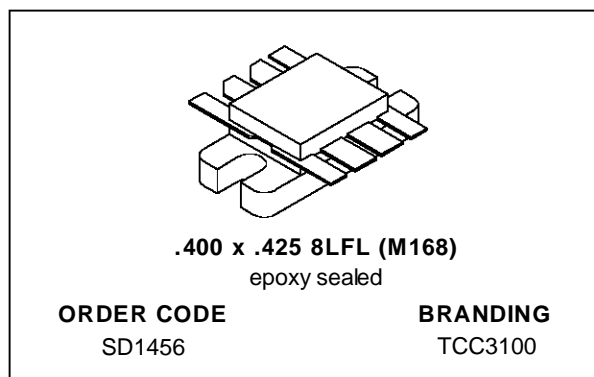


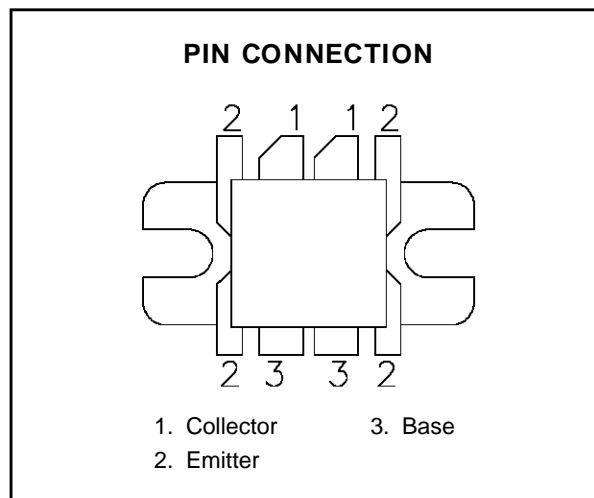
## RF & MICROWAVE TRANSISTORS TV/LINEAR APPLICATIONS

- 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	$^{\circ}\text{C/W}$
---------------	----------------------------------	-----	----------------------

## 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)

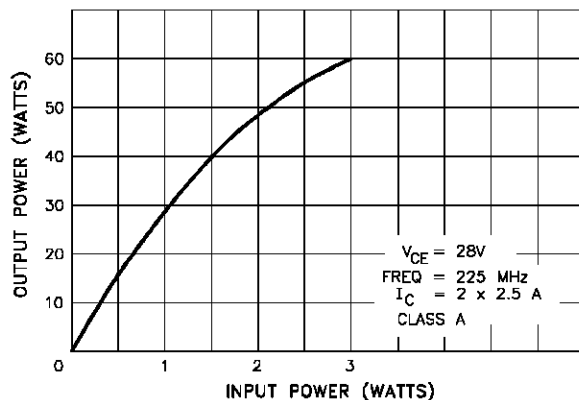
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P <sub>OUT</sub> *	f = 225 MHz	V <sub>CE</sub> = 28 V	I <sub>C</sub> = 2 x 2.5 A	28	32	—	W
G <sub>P</sub> *	P <sub>IN</sub> = 1.1 W	V <sub>CE</sub> = 28 V	I <sub>C</sub> = 2 x 2.5 A	14	15	—	dB
IMD <sub>3</sub> *	P <sub>IN</sub> = 1.1 W	V <sub>CE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

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

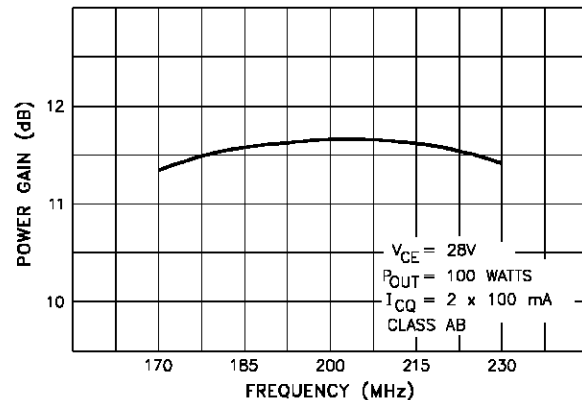
IMD3 - 3 Tone Measurement; -8, -7, -16dB relative to P<sub>REF</sub>

