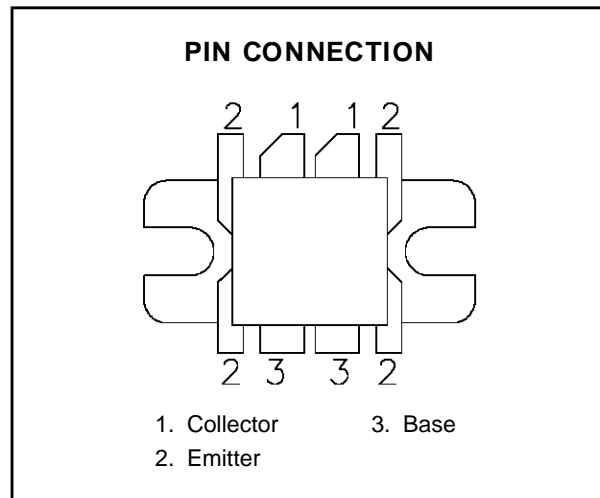
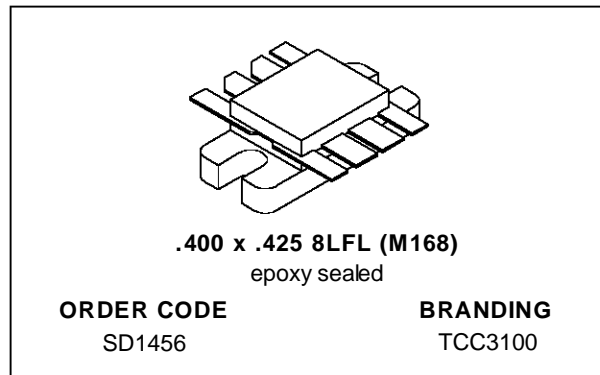


## RF & MICROWAVE TRANSISTORS TV/LINEAR APPLICATIONS

- 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
- $P_{OUT} = 100 \text{ W MIN. WITH } 11.0 \text{ dB GAIN}$



### 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.

### 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<sub>case</sub> = 25°C)

#### STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV <sub>CBO</sub>	I <sub>C</sub> = 50mA	I <sub>E</sub> = 0mA	65	—	—	V
BV <sub>CER</sub>	I <sub>C</sub> = 50mA	R <sub>BE</sub> = 15Ω	60	—	—	V
BV <sub>CEO</sub>	I <sub>C</sub> = 50mA	I <sub>B</sub> = 0mA	33	—	—	V
BV <sub>EBO</sub>	I <sub>E</sub> = 5mA	I <sub>C</sub> = 0mA	3.5	—	—	V
h <sub>FE</sub>	V <sub>CE</sub> = 5V	I <sub>C</sub> = 500mA	20	—	150	—

#### DYNAMIC (Class AB)

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P <sub>OUT</sub>	f = 225 MHz	V <sub>CE</sub> = 28 V	I <sub>C</sub> = 2 x 100 mA	100	—	—	W
G <sub>P</sub>	P <sub>OUT</sub> = 100 W	V <sub>CE</sub> = 28 V	I <sub>C</sub> = 2 x 100 mA	11	—	—	dB
η <sub>c</sub>	P <sub>OUT</sub> = 100 W	V <sub>CE</sub> = 28 V	I <sub>C</sub> = 2 x 100 mA	70	—	—	%
C <sub>OB</sub>	f = 1 MHz	V <sub>CB</sub> = 28 V		—	60	—	pF

#### DYNAMIC (Class A)

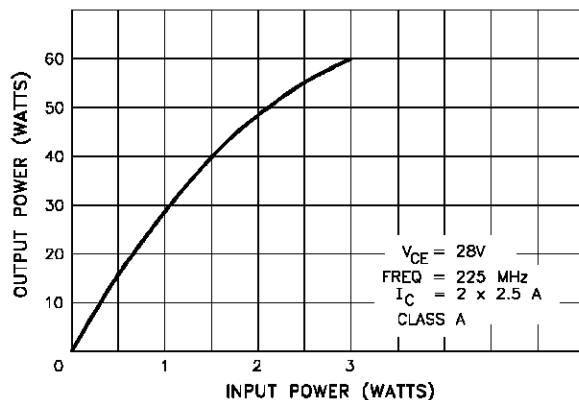
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P <sub>OUT</sub> *	f = 225 MHz	V <sub>CE</sub> = 28 V	I <sub>C</sub> = 2 x 2.5 A	28	32	—	W
G <sub>P</sub> *	P <sub>IN</sub> = 1.1 W	V <sub>CE</sub> = 28 V	I <sub>C</sub> = 2 x 2.5 A	14	15	—	dB
IMD <sub>3</sub> *	P <sub>IN</sub> = 1.1 W	V <sub>CE</sub> = 28 V	P <sub>REF</sub> = 28 W	—	-51	—	dB

