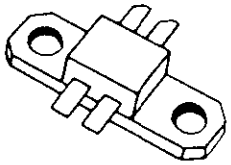
SGS-THOMSON MICROELECTRONICS

SD1732 (TDS595)

RF & MICROWAVE TRANSISTORS TV LINEAR APPLICATIONS

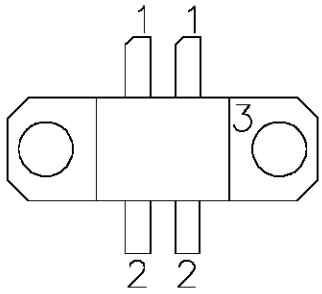
- 470 - 860 MHz
- 25 VOLTS
- CLASS A PUSH PULL
- DESIGNED FOR HIGH POWER LINEAR OPERATION
- HIGH SATURATED POWER CAPABILITY
- GOLD METALLIZATION
- DIFFUSED EMITTER BALLAST RESISTORS
- COMMON EMITTER CONFIGURATION
- INTERNAL INPUT MATCHING
- P_{OUT} = 14.0 W MIN. WITH 8.5 dB GAIN



.250 x .320 4LFL (M156)
epoxy sealed

ORDER CODE	BRANDING
SD1732	TDS595

PIN CONNECTION



1. Collector
2. Base
3. Emitter

DESCRIPTION

The SD1732 is a gold metallized epitaxial silicon NPN planar transistor using diffused emitter ballast resistors for high linearity Class A operation in UHF and Band IV, V television transmitters and transposers.

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	45	V
V_{CEO}	Collector-Emitter Voltage	25	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	2 x 2.6	A
P_{DISS}	Power Dissipation	65	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	2.5	°C/W

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

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 20mA	I_E = 0mA	45	—	—	V
BV_{CEO}	I_C = 40mA	I_B = 0mA	25	—	—	V
BV_{EBO}	I_E = 5mA	I_C = 0mA	3.0	—	—	V
h_{FE}	V_{CE} = 20V	I_C = 0.5A	10	—	—	—

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 845 MHz	V_{CE} = 25 V	I_{CQ} = 2 x 850 mA	14	—	—	W
G_P	P_{OUT} = 14 W	V_{CE} = 25 V	I_{CQ} = 2 x 850 mA	8.5	—	—	dB
IMD_3*	P_{OUT} = 14 W	V_{CE} = 25 V	I_{CQ} = 2 x 850 mA	—	–47	—	dBc
CMD**	P_{OUT} = 14 W	V_{CE} = 25 V	I_{CQ} = 2 x 850 mA	—	20	—	%
C_{OB}	f = 1 MHz	V_{CB} = 25 V		—	—	20	pF

Note: *IMD 3 Tone Testing

Vision Carrier –8 dB ref

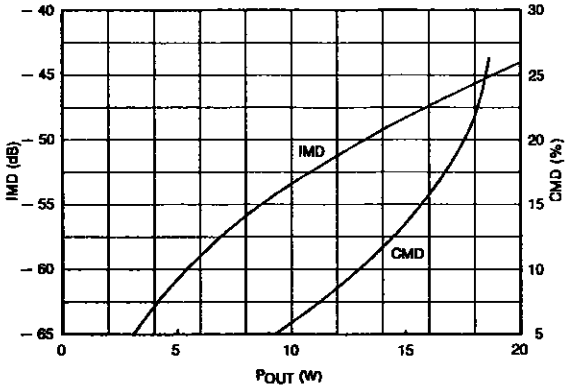
Sound Carrier –7 dB ref

Sideband Carrier –16 dB ref

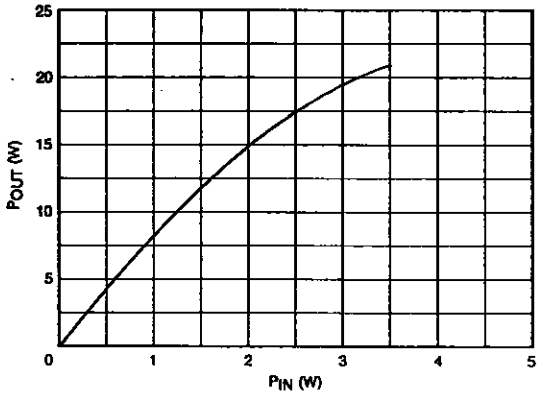
** CMD: Cross Modulation Distortion of the Voltage Variation (%) of Sound Carrier When Vision Carrier is Switched from 0 to –20 dB

