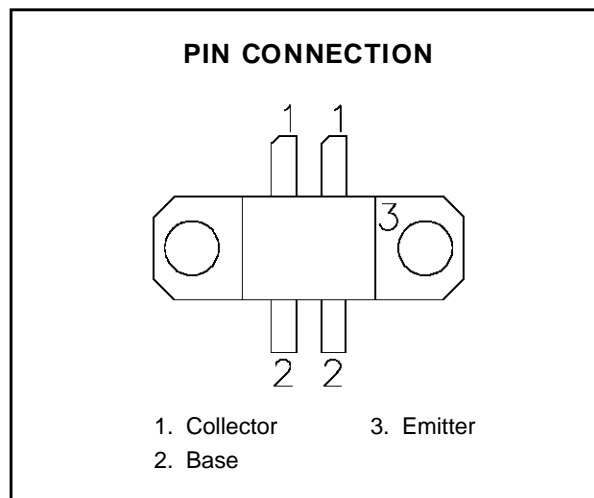
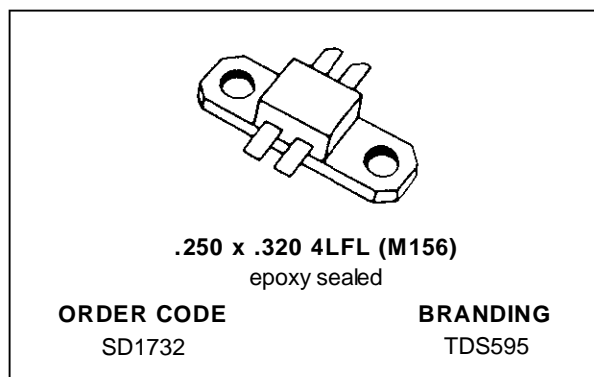


## RF & MICROWAVE TRANSISTORS TV LINEAR APPLICATIONS

- 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
- $P_{OUT} = 14.0 \text{ W MIN. WITH } 8.5 \text{ dB GAIN}$



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

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

## SD1732 (TDS595)

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

#### STATIC

| Symbol            | Test Conditions              |                              | Value |      |      | Unit |
|-------------------|------------------------------|------------------------------|-------|------|------|------|
|                   |                              |                              | Min.  | Typ. | Max. |      |
| $BV_{\text{CBO}}$ | $I_{\text{C}} = 20\text{mA}$ | $I_{\text{E}} = 0\text{mA}$  | 45    | —    | —    | V    |
| $BV_{\text{CEO}}$ | $I_{\text{C}} = 40\text{mA}$ | $I_{\text{B}} = 0\text{mA}$  | 25    | —    | —    | V    |
| $BV_{\text{EBO}}$ | $I_{\text{E}} = 5\text{mA}$  | $I_{\text{C}} = 0\text{mA}$  | 3.0   | —    | —    | V    |
| $h_{\text{FE}}$   | $V_{\text{CE}} = 20\text{V}$ | $I_{\text{C}} = 0.5\text{A}$ | 10    | —    | —    | —    |

#### DYNAMIC

| Symbol            | Test Conditions                |                               |  | Value |      |      | Unit |
|-------------------|--------------------------------|-------------------------------|--|-------|------|------|------|
|                   |                                |                               |  | Min.  | Typ. | Max. |      |
| $P_{\text{OUT}}$  | $f = 845\text{ MHz}$           | $V_{\text{CE}} = 25\text{ V}$ | $I_{\text{CQ}} = 2 \times 850\text{ mA}$ | 14    | —    | —    | W    |
| $G_{\text{P}}$    | $P_{\text{OUT}} = 14\text{ W}$ | $V_{\text{CE}} = 25\text{ V}$ | $I_{\text{CQ}} = 2 \times 850\text{ mA}$ | 8.5   | —    | —    | dB   |
| $\text{IMD}_3^*$  | $P_{\text{OUT}} = 14\text{ W}$ | $V_{\text{CE}} = 25\text{ V}$ | $I_{\text{CQ}} = 2 \times 850\text{ mA}$ | —     | -47  | —    | dBc  |
| $\text{CMD}^{**}$ | $P_{\text{OUT}} = 14\text{ W}$ | $V_{\text{CE}} = 25\text{ V}$ | $I_{\text{CQ}} = 2 \times 850\text{ mA}$ | —     | 20   | —    | %    |
| $C_{\text{OB}}$   | $f = 1\text{ MHz}$             | $V_{\text{CB}} = 25\text{ V}$ |  | —     | —    | 20   | pF   |

