

# BCP68T1

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

Characteristics	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Collector-Emitter Breakdown Voltage ( $I_C = 100\ \mu\text{Adc}$ , $I_E = 0$ )	$V_{(BR)CES}$	25	–	–	Vdc
Collector-Emitter Breakdown Voltage ( $I_C = 1.0\ \text{mAdc}$ , $I_B = 0$ )	$V_{(BR)CEO}$	20	–	–	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 10\ \mu\text{Adc}$ , $I_C = 0$ )	$V_{(BR)EBO}$	5.0	–	–	Vdc
Collector-Base Cutoff Current ( $V_{CB} = 25\ \text{Vdc}$ , $I_E = 0$ )	$I_{CBO}$	–	–	10	$\mu\text{Adc}$
Emitter-Base Cutoff Current ( $V_{EB} = 5.0\ \text{Vdc}$ , $I_C = 0$ )	$I_{EBO}$	–	–	10	$\mu\text{Adc}$
<b>ON CHARACTERISTICS</b>					
DC Current Gain ( $I_C = 5.0\ \text{mAdc}$ , $V_{CE} = 10\ \text{Vdc}$ ) ( $I_C = 500\ \text{mAdc}$ , $V_{CE} = 1.0\ \text{Vdc}$ ) ( $I_C = 1.0\ \text{Adc}$ , $V_{CE} = 1.0\ \text{Vdc}$ )	$h_{FE}$	50 85 60	– – –	– 375 –	–
Collector-Emitter Saturation Voltage ( $I_C = 1.0\ \text{Adc}$ , $I_B = 100\ \text{mAdc}$ )	$V_{CE(sat)}$	–	–	0.5	Vdc
Base-Emitter On Voltage ( $I_C = 1.0\ \text{Adc}$ , $V_{CE} = 1.0\ \text{Vdc}$ )	$V_{BE(on)}$	–	–	1.0	Vdc
<b>DYNAMIC CHARACTERISTICS</b>					
Current-Gain – Bandwidth Product ( $I_C = 10\ \text{mAdc}$ , $V_{CE} = 5.0\ \text{Vdc}$ )	$f_T$	–	60	–	MHz

