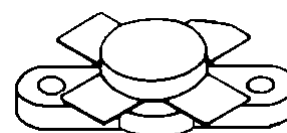


RF & MICROWAVE TRANSISTORS HF/VHF APPLICATIONS

- 50 MHz
- 12.5 VOLTS
- EFFICIENCY 55%
- COMMON EMITTER
- GOLD METALLIZATION
- $P_{OUT} = 70 \text{ W MIN. WITH } 10 \text{ dB GAIN}$



.380 4LFL (M113)
epoxy sealed

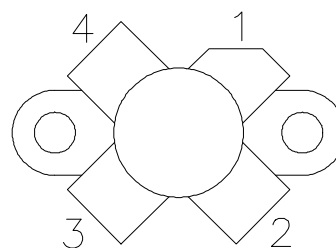
ORDER CODE
SD1446

BRANDING
SD1446

DESCRIPTION

The SD1446 is a 12.5 V Class C epitaxial silicon NPN planar transistor designed primarily for land mobile transmitter applications. This device utilizes emitter ballasting and is extremely stable and capable of withstanding high VSWR under 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	36	V
V_{CEO}	Collector-Emitter Voltage	18	V
V_{EBO}	Emitter-Base Voltage	3.5	V
I_C	Device Current	12.0	A
P_{DISS}	Power Dissipation	183	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	1.05	$^{\circ}\text{C/W}$
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ELECTRICAL SPECIFICATIONS ($T_{\text{case}} = 25^{\circ}\text{C}$)

STATIC

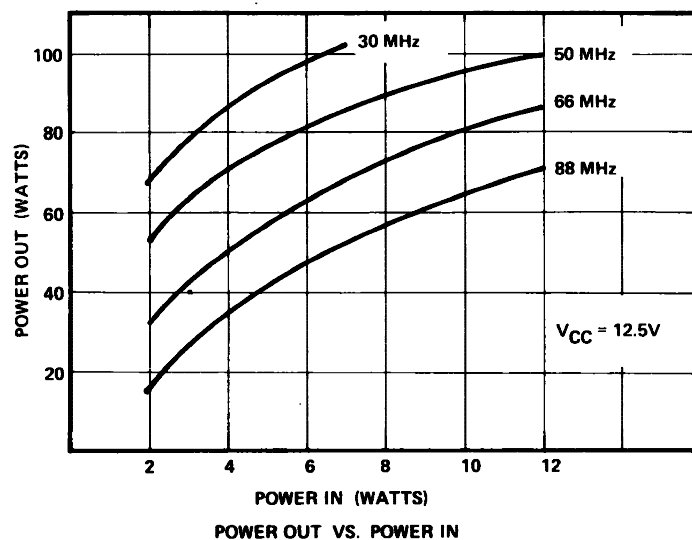
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 50\text{mA}$	$I_{\text{E}} = 0\text{mA}$	36	—	—	V
BV_{CES}	$I_{\text{C}} = 100\text{mA}$	$V_{\text{BE}} = 0\text{V}$	36	—	—	V
BV_{CEO}	$I_{\text{C}} = 50\text{mA}$	$I_{\text{B}} = 0\text{mA}$	18	—	—	V
BV_{EBO}	$I_{\text{E}} = 10\text{mA}$	$I_{\text{C}} = 0\text{mA}$	3.5	—	—	V
I_{CES}	$V_{\text{CE}} = 15\text{V}$	$I_{\text{E}} = 0\text{mA}$	—	—	10	mA
h_{FE}	$V_{\text{CE}} = 5\text{V}$	$I_{\text{C}} = 5\text{A}$	10	—	—	—

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 50\text{ MHz}$	$P_{\text{IN}} = 7\text{ W}$	$V_{\text{CE}} = 12.5\text{ V}$	70	—	—	W
G_{P}	$f = 50\text{ MHz}$	$P_{\text{IN}} = 7\text{ W}$	$V_{\text{CE}} = 12.5\text{ V}$	10	—	—	dB
η_{C}	$f = 50\text{ MHz}$	$P_{\text{IN}} = 7\text{ W}$	$V_{\text{CE}} = 12.5\text{ V}$	—	55	—	%
C_{OB}	$f = 1\text{ MHz}$	$V_{\text{CB}} = 12.5\text{V}$		—	—	300	pF

