EN: This Datasheet/Document is presented by the manufacturer.

Please visit our website for pricing and availability at www.hestore.hu.

BCP53T1 Series

Preferred Devices

PNP Silicon Epitaxial Transistors

This PNP Silicon Epitaxial transistor is designed for use in audio amplifier applications. The device is housed in the SOT-223 package which is designed for medium power surface mount applications.

- High Current: 1.5 Amps
- NPN Complement is BCP56
- The SOT-223 Package can be soldered using wave or reflow. The formed leads absorb thermal stress during soldering, eliminating the possibility of damage to the die
- Available in 12 mm Tape and Reel
  Use BCP53T1 to order the 7 inch/1000 unit reel.
  Use BCP53T3 to order the 13 inch/4000 unit reel.
- Device Marking:
  BCP53T1 = AH
  BCP53−10T1 = AH−10
  BCP53−16T1 = AH−16
- Pb−Free Package May be Available. The G−Suffix Denotes a Pb−Free Lead Finish

MAXIMUM RATINGS (T_C = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	−80	Vdc
Collector-Base Voltage	V_{CBO}	−100	Vdc
Emitter-Base Voltage	V_{EBO}	−5.0	Vdc
Collector Current	I_C	1.5	Adc
Total Power Dissipation @ T_A = 25°C (Note 1.) Derate above 25°C	P_D	1.5 12	Watts mW/°C
Operating and Storage Temperature Range	T_J, T_{stg}	−65 to +150	°C

THERMAL CHARACTERISTICS

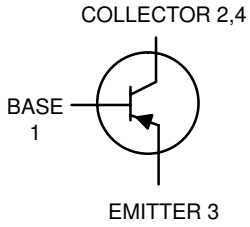
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient (surface mounted)	$R_{\theta JA}$	83.3	°C/W
Lead Temperature for Soldering, 0.0625″ from case Time in Solder Bath	T_L	260 10	°C Sec

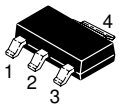
1. Device mounted on a glass epoxy printed circuit board 1.575 in. x 1.575 in. x 0.059 in.; mounting pad for the collector lead min. 0.93 sq. in.

ON Semiconductor®

http://onsemi.com

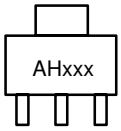
MEDIUM POWER HIGH CURRENT SURFACE MOUNT PNP TRANSISTORS





SOT−223
CASE 318E
STYLE 1

MARKING DIAGRAM



AHxxx = Device Code
xxx = −10 or −16

ORDERING INFORMATION

Device	Package	Shipping†
BCP53T1	SOT−223	1000/Tape & Reel
BCP53T1G	SOT−223 (Pb−Free)	1000/Tape & Reel
BCP53−10T1	SOT−223	1000/Tape & Reel
BCP53−16T1	SOT−223	1000/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

Preferred devices are recommended choices for future use and best overall value.

© Semiconductor Components Industries, LLC, 2003

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristics	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Base Breakdown Voltage (I_C = −100 μAdc, I_E = 0)	$V_{(BR)CBO}$	−100	–	–	Vdc
Collector-Emitter Breakdown Voltage (I_C = −1.0 mAdc, I_B = 0)	$V_{(BR)CEO}$	−80	–	–	Vdc
Collector-Emitter Breakdown Voltage (I_C = −100 μAdc, R_{BE} = 1.0 kohm)	$V_{(BR)CER}$	−100	–	–	Vdc
Emitter-Base Breakdown Voltage (I_E = −10 μAdc, I_C = 0)	$V_{(BR)EBO}$	−5.0	–	–	Vdc
Collector-Base Cutoff Current (V_{CB} = −30 Vdc, I_E = 0)	I_{CBO}	–	–	−100	nAdc
Emitter-Base Cutoff Current (V_{EB} = −5.0 Vdc, I_C = 0)	I_{EBO}	–	–	−10	μAdc
ON CHARACTERISTICS					
DC Current Gain (I_C = −5.0 mAdc, V_{CE} = −2.0 Vdc) All Part Types	h_{FE}	25	–	–	–
(I_C = −150 mAdc, V_{CE} = −2.0 Vdc) BCP53T1		40	–	250	
BCP53−10T1		63	–	160	
BCP53−16T1		100	–	250	
(I_C = −500 mAdc, V_{CE} = −2.0 Vdc) All Part Types		25	–	–	
Collector-Emitter Saturation Voltage (I_C = −500 mAdc, I_B = −50 mAdc)	$V_{CE(sat)}$	–	–	−0.5	Vdc
Base-Emitter On Voltage (I_C = −500 mAdc, V_{CE} = −2.0 Vdc)	$V_{BE(on)}$	–	–	−1.0	Vdc
DYNAMIC CHARACTERISTICS					
Current-Gain − Bandwidth Product (I_C = −10 mAdc, V_{CE} = −5.0 Vdc, f = 35 MHz)	f_T	–	50	–	MHz

