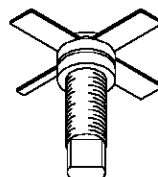


RF & MICROWAVE TRANSISTORS GENERAL PURPOSE LINEAR APPLICATIONS

- EMITTER BALLASTED
- CLASS A LINEAR OPERATION
- COMMON EMITTER
- VSWR CAPABILITY 20:1 @ RATED CONDITIONS
- f_t 3.2 GHz TYPICAL
- NOISE FIGURE 12.0 dB @ 2 GHz
- $P_{OUT} = 28$ dBm MIN. @ 2.0 GHz



.230 4L STUD (S027)

hermetically sealed

ORDER CODE

MSC80185

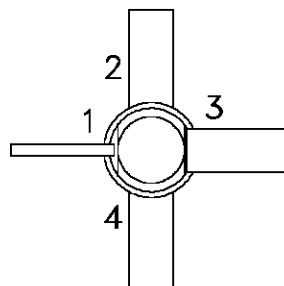
BRANDING

80185

DESCRIPTION

The MSC80185 is a hermetically sealed NPN power transistor featuring a unique matrix structure. This device is specifically designed for Class A linear applications to provide high gain and high output power at the 1.0 dB compression point.

PIN CONNECTION



1. Collector

2. Emitter

3. Base

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	300	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*	35	$^{\circ}\text{C/W}$
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*Applies only to rated RF amplifier operation

MSC80185

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

STATIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 1\text{mA}$ $I_{\text{E}} = 0\text{mA}$	50	—	—	V
BV_{EBO}	$I_{\text{E}} = 1\text{mA}$ $I_{\text{C}} = 0\text{mA}$	3.5	—	—	V
BV_{CEO}	$I_{\text{C}} = 5\text{mA}$ $I_{\text{B}} = 0\text{mA}$	20	—	—	V
I_{CEO}	$V_{\text{CE}} = 18\text{V}$	—	—	0.5	mA
h_{FE}	$V_{\text{CE}} = 5\text{V}$ $I_{\text{C}} = 100\text{mA}$	15	—	120	—

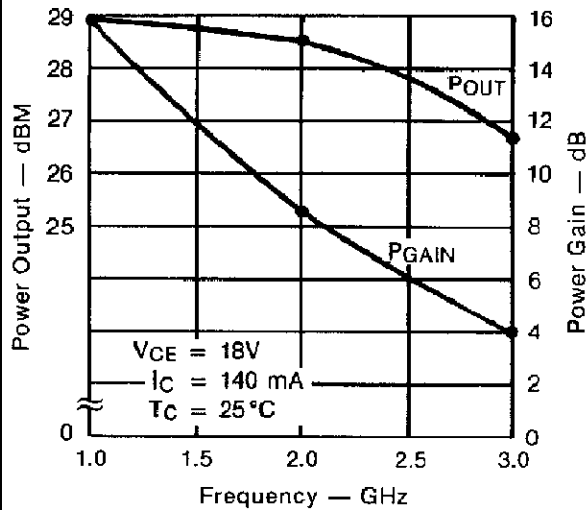
DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
G_{P}^*	$f = 2.0\text{ GHz}$ $P_{\text{OUT}} = 28\text{ dBm}$	7.5	8.5	—	dB
ΔG_{P}^*	$f = 2.0\text{ GHz}$ $P_{\text{OUT}} = 28\text{ dBm}$ $\Delta P_{\text{OUT}} = 10\text{ dB}$	—	—	1	dB
C_{OB}	$f = 1\text{ MHz}$ $V_{\text{CB}} = 28\text{ V}$	—	—	3.0	pF

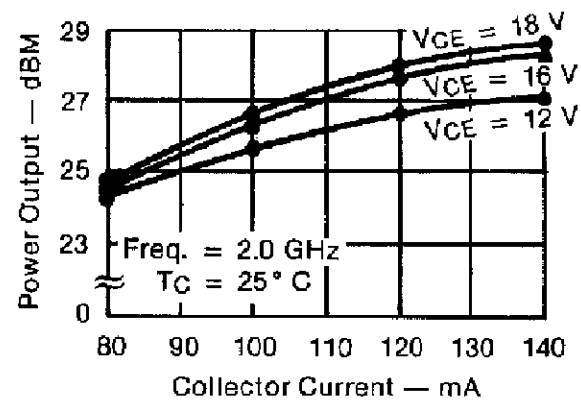
* Note: $V_{\text{CE}} = 18\text{V}$
 $I_{\text{C}} = 140\text{mA}$

TYPICAL PERFORMANCE

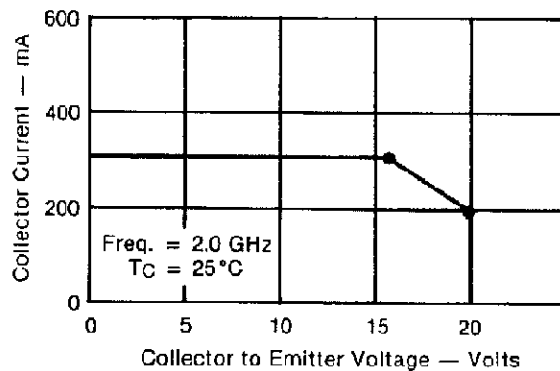
TYPICAL POWER OUTPUT & GAIN @ 1dB COMPRESSION POINT vs FREQUENCY



