

# Product Preview

## General Purpose Transistors

### PNP Bipolar Junction Transistor (Complementary NPN Device: MMBT2132T1/T3)

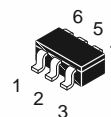
NOTE: Voltage and Current are negative for the PNP Transistor.

#### MAXIMUM RATINGS (T<sub>C</sub> = 25°C unless otherwise noted)

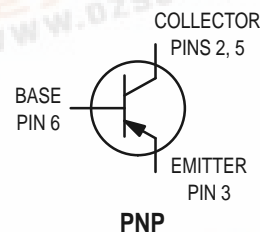
Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V <sub>CEO</sub>	30	V
Collector–Base Voltage	V <sub>CBO</sub>	40	V
Emitter–Base Voltage	V <sub>EBO</sub>	5.0	V
Collector Current	I <sub>C</sub>	700	mA
Base Current	I <sub>B</sub>	350	mA
Total Power Dissipation @ T <sub>C</sub> = 25°C	P <sub>D</sub>	342	mW
Total Power Dissipation @ T <sub>C</sub> = 85°C	P <sub>D</sub>	178	mW
Thermal Resistance — Junction to Ambient (1)	R <sub>θJA</sub>	366	°C/W
Total Power Dissipation @ T <sub>C</sub> = 25°C	P <sub>D</sub>	665	mW
Total Power Dissipation @ T <sub>C</sub> = 85°C	P <sub>D</sub>	346	mW
Thermal Resistance — Junction to Ambient (2)	R <sub>θJA</sub>	188	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	–55 to +150	°C

**MMBT2131T1**  
**MMBT2131T3**

**0.7 AMPERES**  
**30 VOLTS — V<sub>(BR)CEO</sub>**  
**342 mW**



**CASE 318F–02, STYLE 2**  
**SC–59 — 6 Lead**



#### ELECTRICAL CHARACTERISTICS (T<sub>C</sub> = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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#### OFF CHARACTERISTICS

Collector–Base Breakdown Voltage (I <sub>C</sub> = 100 μAdc)	V <sub>(BR)CBO</sub>	40	—	—	Vdc
Collector–Emitter Breakdown Voltage (I <sub>C</sub> = 10 mAdc)	V <sub>(BR)CEO</sub>	30	—	—	Vdc
Emitter–Base Breakdown Voltage (I <sub>E</sub> = 100 μAdc)	V <sub>(BR)EBO</sub>	5.0	—	—	Vdc
Collector Cutoff Current (V <sub>CB</sub> = 25 Vdc, I <sub>E</sub> = 0 Adc) (V <sub>CB</sub> = 25 Vdc, I <sub>E</sub> = 0 Adc, T <sub>A</sub> = 125°C)	I <sub>CBO</sub>	—	—	1.0 10	μAdc
Emitter Cutoff Current (V <sub>EB</sub> = 5.0 Vdc, I <sub>C</sub> = 0 Adc)	I <sub>EBO</sub>	—	—	10	μAdc

#### ON CHARACTERISTICS

DC Current Gain (V <sub>CE</sub> = 3.0 Vdc, I <sub>C</sub> = 100 mAdc)	h <sub>FE</sub>	150	—	—	Vdc
Collector–Emitter Saturation Voltage (I <sub>C</sub> = 500 mAdc, I <sub>B</sub> = 50 mAdc)	V <sub>CE(sat)</sub>	—	—	0.25	Vdc
Collector–Emitter Saturation Voltage (I <sub>C</sub> = 700 mAdc, I <sub>B</sub> = 70 mAdc)	V <sub>CE(sat)</sub>	—	—	0.4	Vdc
Base–Emitter Saturation Voltage (I <sub>C</sub> = 700 mAdc, I <sub>B</sub> = 70 mAdc)	V <sub>BE(sat)</sub>	—	—	1.1	Vdc
Collector–Emitter Saturation Voltage (I <sub>C</sub> = 700 mAdc, V <sub>CE</sub> = 1.0 Vdc)	V <sub>BE(on)</sub>	—	—	1.0	Vdc

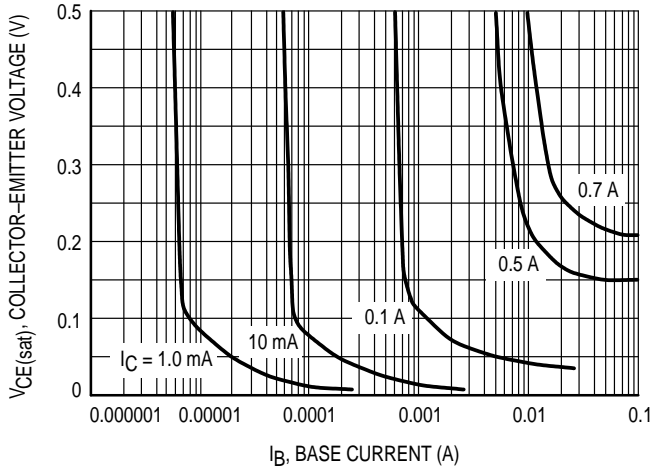
1. Minimum FR–4 or G–10 PCB, Operating to Steady State.

