

MMBT2132T3

General Purpose Transistors

NPN Bipolar Junction Transistor

Features

- Pb-Free Package is Available

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 (Note 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 (Note 2)	$R_{\theta JA}$	188	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

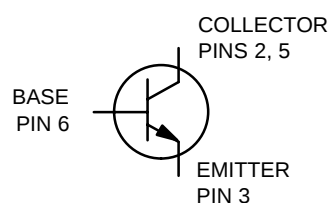
- Minimum FR-4 or G-10 PCB, Operating to Steady State.
- Mounted onto a 2" square FR-4 Board (1" sq 2 oz Cu 0.06" thick single sided), Operating to Steady State.



ON Semiconductor®

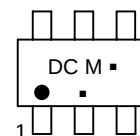
<http://onsemi.com>

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



TSOP-6/SC-74
CASE 318F
STYLE 2

MARKING DIAGRAM



DC = Specific Device Code

M = Date Code*

▪ = Pb-Free Package

(Note: Microdot may be in either location)

*Date Code orientation may vary depending upon manufacturing location.

ORDERING INFORMATION

Device	Package	Shipping [†]
MMBT2132T3	TSOP-6	10,000/Tape & Reel
MMBT2132T3G	TSOP-6 (Pb-Free)	10,000/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.

MMBT2132T3

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

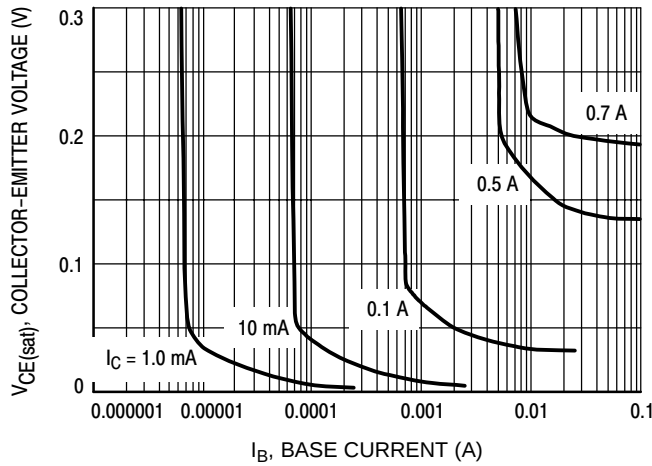


Figure 1. Collector Saturation Region

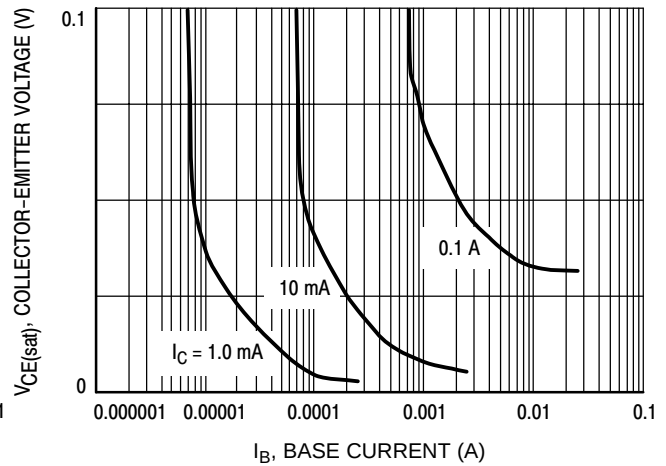


Figure 2. Collector Saturation Region

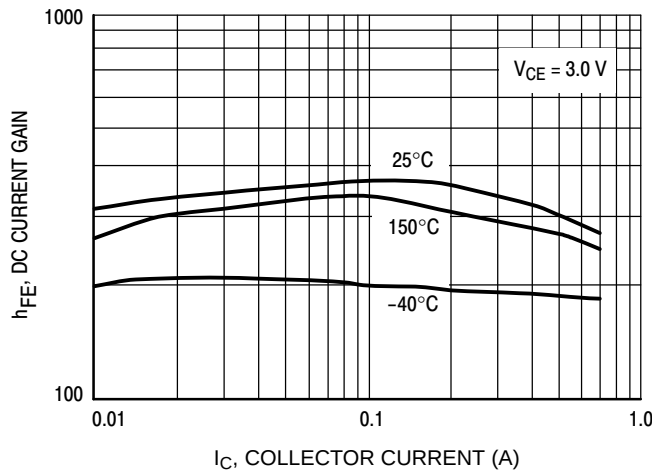


Figure 3. DC Current Gain

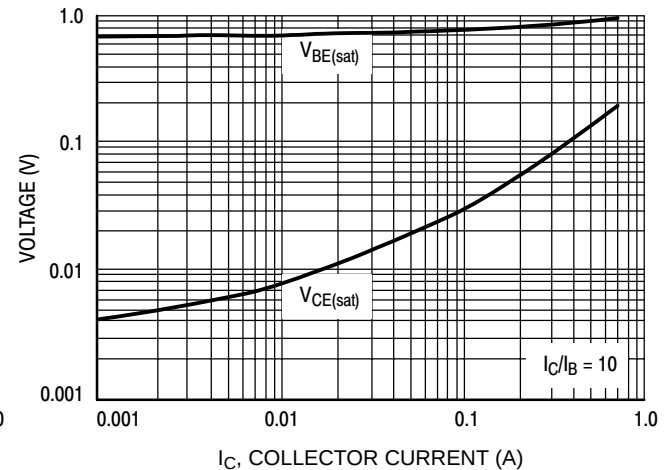


Figure 4. "ON" Voltages

MMBT2132T3

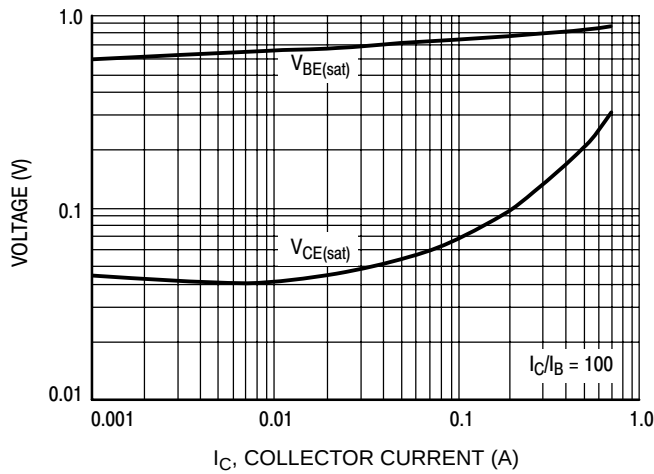


Figure 5. "ON" Voltages

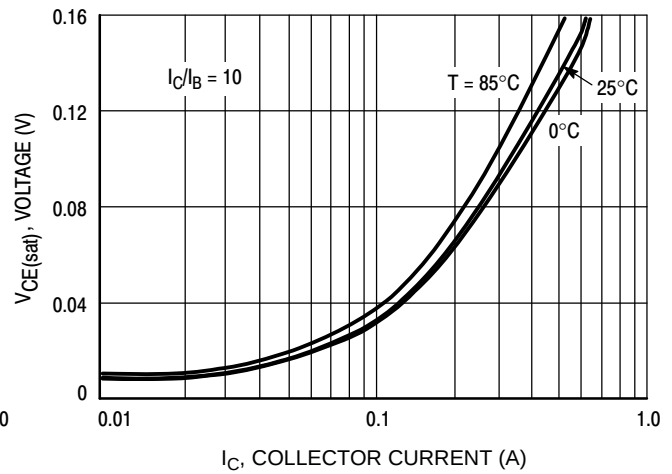


Figure 6. Collector-Emitter Saturation Voltage

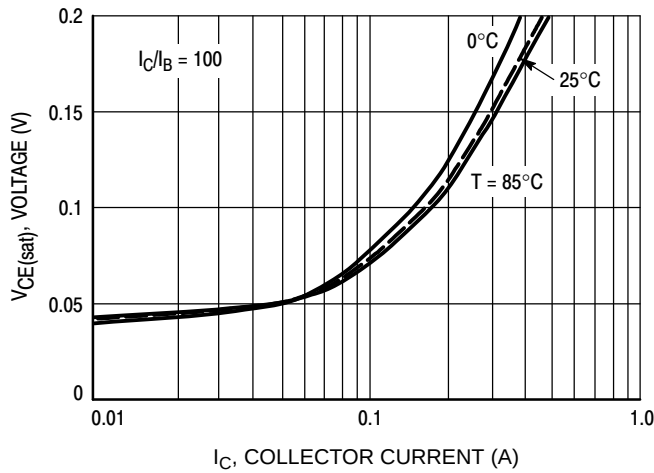


Figure 7. Collector-Emitter Saturation Voltage

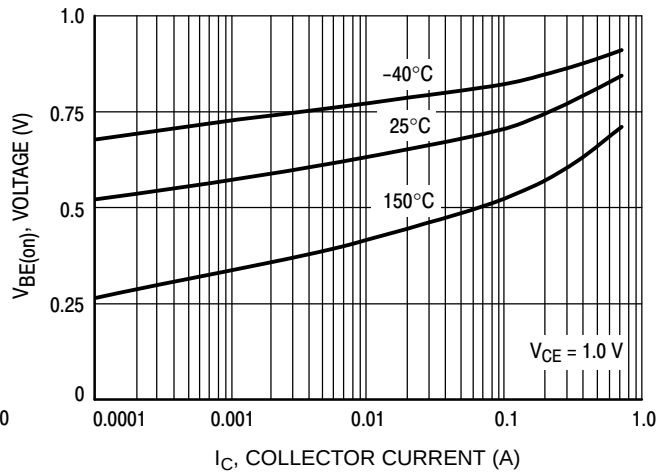


Figure 8. $V_{BE(on)}$ Voltage

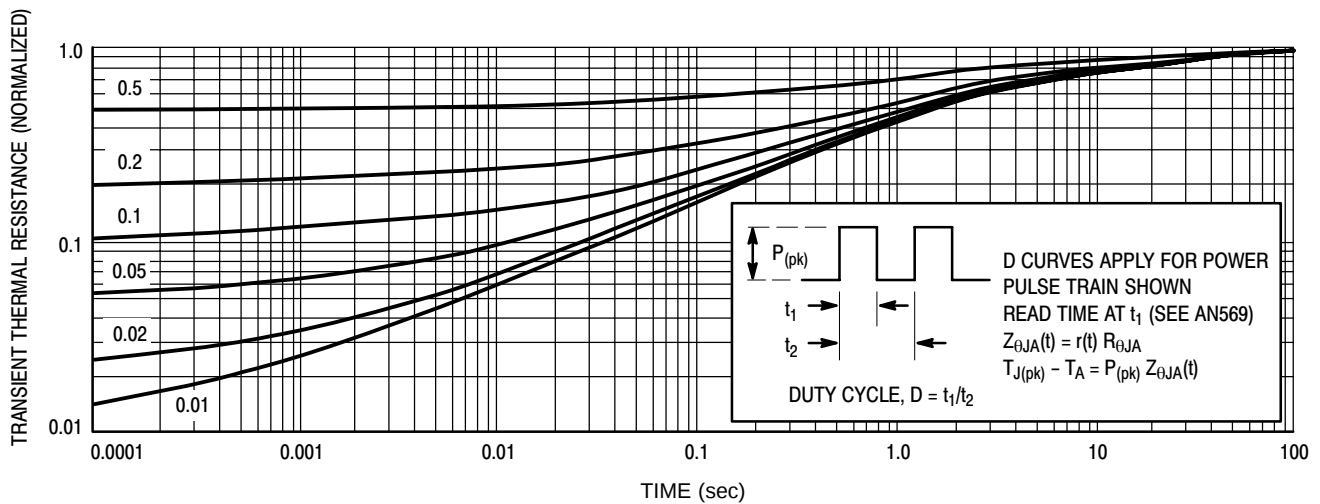


Figure 9. Thermal Response Curve

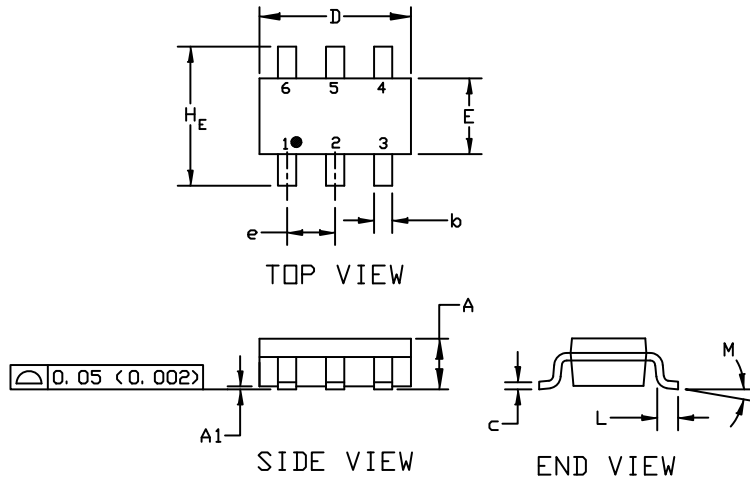
MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