TYPICAL ELECTRICAL CHARACTERISTICS

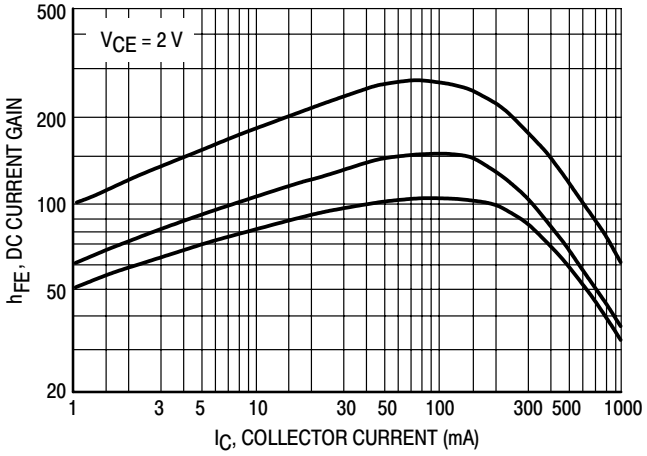


Figure 1. DC Current Gain

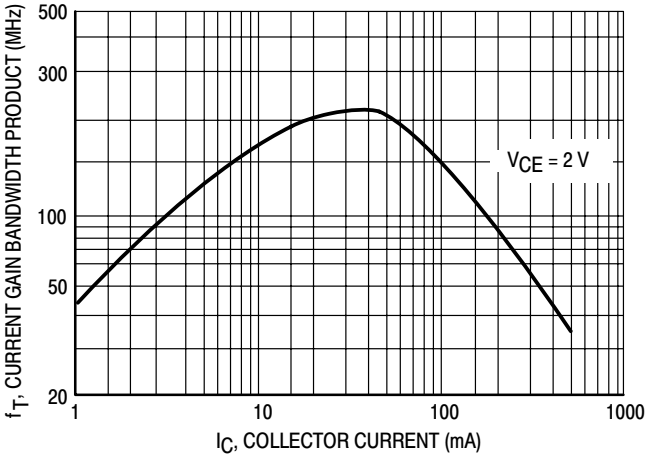


Figure 2. Current Gain Bandwidth Product

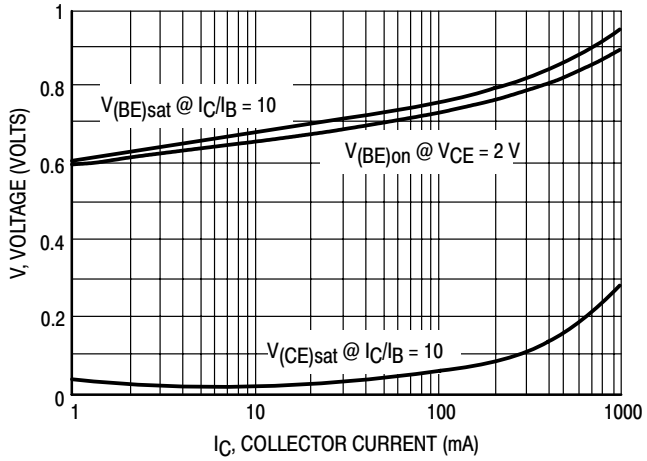


Figure 3. Saturation and "ON" Voltages

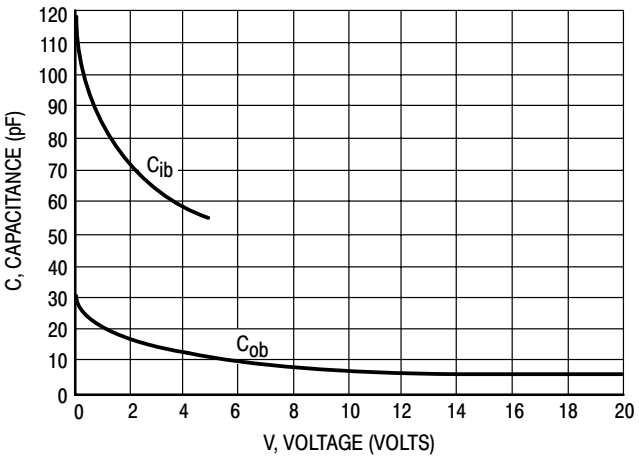
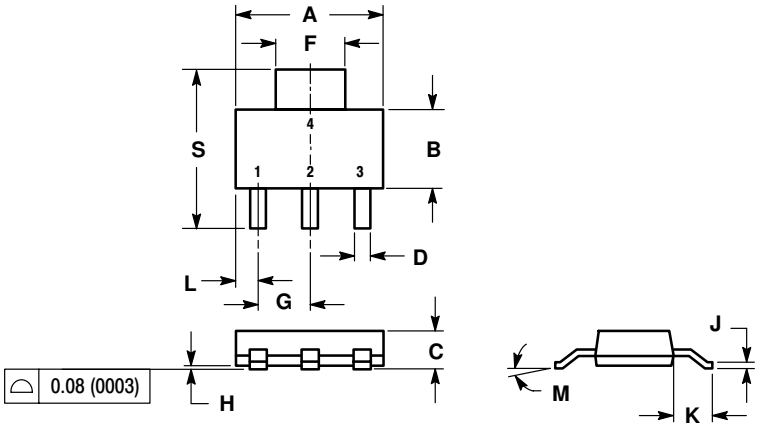


Figure 4. Capacitances

PACKAGE DIMENSIONS

SOT−223
CASE 318E−04
ISSUE K



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.249	0.263	6.30	6.70
B	0.130	0.145	3.30	3.70
C	0.060	0.068	1.50	1.75
D	0.024	0.035	0.60	0.89
F	0.115	0.126	2.90	3.20
G	0.087	0.094	2.20	2.40
H	0.0008	0.0040	0.020	0.100
J	0.009	0.014	0.24	0.35
K	0.060	0.078	1.50	2.00
L	0.033	0.041	0.85	1.05
M	0 °	10 °	0 °	10 °
S	0.264	0.287	6.70	7.30

STYLE 1:
PIN 1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

SOLDERING FOOTPRINT*

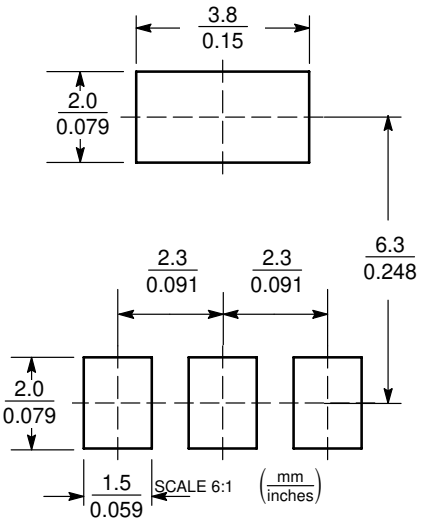


Figure 5. SOT−223

*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

SENSEFET is a trademark of Semiconductor Components Industries, LLC.

ON Semiconductor and are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303−675−2175 or 800−344−3860 Toll Free USA/Canada
Fax: 303−675−2176 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada

Japan: ON Semiconductor, Japan Customer Focus Center
2−9−1 Kamimeguro, Meguro−ku, Tokyo, Japan 153−0051
Phone: 81−3−5773−3850

ON Semiconductor Website: http://onsemi.com

Order Literature: http://www.onsemi.com/litorder

For additional information, please contact your local Sales Representative.

BCP53T1/D