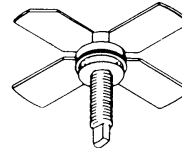


RF & MICROWAVE TRANSISTORS UHF TV/LINEAR APPLICATIONS

- 860 MHz
- 25 VOLTS
- COMMON EMITTER
- GOLD METALLIZATION
- CLASS A LINEAR OPERATION
- $P_{OUT} = 4.0 \text{ W MIN. WITH } 7.0 \text{ dB GAIN}$



.280 4L STUD (M122)
epoxy sealed

ORDER CODE
SD1448

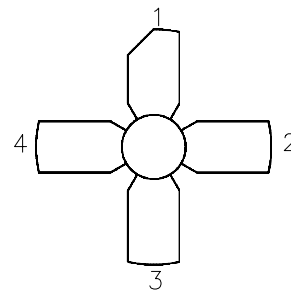
BRANDING
TCC598

DESCRIPTION

The SD1448 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	4	V
I_C	Device Current	1.6	A
P_{DISS}	Power Dissipation	31.8	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	5.5	$^{\circ}\text{C/W}$
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SD1448 (TCC598)

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

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_C = 10mA$	$I_E = 0mA$	45	—	—	V
BV_{CEO}	$I_C = 20mA$	$I_B = 0mA$	25	—	—	V
BV_{EBO}	$I_E = 2.5mA$	$I_C = 0mA$	3.0	—	—	V
I_{CBO}	$V_{CB} = 28V$	$I_E = 0mA$	—	—	0.9	mA
h_{FE}	$V_{CE} = 20V$	$I_C = 500mA$	10	—	—	—

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}^1	$f = 860\text{ MHz}$	$V_{CE} = 25\text{ V}$	$I_C = 850\text{ mA}$	4.0	—	—	W
G_P^2	$f = 860\text{ MHz}$	$V_{CE} = 25\text{ V}$	$I_C = 850\text{ mA}$	7.0	—	—	dB
IMD_3^3	$P_{SYNC} = 4\text{ W}$	$V_{CE} = 25\text{ V}$	$I_C = 850\text{ mA}$	—	—	-60	dBc
C_{OB}	$f = 1\text{ MHz}$	$V_{CB} = 25\text{ V}$		—	—	20	pF