TYPICAL PERFORMANCE

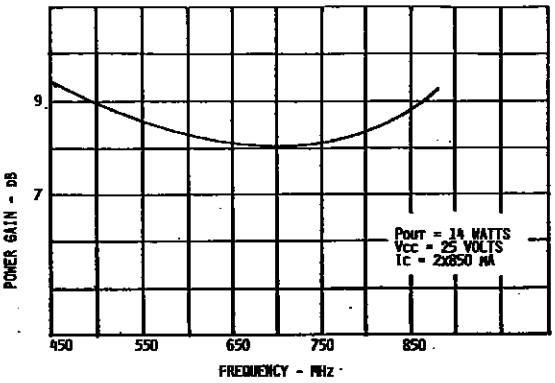
INTERMODULATION DISTORTION & CROSS MODULATION DISTORTION vs POWER OUTPUT



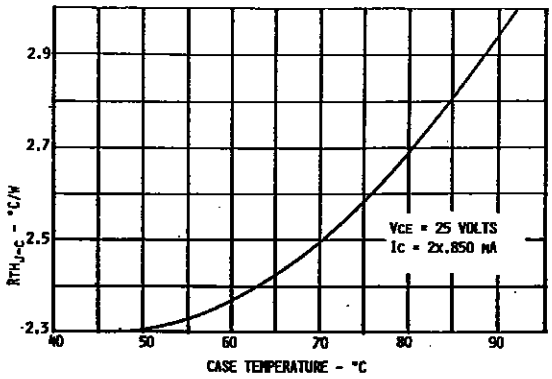
POWER OUTPUT vs POWER INPUT



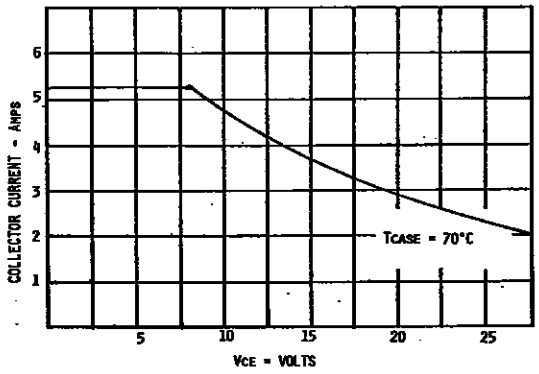
BROADBAND POWER GAIN vs FREQUENCY



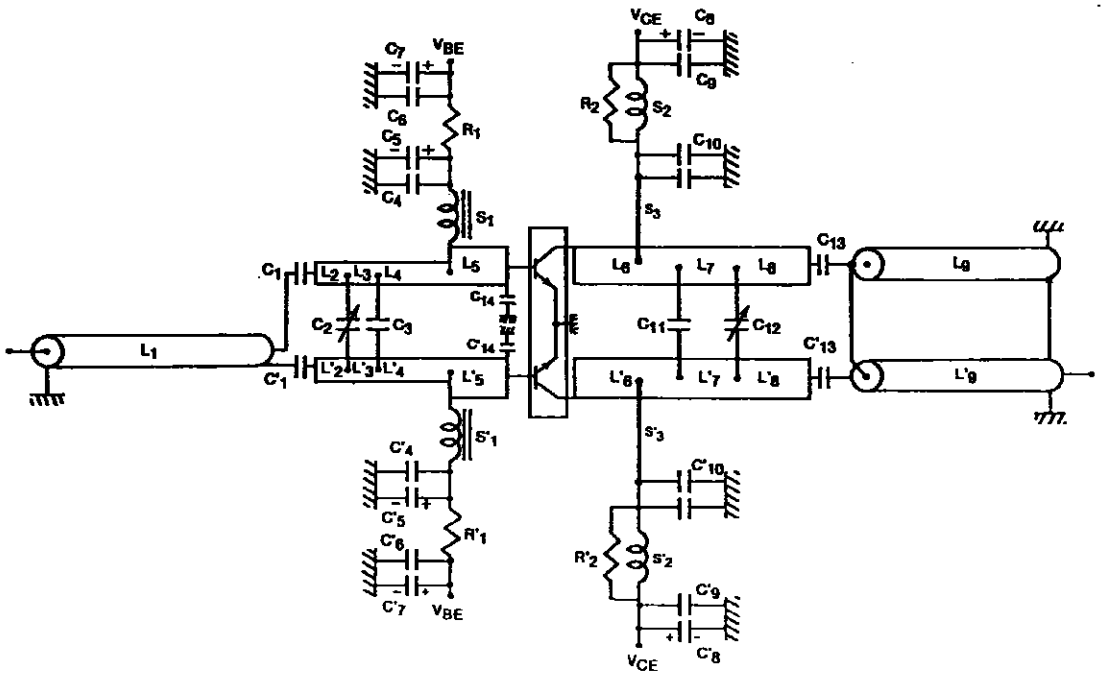
THERMAL RESISTANCE vs CASE TEMPERATURE



SAFE OPERATING AREA



TEST CIRCUIT



C1, C'1,
C13, C'13 : 68pF, ATC 100A
C2 : 4.5pF Adjustable Johanson
C3 : 4.7pF, ATC 100A
C4, C'4, C6, C'6, C9, C'9,
C10, C'10 : 100pF, ATC 100A + 1nF LCC Chip + 10nF LCC Chip
C5, C'5 : 4.7µF, 25V, Tantalum Capacitor
C7, C'7 : 10µF, 25V, Tantalum Capacitor
C8, C'8 : 22µF, 35V, Tantalum Capacitor
C11 : 4.7pf, ATC 100A
C12 : 8pF Adjustable Johanson
C14, C'14 : 22pF, ATC 100A

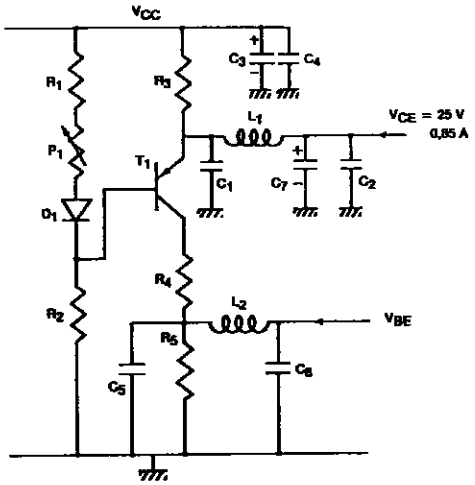
L1, L9, L'9 : 50Ω Coaxial Wire Diameter 2.2mm, Length 29mm on 70Ω Transmission Line
L2, L'2 : 50Ω Printed Transmission Line Length 4mm
L3, L'3 : 50Ω Printed Transmission Line Length 3mm
L4, L'4 : 50Ω Printed Transmission Line Length 9.5mm
L5, L'5 : 39Ω Printed Transmission Line Length 7mm
L6, L'6 : 39Ω Printed Transmission Line Length 15mm
L7, L'7 : 39Ω Printed Transmission Line Length 8mm
L8, L'8 : 39Ω Printed Transmission Line Length 10mm

R1, R'1 : 4.7Ω, 1/2W
R2, R'2 : 1207Ω, 1/2W

S1, S'1 : 470nH Molded
S2, S'2 : 5 Turns, Diameter Wire 0.5mm on 3mm I.D.
S3, S'3 : Diameter Wire 1.2mm, Length 12mm

Substrate: Teflon Glass 30Mils, Er = 2.55

SUPPLY CIRCUIT - CLASS A ADJUSTABLE (per side)



C1, C2, C4, C5, C6 : 1nF LCC Chip + 10nF LCC Chip
C3 : 100µF Sprague
C7 : 10µF Sprague

