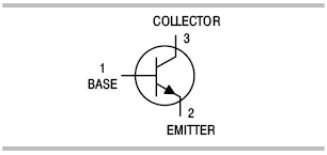
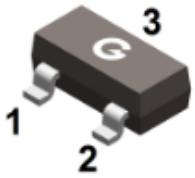
NPN SWITCHING TRANSISTOR
MMBT489

Features

HF

- Epitaxial planar die construction
- Collector Current Capability I_{CM} =2A
- Collector-emitter Voltage V_{CEO}=30V





SOT-23

Mechanical Data

- Case: SOT-23
- Molding compound, UL flammability classification rating 94V-0
- Terminals: Matte tin plated leads, solderable per MIL-STD-202, Method 208

Ordering Information

Part Number	Package	Shipping	Marking Code
MMBT489	SOT-23	3000 pcs / Tape & Reel	N3

Maximum Ratings (@T_A=25℃ unless otherwise specified)

Symbol	Parameter	Value	Units
MAXIMUM RATINGS			
V_{CBO}	Collector-Base Voltage	50	V
V_{CEO}	Collector-Emitter Voltage	30	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current - Continuous	1	A
I_{CM}	Collector Current – Peak	2	A
Thermal Characteristic			
P_{tot}	Total Power Dissipation, $T_a \leqslant 25$℃	310	mW
T_J	Junction Temperature	150	℃
T_j, T_{stg}	Junction and Storage Temperature	-55 to +150	℃
$R_{th\ (j\text{-}a)}$	Thermal resistance from junction to ambient	403	℃/W

Electrical Characteristics (@T_A=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 100uA, I_E = 0	50	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 10mA, I_B = 0	30	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 100uA, I_C = 0	5	-	-	V
RCollector Cut-Off Current	I_{CBO}	V_{CB} =30V, I_E = 0	-	-	0.1	uA
Emitter Cut-Off Current	I_{EBO}	V_{EB} =4V, I_C = 0	-	-	0.1	uA
DC Current Gain (Note 1)	h_{FE}	V_{CE} = 2V, I_C = 500mA	100	-	300	
		V_{CE} = 2V, I_C =1A	80	-	-	
Collector-Emitter Saturation Voltage (Note 1)	$V_{CE(sat)}$	I_C= 1A, I_B=100mA I_C= 0.5A, I_B=50mA	-	-	0.3 0.25	V
Base−Emitter Saturation Voltage(Note 1)	$V_{BE(sat)}$	I_C= 1A, I_B=0.1A	-	-	1.2	V
Base−Emitter Turn−on Voltage(Note 1)	$V_{BE(on)}$	I_C= 1A, V_{CE}=2V	-	-	1.1	V
Transition Frequency	f_T	V_{CE} = 5V, I_C = 100mA, f = 100MHz	100	-	-	MHz
Collector Output Capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz	-	-	15	pF

Note1：Pulsed Condition: Pulse Width = 300 sec, Duty Cycle ≤ 2%

Ratings and Characteristic Curves (T_A=25℃ unless otherwise noted)