2. Mounted onto a 2" square FR–4 Board (1" sq. 2 oz Cu 0.06" thick single sided), Operating to Steady State.

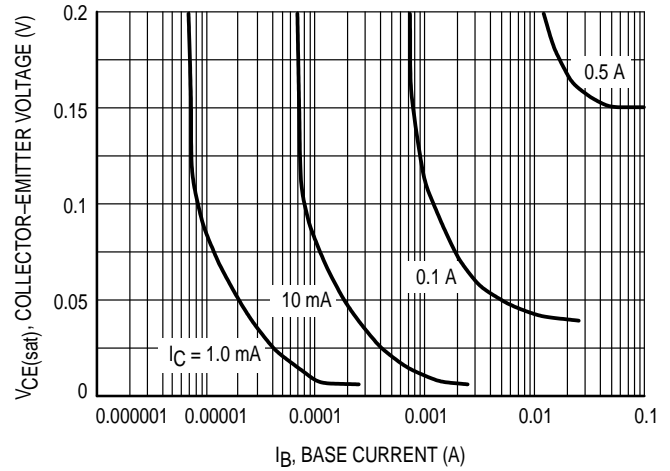
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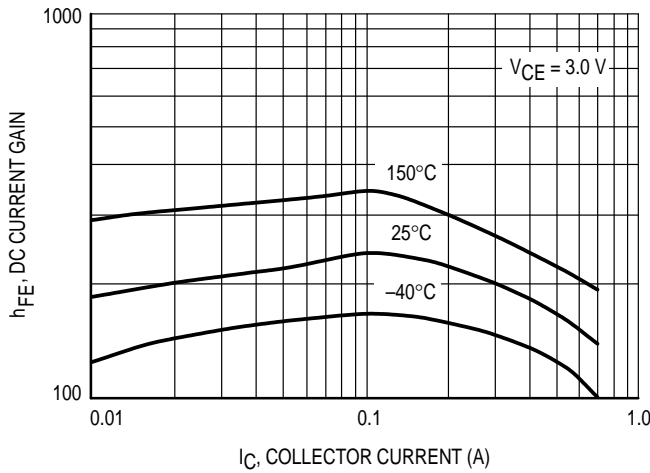
**MMBT2131T1 MMBT2131T3**



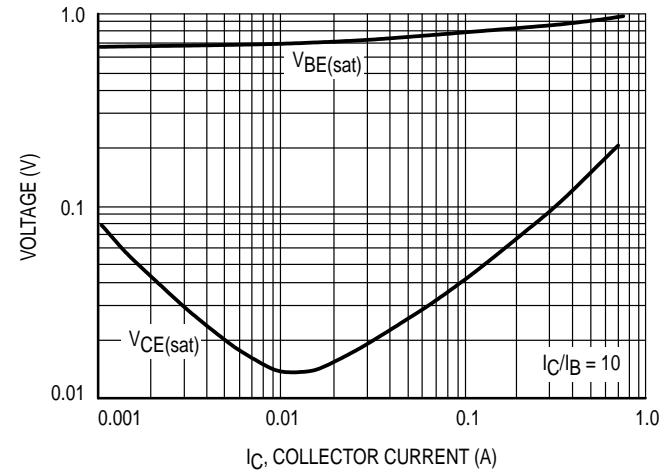
**Figure 1. Collector Saturation Region**



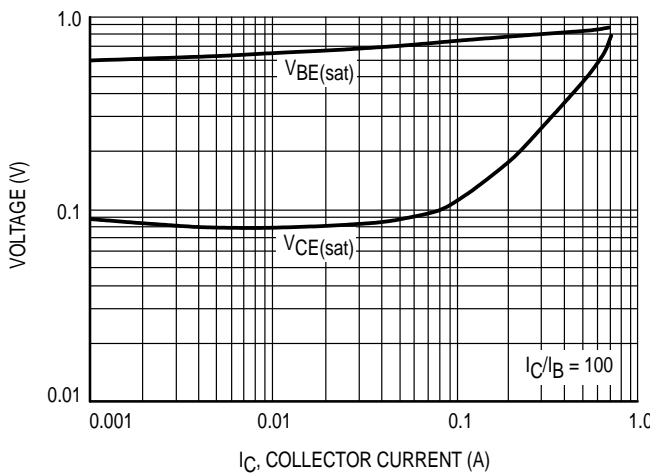
**Figure 2. Collector Saturation Region**



