0182998 ACRIAN INC
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T-33-15

S250-50

250 WATTS - 50 VOLTS 1.5-30 MHz

HF COMMUNICATIONS

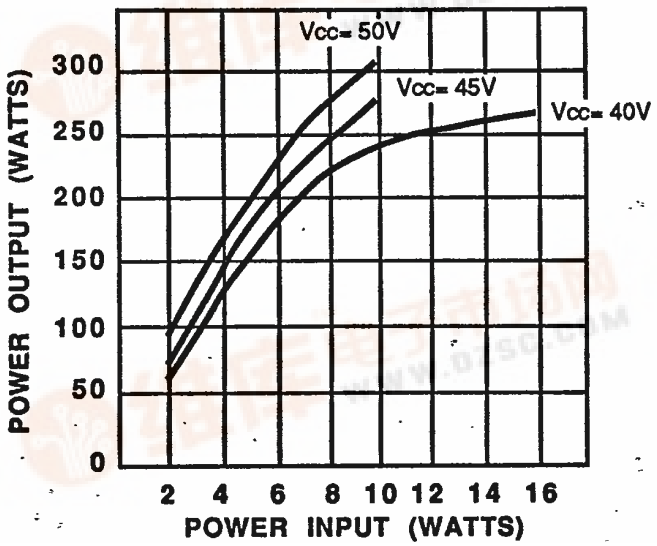
GENERAL DESCRIPTION

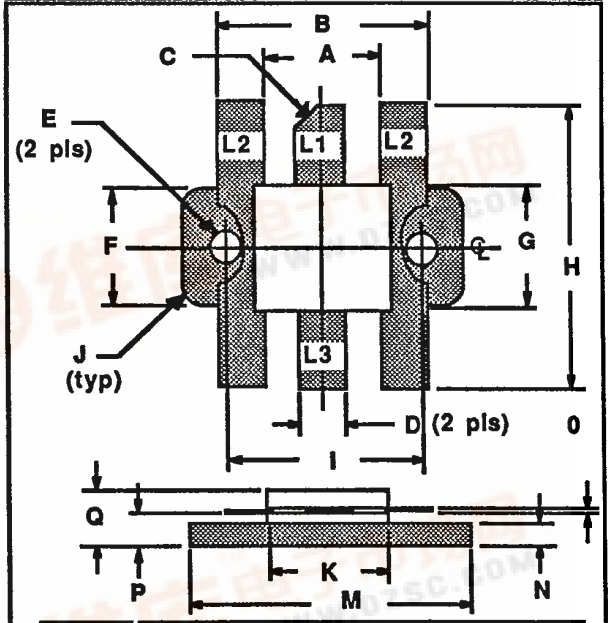
The S250-50 is a 50V 250 W (PEP) NPN silicon RF power transistor designed for 1.5 to 30 MHz linear applications. Gold metallization and difussed resistors assure optimum reliability and ruggedness.

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25 °C Case Temperature		440 W
Maximum Voltage and Current		
BVces	Collector to Emitter Voltage	110 V
BVebo	Emitter to Base Voltage	4.0 V
Ic	Collector Current	30 A
Maximum Temperatures		
Storage Temperature		-65 to +150 °C
Operating JunctionTemperature		+200 °C

POWER OUTPUT VS POWER INPUT (TYPICAL)



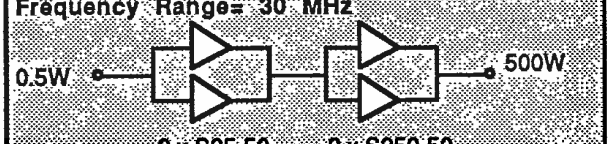


L1 : c
L2 : e
L3 : b

DIM	Millimeter	TOL	Inches	TOL
A	9.09	.13	.358	.005
B	19.30	.13	.760	.005
C	45°	5°	45°	5°
D	5.71	.13	.225	.005
E	3.25 DIA	.13	.128 DIA	.005
F	9.78	.13	.385	.005
G	10.16	.13	.400	.005
H	20.32	.25	.800	.010
I	16.51	.13	.650	.005
J	1.52 R	.13	.060 R	.005
K	10.77	.13	.424	.005
M	22.86	.13	.900	.005
N	1.52	.13	.060	.005
O	0.13	.02	.005	.001
P	2.54	.13	.100	.005
Q	4.70	REF	.185	REF

