

MMBT2369A

NPN GENERAL PURPOSE SWITCHING TRANSISTOR

VOLTAGE 15 Volts **POWER** 225 mWatts

SOT-23

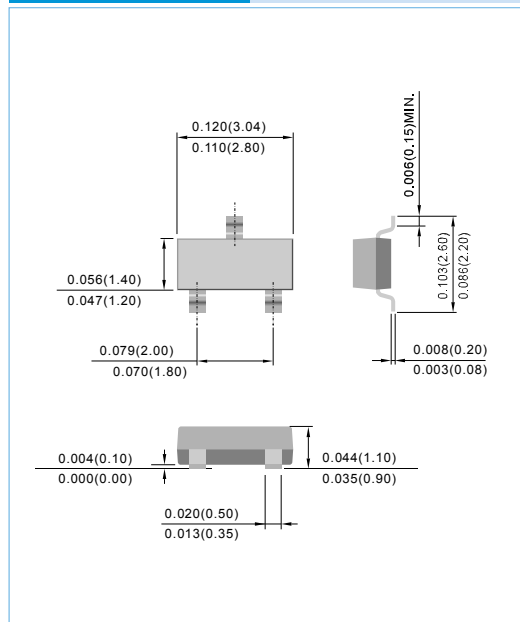
Unit: inch (mm)

FEATURES

- NPN epitaxial silicon, planar design
- Collector-emitter voltage $V_{CE} = 15V$
- Collector current $I_C = 200mA$
- Lead free in comply with EU RoHS 2002/95/EC directives.
- Green molding compound as per IEC61249 Std. . (Halogen Free)

MECHANICAL DATA

- Case: SOT-23, Plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0084 grams
- Marking: M3B



ABSOLUTE RATINGS

PARAMETER	Symbol	Value	Units
Collector - Emitter Voltage	V_{CEO}	15	V
Collector - Base Voltage	V_{CBO}	40	V
Emitter - Base Voltage	V_{EBO}	4.5	V
Collector Current - Continuous	I_C	200	mA

THERMAL CHARACTERISTICS

PARAMETER	Symbol	Value	Units
Max Power Dissipation (Note 1)	P_{TOT}	225	mW
Thermal Resistance , Junction to Ambient	$R_{\theta JA}$	556	$^{\circ}C/W$
Junction Temperature	T_J	-55 to 150	$^{\circ}C$
Storage Temperature	T_{STG}	-55 to 150	$^{\circ}C$

Note 1: Transistor mounted on FR-4 board 70 x 60 x 1mm.



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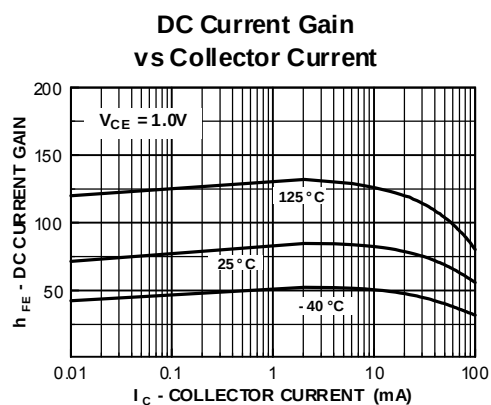
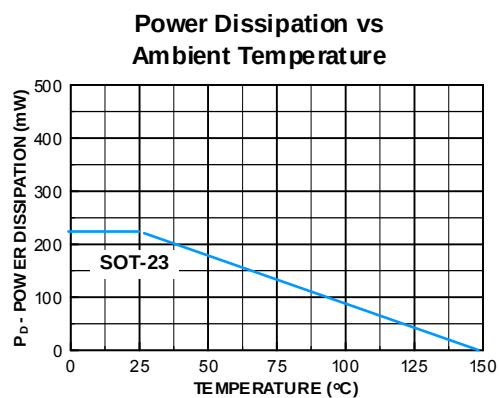
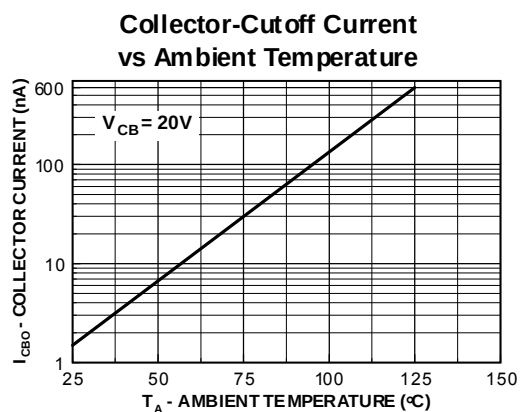
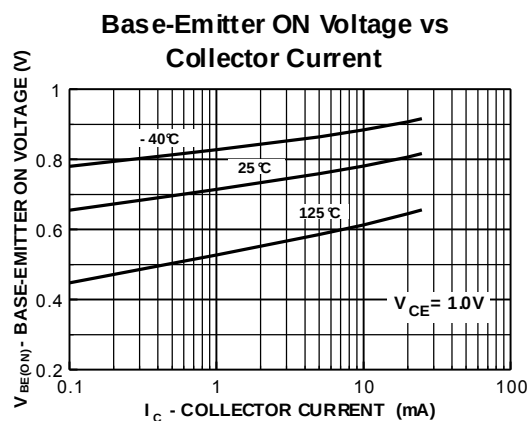
ELECTRICAL CHARACTERISTICS

