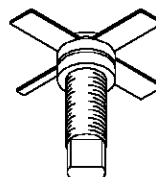


RF & MICROWAVE TRANSISTORS GENERAL PURPOSE LINEAR APPLICATIONS

- EMITTER BALLASTED
- CLASS A LINEAR OPERATION
- COMMON EMITTER
- VSWR CAPABILITY 15:1 @ RATED CONDITIONS
- f_t 3.2 GHz TYPICAL
- NOISE FIGURE 12.5 dB @ 2 GHz
- $P_{OUT} = 30.0$ dBm MIN.



.230 4L STUD (S027)
hermetically sealed

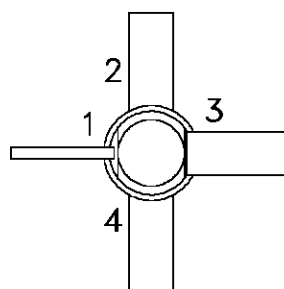
ORDER CODE
MSC80186

BRANDING
80186

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 | 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	500	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*	17	$^{\circ}\text{C/W}$
---------------	-----------------------------------	----	----------------------

*Applies only to rated RF amplifier operation

MSC80186

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}	$V_{\text{CE}} = 18\text{V}$	—	—	1.0	mA
h_{FE}	$V_{\text{CE}} = 5\text{V}$ $I_{\text{C}} = \text{mA}$	15	—	120	—

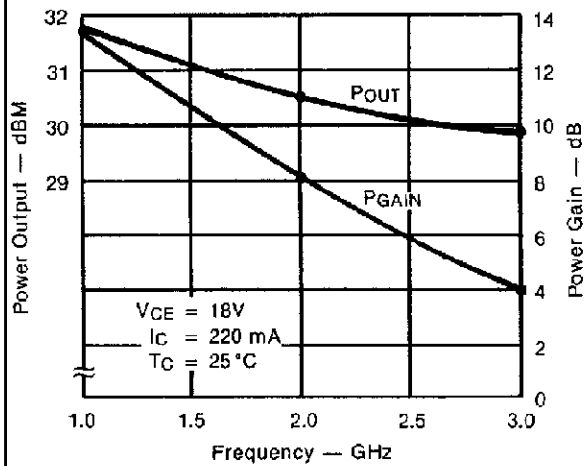
DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
G_{P}^*	$f = 2.0 \text{ GHz}$ $P_{\text{OUT}} = 30.0 \text{ dBm}$	7.0	9.0	—	dB
ΔG_{P}^*	$f = 2.0 \text{ GHz}$ $P_{\text{OUT}} = 30.0 \text{ dBm}$ $\Delta P_{\text{OUT}} = 10 \text{ dB}$	—	—	1	dB
C_{OB}	$f = 1 \text{ MHz}$ $V_{\text{CB}} = 28 \text{ V}$	—	—	5.0	pF

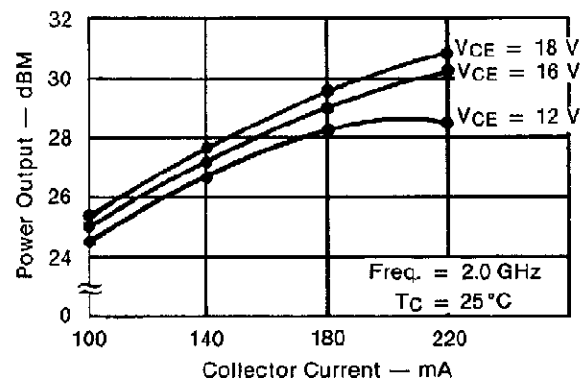
* Note: $V_{\text{CE}} = 18\text{V}$
 $I_{\text{C}} = 220\text{mA}$

TYPICAL PERFORMANCE

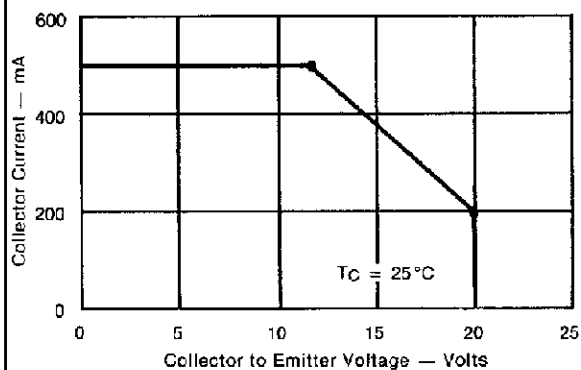
TYPICAL POWER OUTPUT & GAIN @ 1dB COMPRESSION POINT vs FREQUENCY



