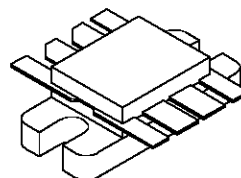


## RF & MICROWAVE TRANSISTORS TV/LINEAR APPLICATIONS

- 170 - 230 MHz
- 28 VOLTS
- CLASS AB PUSH PULL
- DESIGNED FOR HIGH POWER LINEAR OPERATION
- HIGH SATURATED POWER CAPABILITY
- GOLD METALLIZATION
- DIFFUSED EMITTER BALLAST RESISTORS
- COMMON EMITTER CONFIGURATION
- $P_{OUT} = 100\text{ W MIN. WITH } 11.0\text{ dB GAIN}$



**.400 x .425 8LFL (M168)**  
epoxy sealed

**ORDER CODE**

SD1456

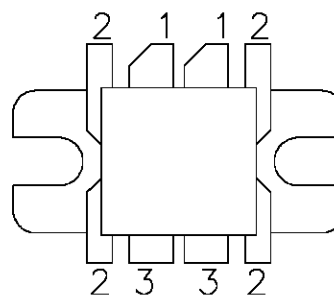
**BRANDING**

TCC3100

### DESCRIPTION

The SD1456 is a gold metallized epitaxial silicon NPN planar transistor using diffused emitter ballast resistors for high linearity Class AB operation in VHF and Band III television transmitters and transposers.

### PIN CONNECTION



1. Collector

3. Base

2. Emitter

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

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	65	V
$V_{CEO}$	Collector-Emitter Voltage	33	V
$V_{EBO}$	Emitter-Base Voltage	3.5	V
$I_C$	Device Current	16	A
$P_{DISS}$	Power Dissipation	150	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	1.2	$^{\circ}\text{C/W}$
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## SD1456 (TCC3100)

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

#### STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{CBO}$	$I_C = 50\text{mA}$	$I_E = 0\text{mA}$	65	—	—	V
$BV_{CER}$	$I_C = 50\text{mA}$	$R_{BE} = 15\Omega$	60	—	—	V
$BV_{CEO}$	$I_C = 50\text{mA}$	$I_B = 0\text{mA}$	33	—	—	V
$BV_{EBO}$	$I_E = 5\text{mA}$	$I_C = 0\text{mA}$	3.5	—	—	V
$h_{FE}$	$V_{CE} = 5\text{V}$	$I_C = 500\text{mA}$	20	—	150	—

#### DYNAMIC (Class AB)

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
$P_{OUT}$	$f = 225\text{ MHz}$	$V_{CE} = 28\text{ V}$	$I_C = 2 \times 100\text{ mA}$	100	—	—	W
$G_P$	$P_{OUT} = 100\text{ W}$	$V_{CE} = 28\text{ V}$	$I_C = 2 \times 100\text{ mA}$	11	—	—	dB
$\eta_C$	$P_{OUT} = 100\text{ W}$	$V_{CE} = 28\text{ V}$	$I_C = 2 \times 100\text{ mA}$	70	—	—	%
$C_{OB}$	$f = 1\text{ MHz}$	$V_{CB} = 28\text{ V}$		—	60	—	pF

#### DYNAMIC (Class A)

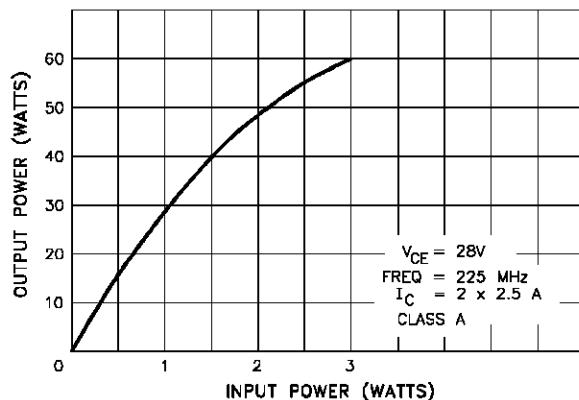
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
$P_{OUT}^*$	$f = 225\text{ MHz}$	$V_{CE} = 28\text{ V}$	$I_C = 2 \times 2.5\text{ A}$	28	32	—	W
$G_P^*$	$P_{IN} = 1.1\text{ W}$	$V_{CE} = 28\text{ V}$	$I_C = 2 \times 2.5\text{ A}$	14	15	—	dB
$IMD_3^*$	$P_{IN} = 1.1\text{ W}$	$V_{CE} = 28\text{ V}$	$P_{REF} = 28\text{ W}$	—	-51	—	dB

Note: \* Class A Performance Characteristics Indicate Capability but are not Tested.