PARAMETER	Symbol	Test Condition	MIN.	MAX.	Units
OFF CHARACTERISTICS					
Collector - Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10mA, I_B = 0$	15	-	V
Collector - Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C = 10\mu A, I_B = 0$	40	-	V
Collector - Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu A, I_E = 0$	40	-	V
Emitter - Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu A, I_C = 0$	4.5	-	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 20V, I_E = 0$ $V_{CB} = 20V, I_E = 0, T_A = 125^\circ C$		0.4 30	μA μA
ON CHARACTERISTICS					
DC Current Gain (Note 2)	h_{FE}	$I_C = 10mA, V_{CE} = 1.0V$ $I_C = 10mA, V_{CE} = 0.35V, T_A = -55^\circ C$ $I_C = 30mA, V_{CE} = 0.4V$ $I_C = 100mA, V_{CE} = 1.0V$	40 40 30 20	120	-
Collector - Emitter Saturation Voltage (Note 2)	$V_{CE(SAT)}$	$I_C = 10mA, I_B = 1.0mA$ $I_C = 10mA, I_B = 1.0mA, T_A = 125^\circ C$ $I_C = 30mA, I_B = 3.0mA$ $I_C = 100mA, I_B = 10mA$	-	0.2 0.3 0.25 0.5	V
Base - Emitter Saturation Voltage (Note 2)	$V_{BE(SAT)}$	$I_C = 10mA, I_B = 1.0mA$ $I_C = 10mA, I_B = 1.0mA, T_A = -55^\circ C$ $I_C = 10mA, I_B = 1.0mA, T_A = 125^\circ C$ $I_C = 30mA, I_B = 3.0mA$ $I_C = 100mA, I_B = 10mA$	0.7 0.59	0.85 1.02 1.15 1.6	V
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C_{OBO}	$V_{CB} = 5V, I_E = 0, f = 1MHz$	-	4.0	pF
Input Capacitance	C_{IBO}	$V_{CB} = 0.5V, I_C = 0, f = 1MHz$	-	5.0	pF
Small-Signal Current Gain	h_{FE}	$I_C = 10mA, V_{CE} = 10V,$ $R_G = 2.0k\Omega, f = 100MHz$	5.0	-	-
SWITCHING CHARACTERISTICS					
Storage Time	t_s	$I_B 1 = I_B 2 = I_C = 10mA$	-	13	ns
Turn-On Time	t_{on}	$V_{CC} = 3V, I_C = 10mA$ $I_B 1 = 3.0mA$	-	12	ns
Turn-Off Time	t_{off}	$V_{CC} = 3V, I_C = 10mA$ $I_B 1 = 3.0mA, I_B 2 = 1.5mA$	-	18	ns

Note 2: Pulse Test: Pulse Width $\leq 300 \mu s$, Duty Cycle $\leq 2.0\%$.

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ELECTRICAL CHARACTERISTICS CURVE

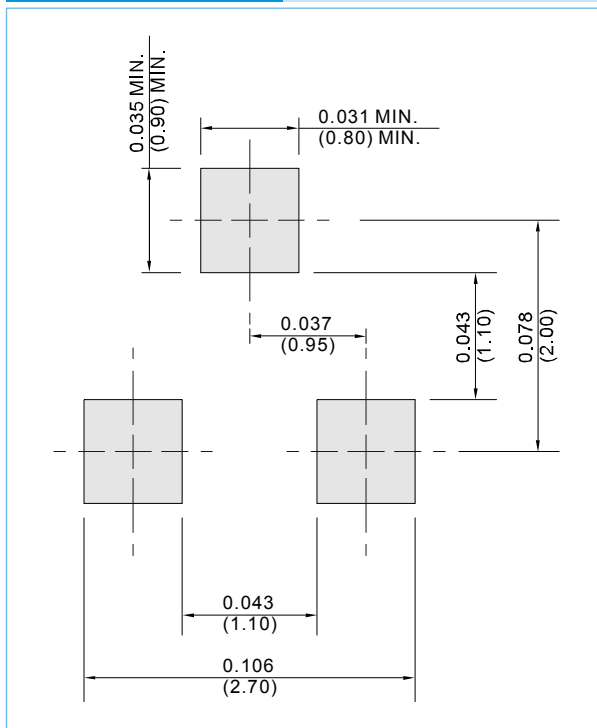


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MOUNTING PAD LAYOUT

SOT-23

Unit: inch (mm)



ORDER INFORMATION

- Packing information
 - T/R - 12K per 13" plastic Reel
 - T/R - 3K per 7" plastic Reel

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Part No_packing code_Version

MMBT2369A_R1_00001

MMBT2369A_R2_00001

For example :

RB500V-40_R2_00001

Part No.

Serial number

Version code means HF

Packing size code means 13"

Packing type means T/R

Packing Code XX				Version Code XXXXX		
Packing type	1 st Code	Packing size code	2 nd Code	HF or RoHS	1 st Code	2 nd ~5 th Code
Tape and Ammunition Box (T/B)	A	N/A	0	HF	0	serial number
Tape and Reel (T/R)	R	7"	1	RoHS	1	serial number
Bulk Packing (B/P)	B	13"	2			
Tube Packing (T/P)	T	26mm	X			
Tape and Reel (Right Oriented) (TRR)	S	52mm	Y			
Tape and Reel (Left Oriented) (TRL)	L	PANASERT T/B CATHODE UP (PBCU)	U			
FORMING	F	PANASERT T/B CATHODE DOWN (PBCD)	D			



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