



SD1274-01

RF POWER BIPOLAR TRANSISTORS VHF MOBILE APPLICATIONS

FEATURES SUMMARY

- 160 MHz
- 13.6 VOLTS
- COMMON EMITTER
- $P_{OUT} = 30 \text{ W MIN. WITH } 10 \text{ dB GAIN}$

DESCRIPTION

The SD1274-01 is a 13.6 V Class C epitaxial silicon NPN planar transistor designed primarily for VHF communications. The SD1274-01 utilizes an emitter ballasted die geometry to withstand severe load mismatch conditions.

Figure 1. Package

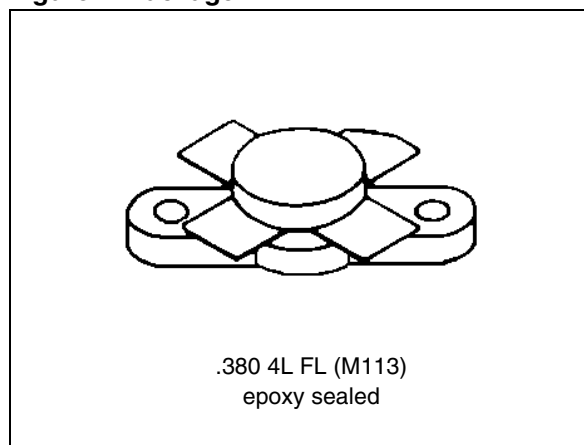


Figure 2. Pin Connection

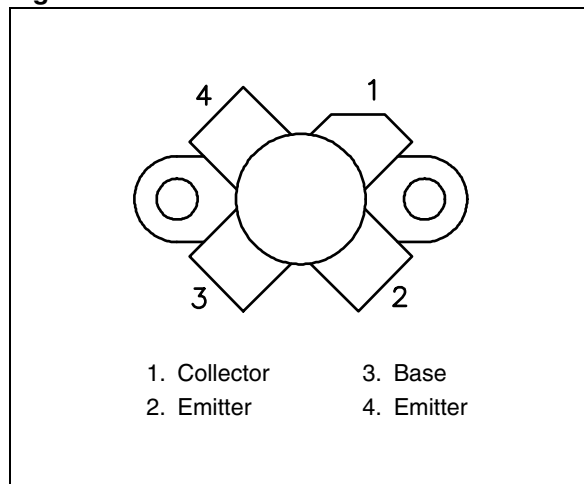


Table 1. Order Codes

Order Codes	Marking	Package	Packaging
SD1274-01	SD1274-01	M113	PLASTIC TRAYS

Table 2. Absolute Maximum Ratings ($T_{case} = 25^{\circ}C$)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	36	V
V_{CEO}	Collector-Emitter Voltage	16	V
V_{CES}	Collector-Emitter Voltage	36	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	8.0	A
P_{DISS}	Power Dissipation	70	W
T_J	Junction Temperature	+200	$^{\circ}C$
T_{STG}	Storage Temperature	- 65 to +150	$^{\circ}C$

Table 3. Thermal Data

Symbol	Parameter	Value	Unit
$R_{TH(j-c)}$	Junction-Case Thermal Resistance	1.2	$^{\circ}C/W$

ELECTRICAL SPECIFICATIONS ($T_{CASE} = 25^{\circ}C$)**Table 4. Static**

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CES}	$I_C = 15\text{ mA}$; $V_{BE} = 0\text{ mA}$	36	—	—	V
BV_{CEO}	$I_C = 50\text{ mA}$; $I_B = 0\text{ mA}$	16	—	—	V
BV_{EBO}	$I_E = 5\text{ mA}$; $I_C = 0\text{ mA}$	4.0	—	—	V
I_{CBO}	$V_{CB} = 15\text{ V}$; $I_E = 0\text{ mA}$	—	—	5	mA
h_{FE}	$V_{CE} = 5\text{ V}$; $I_C = 250\text{ mA}$	20	—	—	—

Table 5. Dynamic

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	$f = 160\text{ MHz}$; $P_{IN} = 3.0\text{ W}$; $V_{CE} = 13.6\text{ V}$	30	—	—	W
G_P	$f = 160\text{ MHz}$; $P_{IN} = 3.0\text{ W}$; $V_{CE} = 13.6\text{ V}$	10	—	—	dB
C_{OB}	$f = 1\text{ MHz}$; $V_{CB} = 15\text{ V}$	—	95	—	pF

