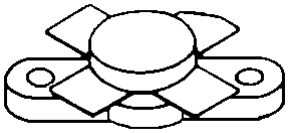
SGS-THOMSON MICROELECTRONICS

SD1460

RF & MICROWAVE TRANSISTORS FM BROADCAST APPLICATIONS

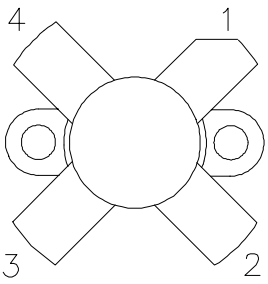
- 108 MHz
- 28 VOLTS
- EFFICIENCY 75%
- COMMON EMITTER
- GOLD METALLIZATION
- P_{OUT} = 150 W MIN. WITH 9.2 dB GAIN



.500 4LFL (M174)
epoxy sealed

ORDER CODE	BRANDING
SD1460	SD1460

PIN CONNECTION



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

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.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°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	°C
T_{STG}	Storage Temperature	– 65 to +150	°C

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	0.75	°C/W

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

STATIC

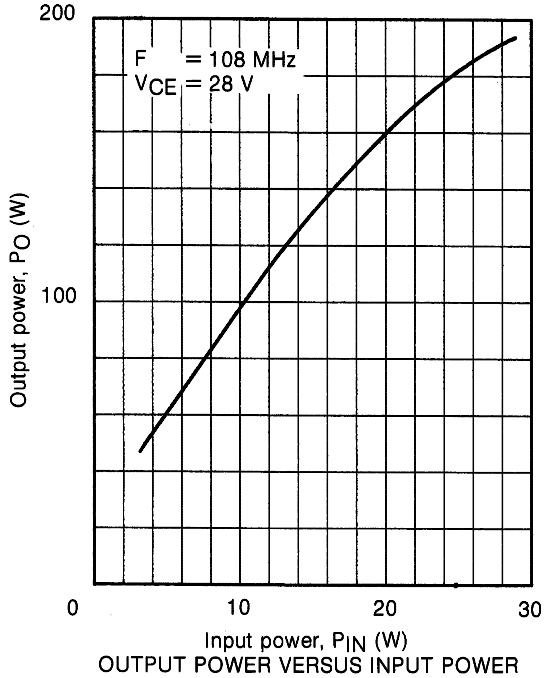
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 100mA	I_E = 0mA	60	—	—	V
BV_{CER}	I_C = 100mA	R_{BE} = 10Ω	55	—	—	V
BV_{CEO}	I_C = 100mA	I_B = 0mA	25	—	—	V
BV_{EBO}	I_E = 20mA	I_C = 0mA	4.0	—	—	V
h_{FE}	V_{CE} = 5V	I_C = 1A	20	—	150	—

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 108 MHz	P_{IN} = 18 W	V_{CE} = 28 V	150	—	—	W
G_P	f = 108 MHz	P_{IN} = 18 W	V_{CE} = 28 V	9.2	—	—	dB
ηc	f = 108 MHz	P_{IN} = 18 W	V_{CE} = 28 V	70	—	—	%
C_{OB}	f = 1 MHz	V_{CB} = 28 V		—	—	150	pF