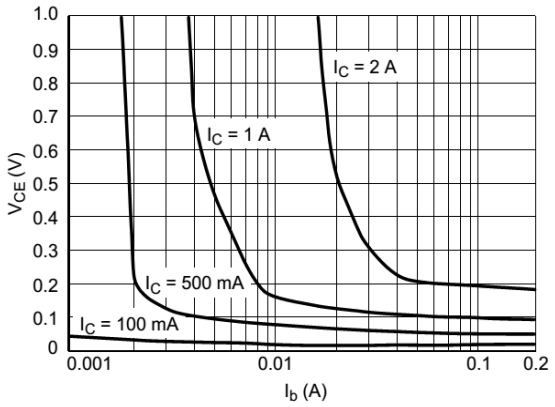


Figure 1. V_{CE} versus I_b

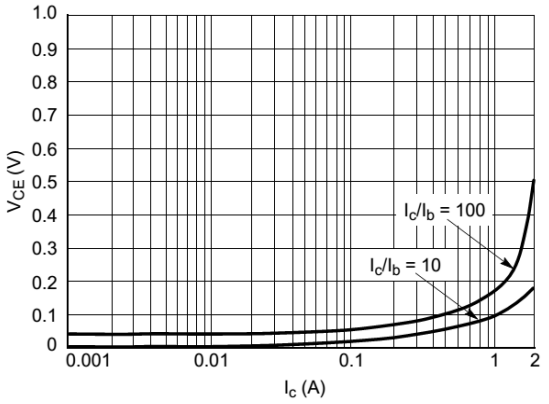


Figure 2. V_{CE} versus I_c

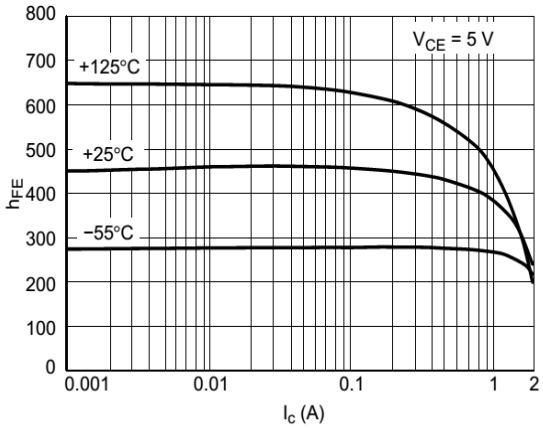


Figure 3. h_{FE} versus I_c

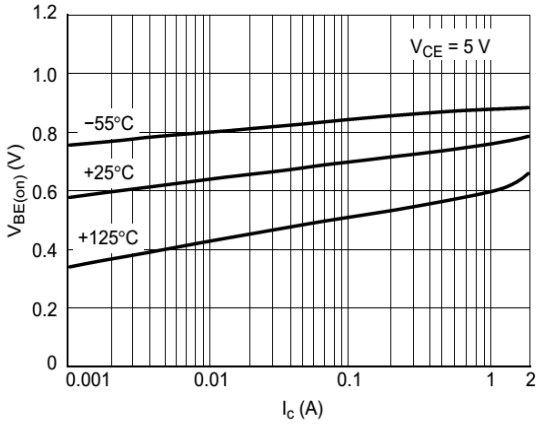


Figure 4. $V_{BE(on)}$ versus I_c

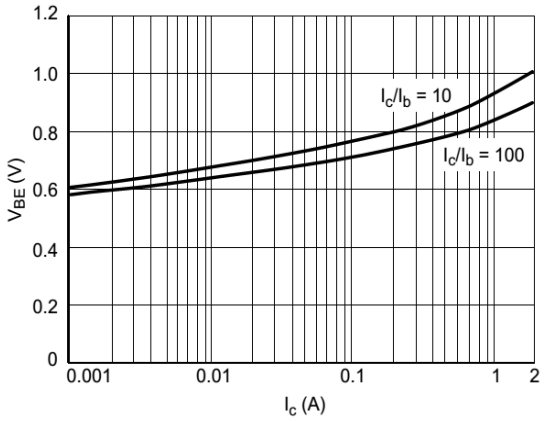


Figure 5. $V_{BE(sat)}$ versus I_c

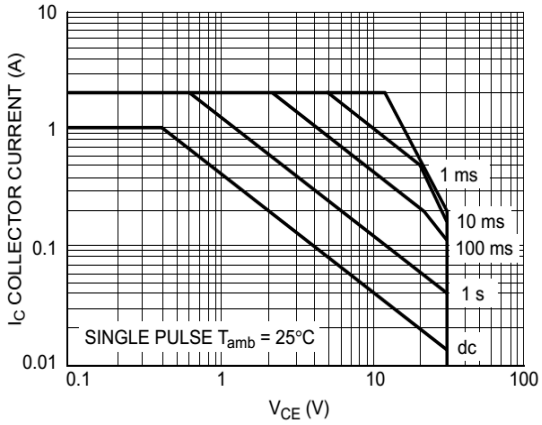
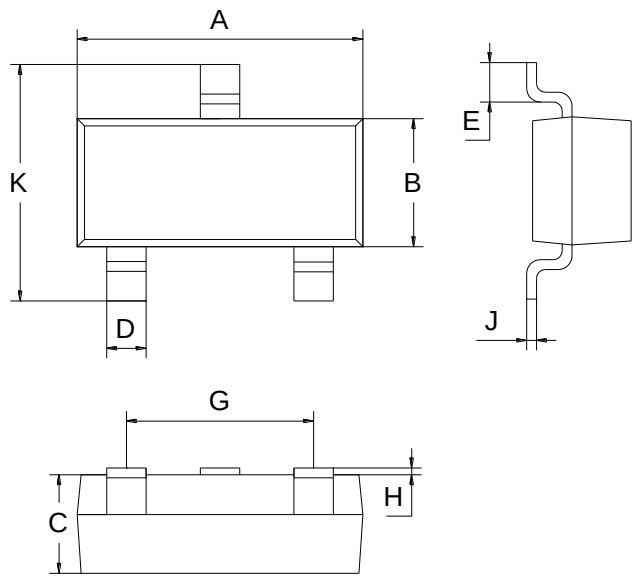


Figure 6. Safe Operating Area

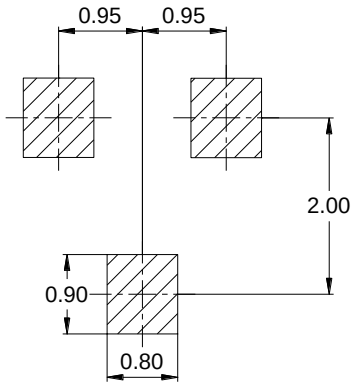
Package Outline Dimensions(unit:mm)

SOT-23



SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60

SOLDERING FOOTPRINT(unit:mm)



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