## TYPICAL ELECTRICAL CHARACTERISTICS

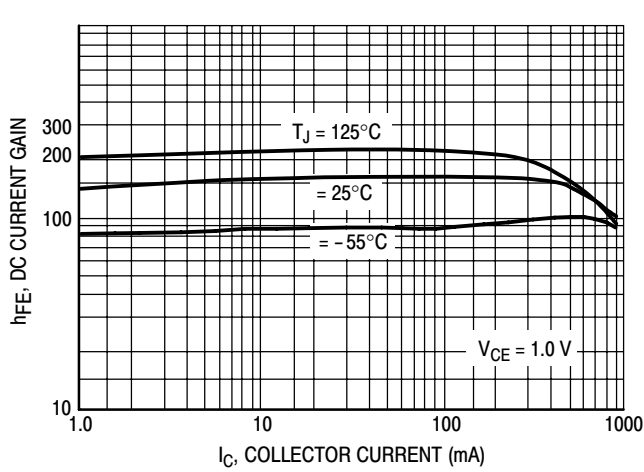


Figure 1. DC Current Gain

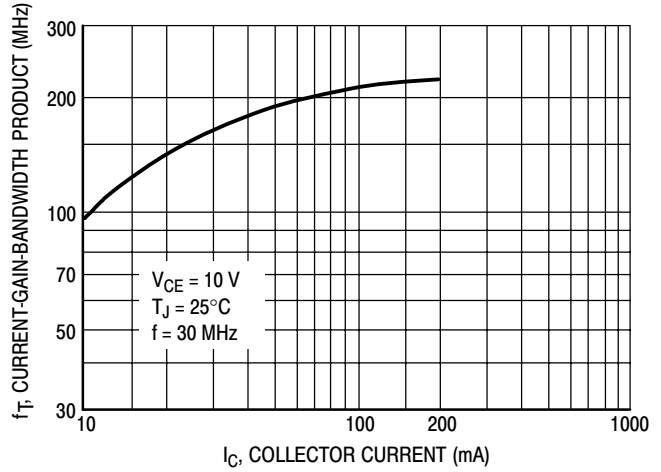


Figure 2. Current-Gain-Bandwidth Product

## TYPICAL ELECTRICAL CHARACTERISTICS

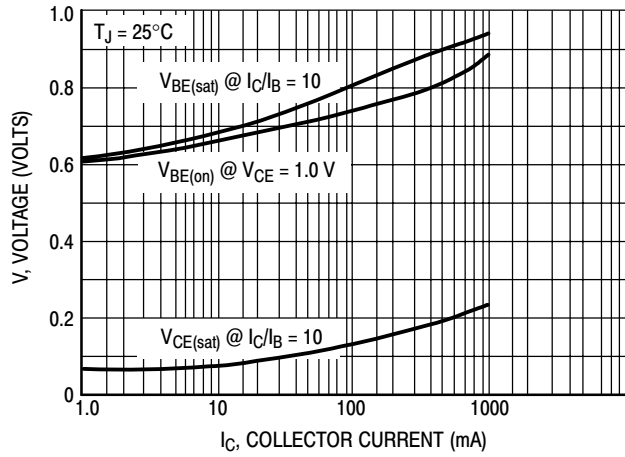


Figure 3. "On" Voltage

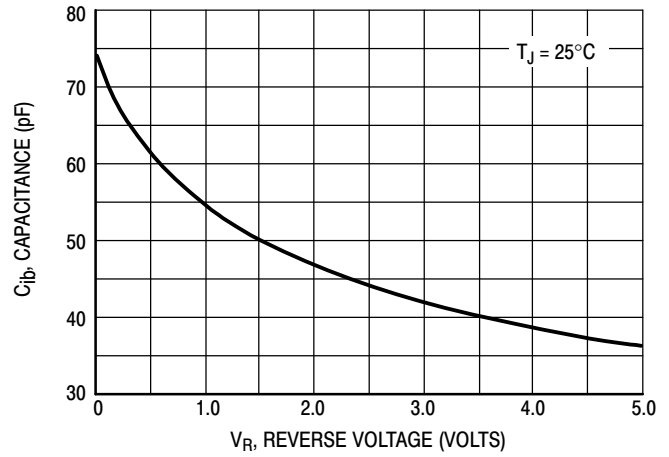


Figure 4. Capacitance

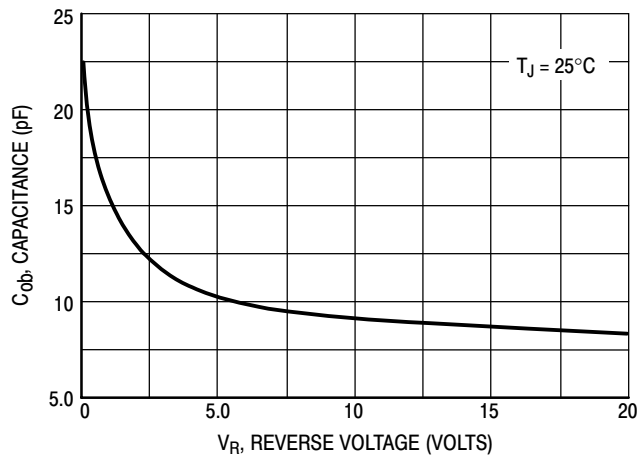


Figure 5. Capacitance

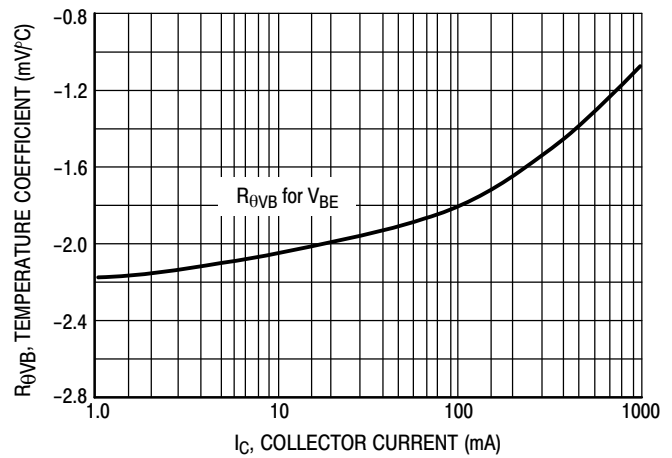


Figure 6. Base-Emitter Temperature Coefficient

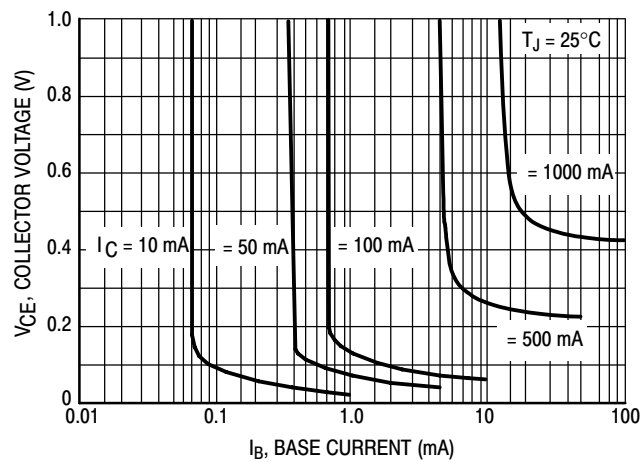
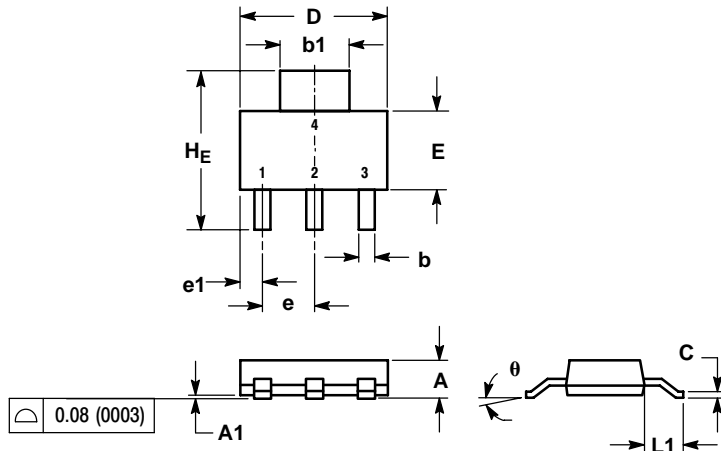


Figure 7. Saturation Region

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## PACKAGE DIMENSIONS

SOT-223 (TO-261)  
