

General Purpose Transistors

PNP Bipolar Junction Transistor

(Complementary NPN Device: MMBT2132T1/T3)

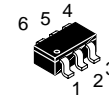
NOTE: Voltage and Current are negative for the PNP Transistor.

MMBT2131T1
MMBT2131T3

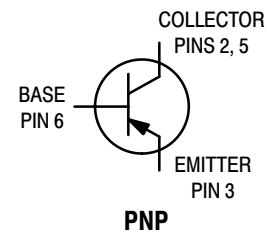
0.7 AMPERES
30 VOLTS – $V_{(BR)CEO}$
342 mW

MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	30	V
Collector–Base Voltage	V_{CBO}	40	V
Emitter–Base Voltage	V_{EBO}	5.0	V
Collector Current	I_C	700	mA
Base Current	I_B	350	mA
Total Power Dissipation @ $T_C = 25^\circ\text{C}$	P_D	342	mW
Total Power Dissipation @ $T_C = 85^\circ\text{C}$	P_D	178	mW
Thermal Resistance – Junction to Ambient (1)	$R_{\theta JA}$	366	$^\circ\text{C/W}$
Total Power Dissipation @ $T_C = 25^\circ\text{C}$	P_D	665	mW
Total Power Dissipation @ $T_C = 85^\circ\text{C}$	P_D	346	mW
Thermal Resistance – Junction to Ambient (2)	$R_{\theta JA}$	188	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{stg}	–55 to +150	$^\circ\text{C}$



CASE 318F–02, STYLE 2
SC–59 – 6 Lead



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

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector–Base Breakdown Voltage	($I_C = 100 \mu\text{Adc}$)	$V_{(BR)CBO}$	40	–	–	Vdc
Collector–Emitter Breakdown Voltage	($I_C = 10 \text{ mAdc}$)	$V_{(BR)CEO}$	30	–	–	Vdc
Emitter–Base Breakdown Voltage	($I_E = 100 \mu\text{Adc}$)	$V_{(BR)EBO}$	5.0	–	–	Vdc
Collector Cutoff Current	($V_{CB} = 25 \text{ Vdc}, I_E = 0 \text{ Adc}$) ($V_{CB} = 25 \text{ Vdc}, I_E = 0 \text{ Adc}, T_A = 125^\circ\text{C}$)	I_{CBO}	–	–	1.0 10	μAdc
Emitter Cutoff Current	($V_{EB} = 5.0 \text{ Vdc}, I_C = 0 \text{ Adc}$)	I_{EBO}	–	–	10	μAdc

ON CHARACTERISTICS

DC Current Gain	($V_{CE} = 3.0 \text{ Vdc}, I_C = 100 \text{ mAdc}$)	h_{FE}	150	–	–	Vdc
Collector–Emitter Saturation Voltage	($I_C = 500 \text{ mAdc}, I_B = 50 \text{ mAdc}$)	$V_{CE(sat)}$	–	–	0.25	Vdc
Collector–Emitter Saturation Voltage	($I_C = 700 \text{ mAdc}, I_B = 70 \text{ mAdc}$)	$V_{CE(sat)}$	–	–	0.4	Vdc
Base–Emitter Saturation Voltage	($I_C = 700 \text{ mAdc}, I_B = 70 \text{ mAdc}$)	$V_{BE(sat)}$	–	–	1.1	Vdc
Collector–Emitter Saturation Voltage	($I_C = 700 \text{ mAdc}, V_{CE} = 1.0 \text{ Vdc}$)	$V_{BE(on)}$	–	–	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.