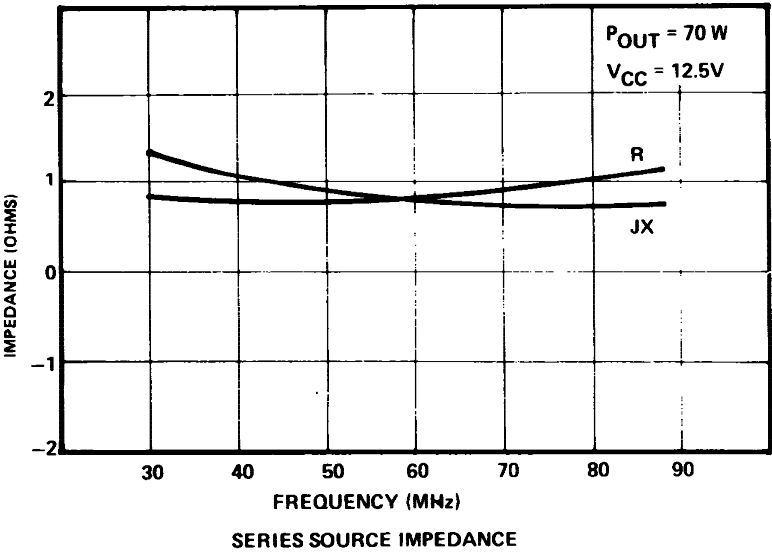
TYPICAL PERFORMANCE

POWER OUTPUT vs POWER INPUT



IMPEDANCE DATA

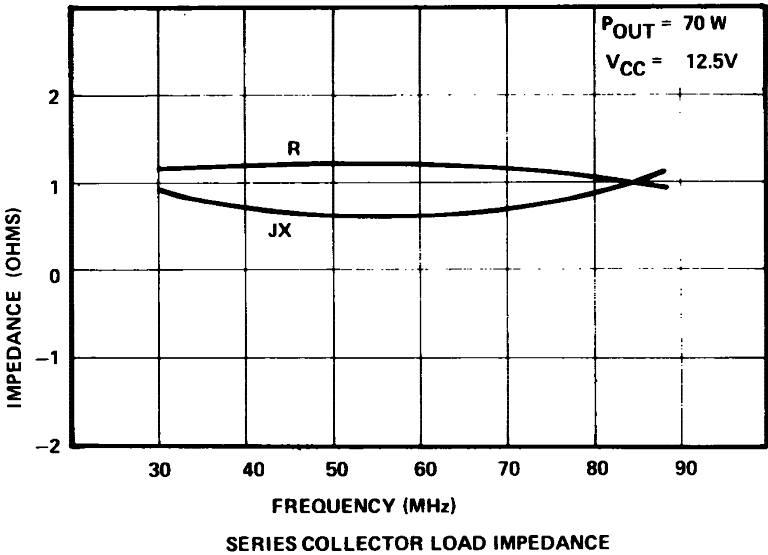
TYPICAL INPUT
IMPEDANCE



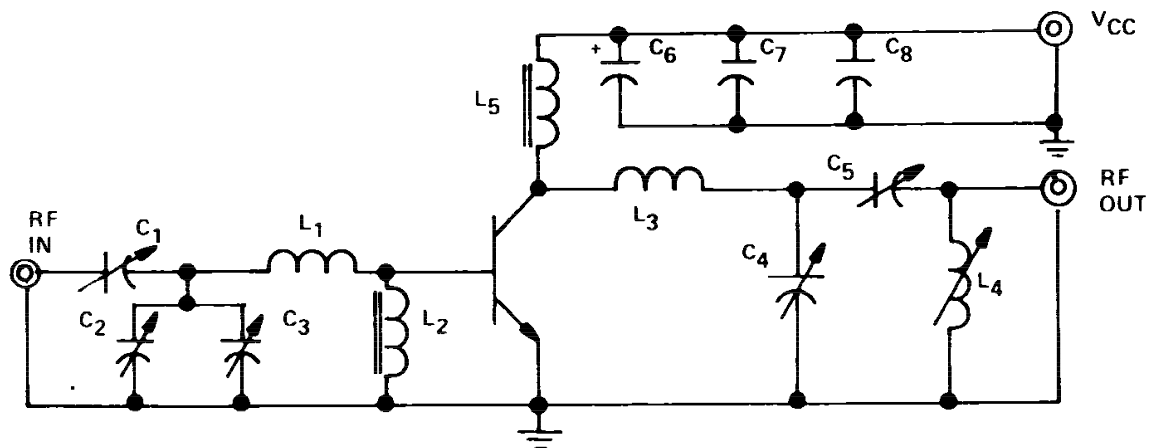
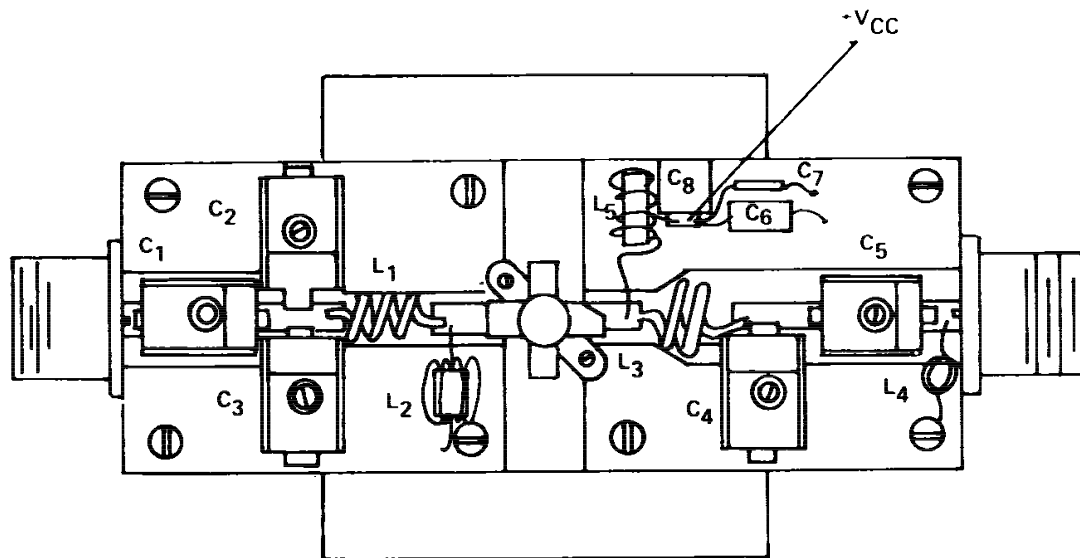
FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
50 MHz	$0.8 + j\ 0.9$	$1.2 + j\ 0.6$