TYPICAL PERFORMANCE

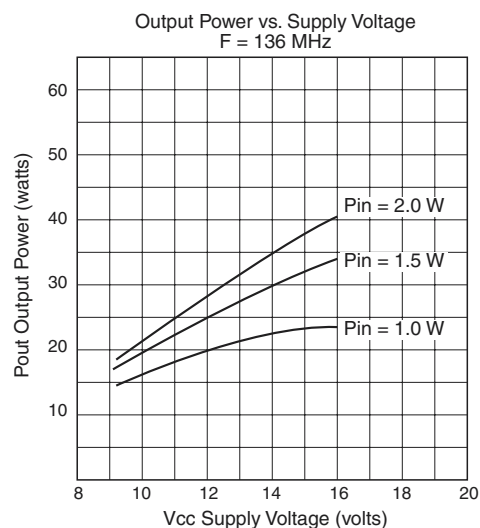
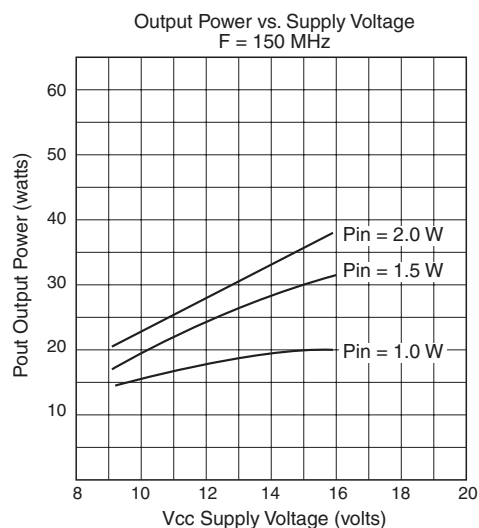
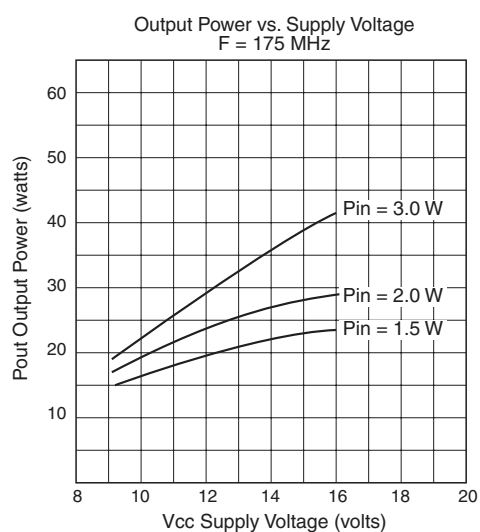
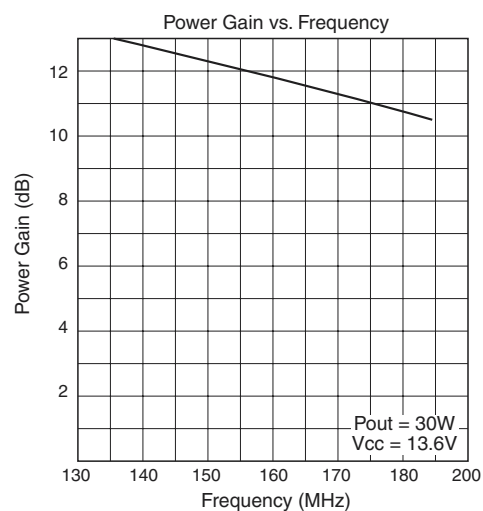
Figure 3. Power Output vs Supply Voltage (136 MHz)**Figure 4. Power Output vs Supply Voltage (150 MHz)****Figure 5. Power Output vs Supply Voltage (175 MHz)****Figure 6. Power Gain vs Frequency**