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

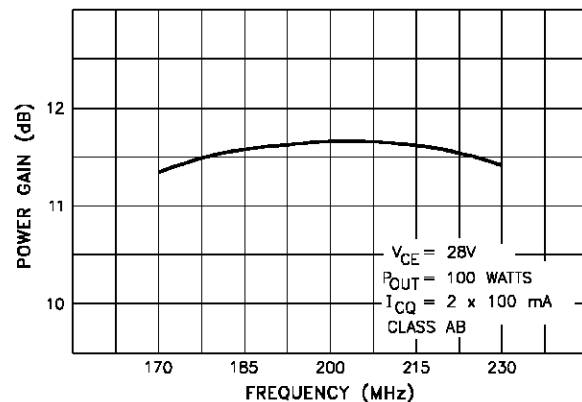
IMD3 - 3 Tone Measurement; -8, -7, -16dB relative to P<sub>REF</sub>

### TYPICAL PERFORMANCE

POWER OUTPUT vs POWER INPUT

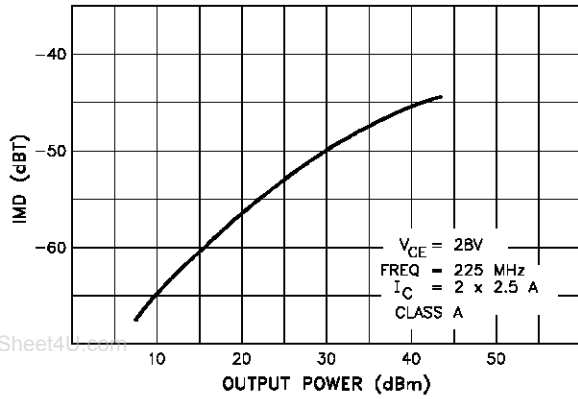


BROADBAND POWER GAIN vs FREQUENCY

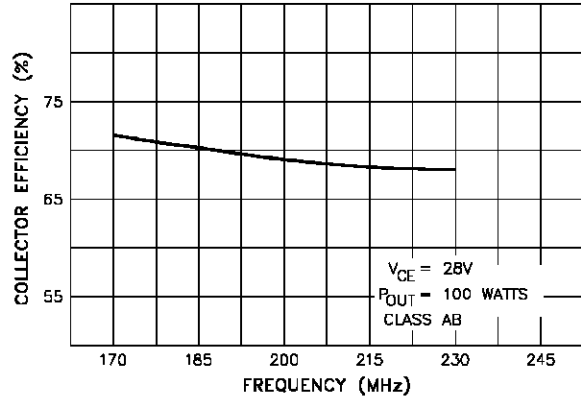


TYPICAL PERFORMANCE (cont'd)

