

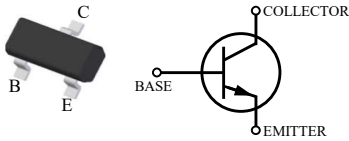


MMBT8050CH / MMBT8050DH

NPN TRANSISTORS

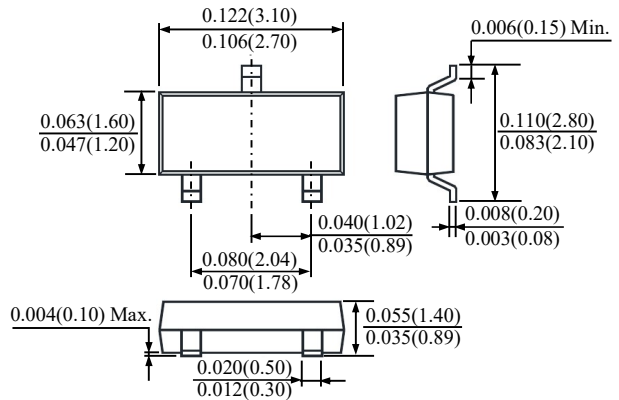
FEATURES

· Suffix "H" indicates Halogen-free parts, ex.MMBT8050CH



B	Base
C	Collector
E	Emitter

SOT-23



Dimensions in inches and (millimeter)

Maximum Ratings ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	40	V
Collector Emitter Voltage	V_{CEO}	25	V
Emitter Base Voltage	V_{EBO}	6	V
Collector Current	I_C	1.5	A
Power Dissipation	P_D	350	mW
Thermal Resistance from Junction to Ambient (Note 1)	$R_{\theta JA}$	357	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_J	-55 to +150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$

Note:

1. Device mounted on FR-4 PCB with minimum recommended pad layout.



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Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter		Conditions	Symbol	Min.	Max.	Unit
DC Current Gain	C	$V_{CE}=1\text{V}, I_C=100\text{mA}$	h_{FE}	100	250	-
	D	$V_{CE}=1\text{V}, I_C=100\text{mA}$		160	400	-
		$V_{CE}=1\text{V}, I_C=800\text{mA}$		40	-	-
Collector Base Cutoff Current		$V_{CB}=35\text{V}$	I_{CBO}	-	100	nA
Emitter Base Cutoff Current		$V_{EB}=6\text{V}$	I_{EBO}	-	100	nA
Collector Base Breakdown Voltage		$I_C=100\mu\text{A}$	$V_{(BR)CBO}$	40	-	V
Collector Emitter Breakdown Voltage		$I_C=2\text{mA}$	$V_{(BR)CEO}$	25	-	V
Emitter Base Breakdown Voltage		$I_E=100\mu\text{A}$	$V_{(BR)EBO}$	6	-	V
Collector Emitter Saturation Voltage		$I_C=800\text{mA}, I_B=80\text{mA}$	$V_{CE(sat)}$	-	0.5	V
Base Emitter Saturation Voltage		$I_C=800\text{mA}, I_B=80\text{mA}$	$V_{BE(sat)}$	-	1.2	V
Base Emitter Voltage		$V_{CE}=1\text{V}, I_C=10\text{mA}$	$V_{BE(on)}$	-	1.0	V
Gain Bandwidth Product		$V_{CE}=10\text{V}, I_C=50\text{mA}$	f_T	120	-	MHz



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RATINGS AND CHARACTERISTIC CURVES

