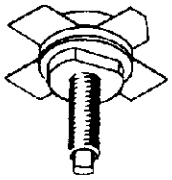
SGS-THOMSON MICROELECTRONICS

# SD1455

## RF & MICROWAVE TRANSISTORS TV/LINEAR APPLICATIONS

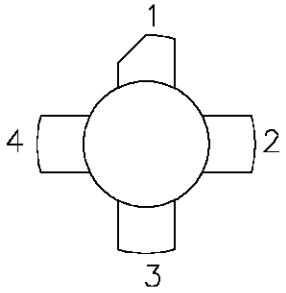
- 170 - 230 MHz
- 25 VOLTS
- IMD – 55dB
- COMMON EMITTER
- GOLD METALLIZATION
- HIGH SATURATED POWER CAPABILITY
- DIFFUSED EMITTER BALLAST RESISTORS
- DESIGNED FOR HIGH POWER LINEAR OPERATION
- $P_{OUT}$ = 20 W MIN. WITH 8.0 dB GAIN



**.500 4L STUD (M130)**
epoxy sealed

| ORDER CODE | BRANDING |
|---|---|
| SD1455 | SD1455 |

**PIN CONNECTION**




1. Collector
2. Emitter
3. Base
4. Emitter

### DESCRIPTION

The SD1455 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.

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

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CEO}$ | Collector-Emitter Voltage | 35 | V |
| $V_{CES}$ | Collector-Emitter Voltage | 60 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 4.0 | V |
| $I_C$ | Device Current | 8.0 | A |
| $P_{DISS}$ | Power Dissipation | 140 | 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 | 1.5 | °C/W |

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

STATIC

| Symbol | Test Conditions | | Value | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| $BV_{CBO}$ | $I_C$ = 50 mA | $I_E$ = 0 mA | 65 | — | — | V |
| $BV_{CER}$ | $I_C$ = 50 mA | $R_{BE}$ = 10 Ω | 60 | — | — | V |
| $BV_{CEO}$ | $I_C$ = 50 mA | $I_B$ = 0 mA | 35 | — | — | V |
| $BV_{EBO}$ | $I_E$ = 10 mA | $I_C$ = 0 mA | 4.0 | — | — | V |
| $I_{CES}$ | $V_{CE}$ = 50 V | $V_{BE}$ = 0 V | — | — | 5 | mA |
| $h_{FE}$ | $V_{CE}$ = 5 V | $I_C$ = 1 A | 20 | — | 120 | — |

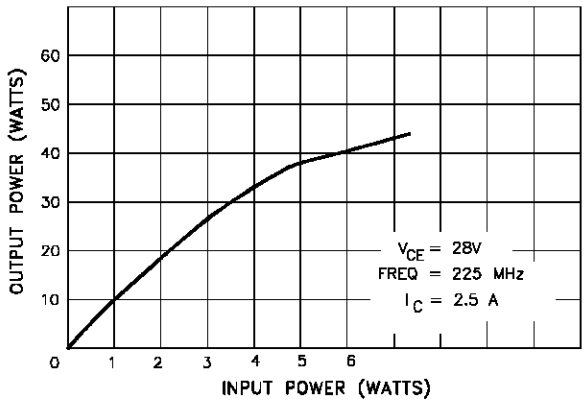
DYNAMIC

| Symbol | Test Conditions | | | Value | | | Unit |
|---|---|---|---|---|---|---|---|
| | | | | Min. | Typ. | Max. | |
| $P_{OUT}$ | f = 225 MHz | $V_{CE}$ = 25 V | $I_C$ = 2.5 A | 20 | — | — | W |
| $G_P$ | f = 225 MHz | $V_{CE}$ = 25 V | $I_C$ = 2.5 A | 8.0 | 9.0 | — | dB |
| $IMD_3$* | $P_{OUT}$ = 14 W | $V_{CE}$ = 25 V | $I_C$ = 2.5 A | — | –55 | — | dBc |
| $C_{OB}$ | f = 1 MHz | $V_{CB}$ = 30 V | | — | — | 85 | pF |

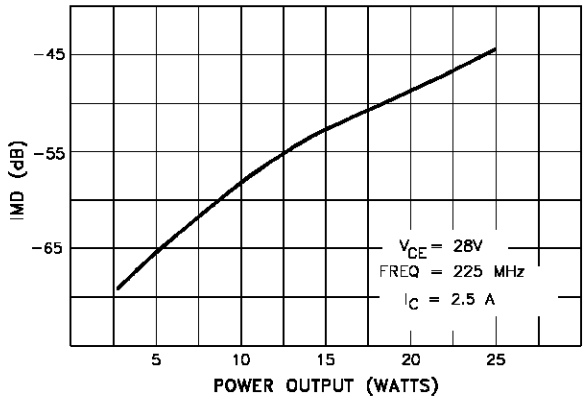
Note: * f = 225 MHz
3 Tone Testing
Vision Carrier –8dB/ref
Sound Carrier –7dB/ref
Sideband Carrier –16dB/ref

