



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

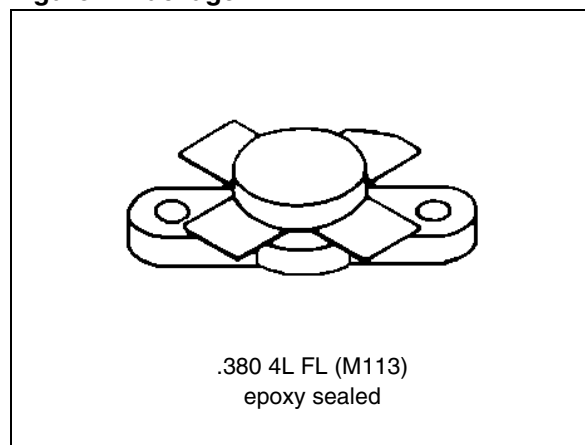


Figure 2. Pin Connection

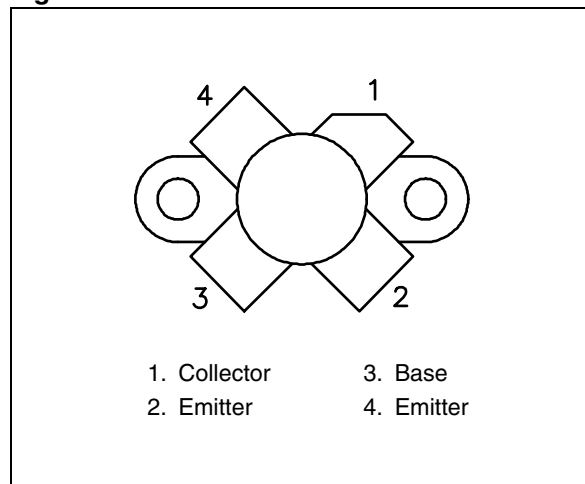


Table 1. Order Codes

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

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

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	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	- 65 to +150	$^{\circ}\text{C}$

Table 3. Thermal Data

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

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

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

Table 5. Dynamic

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

TYPICAL PERFORMANCE

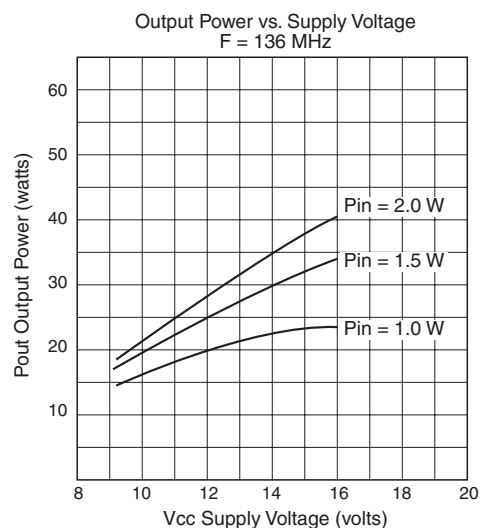
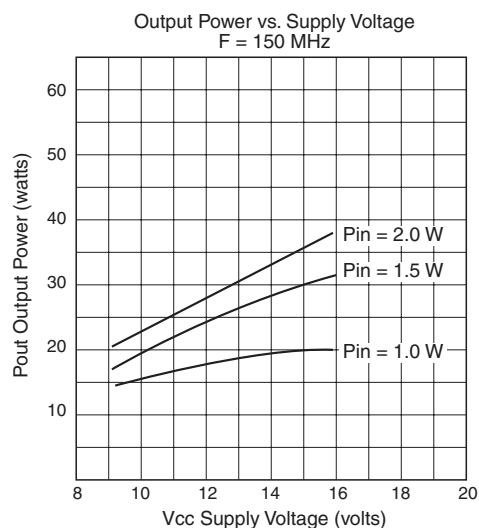
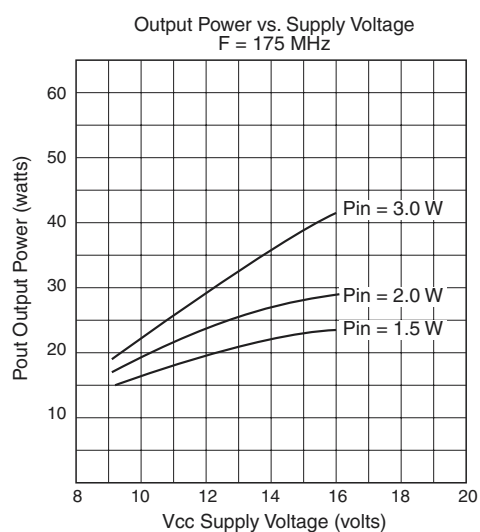
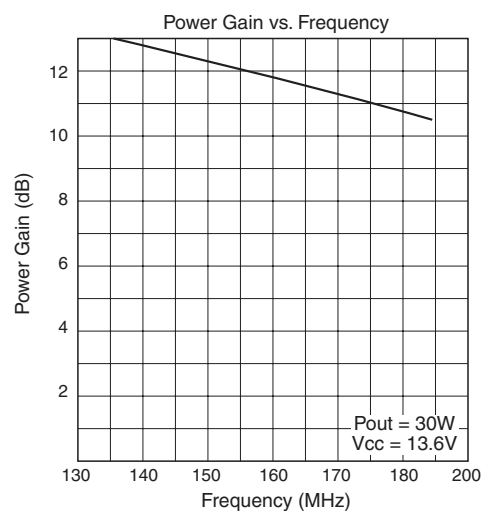
Figure 3. Power Output vs Supply Voltage (136 MHz)**Figure 4. Power Output vs Supply Voltage (150 MHz)****Figure 5. Power Output vs Supply Voltage (175 MHz)****Figure 6. Power Gain vs Frequency**