TYPICAL AMPLIFIER LINE UP

Vcc= 28Volts
Frequency Range= 30 MHz



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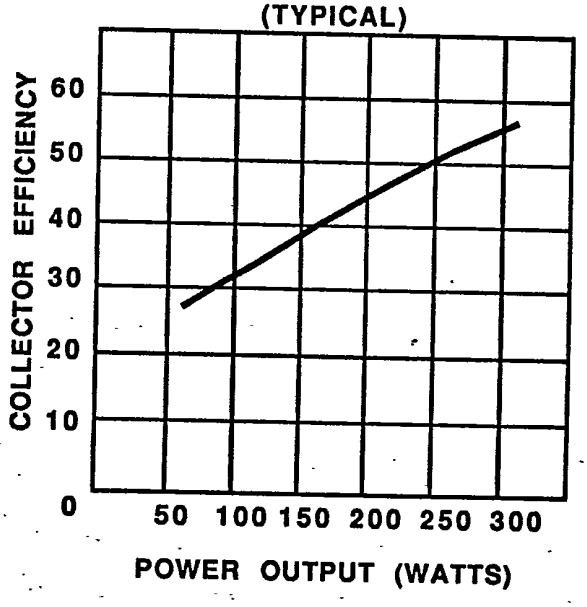
S250-50-2

ELECTRICAL CHARACTERISTICS[1]

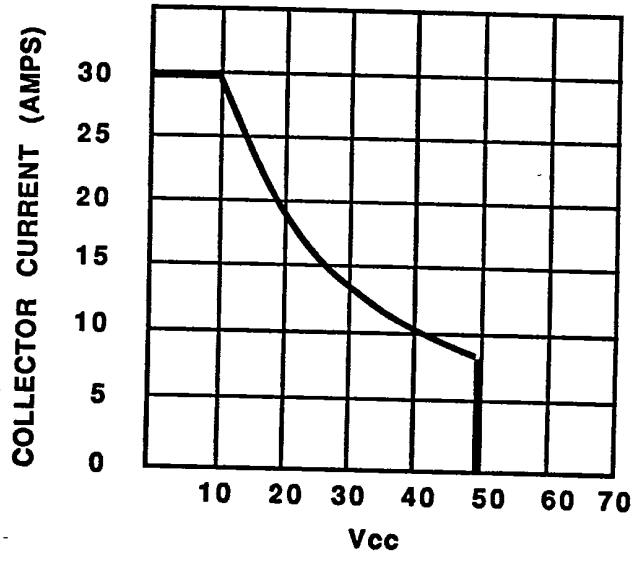
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Pout	Power Output	f= 30 MHz Vcc= 50V	250			Watts
Pin	Power Input				8.0	Watts
Pg	Power Gain		15			dB
η_c	Collector Efficiency			60		%
VSWR	Load MismatchCapability	f1= 30.000 MHz, f2= 30.005 MHz Po= 250 PEP, Vce= 50 V			30:1	
BVebo	Breakdown Voltage (Emitter to Base)	Ic= 0A, Ie= 20 mA	4.0			Volts
BVces	Breakdown Voltage (Collector to Emitter)	Vbe= 0, Ic= 200 mA	110			Volts
BVceo	Breakdown Voltage (Collector to Emitter)	Ib= 0A, Ic= 200 mA	53			Volts
Ices	Collector to Emitter Leakage Current	Vc= 50V			60	mA
IMD	3rd Order Products	Po= 250 PEP, Vce= 50 V f1= 30.000 MHz, f2= 30.005 Mhz		-32	-30	dBc
Cob	Capacitance-Collector to Base	Vcb= 50V, Ie= 0		280	300	pF
h_{FE}	DC-Current Gain	Vce= 5V, Ic= 1 A	10	20	60	
θjc	Thermal Resistance				0.4	°C/W
Zin	Series Input Impedance	f1= 30.000 MHz, Vcc= 50 V f2= 30.005 MHz		2.2 - j3.3		Ohms

Note 1: Tc = +25°C unless otherwise specified

POWER OUTPUT VS COLLECTOR EFFICIENCY (TYPICAL)