## TYPICAL PERFORMANCE

**POWER OUTPUT vs POWER INPUT**

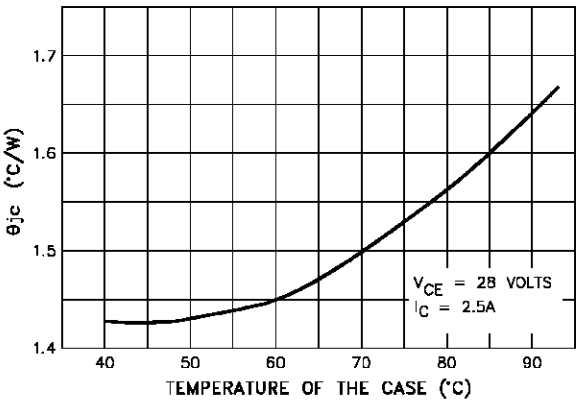



**INTERMODULATION DISTORTION vs POWER OUTPUT**

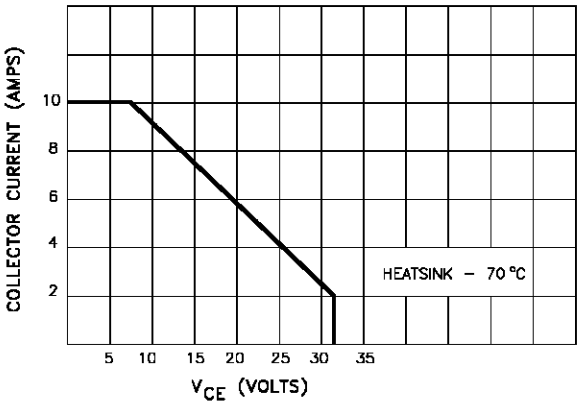


## TYPICAL PERFORMANCE (CONT'D)

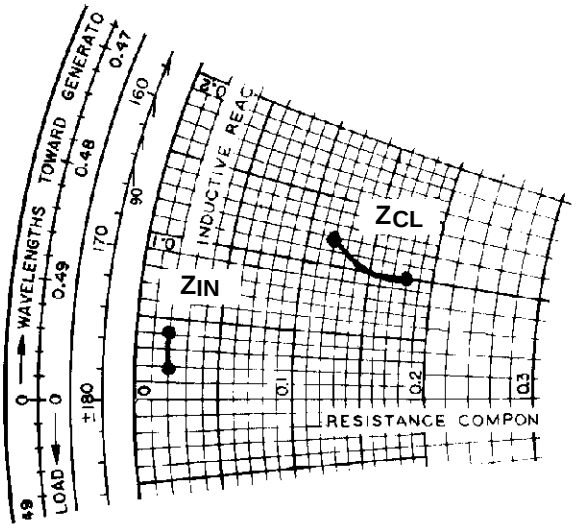
**THERMAL RESISTANCE vs CASE TEMPERATURE**




**SAFE OPERAITNG AREA**




## IMPEDANCE DATA

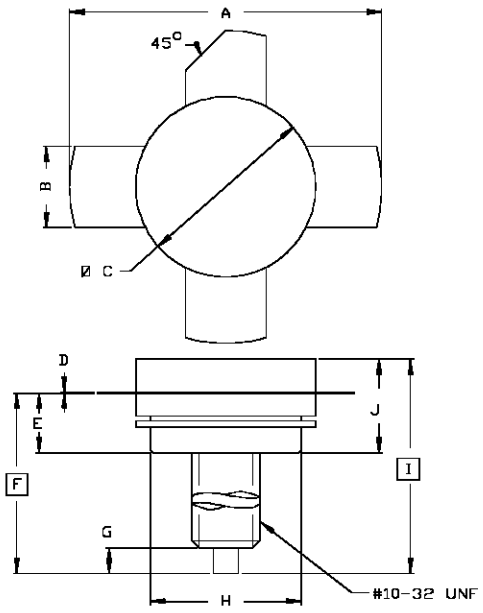



| FREQ. | $Z_{IN}$ (Ω) | $Z_{CL}$ (Ω) |
|---|---|---|
| 150 MHz | 1.0 + j 1.0 | 9.0 + j 5.0 |
| 250 MHz | 1.0 + j 2.0 | 6.0 + j 6.0 |

$V_{CE}$ = 28 V
$I_C$ = 2.5 A
Normalized to 50 Ohms

## PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0130




| SGS-THOMSON MICROELECTRONICS | | |
|---|---|---|
| | MINIMUM Inches/mm | MAXIMUM Inches/mm |
| A | 1.010/25,65 | 1.050/26,67 |
| B | .220/5,59 | .230/5,84 |
| C | .495/12,57 | .505/12,83 |
| D | .003/0,08 | .007/0,18 |
| E | .160/4,06 | .180/4,57 |
| F | .622/15,80 | |
| G | .100/2,54 | .130/3,31 |
| H | .415/10,54 | .425/10,80 |
| I | .720/18,29 | |
| J | .250/6,35 | .290/7,37 |