Figure 7. Power Output vs Power Input

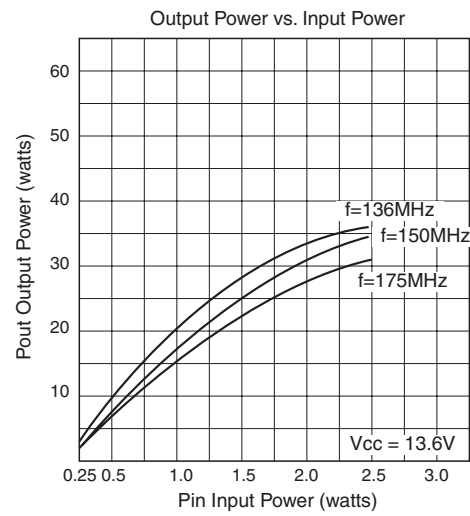


Table 6. Impedance Data ⁽¹⁾

FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
175 MHz	$1.0 + j 0.4$	$2.3 + j 0.1$

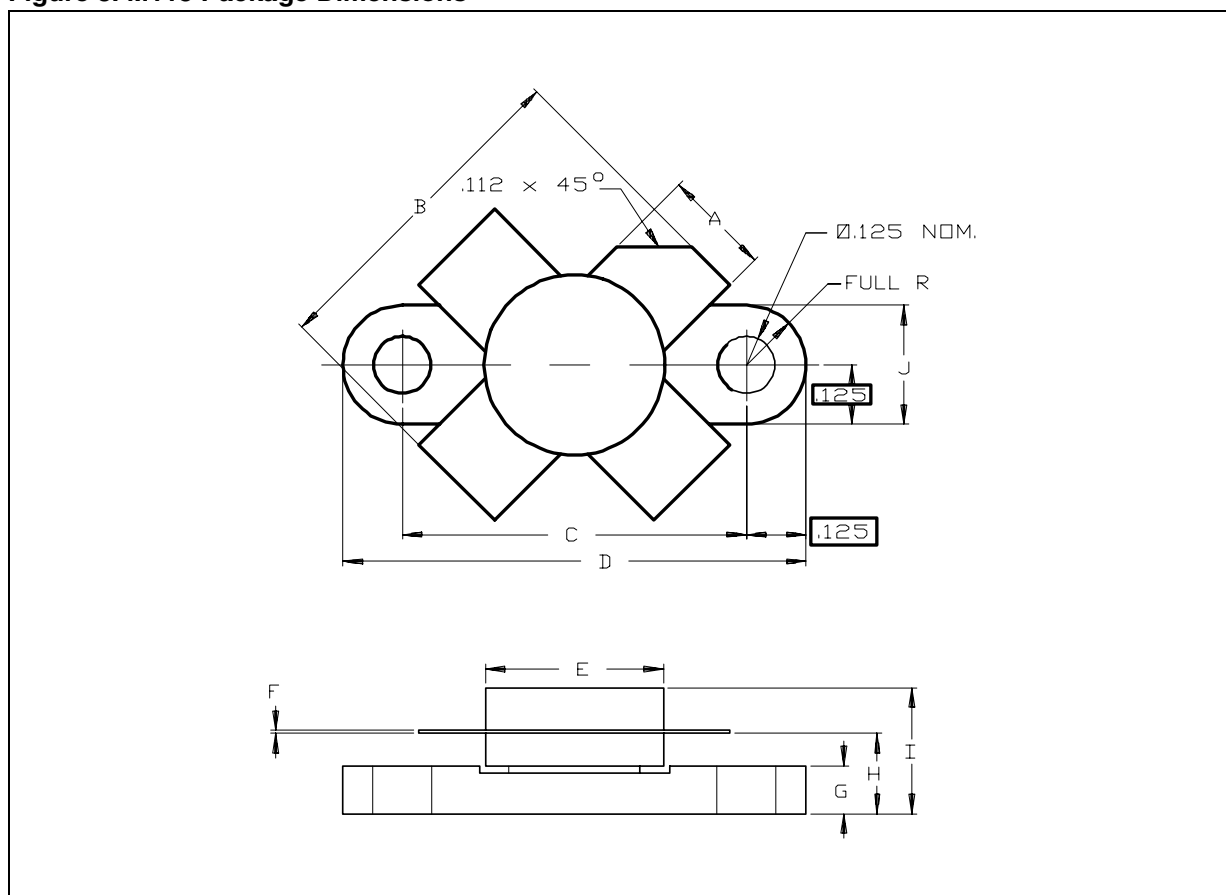
Note: 1. $P_{IN} = 3.0 \text{ W}$; $V_{CE} = 12.5 \text{ V}$

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.

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