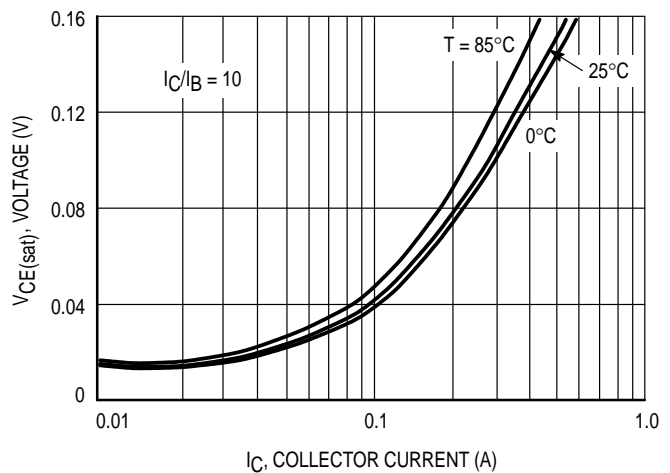
**Figure 3. DC Current Gain**



**Figure 4. "ON" Voltages**

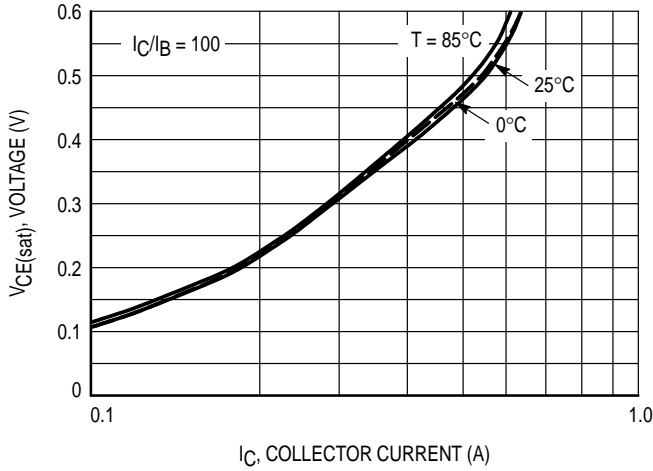


**Figure 5. "ON" Voltages**

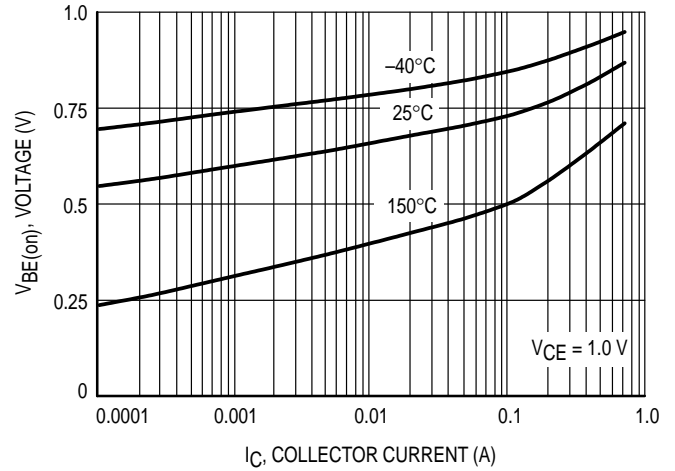


**Figure 6. Collector-Emitter Saturation Voltage**

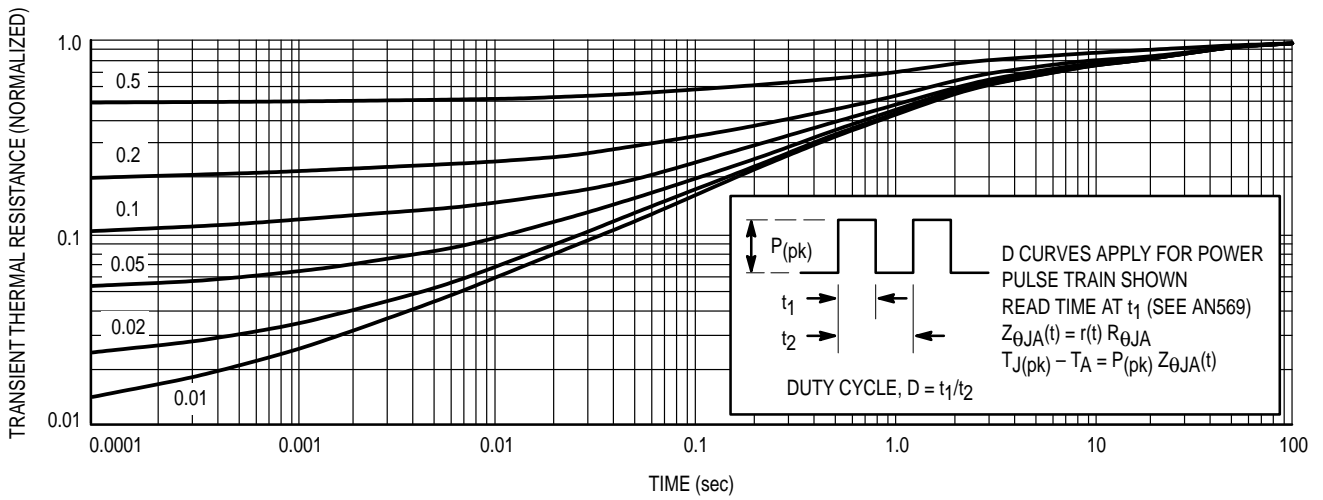