Note: \*IMD 3 Tone Testing

Vision Carrier -8 dB ref

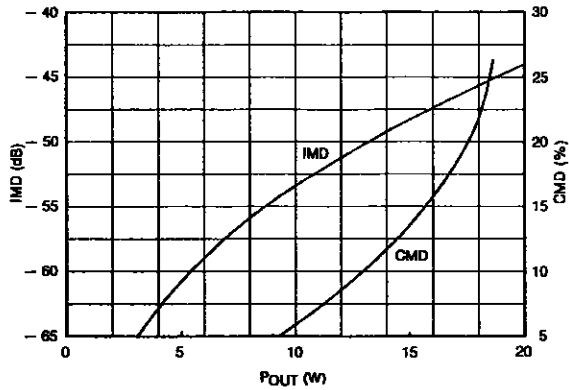
Sound Carrier -7 dB ref

Sideband Carrier -16 dB ref

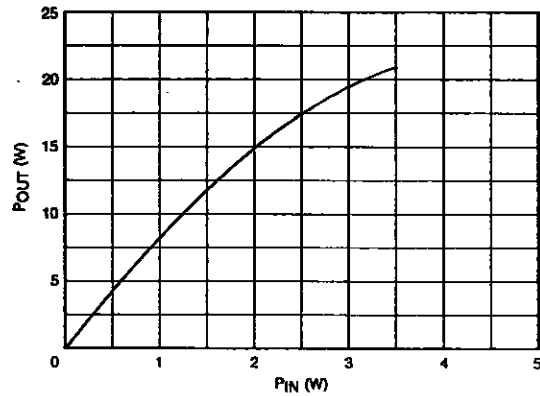
\*\* CMD: Cross Modulation Distortion of the Voltage Variation (%) of Sound Carrier When Vision Carrier is Switched from 0 to -20 dB