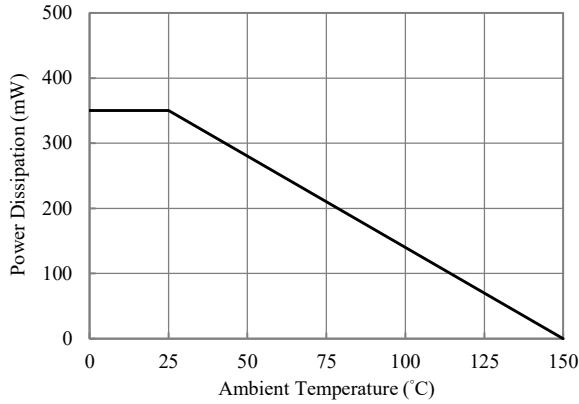


Fig. 1 Power Derating Curves

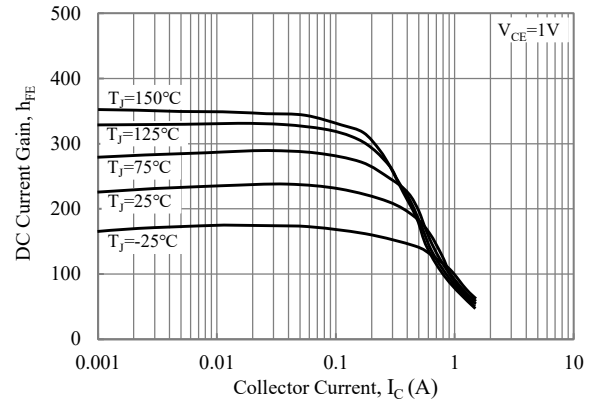


Fig. 2 Current Gain vs. Collector Current

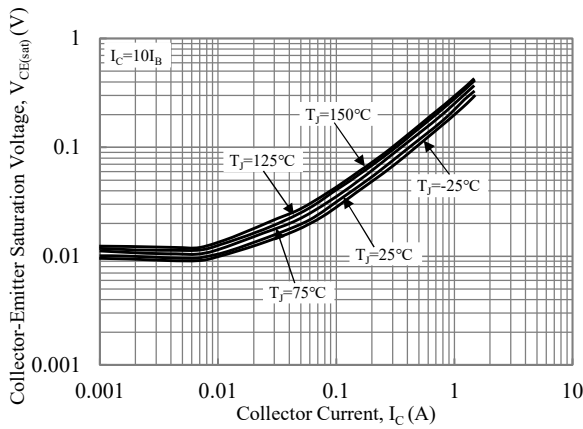


Fig. 3 Collector-Emitter Saturation

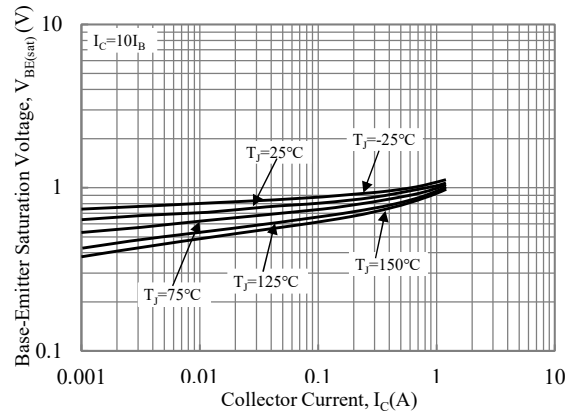


Fig. 4 Base-Emitter Saturation Voltage vs. Collector Current

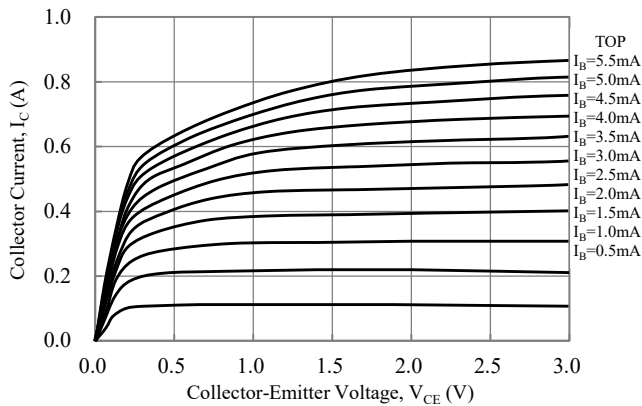


Fig. 5 Output Characteristics

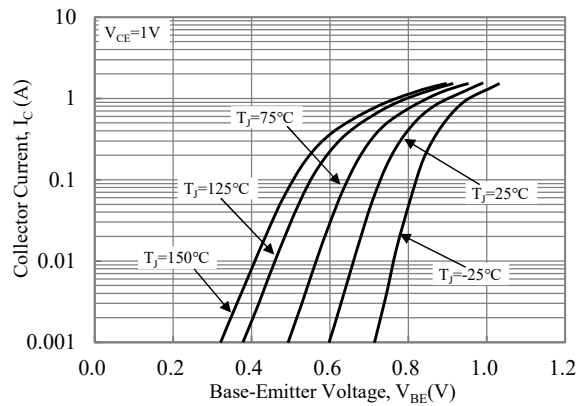


Fig. 6 Base-Emitter Voltage vs. Collector Current



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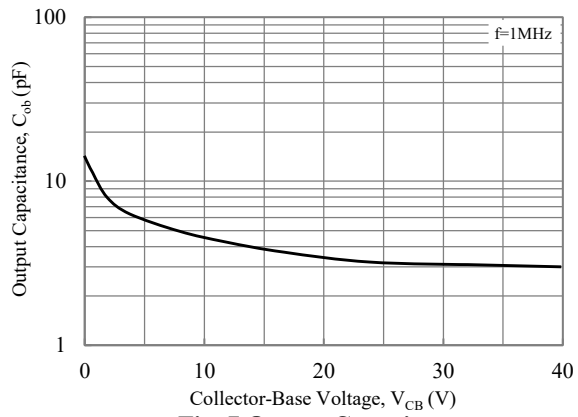


