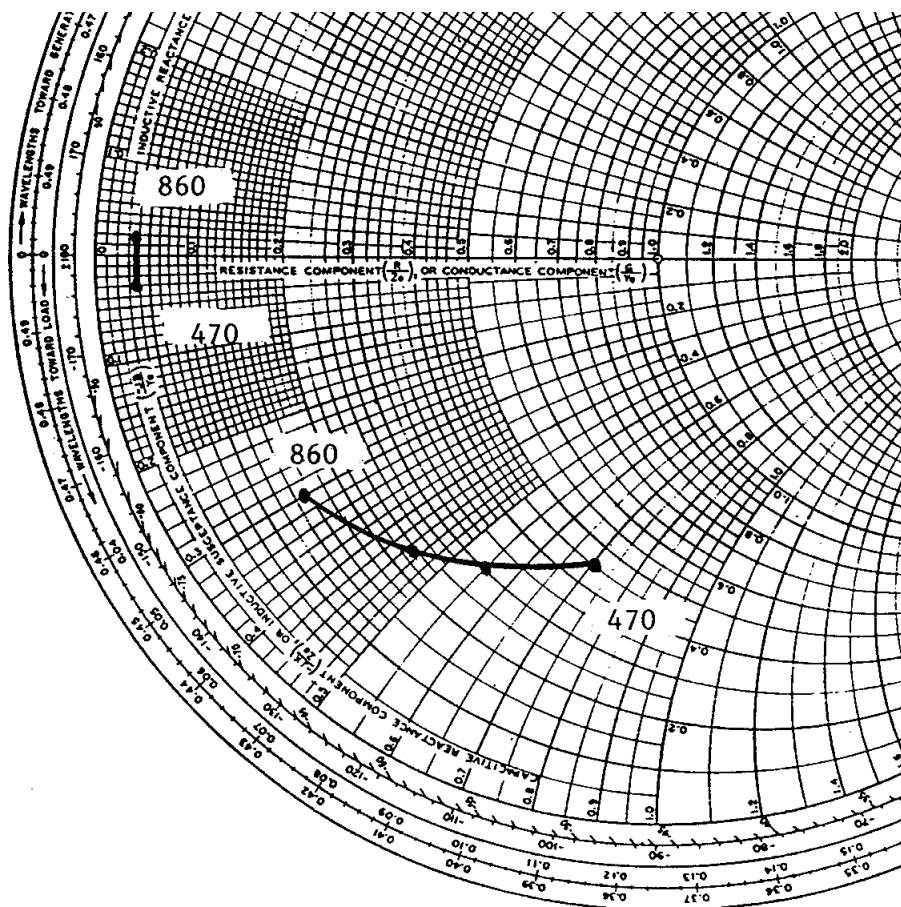
POWER OUTPUT vs INPUT POWER



BROADBAND POWER GAIN vs FREQUENCY



## IMPEDANCE DATA



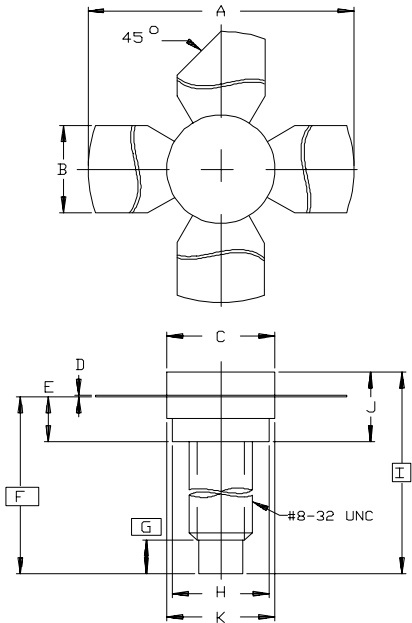
FREQ.	$Z_{IN} (\Omega)$	$Z_{OUT} (\Omega)$
860 MHz	$1.8 + j 0.8$	$8.0 - j 15.0$
650 MHz	$1.9 - j 0.5$	$15.0 - j 27.0$
470 MHz	$2.0 - j 1.5$	$23.0 - j 35.0$

$V_{CC} = 20 \text{ V}$

$I_C = 440 \text{ mA}$

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0122 rev. B



SGS-THOMSON MICROELECTRONICS		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	1.010/25,65	1.055/26,80
B	.220/5,59	.230/5,84
C	.270/6,86	.285/7,24
D	.003/0,08	.007/0,18
E	.117/2,97	.137/3,48
F	.572/14,53	
G	.130/3,30	
H	.245/6,22	.255/6,48
I	.640/16,26	
J	.175/4,45	.217/5,51
K	.275/6,99	.285/7,24

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