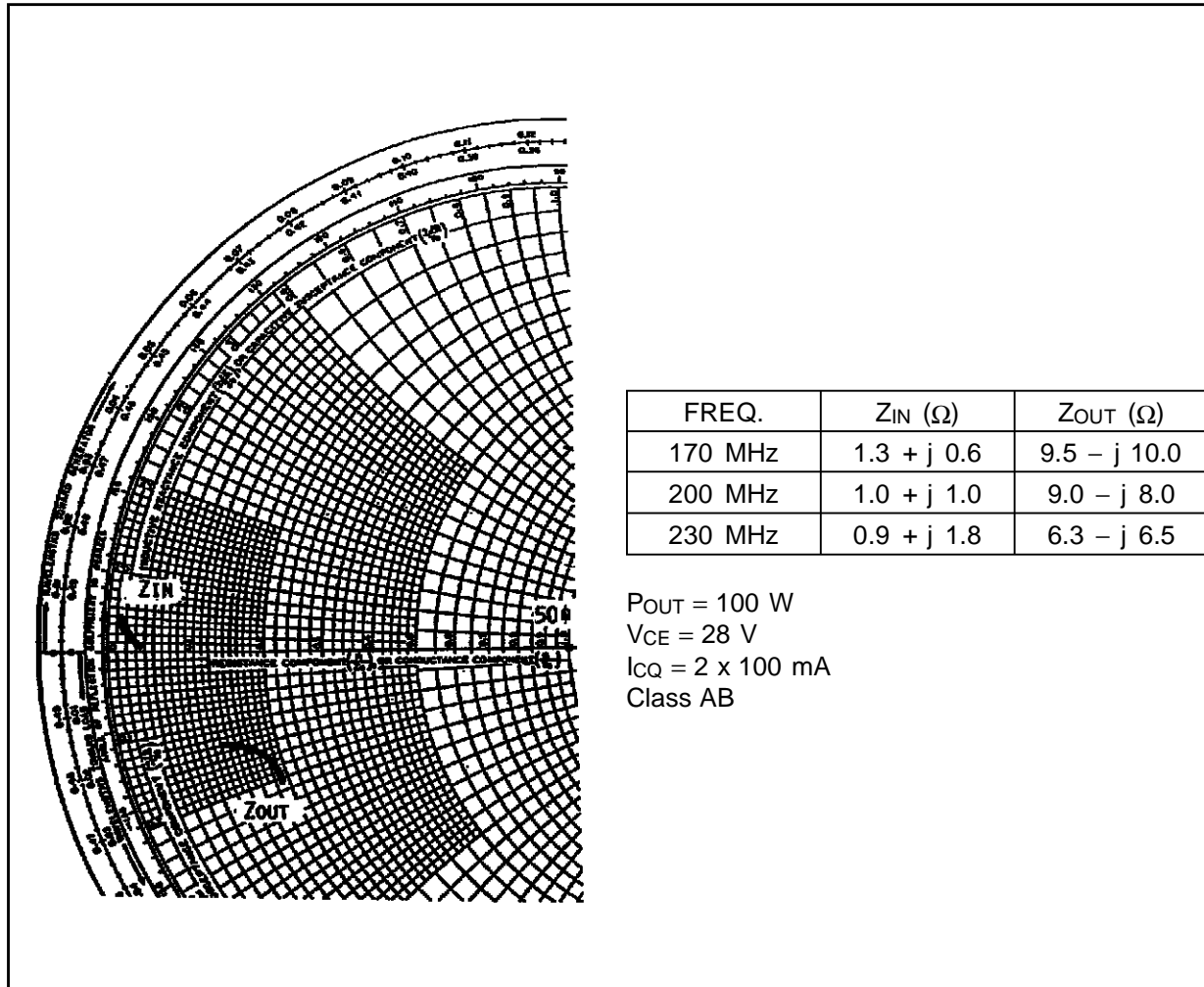
INTERMODULATION DISTORTION vs POWER OUTPUT