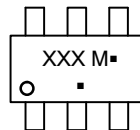
SCALE 2:1

SC-74 CASE 318F ISSUE P

DATE 07 OCT 2021



GENERIC MARKING DIAGRAM*



XXX = Specific Device Code
M = Date Code
▪ = Pb-Free Package

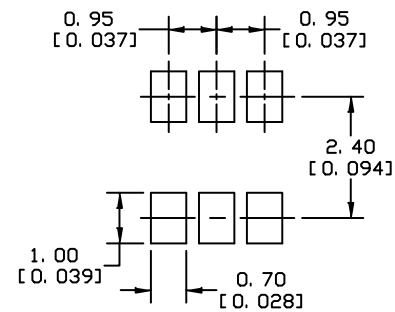
(Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994
2. CONTROLLING DIMENSION: INCHES
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.

DIM	MILLIMETERS			INCHES		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.90	1.00	1.10	0.035	0.039	0.043
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.25	0.37	0.50	0.010	0.015	0.020
c	0.10	0.18	0.26	0.004	0.007	0.010
D	2.90	3.00	3.10	0.114	0.118	0.122
E	1.30	1.50	1.70	0.051	0.059	0.067
e	0.85	0.95	1.05	0.034	0.037	0.041
H _E	2.50	2.75	3.00	0.099	0.108	0.118
L	0.20	0.40	0.60	0.008	0.016	0.024
M	0*	---	10*	0*	---	10*



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

SOLDERING FOOTPRINT