### TYPICAL PERFORMANCE

POWER OUTPUT vs POWER INPUT

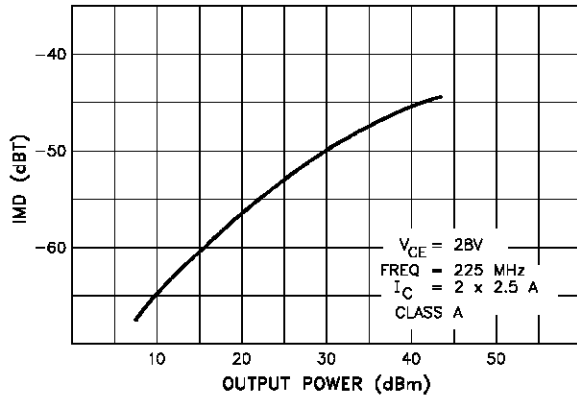


BROADBAND POWER GAIN vs FREQUENCY

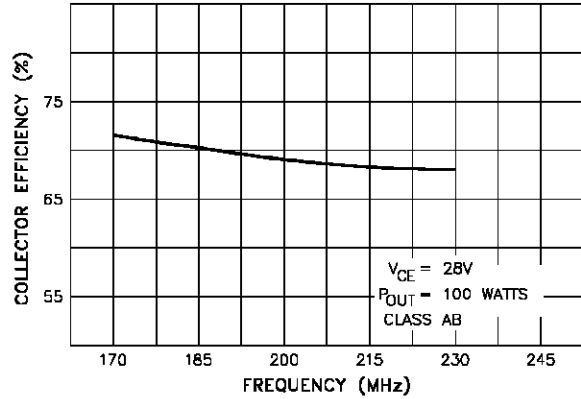


TYPICAL PERFORMANCE (cont'd)

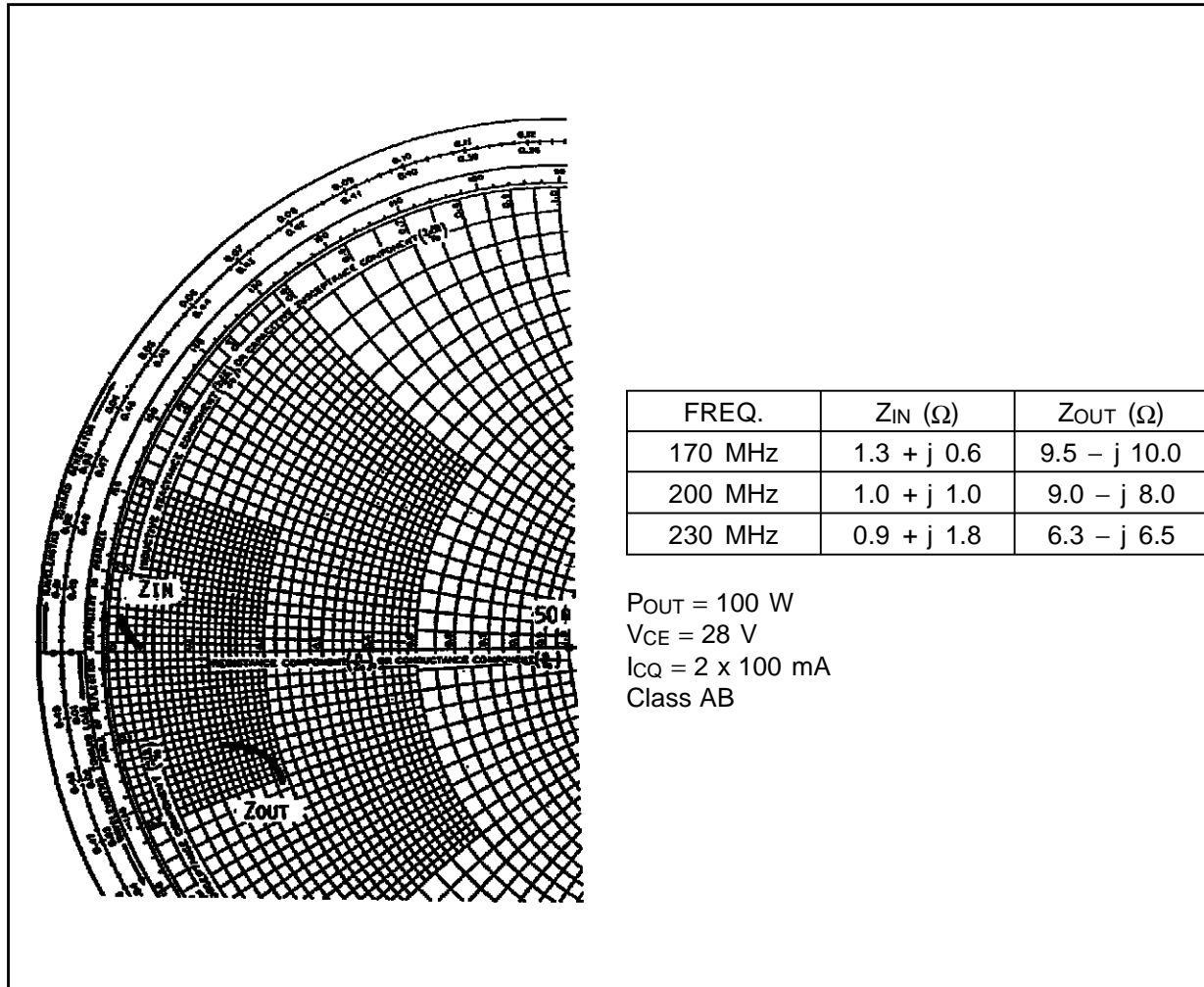
INTERMODULATION DISTORTION vs POWER OUTPUT