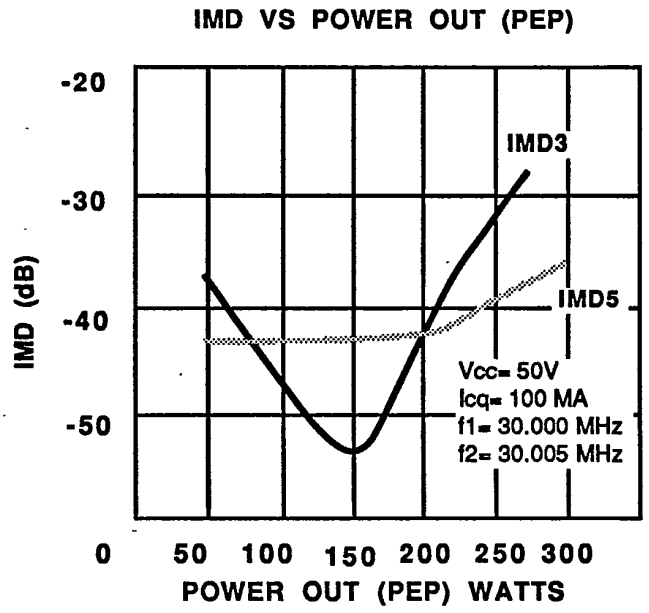


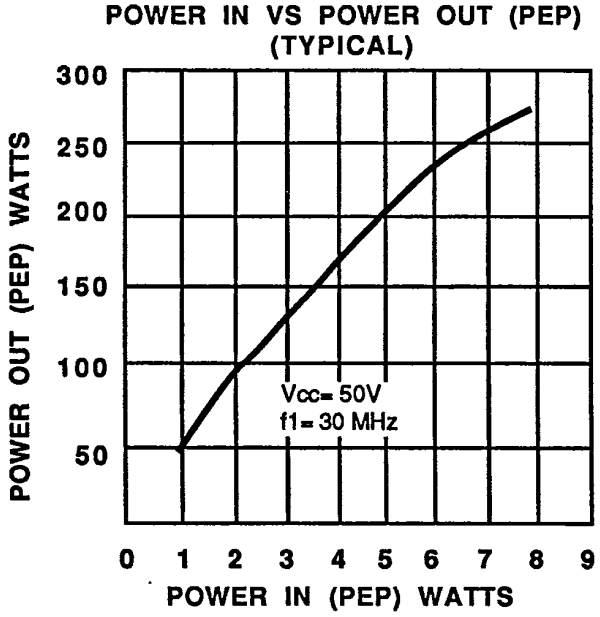
DC SAFE OPERATING AREA (TYPICAL)

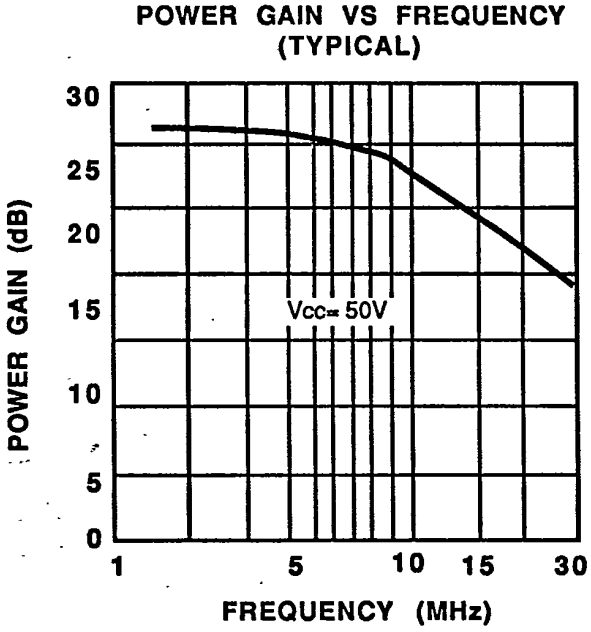


SPECIFICATIONS MAY BE SUBJECT TO CHANGE WITHOUT NOTICE

S250-50-3


IMD VS POWER OUT (PEP)
-20
-30
-40
-50
IMD (dB)
IMD3
IMD5
Vcc= 50V
Icq= 100 MA
f1= 30.000 MHz
f2= 30.005 MHz
0
50
100
150
200
250
300
POWER OUT (PEP) WATTS


POWER IN VS POWER OUT (PEP)
(TYPICAL)
300
250
200
150
100
50
POWER OUT (PEP) WATTS
Vcc= 50V
f1= 30 MHz
0
1
2
3
4
5
6
7
8
9
POWER IN (PEP) WATTS


POWER GAIN VS FREQUENCY
(TYPICAL)
30
25
20
15
10
5
0
POWER GAIN (dB)
Vcc= 50V
1
5
10
15
30
FREQUENCY (MHz)