Figure 7. Power Output vs Power Input

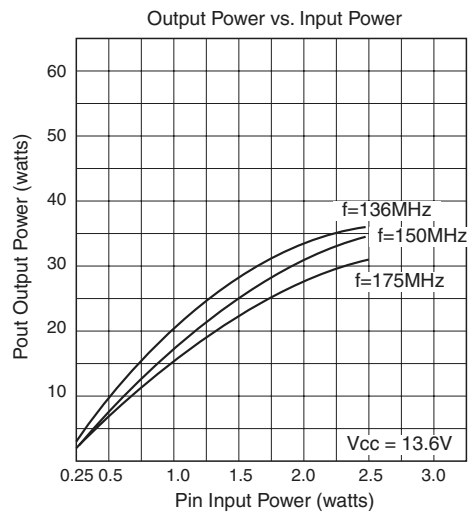


Table 6. Impedance Data ⁽¹⁾

FREQ.	Z _{IN} (Ω)	Z _{CL} (Ω)
175 MHz	1.0 + j 0.4	2.3 + j 0.1

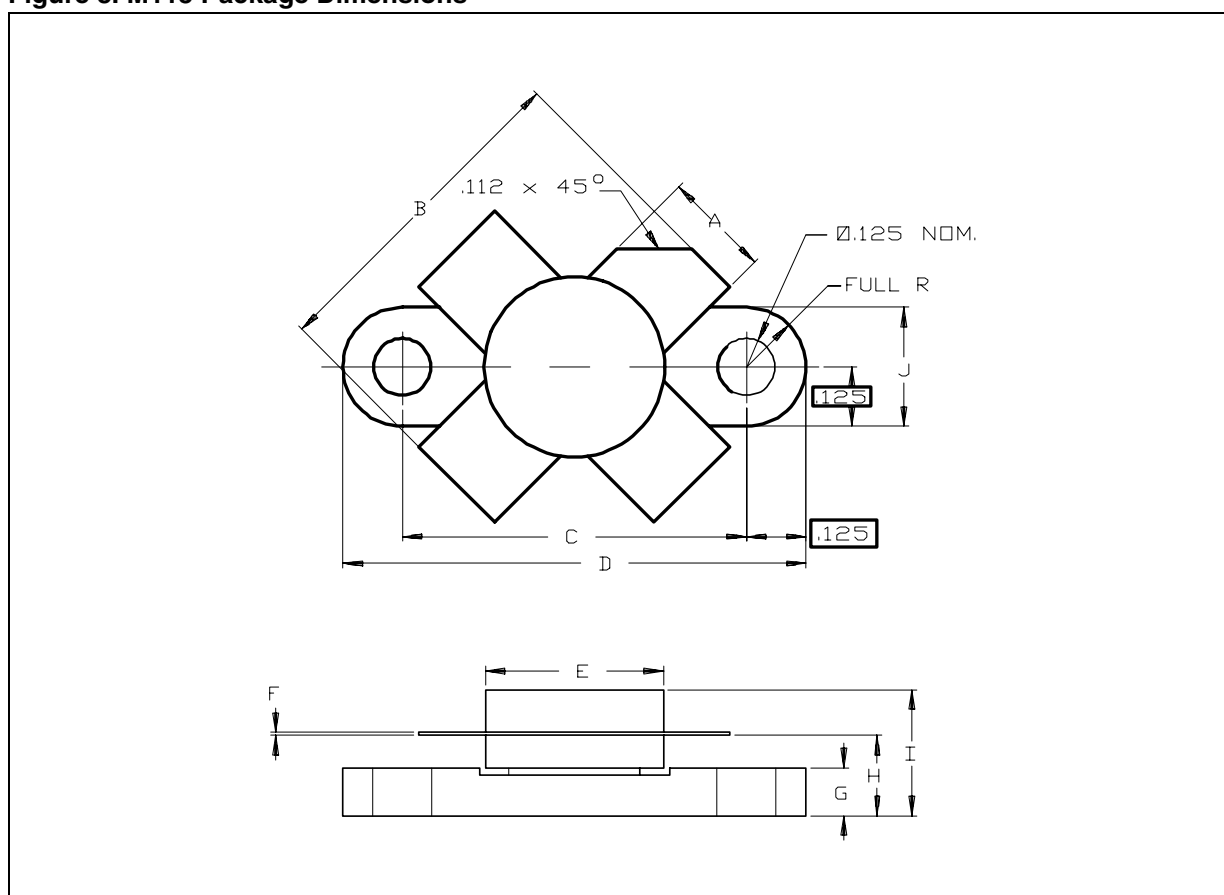
Note: 1. P_{IN} = 3.0 W; V_{CE} = 12.5 V

PACKAGE MECHANICAL

Table 7. M113 Mechanical Data

Symbol	millimeters			inches		
	Min	Typ	Max	Min	Typ	Max
A	5.59		5.84	0.220		0.230
B	19.94			0.785		
C	18.29		18.54	0.720		0.730
D	24.64		24.89	0.970		0.980
E			9.78			0.385
F	0.10		0.15	0.004		0.006
G	2.16		2.67	0.085		0.105
H	4.06		4.57	0.160		0.180
I			7.11			0.280
J	6.10		6.48	0.240		0.255

Figure 8. M113 Package Dimensions



Note: Drawing is not to scale.

REVISION HISTORY

Table 8. Revision History

Date	Revision	Description of Changes
June-1993	1	First Issue
24-May-2004	2	Stylesheet update. No content change.

Information furnished is believed to be accurate and reliable. However, STMicroelectronics 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 STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics.
All other names are the property of their respective owners

© 2004 STMicroelectronics - All rights reserved

STMicroelectronics GROUP OF COMPANIES

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan -
Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States

www.st.com