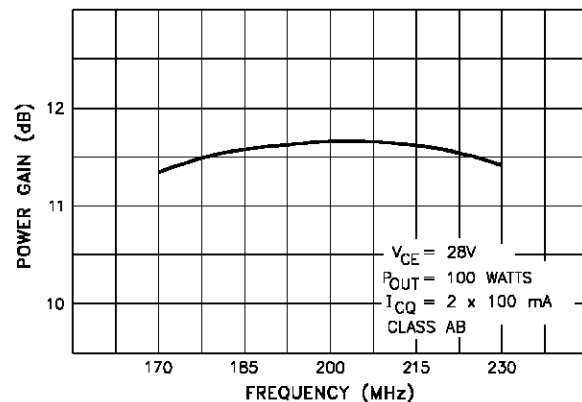
IMD3 - 3 Tone Measurement; -8, -7, -16dB relative to  $P_{REF}$

### TYPICAL PERFORMANCE

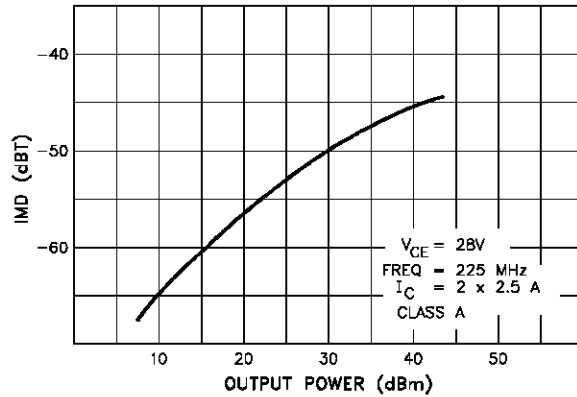
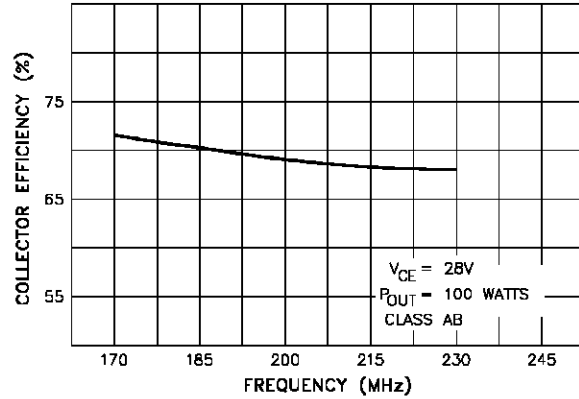
POWER OUTPUT vs POWER INPUT