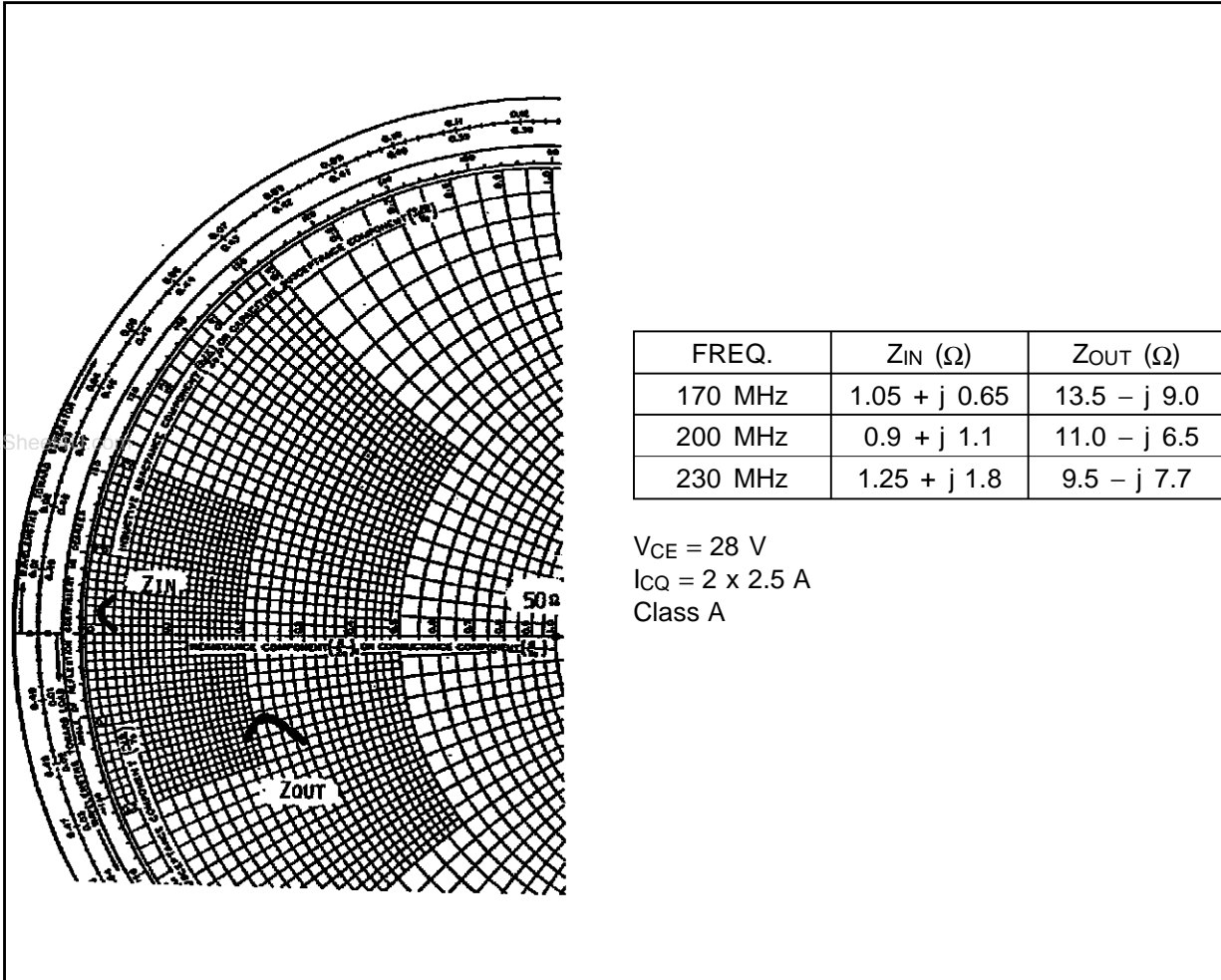
COLLECTOR EFFICIENCY vs FREQUENCY



IMPEDANCE DATA



IMPEDANCE DATA

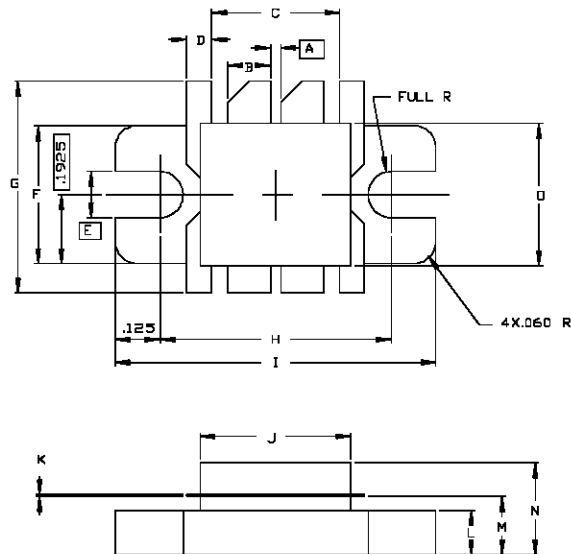


FREQ.	Z <sub>IN</sub> (Ω)	Z <sub>OUT</sub> (Ω)
170 MHz	1.05 + j 0.65	13.5 - j 9.0
200 MHz	0.9 + j 1.1	11.0 - j 6.5
230 MHz	1.25 + j 1.8	9.5 - j 7.7

V<sub>CE</sub> = 28 V  
 I<sub>CQ</sub> = 2 x 2.5 A  
 Class A

## 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
B	.115/2,92	.125/3,18	L	.120/3,05
C	.360/9,14		M	.159/4,04
D	.065/1,65	.075/1,91	N	.280/7,11
E	.130/3,30		O	.395/10,03
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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