STYLE 1: PIN 1. CATHODE 2. ANODE 3. CATHODE 4. CATHODE 5. ANODE 6. CATHODE	STYLE 2: PIN 1. NO CONNECTION 2. COLLECTOR 3. EMITTER 4. NO CONNECTION 5. COLLECTOR 6. BASE	STYLE 3: PIN 1. EMITTER 1 2. BASE 1 3. COLLECTOR 2 4. EMITTER 2 5. BASE 2 6. COLLECTOR 1	STYLE 4: PIN 1. COLLECTOR 2 2. EMITTER 1/EMITTER 2 3. COLLECTOR 1 4. EMITTER 3 5. BASE 1/BASE 2/COLLECTOR 3 6. BASE 3	STYLE 5: PIN 1. CHANNEL 1 2. ANODE 3. CHANNEL 2 4. CHANNEL 3 5. CATHODE 6. CHANNEL 4	STYLE 6: PIN 1. CATHODE 2. ANODE 3. CATHODE 4. CATHODE 5. CATHODE 6. CATHODE
STYLE 7: PIN 1. SOURCE 1 2. GATE 1 3. DRAIN 2 4. SOURCE 2 5. GATE 2 6. DRAIN 1	STYLE 8: PIN 1. EMITTER 1 2. BASE 2 3. COLLECTOR 2 4. EMITTER 2 5. BASE 1 6. COLLECTOR 1	STYLE 9: PIN 1. EMITTER 2 2. BASE 2 3. COLLECTOR 1 4. EMITTER 1 5. BASE 1 6. COLLECTOR 2	STYLE 10: PIN 1. ANODE/CATHODE 2. BASE 3. EMITTER 4. COLLECTOR 5. ANODE 6. CATHODE	STYLE 11: PIN 1. EMITTER 2. BASE 3. ANODE/CATHODE 4. ANODE 5. CATHODE 6. COLLECTOR	

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