$P_{OUT} = 70\text{ W}$
 $V_{CE} = 12.5\text{ V}$

TYPICAL COLLECTOR
LOAD IMPEDANCE



TEST CIRCUIT



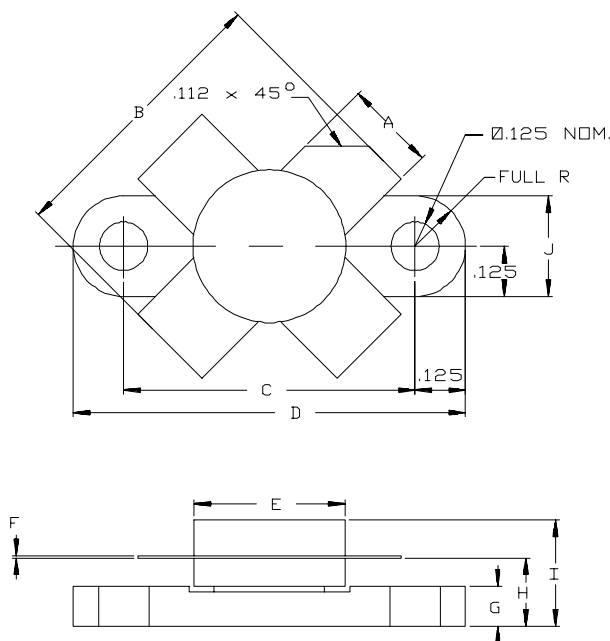
C1, C4 : 50 - 380pF Arco 465
 C2 : 110 - 580pF Arco 467
 C3 : 140 - 680pF Arco 468
 C5 : 9 - 180pF Arco 463
 C6 : 10 μ F, 35Vdc, Electrolytic
 C7 : .01 μ F Erie
 C8 : 1000pF Unelco
 L1 : 2 1/2 Turns, #14 Awg, Tinned, 1/4" I.D.
 Loose Wound

L2 : 10 Turns, #28 AWG, Enameled on
 Ferroxcube Sleeve #3B
 L3 : 1 1/2 Turns, #12 AWG, Tinned, 3/8" I.D.
 Loose Wound
 L4 : 8 Turns, #18 AWG on 1/4" I.D. Coil form 1/2"
 Length with Ferrite Slug
 L5 : 11 Turns, #16 AWG, Enameled on Torroid,
 Micrometals, T50-2

Board Material: Double Sided Copper 1/16" Thick

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0113



SGS-THOMSON MICROELECTRONICS		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.220/5,59	.230/5,84
B	.785/19,94	
C	.720/18,29	.730/18,54
D	.970/24,64	.980/24,89
E		.385/9,78
F	.004/0,10	.006/0,15
G	.085/2,16	.105/2,67
H	.160/4,06	.180/4,57
I		.280/7,11
J	.240/6,10	.255/6,48

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