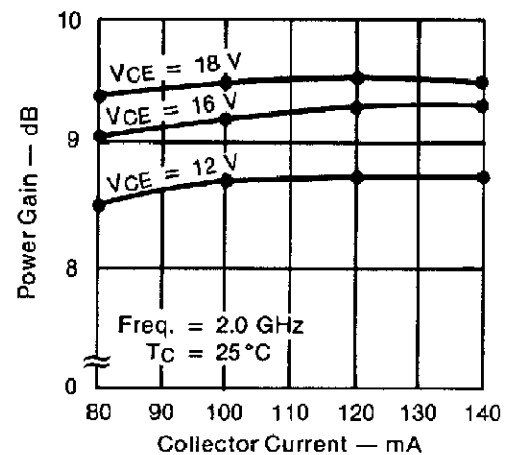
TYPICAL POWER OUTPUT & GAIN @ 1dB COMPRESSION POINT vs COLLECTOR CURRENT



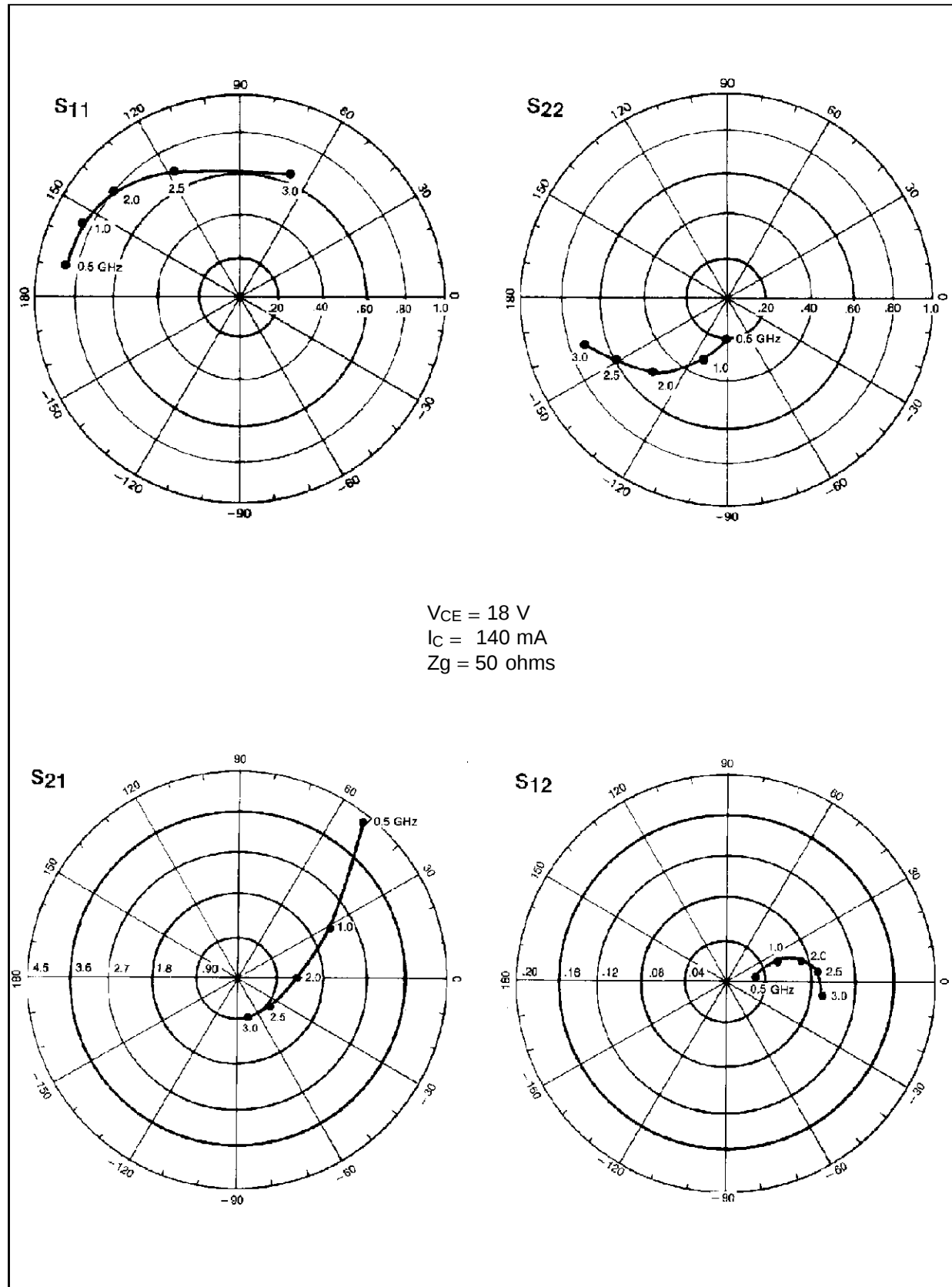
MAXIMUM OPERATING AREA FOR FORWARD BIAS OPERATION



TYPICAL LINEAR GAIN vs COLLECTOR CURRENT



TYPICAL S-PARAMETERS



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