

Product Preview
General Purpose Transistors
NPN Bipolar Junction Transistor

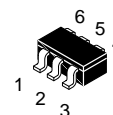
(Complementary PNP Device: MMBT2131T1/T3)

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

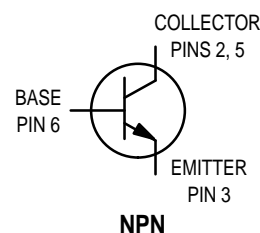
Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	30	V
Collector–Base Voltage	V_{CBO}	40	V
Emitter–Base Voltage	V_{EBO}	5.0	V
Collector Current	I_C	700	mA
Base Current	I_B	350	mA
Total Power Dissipation @ $T_C = 25^\circ\text{C}$	P_D	342	mW
Total Power Dissipation @ $T_C = 85^\circ\text{C}$	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	$^\circ\text{C}$

MMBT2132T1
MMBT2132T3

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



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
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.

This document contains information on a product under development. Motorola reserves the right to change or discontinue this product without notice.

MMBT2132T1 MMBT2132T3

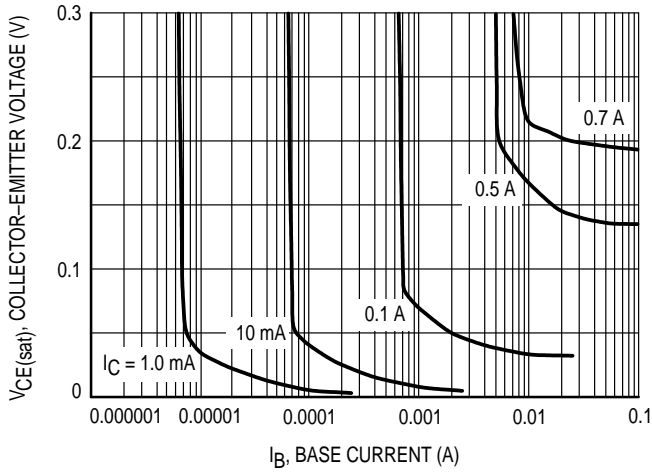


Figure 1. Collector Saturation Region

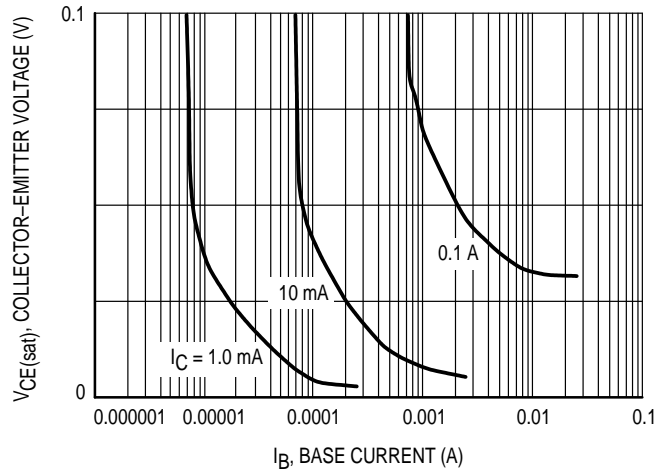


Figure 2. Collector Saturation Region

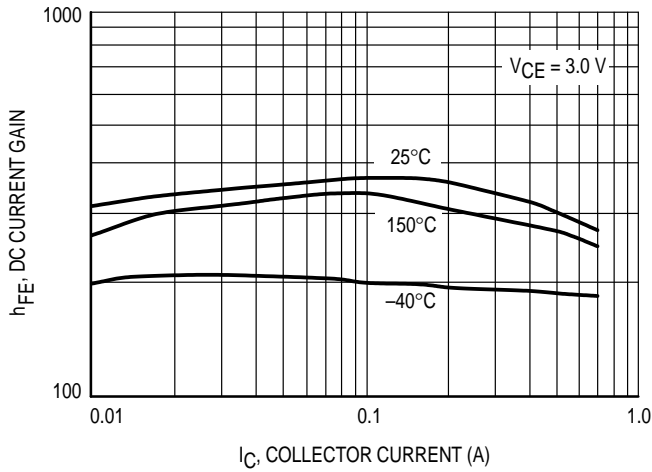


Figure 3. DC Current Gain

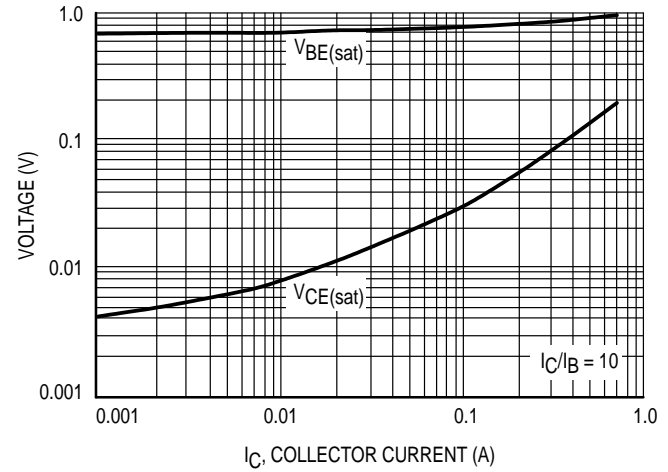


Figure 4. "ON" Voltages

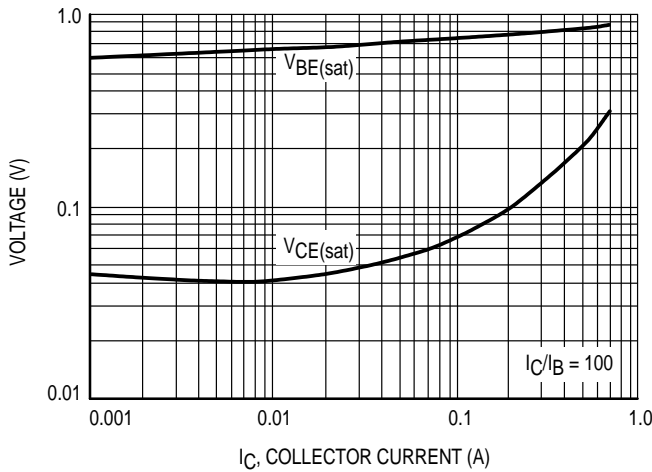


