

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 ($T_C = 25^\circ\text{C}$ 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 @ $T_A = 25^\circ\text{C}$ (Note 1.) Derate above 25°C	P_D	1.5 12	Watts mW/ $^\circ\text{C}$
Operating and Storage Temperature Range	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

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

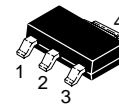
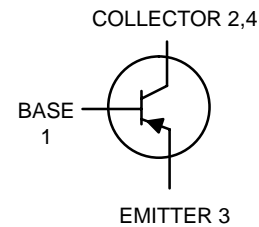
1. Device mounted on a glass epoxy printed circuit board 1.575 in. x 1.575 in. x 0.059 in.; mounting pad for the collector lead min. 0.93 sq. in.



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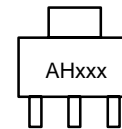
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MEDIUM POWER HIGH CURRENT SURFACE MOUNT PNP TRANSISTORS



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.

BCP53T1 Series

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

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

TYPICAL ELECTRICAL CHARACTERISTICS

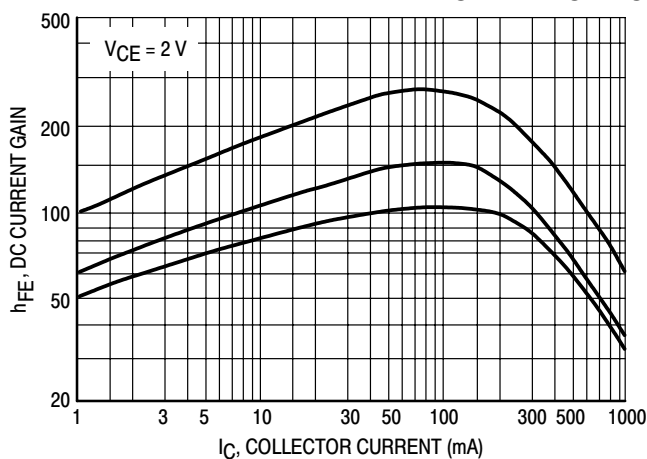


Figure 1. DC Current Gain

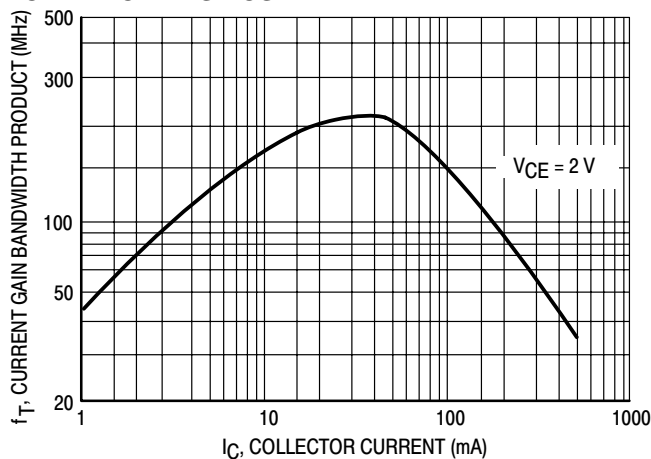


Figure 2. Current Gain Bandwidth Product

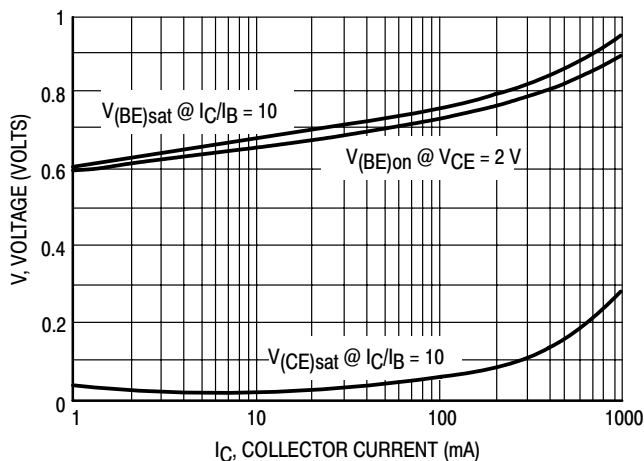


Figure 3. Saturation and "ON" Voltages

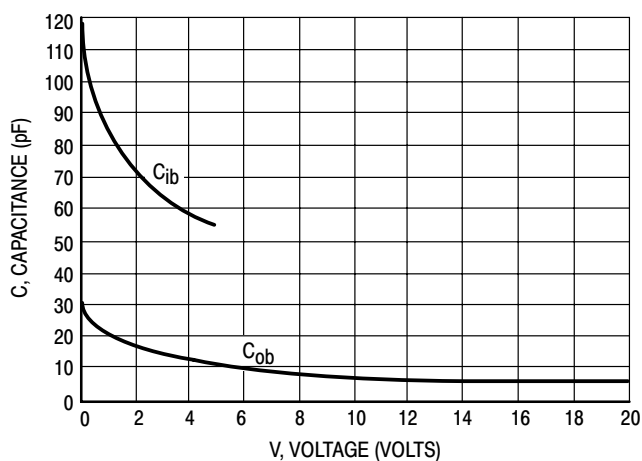
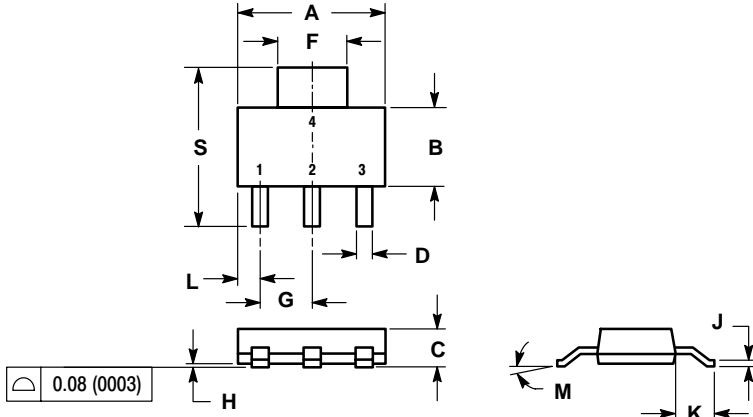


Figure 4. Capacitances

BCP53T1 Series

PACKAGE DIMENSIONS

SOT-223
CASE 318E-04
ISSUE K



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

DIM	INCHES		MILLIMETERS	
	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*

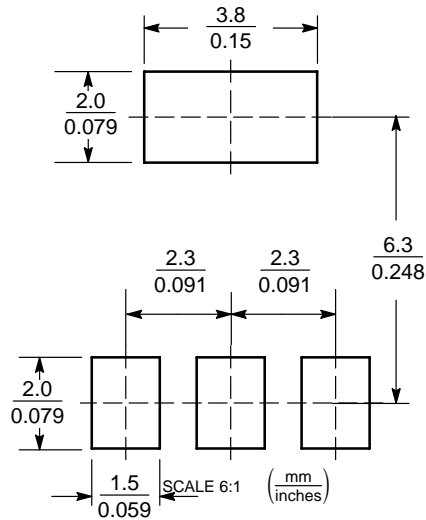



Figure 5. SOT-223

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

BCP53T1 Series

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