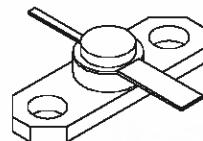



MSC82100
**RF & MICROWAVE TRANSISTORS
GENERAL PURPOSE LINEAR APPLICATIONS**

- Emitter ballasted
- Class A linear operation
- Common emitter
- VSWR capability $\infty:1$ @ rated conditions
- ft 1.6 GHz typical
- Noise figure 15.5 dB @ 2 GHz
- $P_{out} = 27$ dBm min. @ 1.0 GHz

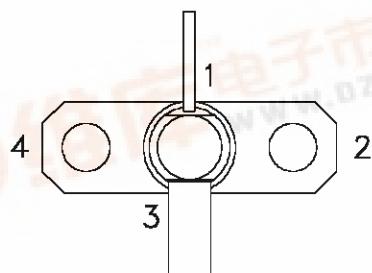

.250 2LFL (S011)
hermetically sealed

ORDER CODE
MSC82100

BRANDING
82100

DESCRIPTION

The MSC82100 is a hermetically sealed NPN power transistor with a fishbone, emitter finger ballasted geometry utilizing a refractory/gold metallization system. The device is designed specifically for Class A linear applications to provide high gain and high output power at the 1.0 dB compression point.

PIN CONNECTION

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

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

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation (see Safe Area)	—	W
I_C	Device Bias Current	200	mA
V_{CE}	Collector-Emitter Bias Voltage*	20	V
T_J	Junction Temperature	200	$^\circ\text{C}$
T_{STG}	Storage Temperature	–65 to +200	$^\circ\text{C}$

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance*	20	$^\circ\text{C}/\text{W}$
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Applies only to rated RF amplifier operation

MSC82100

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

STATIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	$I_C = 1\text{mA}$ $I_E = 0\text{mA}$	45	—	—	V
BV_{EBO}	$I_E = 1\text{mA}$ $I_C = 0\text{mA}$	3.5	—	—	V
BV_{CEO}	$I_C = 5\text{mA}$ $I_B = 0\text{mA}$	20	—	—	V
I_{CEO}	$V_{CE} = 18\text{V}$	—	—	0.5	mA
h_{FE}	$V_{CE} = 5\text{V}$ $I_C = 100\text{mA}$	15	—	120	—

DYNAMIC

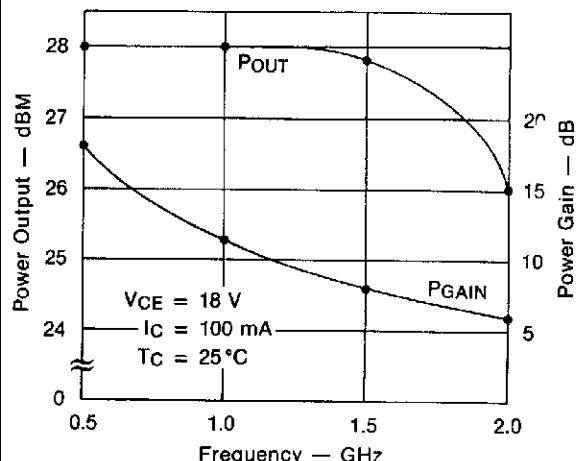
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
G_P^*	$f = 1.0 \text{ GHz}$ $P_{OUT} = 27 \text{ dBm}$	10.5	11.5	—	dB
ΔG_P^*	$f = 1.0 \text{ GHz}$ $P_{OUT} = 27 \text{ dBm}$ $\Delta P_{OUT} = 10 \text{ dB}$	—	—	1	dB
C_{OB}	$f = 1 \text{ MHz}$ $V_{CB} = 28 \text{ V}$	—	—	3.2	pF