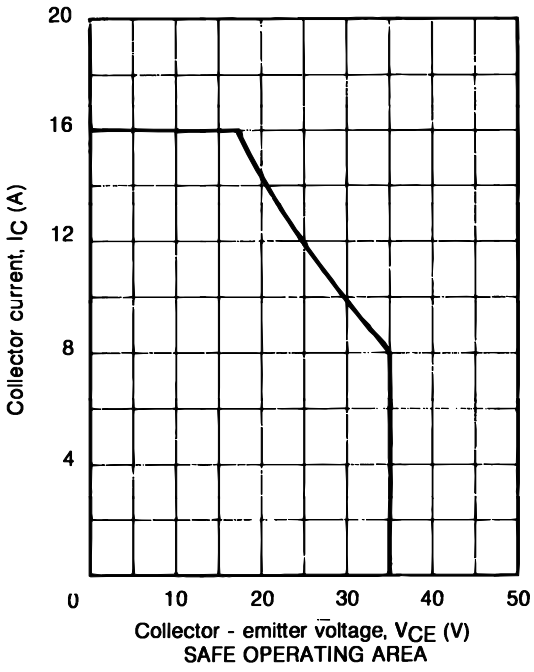
TYPICAL PERFORMANCE

POWER OUTPUT vs POWER INPUT



OUTPUT POWER VERSUS INPUT POWER

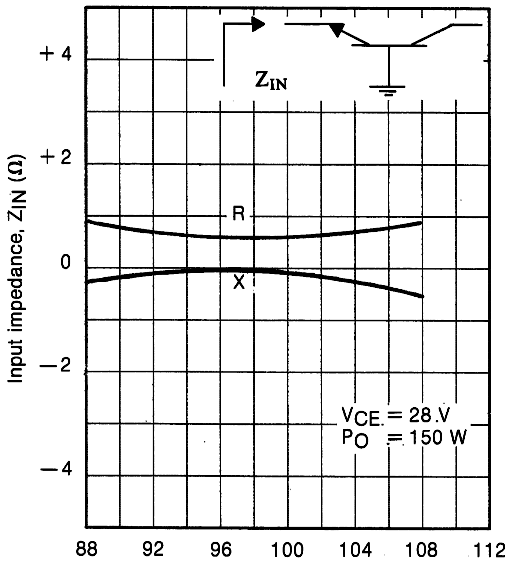
SAFE OPERATING AREA



SAFE OPERATING AREA

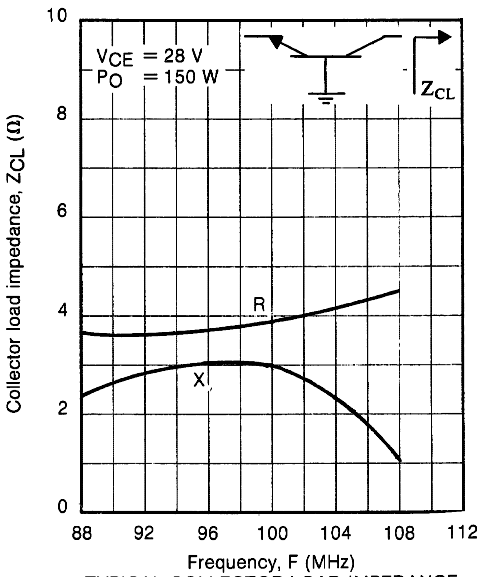
IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE



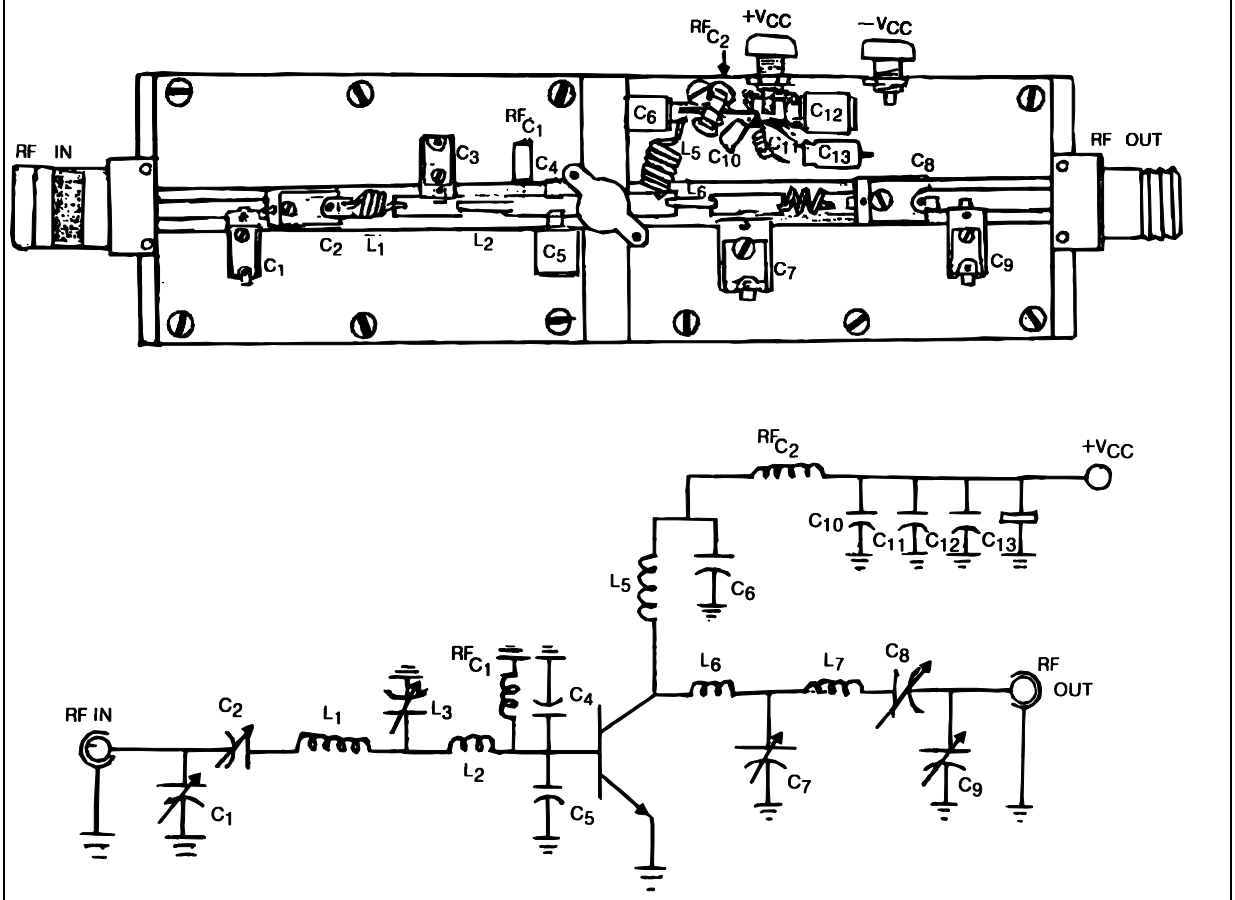
TYPICAL INPUT IMPEDANCE VERSUS FREQUENCY

TYPICAL COLLECTOR LOAD IMPEDANCE



TYPICAL COLLECTOR LOAD IMPEDANCE VERSUS FREQUENCY

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 : .1µF 50V, Erie Disc
C11 : .01µF 50V, Erie Disc
C12 : 1000pF Unelco, 400 mil Sq.
C13 : 100µF 35V, Sprague Electrolytic

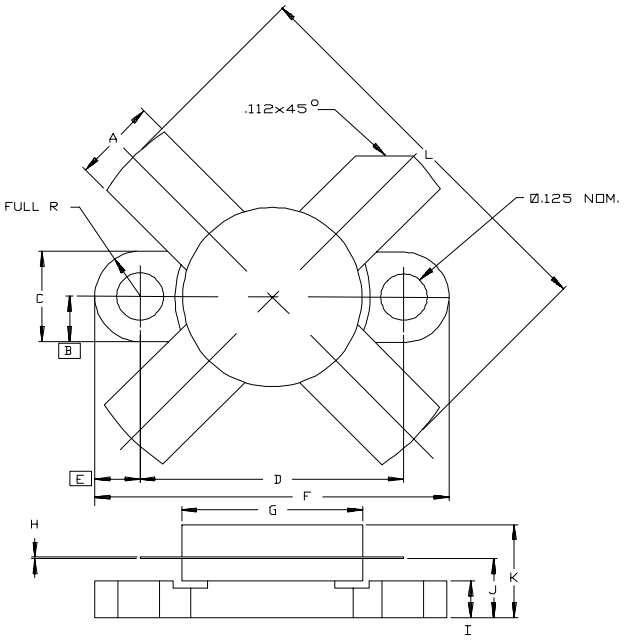
L1 : 3 Turns, #16 AWG, .225" I.D.
L2 : #14 AWG, Length .335", Height .400"
L5 : 5 1/2 Turns, #16 AWG Enameled .270" I.D.
L6 : #14 AWG, Length .300", Height .335"
L7 : 3 Turns, #16 AWG, Length .300", Height .335"

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		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.220/5,59	.230/5,84
B	.125/3,18	
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

CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
K		.280/7,11
L		1.050/26,67