MMBT2131T1 MMBT2131T3

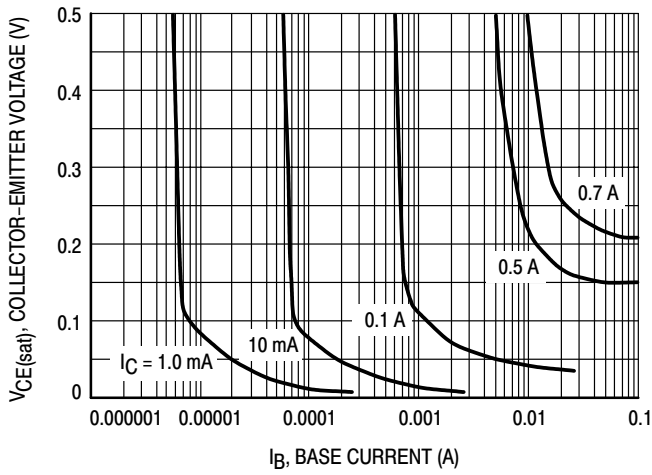


Figure 1. Collector Saturation Region

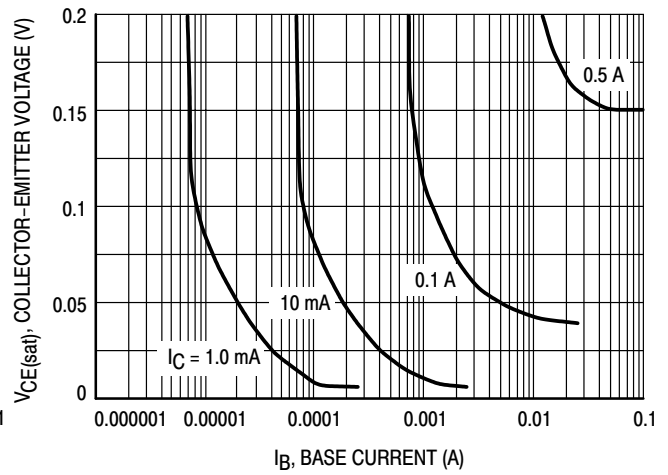


Figure 2. Collector Saturation Region

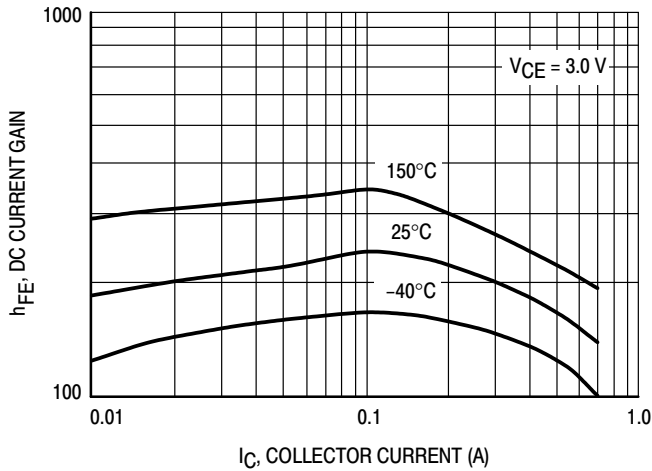


Figure 3. DC Current Gain

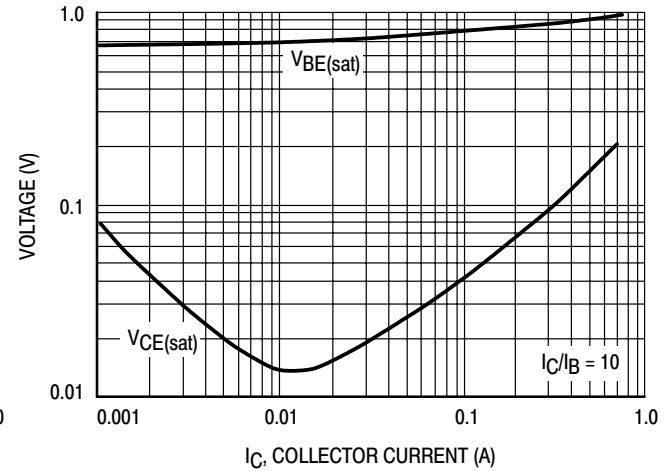


Figure 4. "ON" Voltages

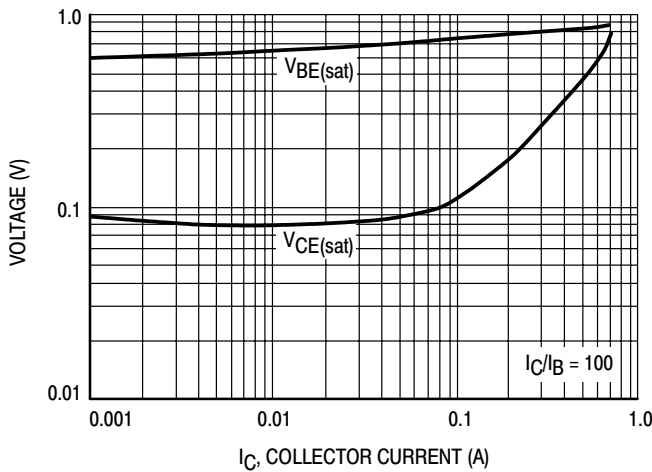


Figure 5. "ON" Voltages

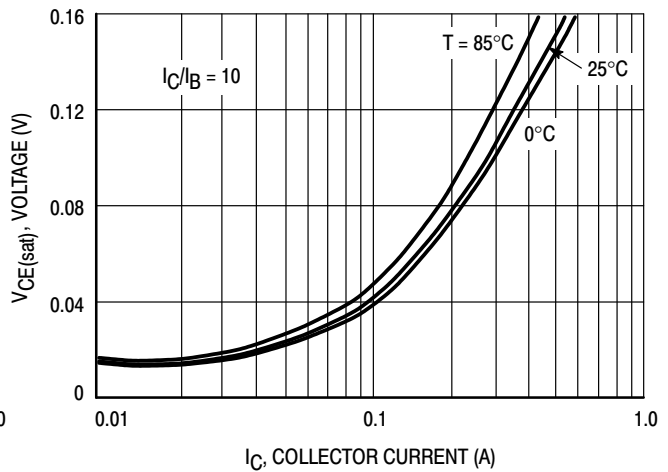


Figure 6. Collector-Emitter Saturation Voltage