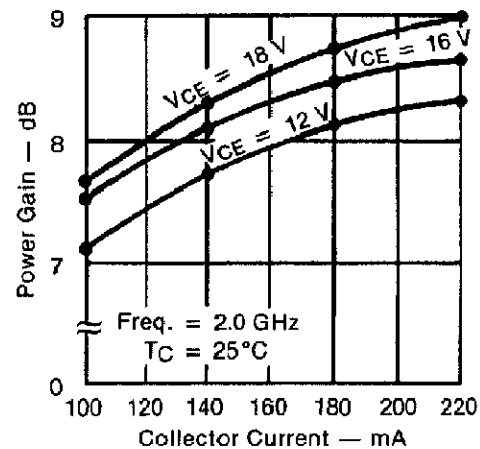
TYPICAL POWER OUTPUT & GAIN @ 1dB COMPRESSION POINT vs COLLECTOR CURRENT



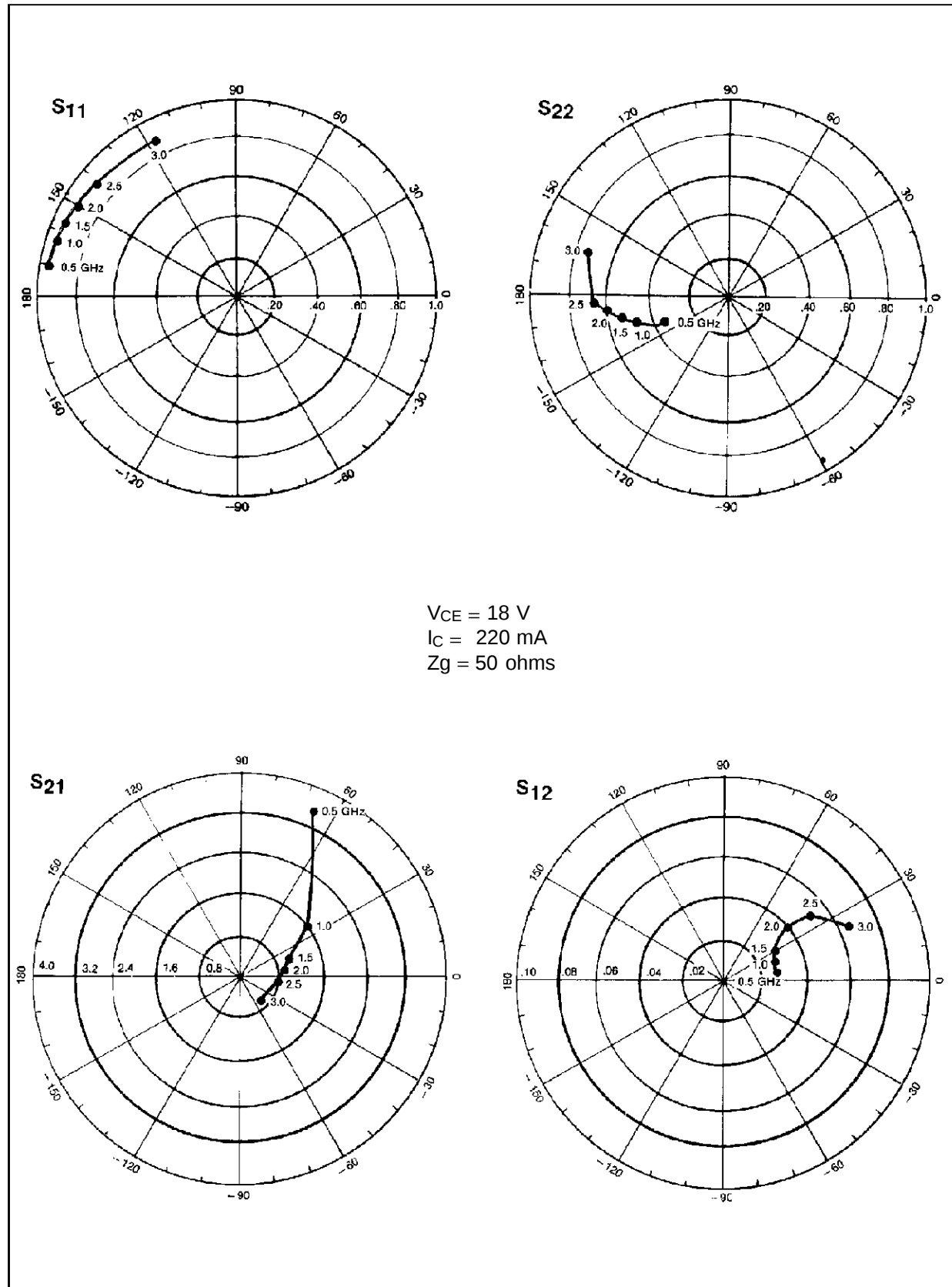
MAXIMUM OPERATING AREA FOR FORWARD BIAS OPERATION



TYPICAL LINEAR GAIN vs COLLECTOR CURRENT



TYPICAL S-PARAMETERS



Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1994 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands -
Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A