TYPICAL PERFORMANCE

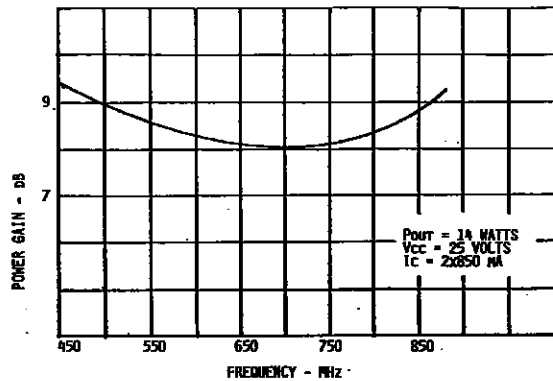
INTERMODULATION DISTORTION & CROSS MODULATION DISTORTION vs POWER OUTPUT



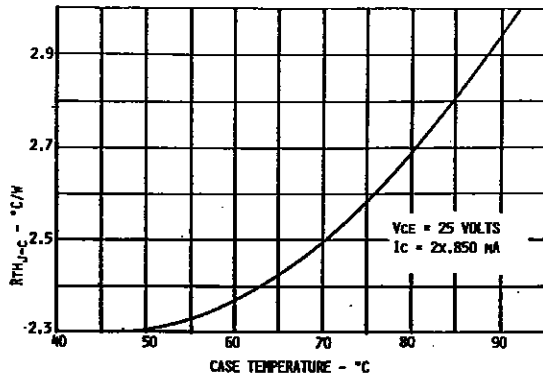
POWER OUTPUT vs POWER INPUT



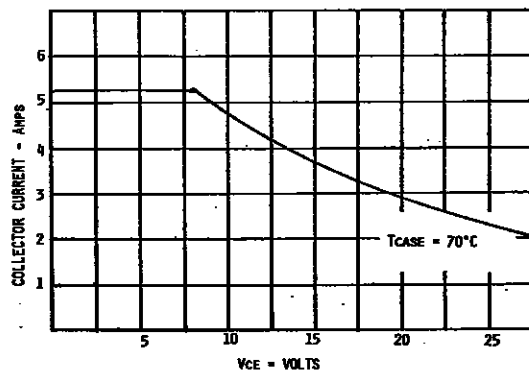
BROADBAND POWER GAIN vs FREQUENCY



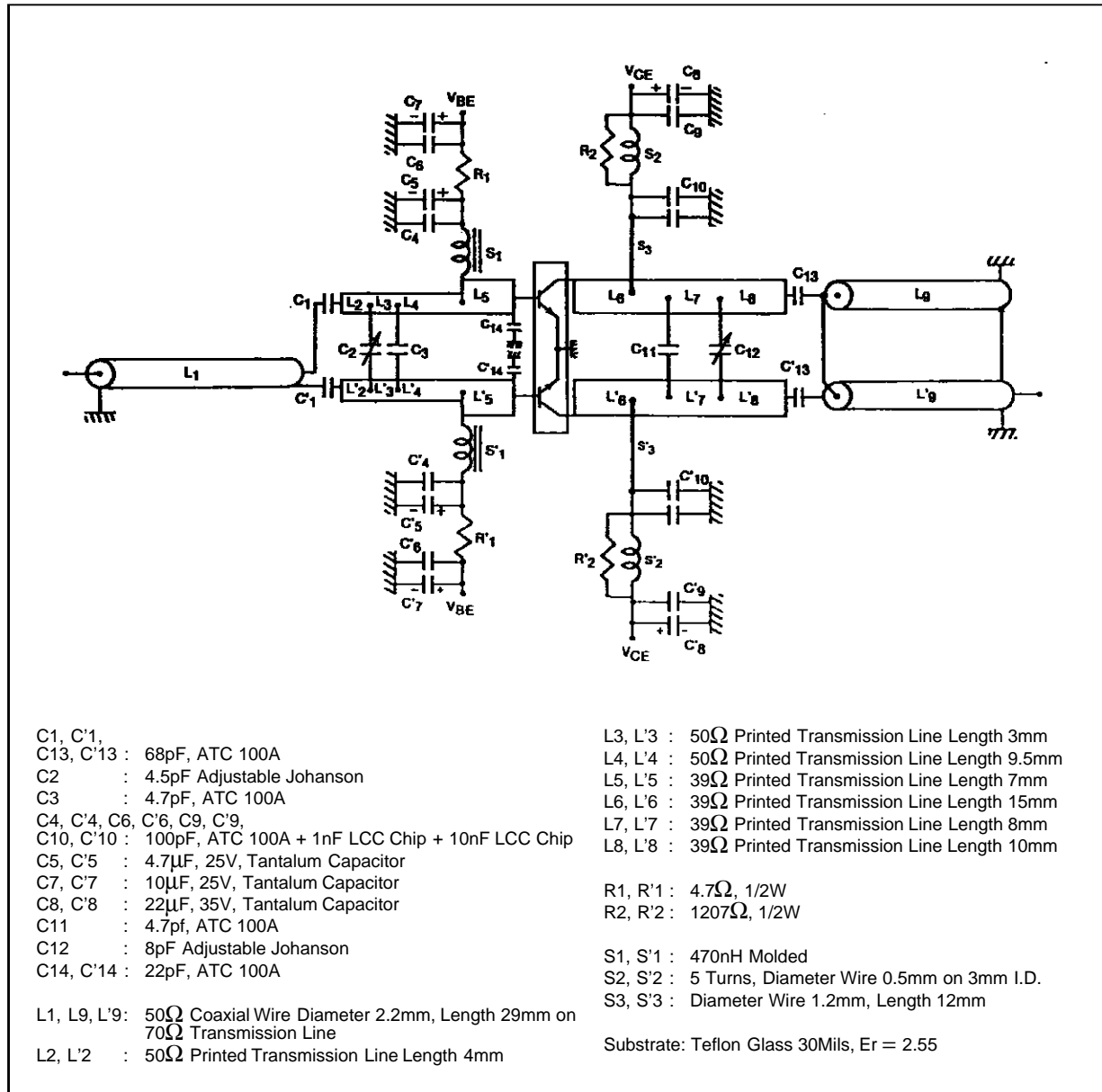
THERMAL RESISTANCE vs CASE TEMPERATURE



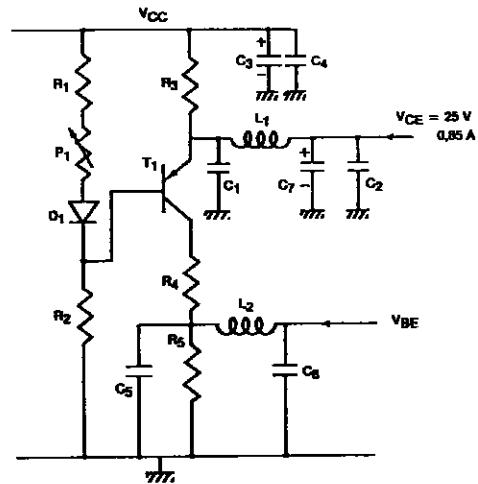
SAFE OPERATING AREA



## TEST CIRCUIT

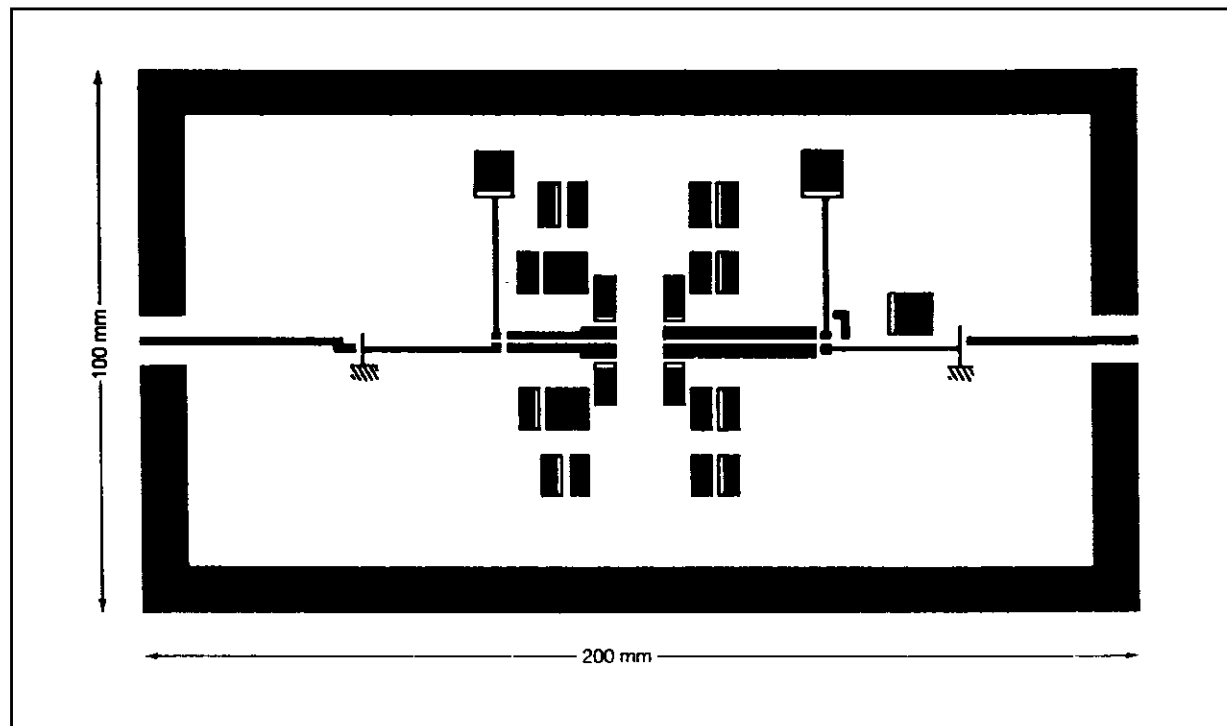


## SUPPLY CIRCUIT - CLASS A ADJUSTABLE (per side)



|             |        |                        |
|-------------|--------|------------------------|
| C1, C2, C4, | P1     | : 1k $\Omega$          |
| C5, C6      | R1     | : 56 $\Omega$ , 1/2W   |
| C3          | R2     | : 5600 $\Omega$ , 1/2W |
| C7          | R3     | : 2.2 $\Omega$ , 3W    |
| D1          | R4, R5 | : 56 $\Omega$ , 1W     |
| L1, L2      | T1     | : BDX 54 B             |

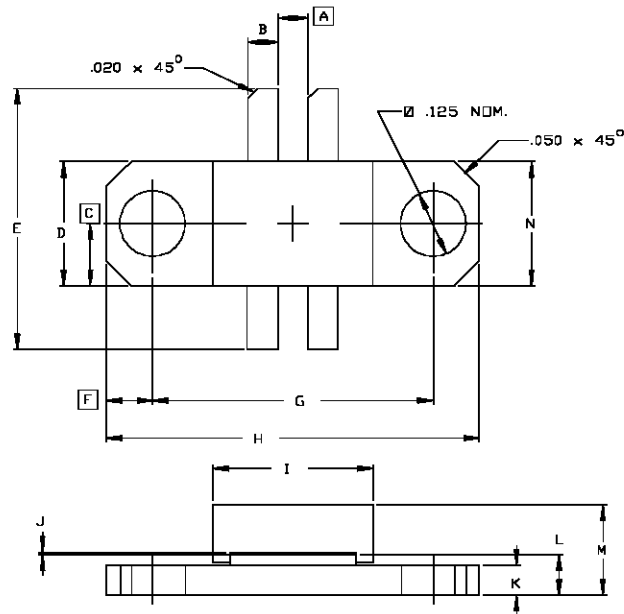
## PHOTOMASTER OF TEST CIRCUIT



# SD1732 (TDS595)

## PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0156



| SGS-THOMSON MICROELECTRONICS |                      | CONT'D               |   |                      |                      |
|------------------------------|----------------------|----------------------|---|----------------------|----------------------|
|                              | MINIMUM<br>Inches/mm | MAXIMUM<br>Inches/mm |   | MINIMUM<br>Inches/mm | MAXIMUM<br>Inches/mm |
| A                            | .060/1,52            |                      | K | .055/1,40            | .065/1,65            |
| B                            | .055/1,40            | .065/1,65            | L | .075/1,91            | .095/2,41            |
| C                            | .124/3,15            |                      | M | .190/4,83            |                      |
| D                            | .243/6,17            | .253/6,43            | N | .245/6,22            | .257/6,53            |
| 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            |   |                      |                      |

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