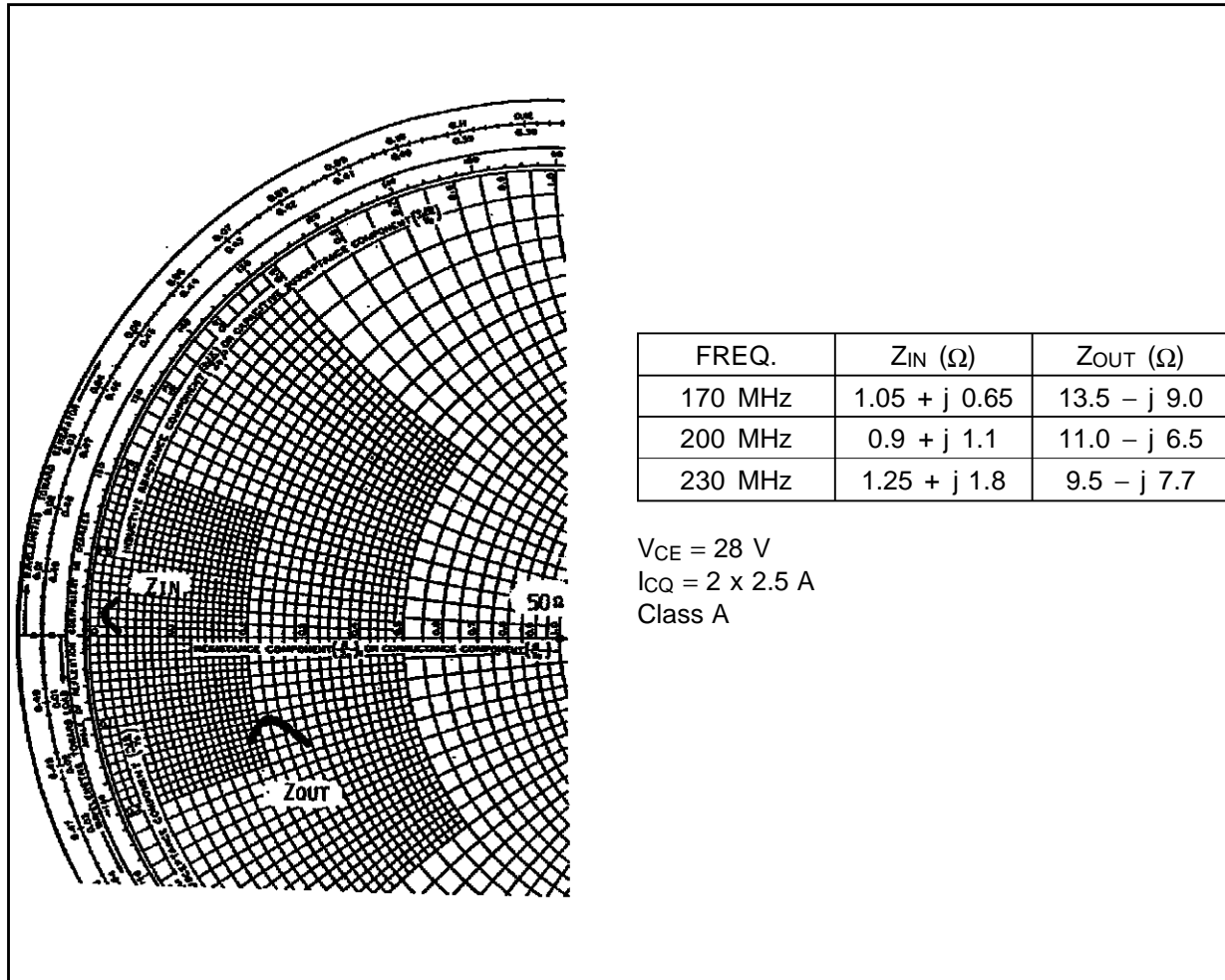
COLLECTOR EFFICIENCY vs FREQUENCY



IMPEDANCE DATA

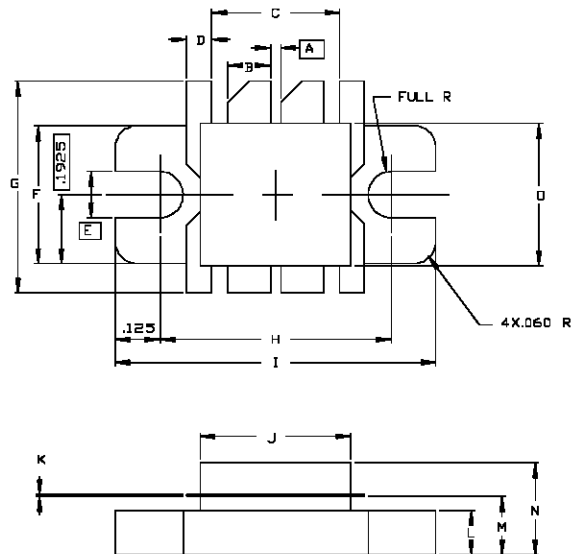


IMPEDANCE DATA



## 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			

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1994 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES  
 Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands -  
 Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A