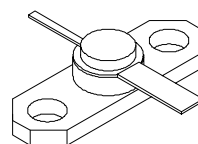


RF & MICROWAVE TRANSISTORS GENERAL PURPOSE AMPLIFIER APPLICATIONS

- EMITTER BALLASTED
- VSWR CAPABILITY $\infty:1$ @ RATED CONDITIONS
- HERMETIC STRIPAC[®] PACKAGE
- $P_{OUT} = 2.0$ W MIN. WITH 10 dB GAIN @ 1.0 GHz



.250 2LFL (S010)
hermetically sealed

ORDER CODE
MSC81118

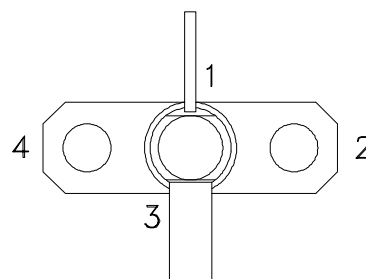
BRANDING
81118

DESCRIPTION

The MSC81118 is a common base hermetically sealed silicon NPN microwave transistor utilizing a fishbone, emitter ballasted geometry with a refractory/gold metallization system. This device is capable of withstanding an infinite load VSWR at any phase angle under rated conditions.

The MSC81118 was designed for Class C amplifier applications in the 0.4 - 1.2 GHz frequency range.

PIN CONNECTION



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

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

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 75^{\circ}\text{C}$)	6.25	W
I_C	Device Current*	200	mA
V_{CC}	Collector-Supply Voltage*	35	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	$^{\circ}\text{C/W}$
---------------	-----------------------------------	----	----------------------

*Applies only to rated RF amplifier operation

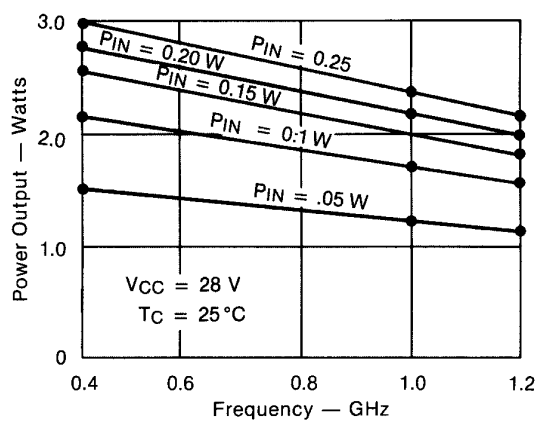
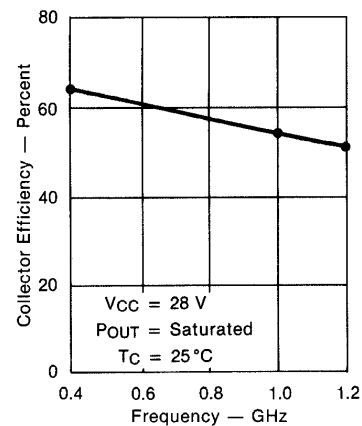
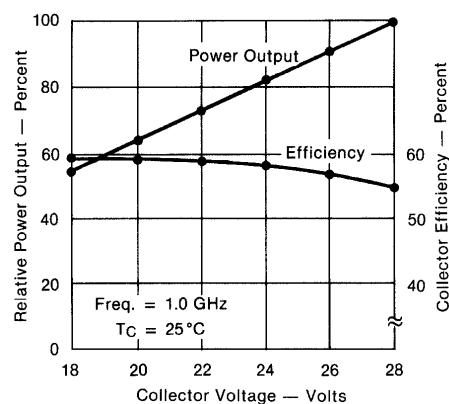
ELECTRICAL SPECIFICATIONS ($T_{\text{case}} = 25^{\circ}\text{C}$)

STATIC

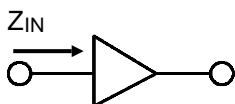
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 1\text{mA}$ $I_{\text{E}} = 0\text{mA}$	45	—	—	V
BV_{EBO}	$I_{\text{E}} = 1\text{mA}$ $I_{\text{C}} = 0\text{mA}$	3.5	—	—	V
BV_{CER}	$I_{\text{C}} = 5\text{mA}$ $R_{\text{BE}} = 10\Omega$	45	—	—	V
I_{CBO}	$V_{\text{CB}} = 28\text{V}$	—	—	0.5	mA
h_{FE}	$V_{\text{CE}} = 5\text{V}$ $I_{\text{C}} = 100\text{mA}$	15	—	120	—