MMBT2131T1 MMBT2131T3

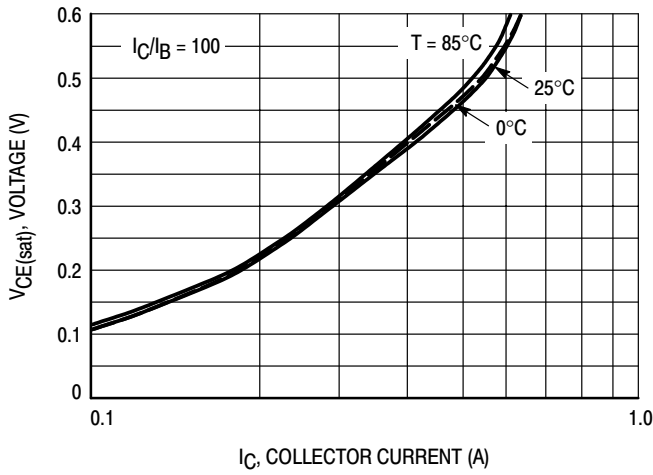


Figure 7. Collector-Emitter Saturation Voltage

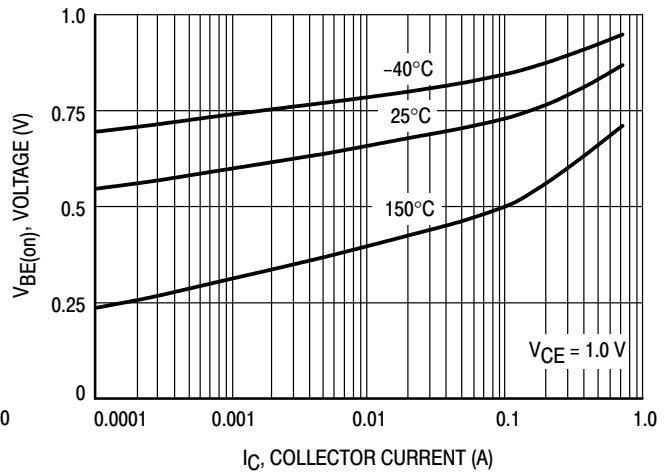


Figure 8. $V_{BE(on)}$ Voltage

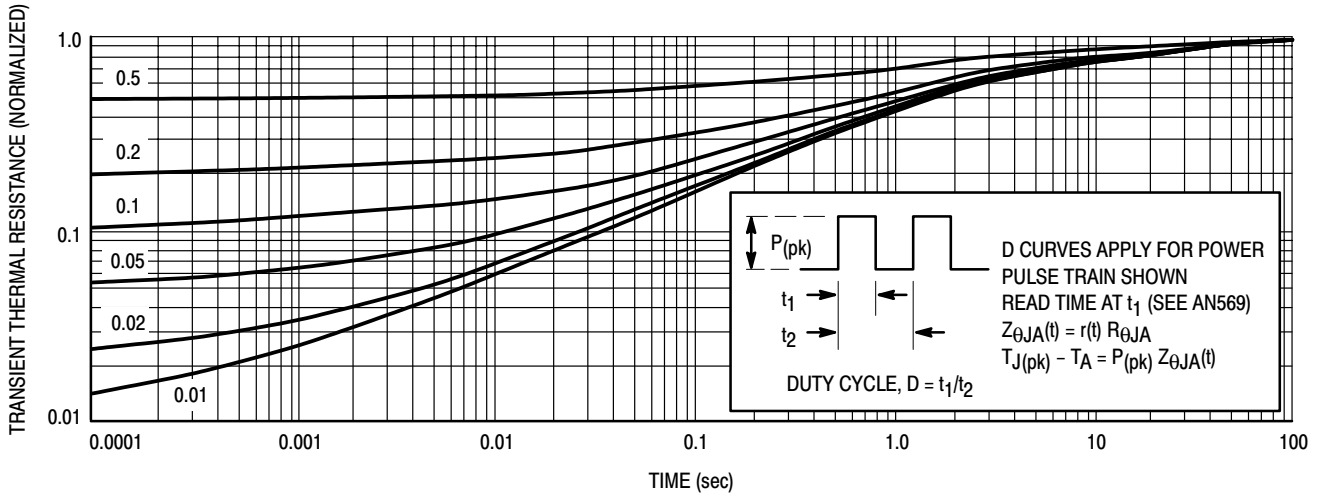
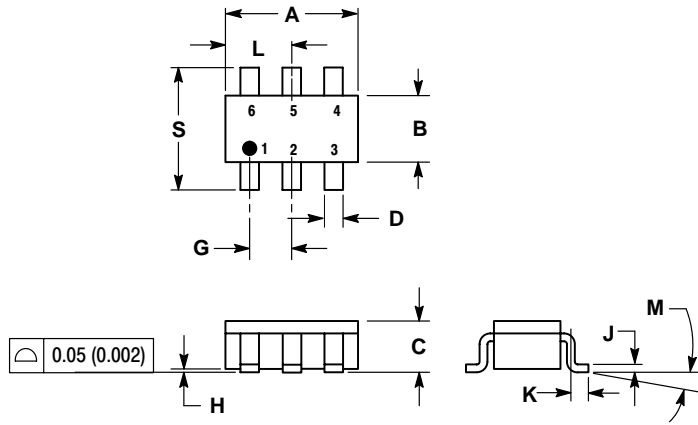


Figure 9. Thermal Response Curve

MMBT2131T1 MMBT2131T3

PACKAGE DIMENSIONS

SC-74 CASE 318F-03 ISSUE F




- STYLE 2:
 PIN 1. NO CONNECTION
 2. COLLECTOR
 3. EMITTER
 4. NO CONNECTION
 5. COLLECTOR
 6. BASE

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318F-01 AND -02 OBSOLETE. NEW STANDARD 318F-03.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1142	0.1220	2.90	3.10
B	0.0512	0.0669	1.30	1.70
C	0.0354	0.0433	0.90	1.10
D	0.0098	0.0197	0.25	0.50
G	0.0335	0.0413	0.85	1.05
H	0.0005	0.0040	0.013	0.100
J	0.0040	0.0102	0.10	0.26
K	0.0079	0.0236	0.20	0.60
L	0.0493	0.0649	1.25	1.65
M	0°	10°	0°	10°
S	0.0985	0.1181	2.50	3.00

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