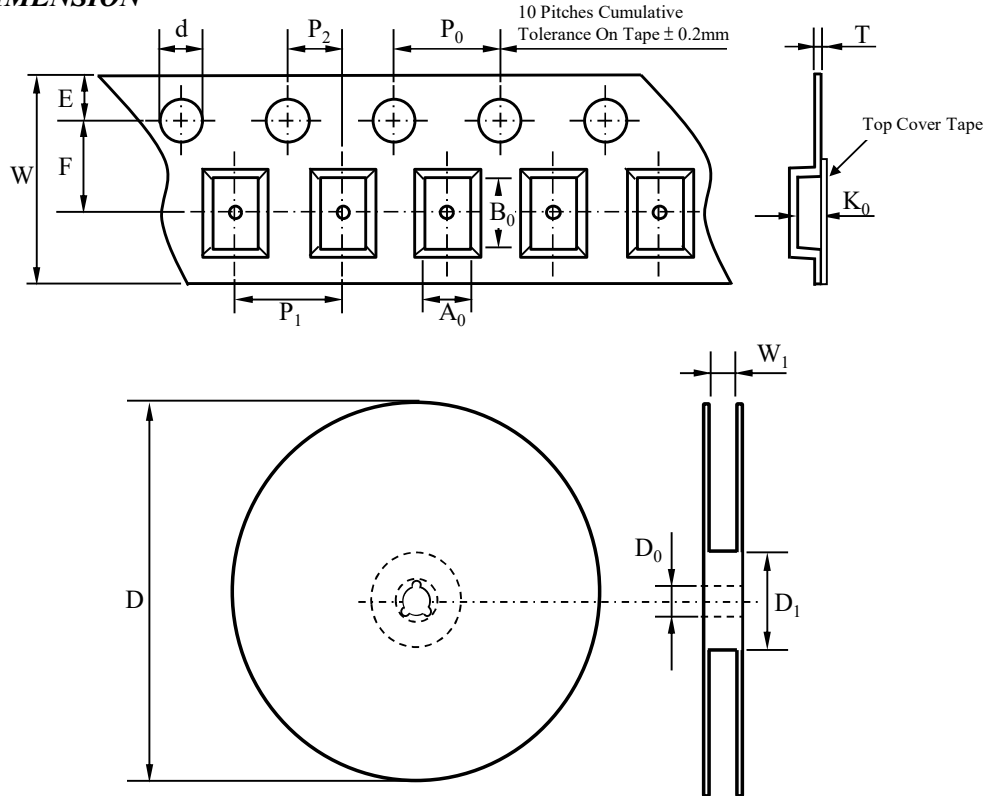
Fig. 7 Output Capacitance



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PACKAGE DIMENSION



Item	Symbol	SOT-23
Carrier width	A_0	*
Carrier length	B_0	
Carrier depth	K_0	
Sprocket hole	d	1.50 ± 0.10
Reel outside diameter	D	178.00 ± 2.00
Feed hole width	D_0	13.00 ± 0.50
Reel inner diameter	D_1	MIN. 50.00
Sprocket hole position	E	1.75 ± 0.10
Punch hole position	F	3.50 ± 0.10
Sprocket hole pitch	P_0	4.00 ± 0.10
Punch hole pitch	P_1	4.00 ± 0.10
Embossment center	P_2	2.00 ± 0.10
Overall tape thickness	T	0.20 ± 0.05
Tape width	W	8.00 ± 0.20
Reel width	W_1	MAX. 14.50

Note *: A_0 , B_0 , and K_0 are determined by component size. The clearance between the components and the cavity must be within 0.05 mm min. to 0.5 mm max.

ORDER INFORMATION

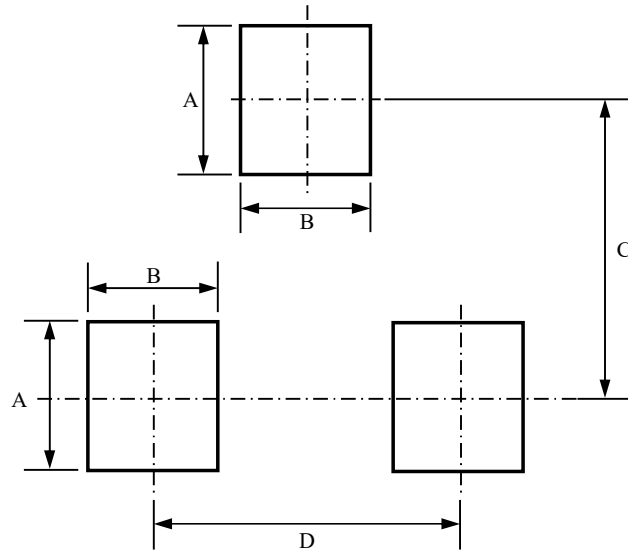
Part Number	Marking Code	Reel Size	Quantity
MMBT8050CH	Y1	7"	3,000
MMBT8050DH	Y2		



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SUGGESTED SOLDER PAD LAYOUT



Unit :mm

PACKAGE	A	B	C	D
SOT-23	1.00	0.80	2.00	1.90