Figure 5. "ON" Voltages

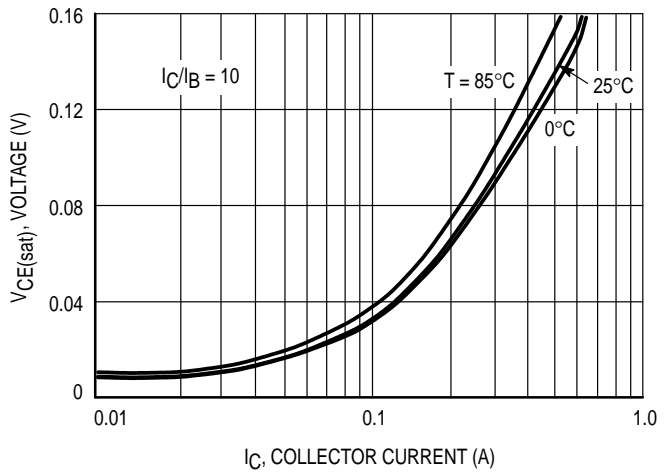


Figure 6. Collector-Emitter Saturation Voltage

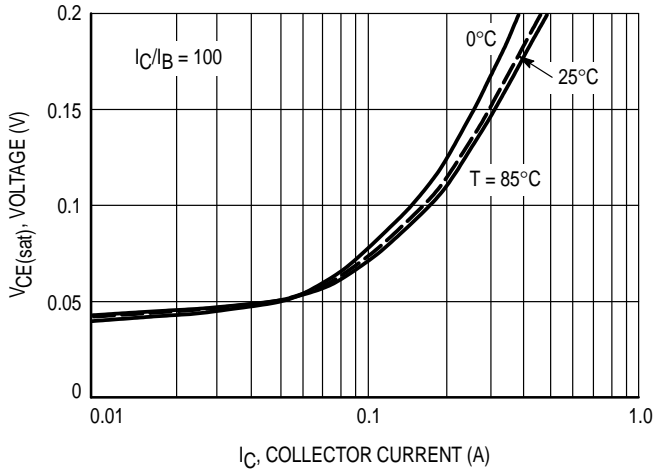


Figure 7. Collector-Emitter Saturation Voltage

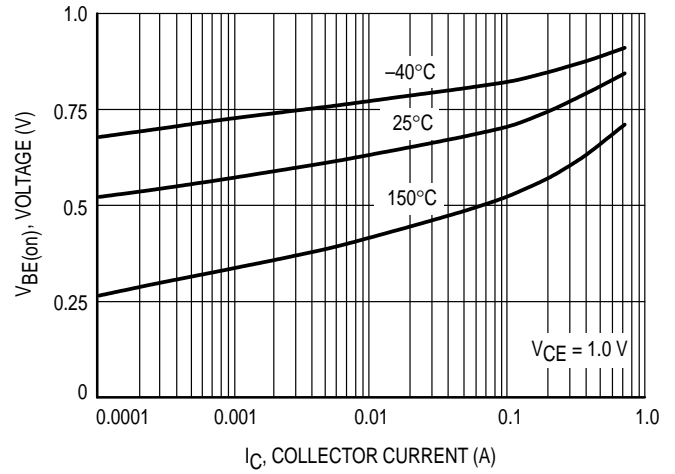


Figure 8. $V_{BE(on)}$ Voltage

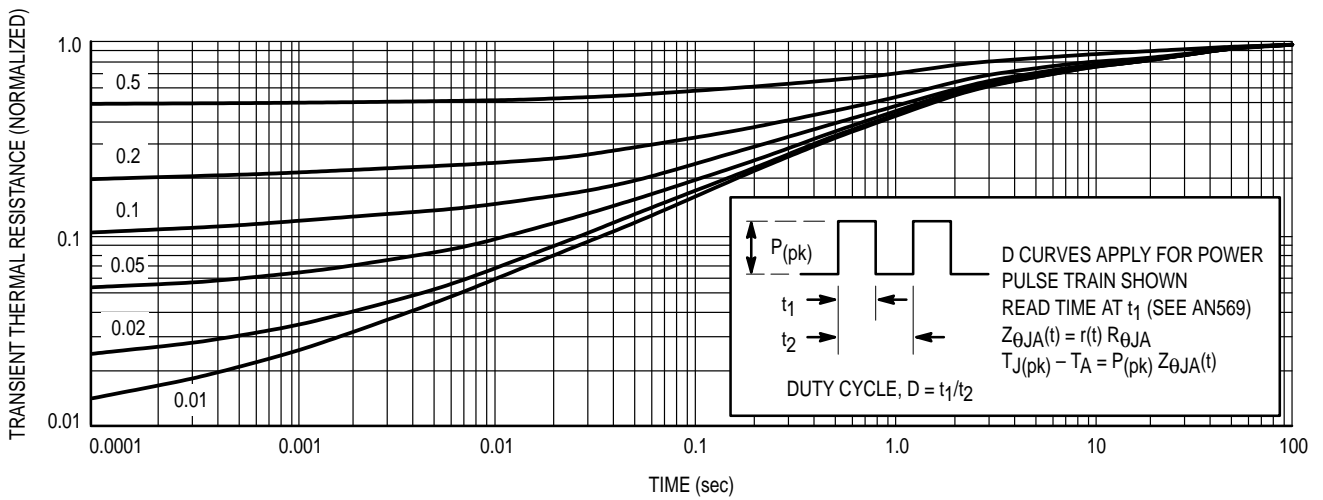
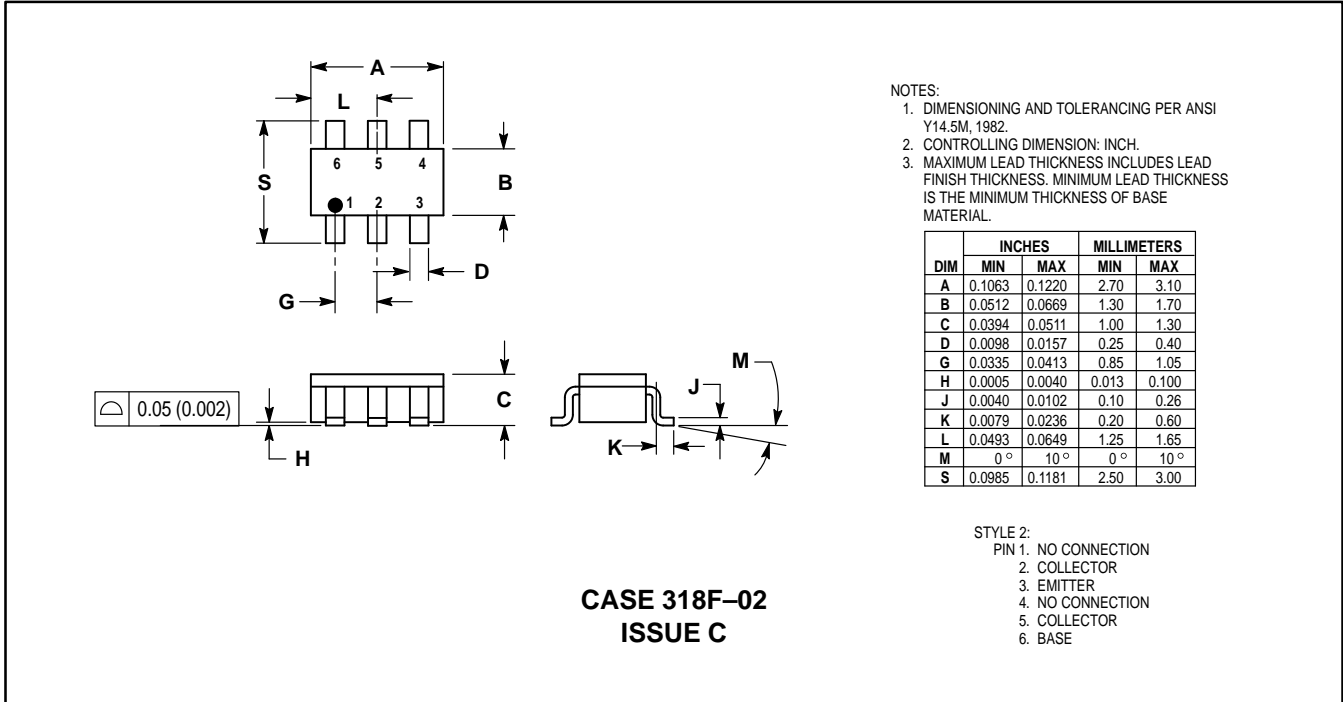


Figure 9. Thermal Response Curve

PACKAGE DIMENSIONS



Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters which may be provided in Motorola data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part. Motorola and are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

Mfax is a trademark of Motorola, Inc.

How to reach us:

USA/EUROPE/Locations Not Listed: Motorola Literature Distribution;
 P.O. Box 5405, Denver, Colorado 80217. 1-303-675-2140 or 1-800-441-2447

JAPAN: Nippon Motorola Ltd.: SPD, Strategic Planning Office, 141,
 4-32-1 Nishi-Gotanda, Shagawa-ku, Tokyo, Japan. 03-5487-8488

Customer Focus Center: 1-800-521-6274

Mfax™: RMFAX0@email.sps.mot.com – TOUCHTONE 1-602-244-6609
 Motorola Fax Back System – US & Canada ONLY 1-800-774-1848
 – http://sps.motorola.com/mfax/

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
 51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

HOME PAGE: <http://motorola.com/sps/>