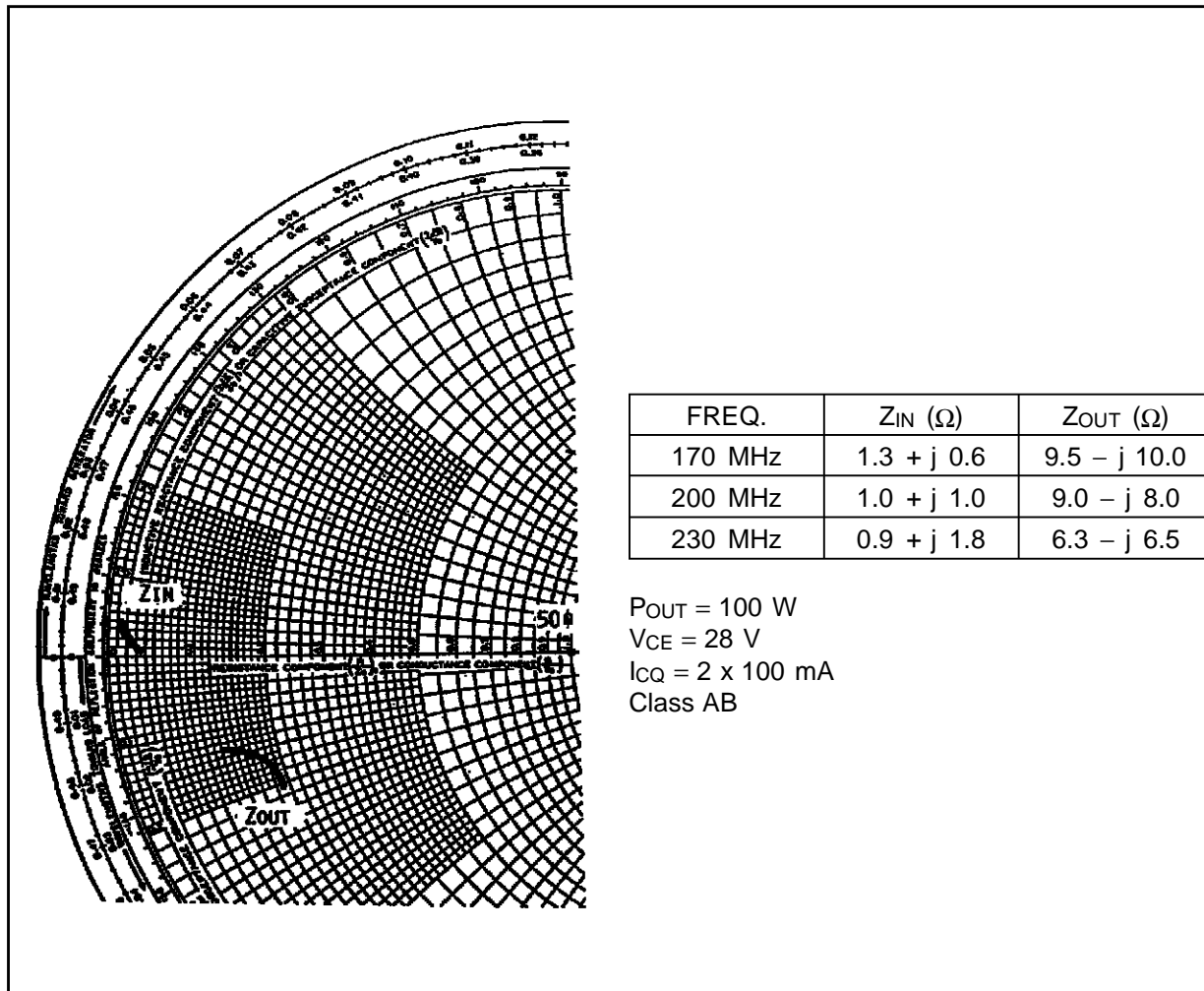
BROADBAND POWER GAIN vs FREQUENCY



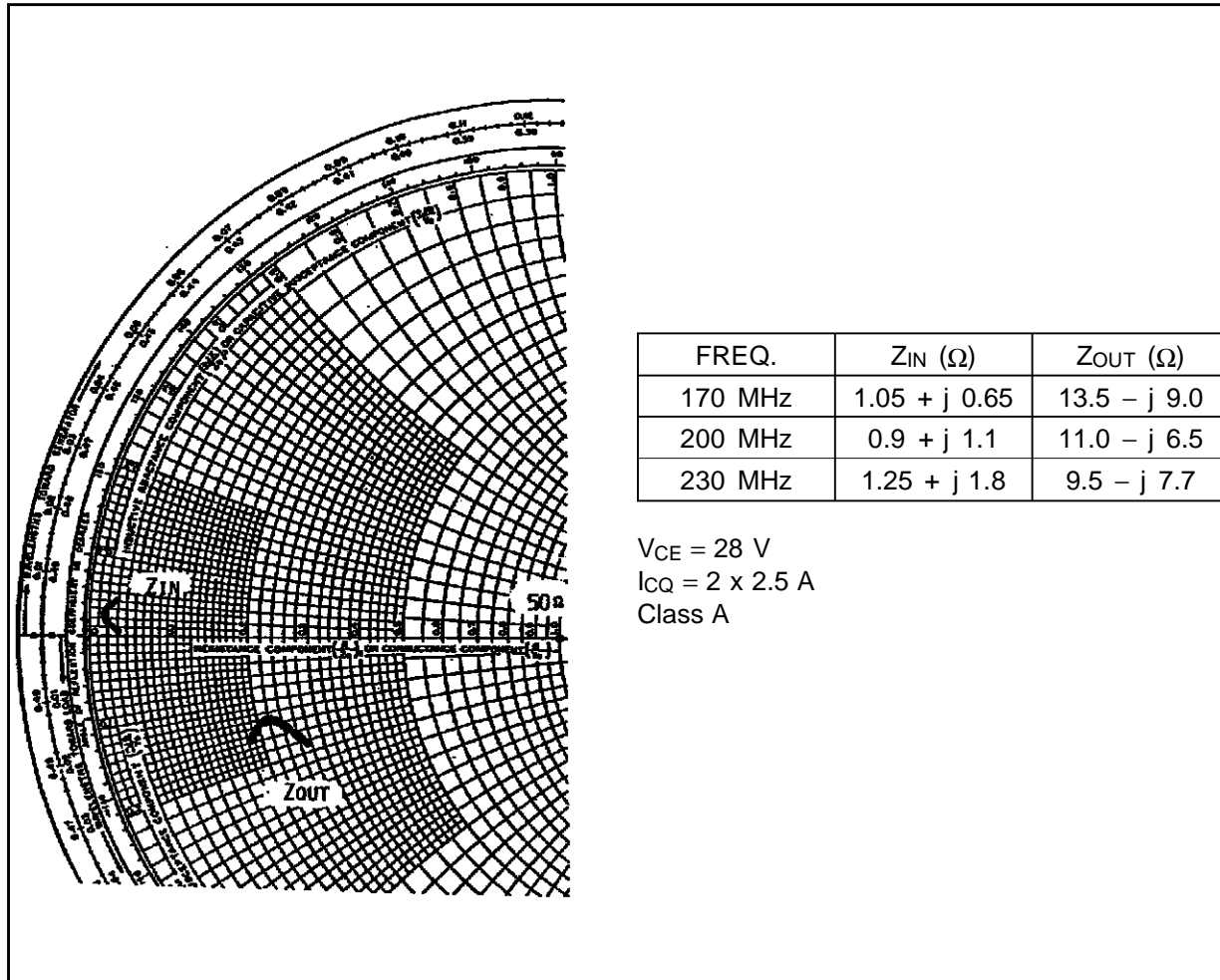
## TYPICAL PERFORMANCE (cont'd)

INTERMODULATION DISTORTION vs  
POWER OUTPUTCOLLECTOR EFFICIENCY vs  
FREQUENCY

## IMPEDANCE DATA

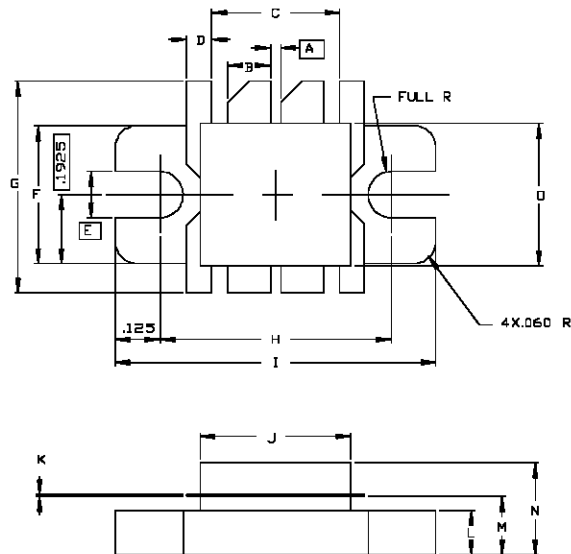


## IMPEDANCE DATA



## PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0168



SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.030/0,76		K	.003/0,08	.007/0,18
B	.115/2,92	.125/3,18	L	.120/3,05	.130/3,30
C	.360/9,14		M	.159/4,04	.175/4,45
D	.065/1,65	.075/1,91	N		.280/7,11
E	.130/3,30		□	.395/10,03	.405/10,29
F	.380/9,65	.390/9,91			
G	.735/18,67	.765/19,43			
H	.645/16,38	.655/16,64			
I	.895/22,73	.905/22,99			
J	.420/10,67	.430/10,92			

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