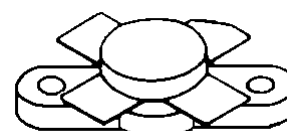


RF & MICROWAVE TRANSISTORS FM BROADCAST APPLICATIONS

- 108 MHz
- 28 VOLTS
- EFFICIENCY 75%
- COMMON EMITTER
- GOLD METALLIZATION
- $P_{OUT} = 150\text{ W MIN. WITH } 9.2\text{ dB GAIN}$



.500 4LFL (M174)
epoxy sealed

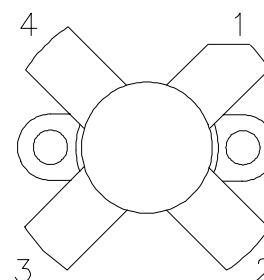
ORDER CODE
SD1460

BRANDING
SD1460

DESCRIPTION

The SD1143 is a 28 V gold metallized epitaxial silicon NPN planar transistor designed for VHF FM broadcast transmitters. This device utilizes diffused emitter resistors to achieve infinite VSWR at rated operating conditions.

PIN CONNECTION



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

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	25	V
V_{CES}	Collector-Emitter Voltage	60	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	16	A
P_{DISS}	Power Dissipation	230	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	0.75	$^{\circ}\text{C/W}$
---------------	----------------------------------	------	----------------------

SD1460

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

STATIC

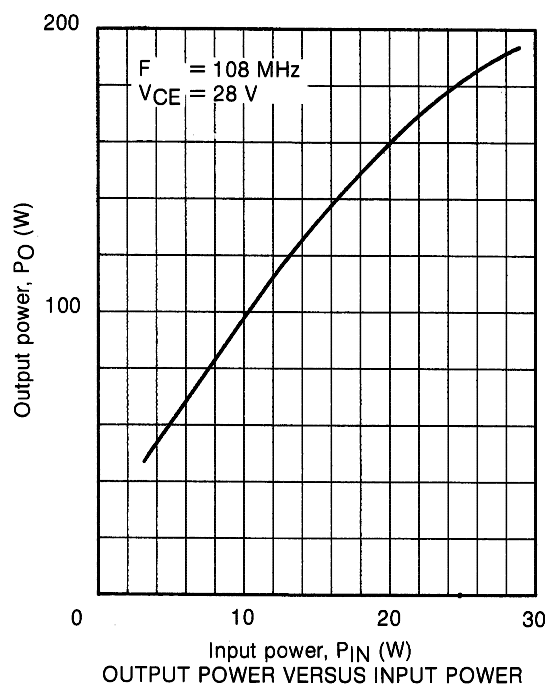
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 100\text{mA}$	$I_{\text{E}} = 0\text{mA}$	60	—	—	V
BV_{CER}	$I_{\text{C}} = 100\text{mA}$	$R_{\text{BE}} = 10\Omega$	55	—	—	V
BV_{CEO}	$I_{\text{C}} = 100\text{mA}$	$I_{\text{B}} = 0\text{mA}$	25	—	—	V
BV_{EBO}	$I_{\text{E}} = 20\text{mA}$	$I_{\text{C}} = 0\text{mA}$	4.0	—	—	V
h_{FE}	$V_{\text{CE}} = 5\text{V}$	$I_{\text{C}} = 1\text{A}$	20	—	150	—

DYNAMIC

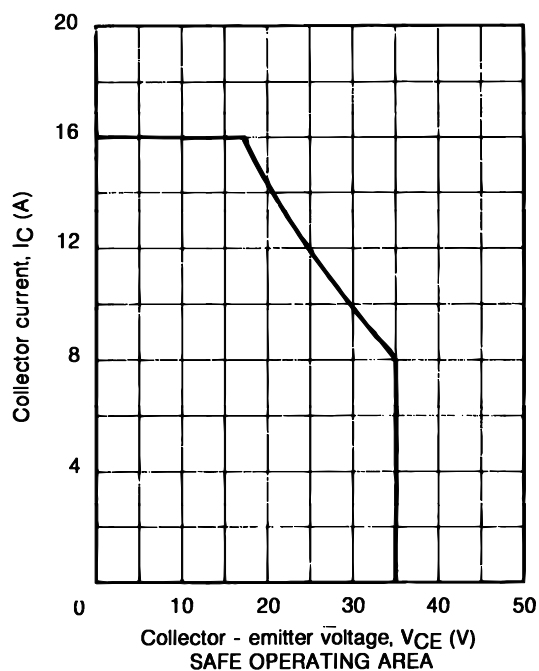
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 108\text{ MHz}$	$P_{\text{IN}} = 18\text{ W}$	$V_{\text{CE}} = 28\text{ V}$	150	—	—	W
G_{P}	$f = 108\text{ MHz}$	$P_{\text{IN}} = 18\text{ W}$	$V_{\text{CE}} = 28\text{ V}$	9.2	—	—	dB
η_{C}	$f = 108\text{ MHz}$	$P_{\text{IN}} = 18\text{ W}$	$V_{\text{CE}} = 28\text{ V}$	70	—	—	%
C_{OB}	$f = 1\text{ MHz}$	$V_{\text{CB}} = 28\text{ V}$		—	—	150	pF