* Note: $V_{CE} = 18\text{V}$

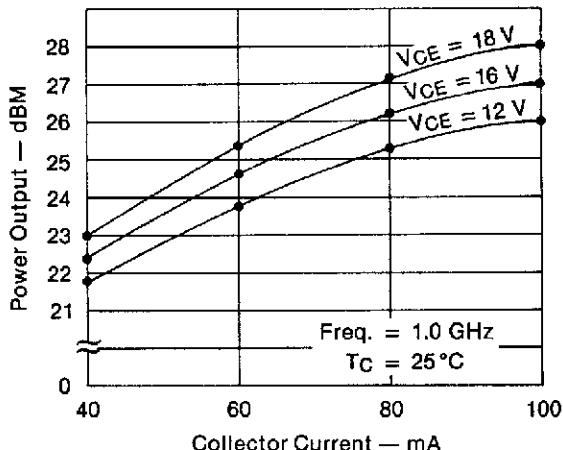
$I_C = 100\text{mA}$

TYPICAL PERFORMANCE

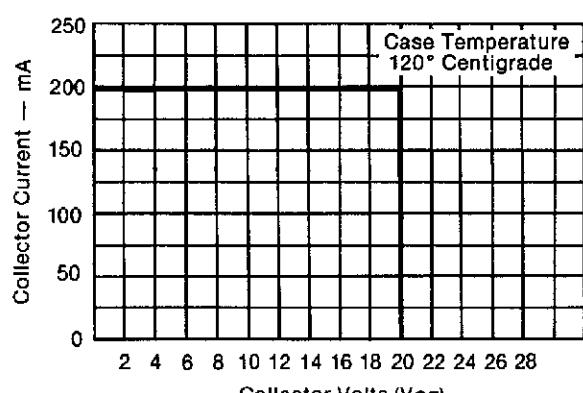
TYPICAL POWER OUTPUT & GAIN @ 1dB COMPRESSION POINT vs FREQUENCY