D1 : 1N 4001

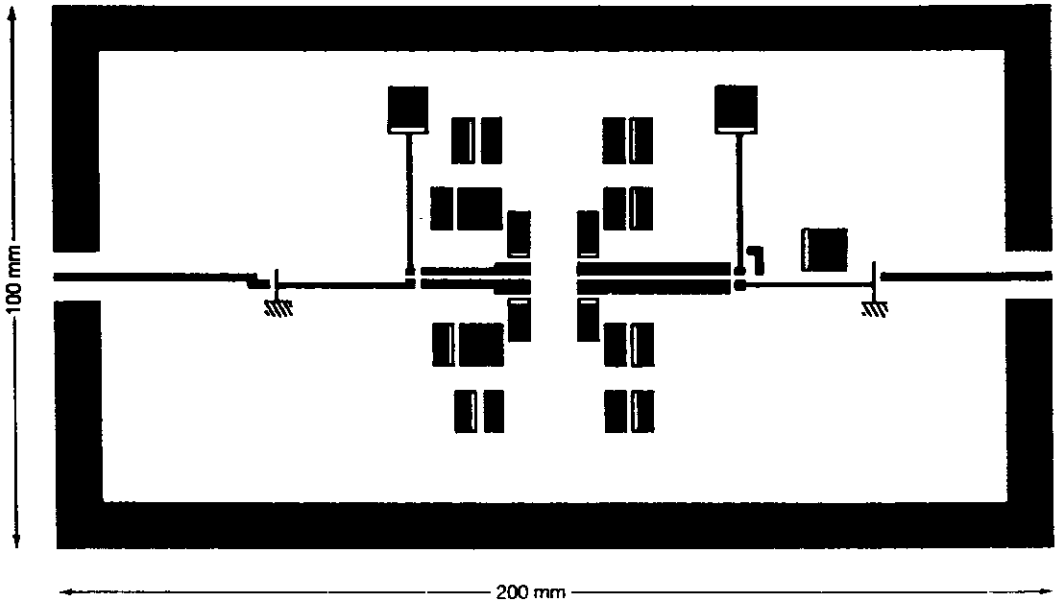
L1, L2 : 5 Turns, 0.5mmWire on 3mm Internal Diameter

P1 : 1kΩ

R1 : 56Ω, 1/2W
R2 : 5600Ω, 1/2W
R3 : 2.2Ω, 3W
R4, R5 : 56Ω, 1W

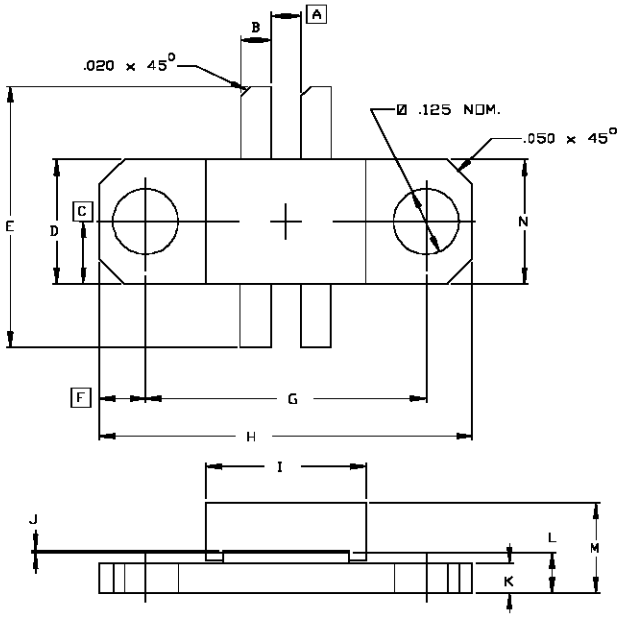
T1 : BDX 54 B

PHOTOMASTER OF TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0156



SGS-THOMSON MICROELECTRONICS		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.060/1,52	
B	.055/1,40	.065/1,65
C	.124/3,15	
D	.243/6,17	.253/6,43
E	.635/16,13	.665/16,89
F	.092/2,34	
G	.555/14,10	.565/14,35
H	.739/18,77	.749/19,02
I	.315/8,00	.327/8,31
J	.002/0,05	.006/0,15

CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
K	.055/1,40	.065/1,65
L	.075/1,91	.095/2,41
M		.190/4,83
N	.245/6,22	.257/6,53