Note 1: $P_{IN} = 0.8W$

Note 2: $P_{OUT} = 4\text{ W}$

Note 3: Levels relative to $P_{SYNC} = 4\text{ W}$

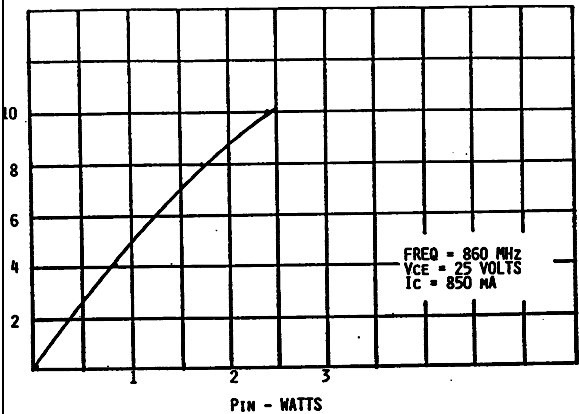
$f_1 = 860.0\text{ MHz}$ -8dBc

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

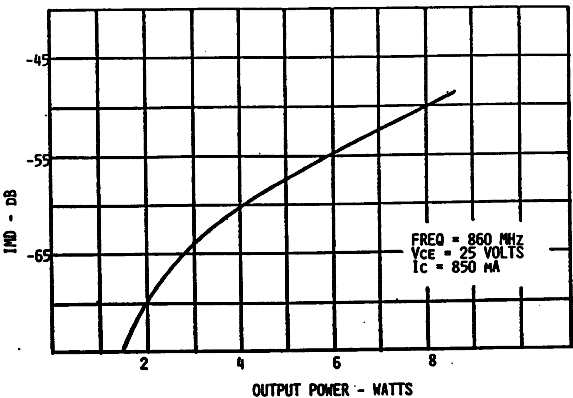
$f_3 = 864.5\text{ MHz}$ -7dBc

TYPICAL PERFORMANCE

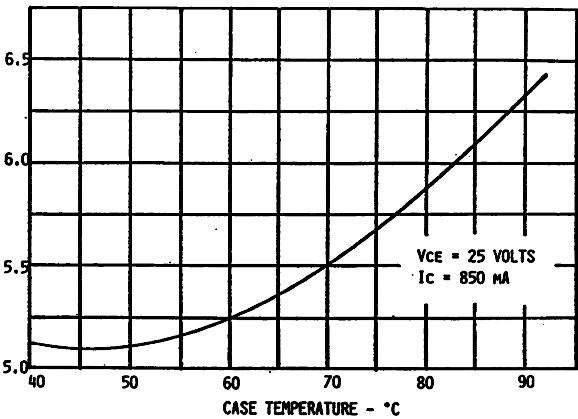
POWER OUTPUT vs POWER INPUT



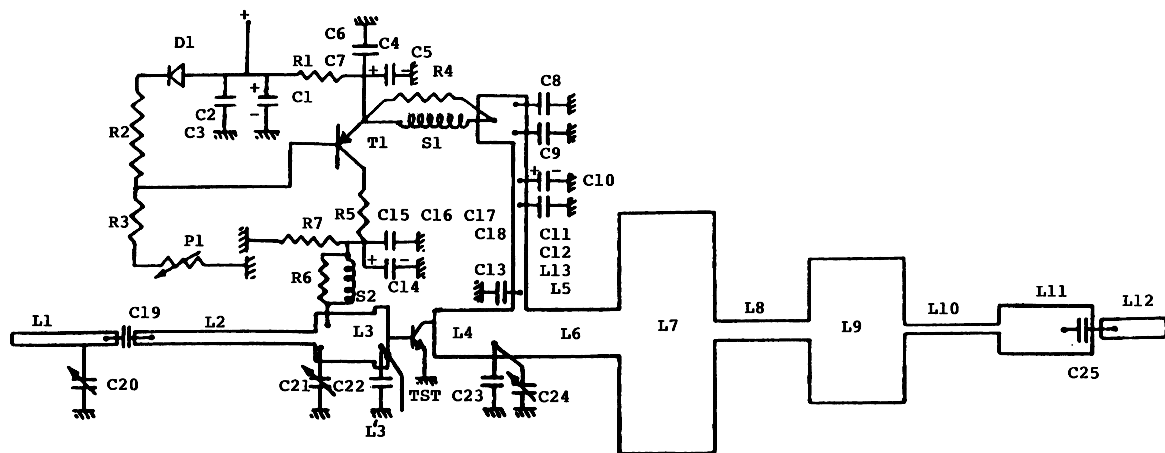
INTERMODULATION DISTORTION vs POWER OUTPUT



