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®

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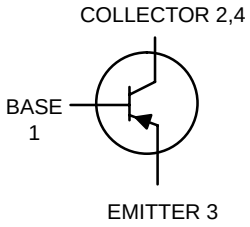
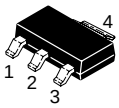
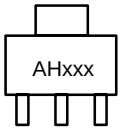
MEDIUM POWER HIGH CURRENT SURFACE MOUNT PNP TRANSISTORS





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.

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

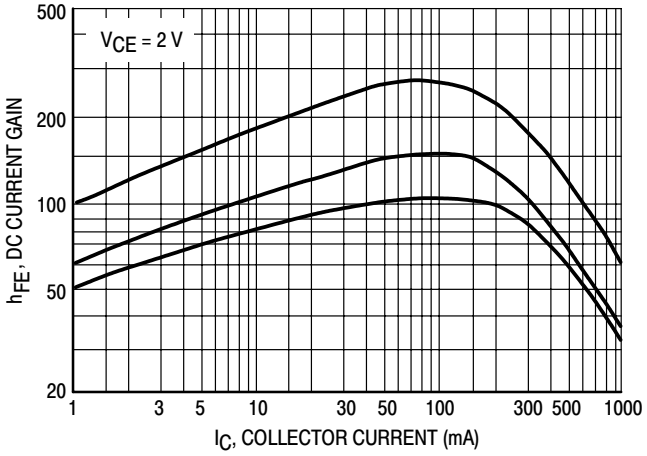


Figure 1. DC Current Gain

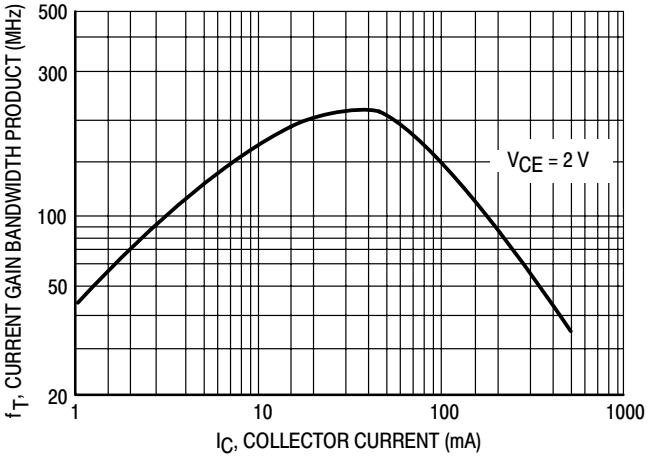


Figure 2. Current Gain Bandwidth Product

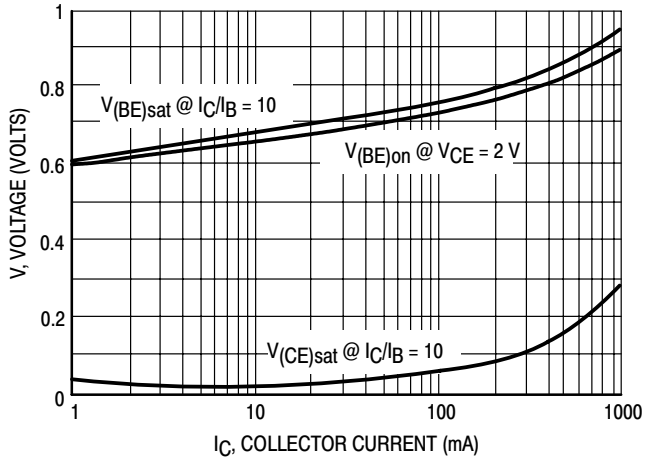


Figure 3. Saturation and "ON" Voltages

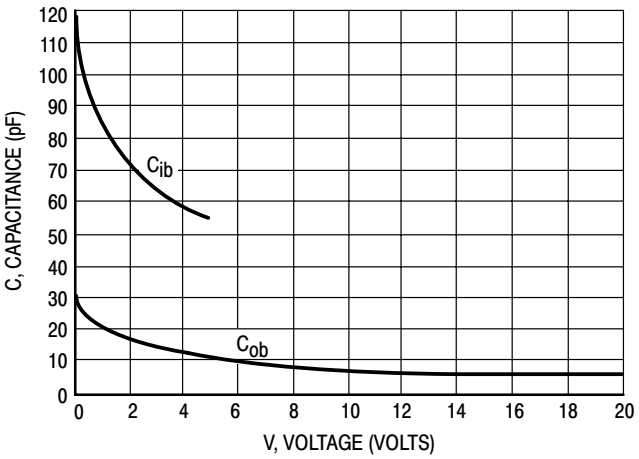
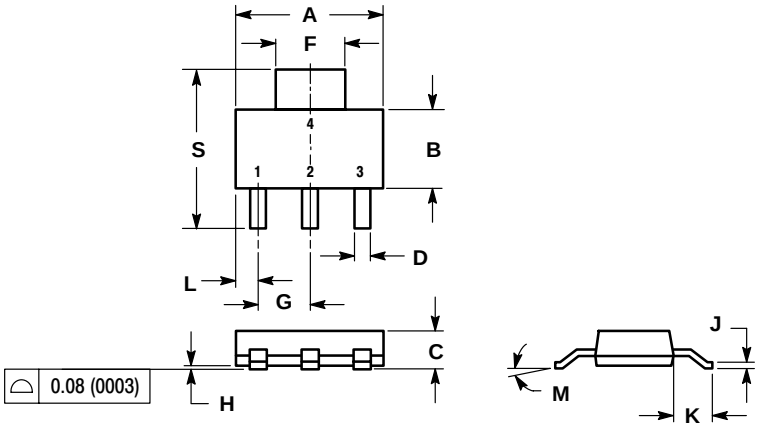


Figure 4. Capacitances

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*

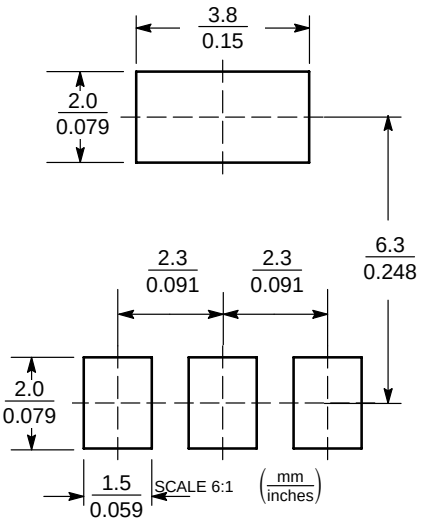


Figure 5. SOT−223

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

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PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
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Phone: 303−675−2175 or 800−344−3860 Toll Free USA/Canada
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