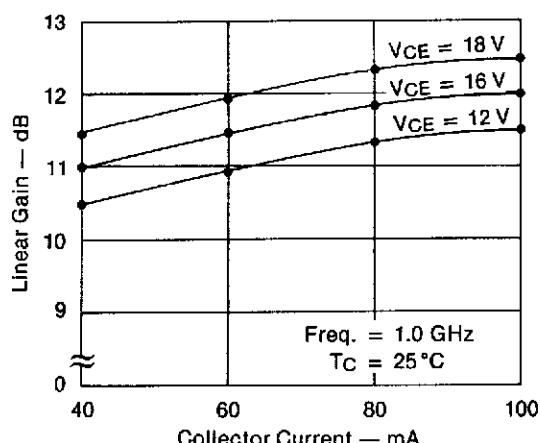
TYPICAL POWER OUTPUT & GAIN @ 1dB COMPRESSION POINT vs COLLECTOR CURRENT



MAXIMUM OPERATING AREA FOR FORWARD BIAS OPERATION

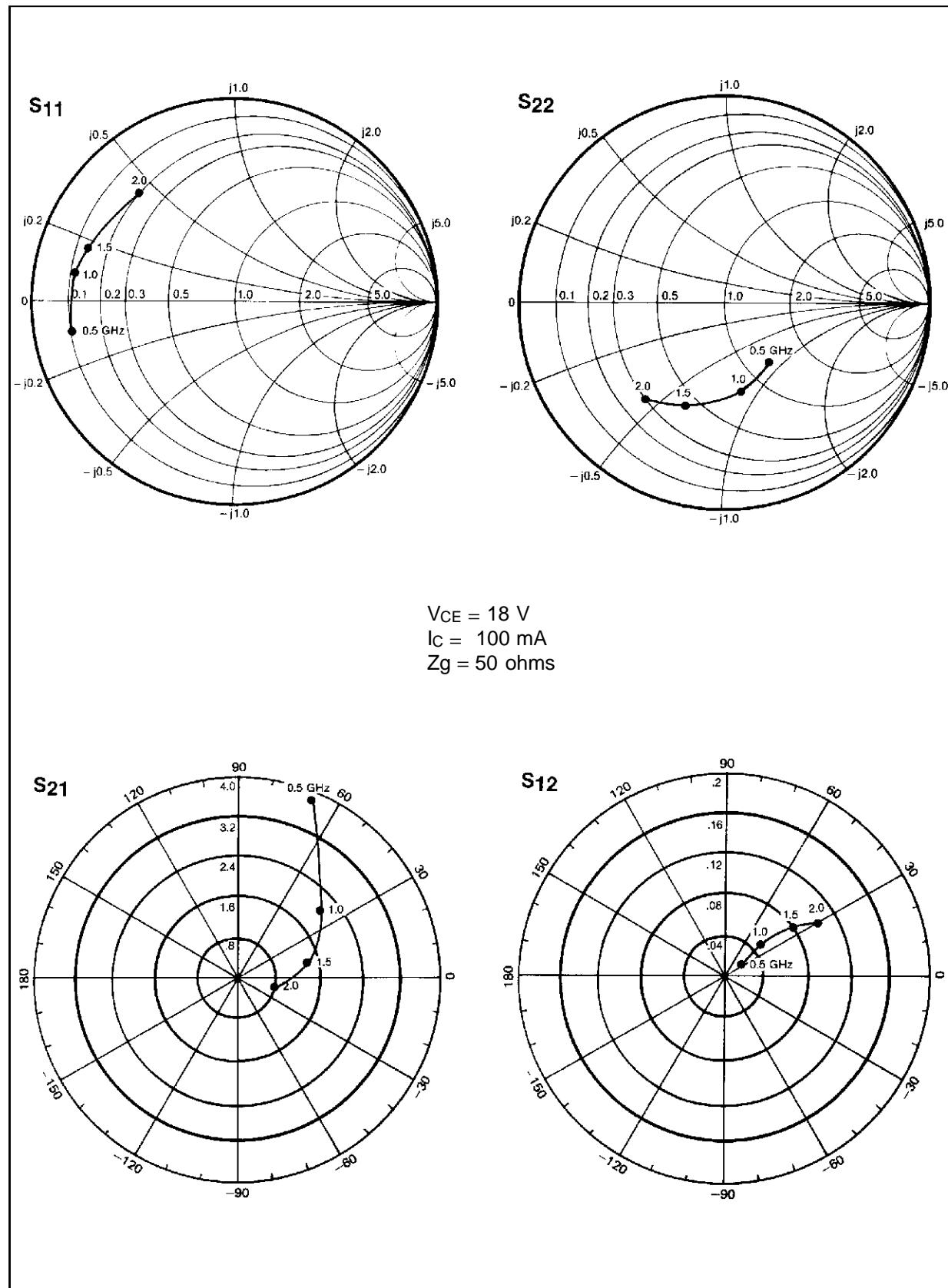


TYPICAL LINEAR GAIN vs COLLECTOR CURRENT



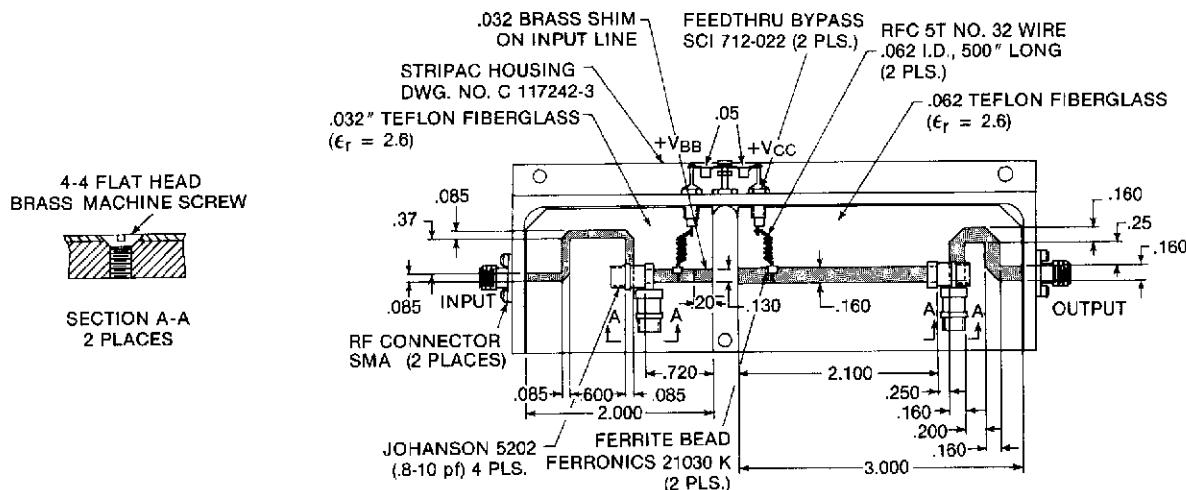
MSC82100

TYPICAL S-PARAMETERS



TEST CIRCUIT

Ref.: Dwg. No. C127323

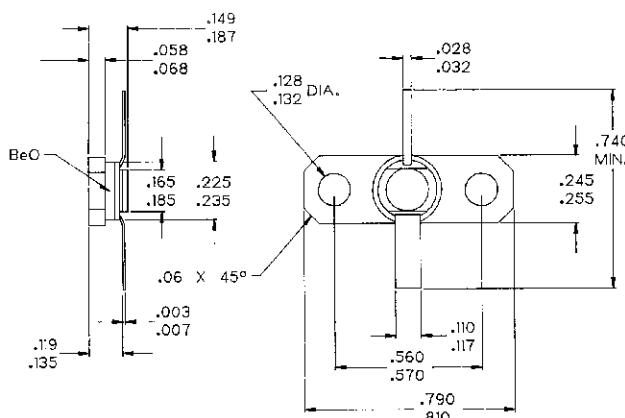


All dimensions are in inches.

Frequency 1.0 GHz

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J135021C



NOTES:

NOTES:
1. ALL TOLERANCE $\pm .010$ EXCEPT WHERE NOTED;
DIMENSIONS IN INCHES.

MSC82100

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