THERMAL RESISTANCE vs CASE TEMPERATURE



TEST CIRCUIT



C1 : 22mF, 63V Sprague

C2, C6,

C8, C15 : 4.7nF Chip LCC

C3, C7, C9,

C11, C16 : 100nF Chip LCC

C4, C10 : 4.7μF, 40V Sprague

C5, C15 : 4.7μF, 63V Sprague

C12, C17,

C18 : 470pF Chip LCC

C13, C25 : 47pF ATC 100B

C19 : 47pF ATC 100A

C20 : 0.5 - 4.5pF Adjustable Airtronic

C21, C24 : 0.8 - 5pF Adjustable Johanson

C22 : 10pF ATC 100A

C23 : 15pF ATC 100B

D1 : 1N 4001 or 1N 914

L1 : 50Ω Transmission Line, Length 18mm

L2 : 50Ω Transmission Line, Length 22mm

L3 : 16.4Ω Transmission Line, Length 12mm

L'3 : 10.5Ω Transmission Line, Length 3.5mm

L4 : 20Ω Transmission Line, Length 13mm

L5 : 50Ω Transmission Line, Length 2.5mm

L6 : 20Ω Transmission Line, Length 23mm

L7 : 4Ω Transmission Line, Length 8% λ at 860 MHz

L8 : 55Ω Transmission Line, Length 7.5% λ at 860 MHz

L9 : 7.5Ω Transmission Line, Length 8% λ at 860 MHz

L10 : 100Ω Transmission Line, Length 8% λ at 860 MHz

L11 : 20Ω Transmission Line, Length 8% λ at 860 MHz

L12 : 50Ω Transmission Line, Length 5mm

L13 : 50Ω Transmission Line, Length 12mm

P1 : 3.3kΩ Adjustable

R1 : 2.2Ω, 3W SFERNICE

R2 : 100Ω, 1/2W

R3 : 51Ω, 1/2W

R4, R6 : 100Ω, 1/2W

R5, R7 : 56Ω, 1W

T1 : BDX 54 B

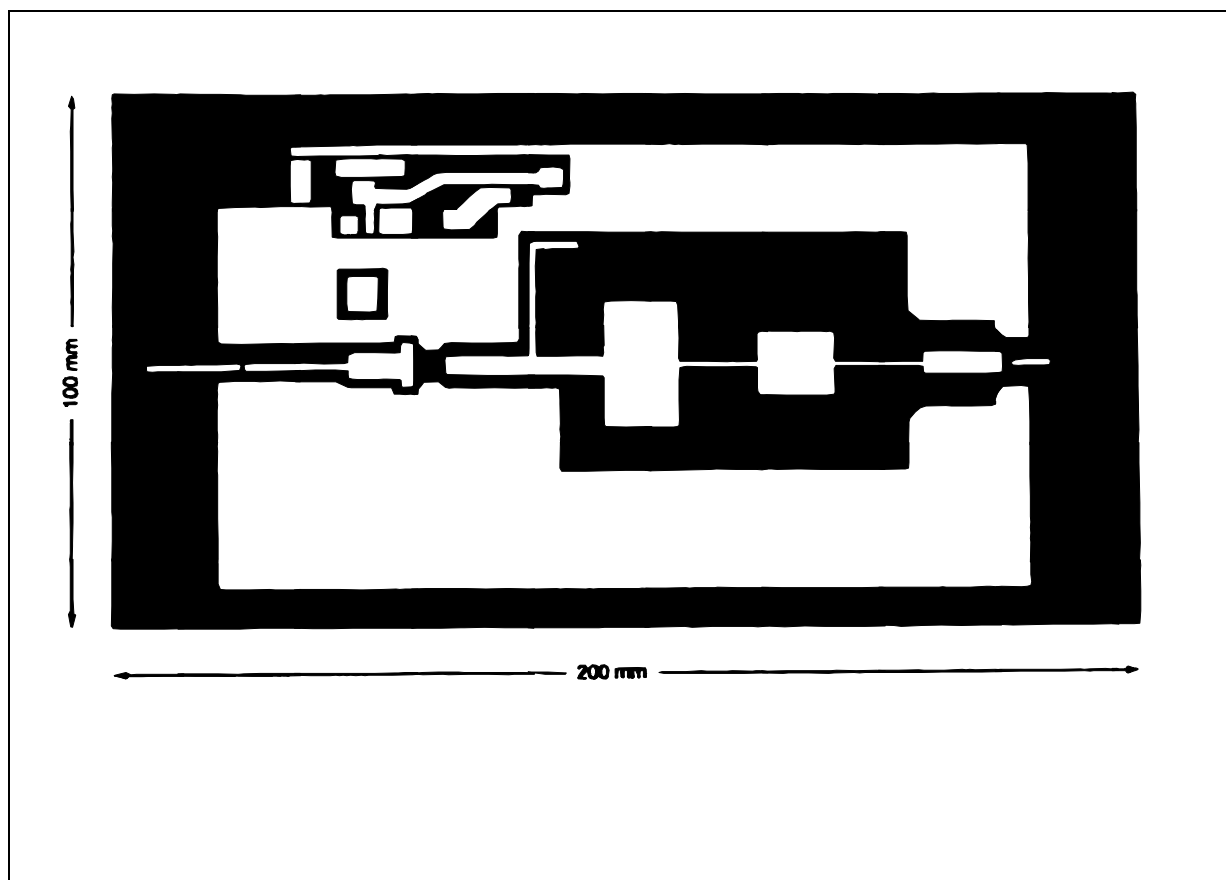
S1 : 6 Turns, Wire Diameter 0.5mm on 2.5mm Internal Diameter

S2 : 10 to 12 Turns on R6, Wire Diameter 0.5mm

PC Board

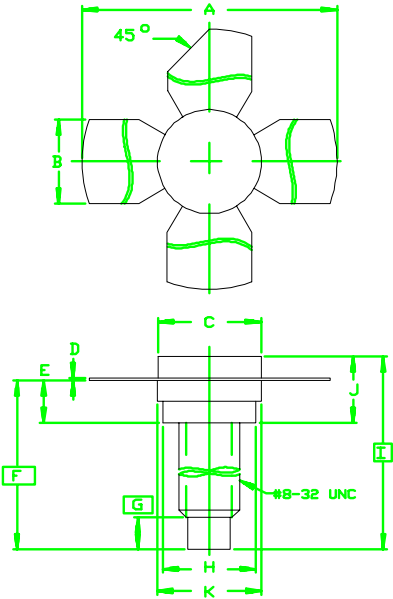
Material : Er = 2.5, .020" Thick

TEST CIRCUIT LAYOUT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0122



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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