**MMBT2131T1 MMBT2131T3**



**Figure 7. Collector-Emitter Saturation Voltage**



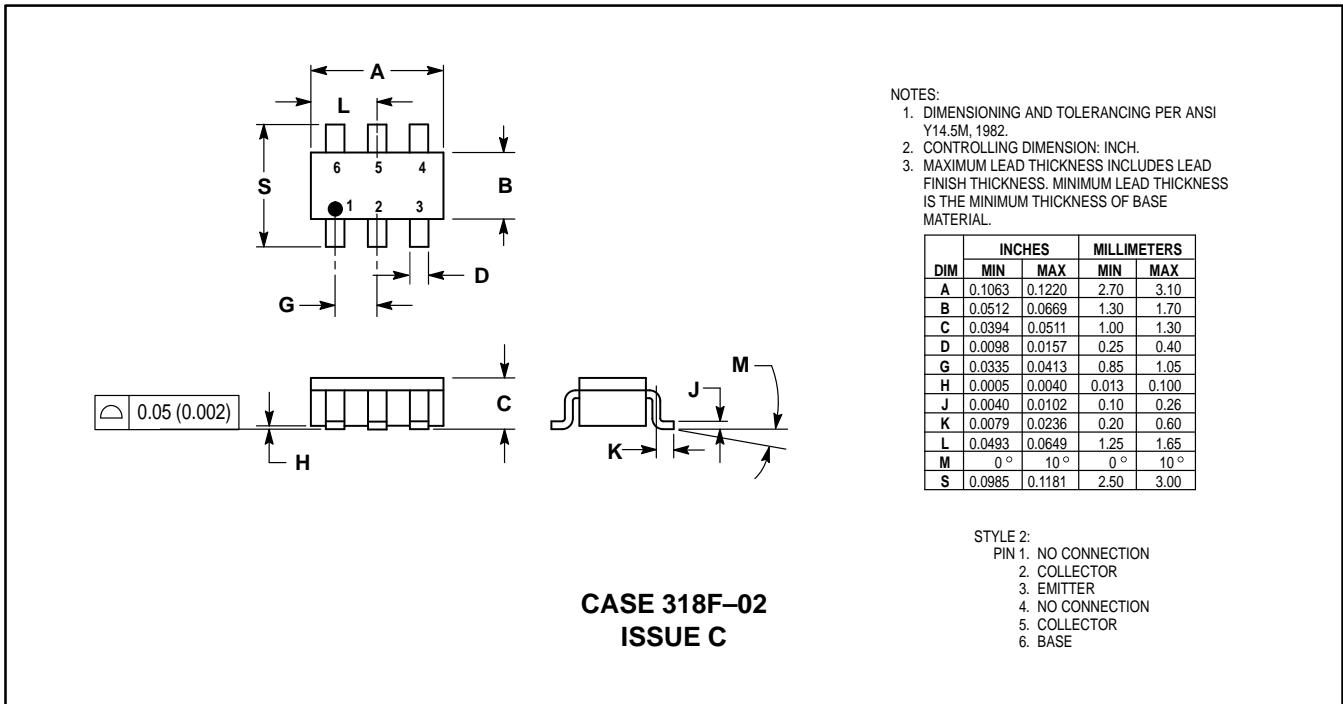
**Figure 8.  $V_{BE(on)}$  Voltage**



**Figure 9. Thermal Response Curve**

**MMBT2131T1 MMBT2131T3**

**PACKAGE DIMENSIONS**



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