CASE 318E-04  
ISSUE L

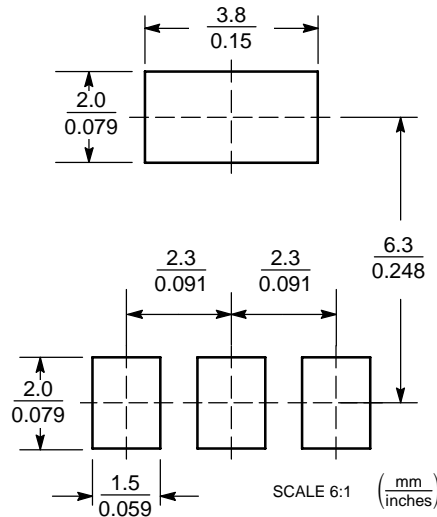


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.50	1.63	1.75	0.060	0.064	0.068
A1	0.02	0.06	0.10	0.001	0.002	0.004
b	0.60	0.75	0.89	0.024	0.030	0.035
b1	2.90	3.06	3.20	0.115	0.121	0.126
c	0.24	0.29	0.35	0.009	0.012	0.014
D	6.30	6.50	6.70	0.249	0.256	0.263
E	3.30	3.50	3.70	0.130	0.138	0.145
e	2.20	2.30	2.40	0.087	0.091	0.094
e1	0.85	0.94	1.05	0.033	0.037	0.041
L1	1.50	1.75	2.00	0.060	0.069	0.078
H <sub>E</sub>	6.70	7.00	7.30	0.264	0.276	0.287
θ	0°	—	10°	0°	—	10°

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

### SOLDERING FOOTPRINT\*



\*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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