TYPICAL PERFORMANCE

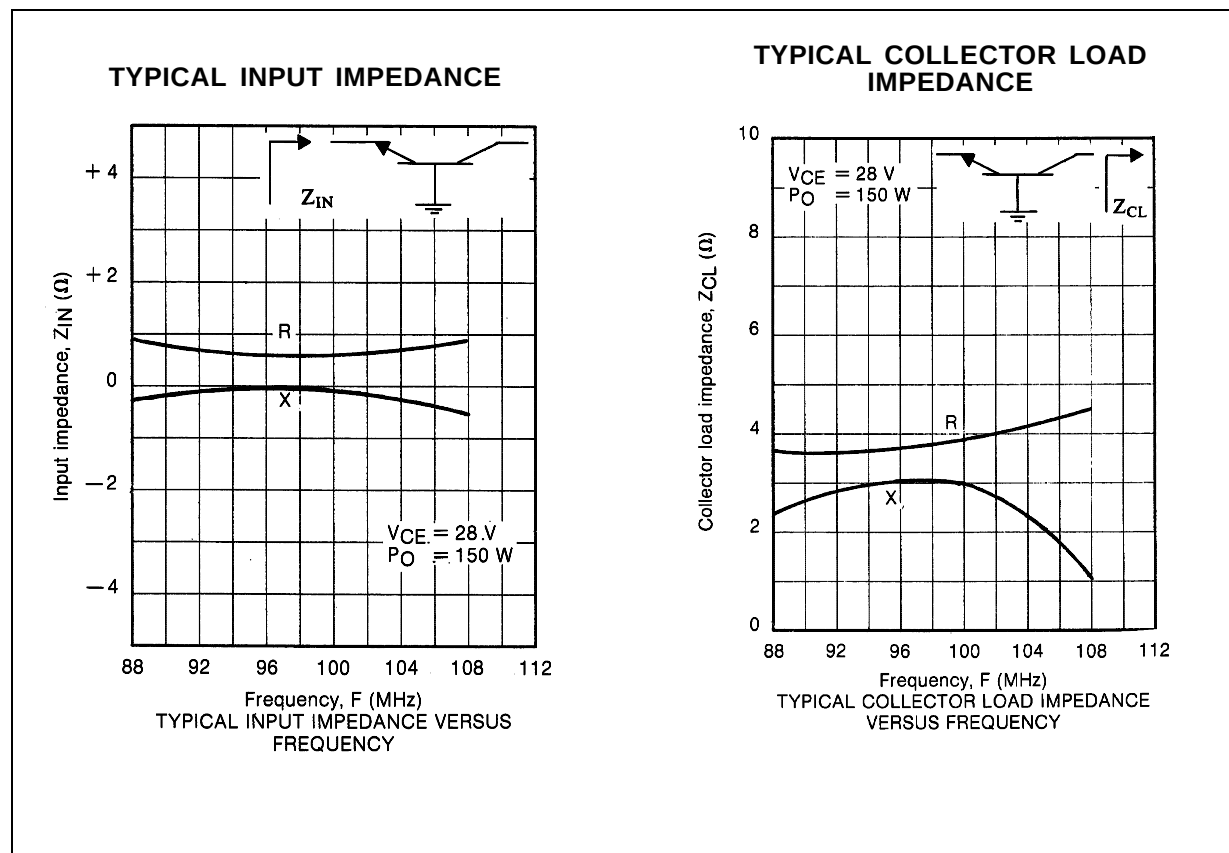
POWER OUTPUT vs POWER INPUT



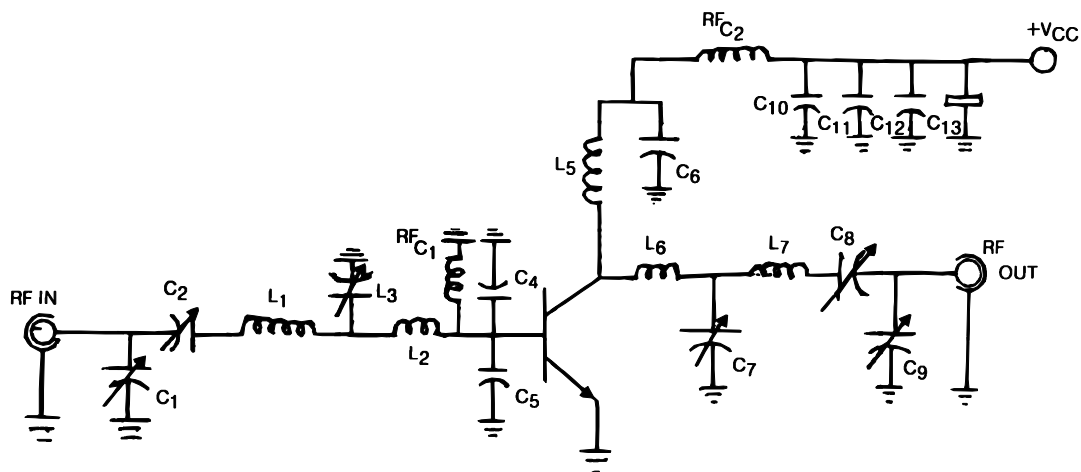
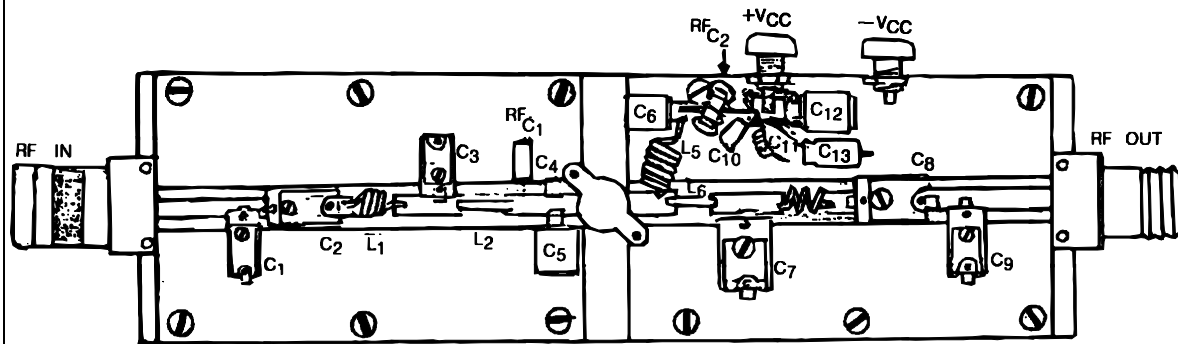
SAFE OPERATING AREA



IMPEDANCE DATA



TEST CIRCUIT



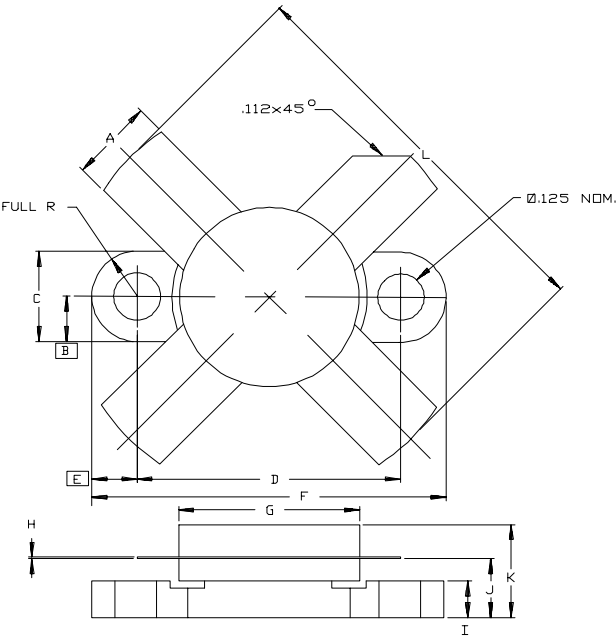
C1, C2,
 C3, C9 : 24 - 200pF Variable, Arco 425
 C4 : 470pF ATC 125 mil. Sq. Chip
 C5 : 470pF Unelco, 400 mil. Sq.
 C6 : 1000pF Unelco, 400 mil Sq.
 C7 : 50 - 380pF Variable, Arco 465
 C8 : 25 - 280pF Variable, Arco 464
 C10 : .1 μ F 50V, Erie Disc
 C11 : .01 μ F 50V, Erie Disc
 C12 : 1000pF Unelco, 400 mil Sq.
 C13 : 100 μ F 35V, Sprague Electrolytic

L1 : 3 Turns, #16 AWG, .225" I.D.
 L2 : #14 AWG, Length .335", Height .400"
 L5 : 5 1/2 Turns, #16 AWG Enameled .270" I.D.
 L6 : #14 AWG, Length .300", Height .335"
 L7 : 3 Turns, #16 AWG, Length .300", Height .335"
 RFC 1 : VK200 19/4B (1 winding) Ferroxcube Choke
 RFC 2 : 6 Turns, #16 AWG Enamel on T50-2 Torroid

Board Material: 3-M-K-6098 1/16" Thick

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0174



SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.220/5,59	.230/5,84	K		.280/7,11
B	.125/3,18		L		1.050/26,67
C	.245/6,22	.255/6,48			
D	.720/18,28	.730/18,54			
E	.125/3,18				
F	.970/24,64	.980/24,89			
G	.495/12,57	.505/12,83			
H	.003/0,08	.007/0,18			
I	.090/2,29	.110/2,79			
J	.160/4,06	.175/4,45			

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 results 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