DYNAMIC

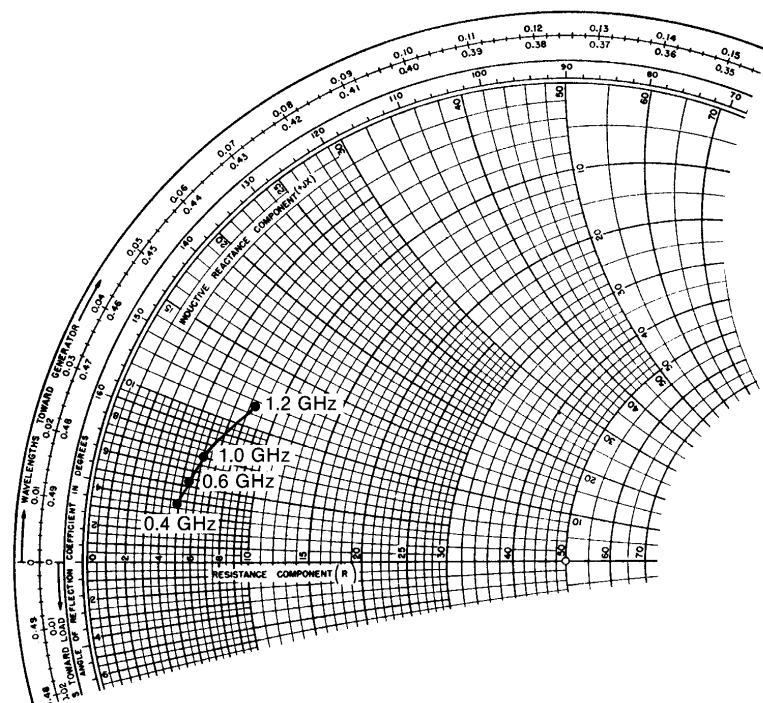
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	$f = 1.0\text{ GHz}$ $P_{\text{IN}} = 0.2\text{ W}$ $V_{\text{CC}} = 28\text{ V}$	2.0	2.2	—	W
η_{c}	$f = 1.0\text{ GHz}$ $P_{\text{IN}} = 0.2\text{ W}$ $V_{\text{CC}} = 28\text{ V}$	50	55	—	%
G_{P}	$f = 1.0\text{ GHz}$ $P_{\text{IN}} = 0.2\text{ W}$ $V_{\text{CC}} = 28\text{ V}$	10	10.4	—	dB
C_{OB}	$f = 1\text{ MHz}$ $V_{\text{CB}} = 28\text{ V}$	—	—	3.2	pF

TYPICAL PERFORMANCE
POWER OUTPUT vs FREQUENCY

COLLECTOR EFFICIENCY vs FREQUENCY

RELATIVE POWER OUTPUT vs COLLECTOR VOLTAGE


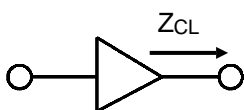
IMPEDANCE DATA

TYPICAL INPUT
IMPEDANCE

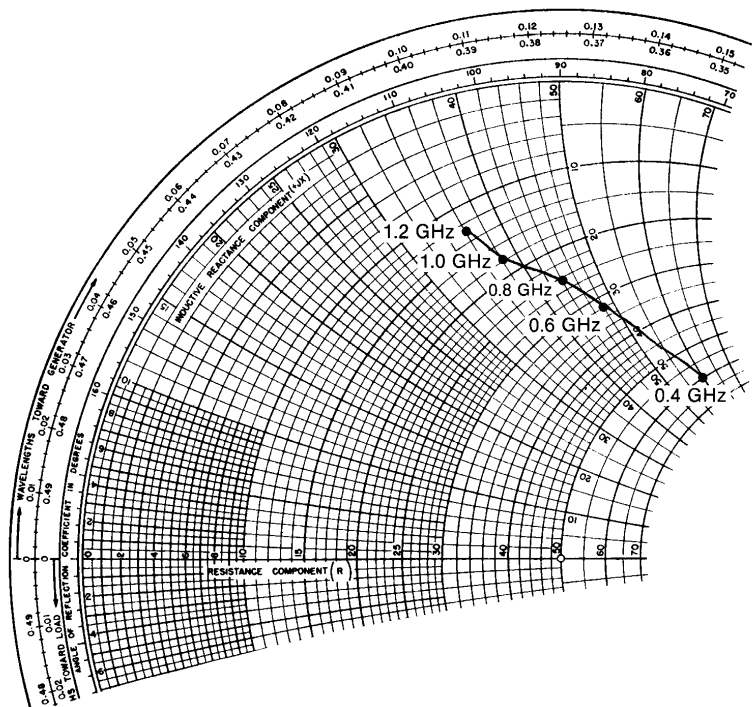
$P_{IN} = 0.2 \text{ W}$
 $V_{CC} = 28 \text{ V}$
 Normalized to 50 ohms



FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
0.4 GHz	$4.8 + j 3.7$	$60.0 + j 60.0$
0.6 GHz	$5.4 + j 5.3$	$32.0 + j 48.0$
1.0 GHz	$6.0 + j 7.0$	$18.0 + j 38.0$
1.2 GHz	$8.2 + j 11.6$	$12.8 + j 36.0$

TYPICAL COLLECTOR
LOAD IMPEDANCE

$P_{OUT} = \text{Saturated}$
 $V_{CC} = 28 \text{ V}$
 Normalized to 50 ohms



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