

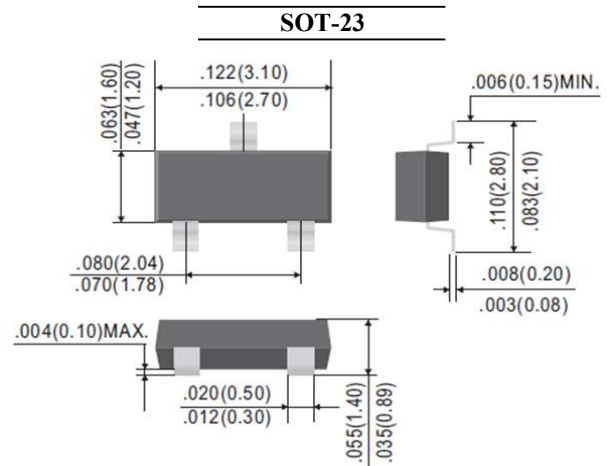
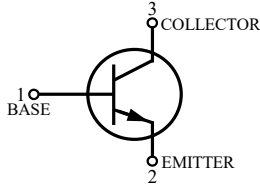


MMBT3820H

NPN TRANSISTOR

FEATURES

· Suffix "H" indicates Halogen-free parts, ex.MMBT3820H



Dimensions in inch and (millimeter)

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	80	V
Collector Emitter Voltage	V_{CEO}	60	V
Emitter Base Voltage	V_{EBO}	5	V
Collector Current	I_C	1	A
Peak Pulse Collector Current	I_{CM}	2	A
Power Dissipation	P_D	350	mW
Thermal Resistance from Junction to Ambient (Note 1)	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
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 substrate PC board, 2oz copper, with minimum recommended pad layout.



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

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain	$V_{CE}=5\text{V}, I_C=1\text{mA}$	h_{FE}	200	-	-	-
	$V_{CE}=5\text{V}, I_C=500\text{mA}$		200	-	-	
	$V_{CE}=5\text{V}, I_C=1000\text{mA}$		100	-	-	
Collector Base Breakdown Voltage	$I_C=100\mu\text{A}$	$V_{BR(CBO)}$	80	-	-	V
Collector Emitter Breakdown Voltage	$I_C=10\text{mA}$	$V_{BR(CEO)}$	60	-	-	V
Emitter Base Breakdown Voltage	$I_E=100\mu\text{A}$	$V_{BR(EBO)}$	5	-	-	V
Collector Base Cutoff Current	$V_{CB}=60\text{V}$	I_{CBO}	-	-	100	nA
Emitter Base Cutoff Current	$V_{EB}=5\text{V}$	I_{EBO}	-	-	100	nA
Collector Emitter Saturation Voltage	$I_C=100\text{mA}, I_B=1\text{mA}$	$V_{CE(sat)}$	-	-	0.07	V
	$I_C=500\text{mA}, I_B=50\text{mA}$		-	-	0.15	
	$I_C=1000\text{mA}, I_B=100\text{mA}$		-	-	0.28	
Base Emitter Turn-on Voltage	$V_{CE}=5\text{V}, I_C=1000\text{mA}$	$V_{BE(on)}$	-	-	0.90	V
Output Capacitance	$V_{CB}=10\text{V}, I_E=0\text{V}, f=1\text{MHz}$	C_{ob}	-	-	10	pF
Transition Frequency	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=1\text{MHz}$	f_T	150	-	-	MHz



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RATINGS AND CHARACTERISTIC CURVES

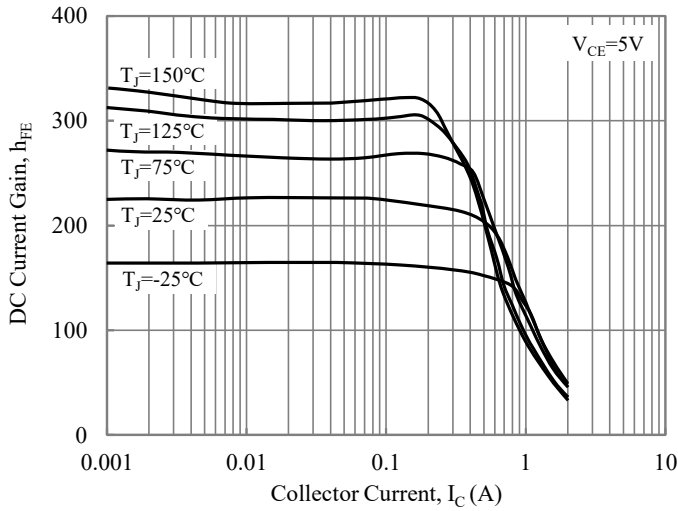


Fig. 1 DC Current Gain vs. Collector Current

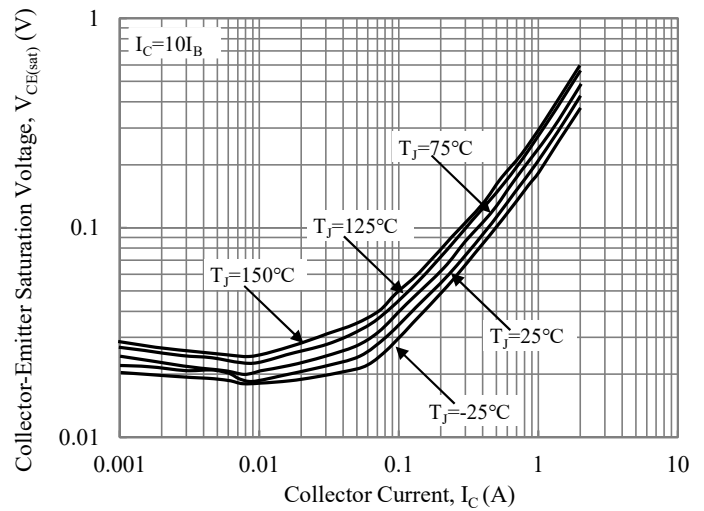


Fig. 2 Collector-Emitter Saturation Voltage vs. Collector Current

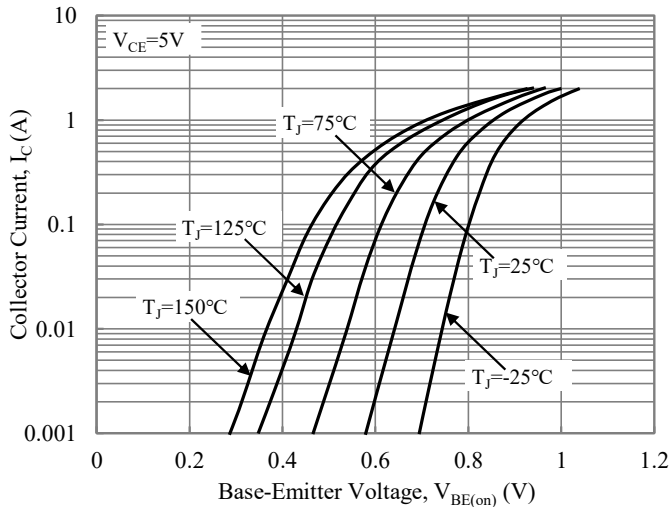


Fig. 3 Base-Emitter Turn-on Voltage vs. Collector Current

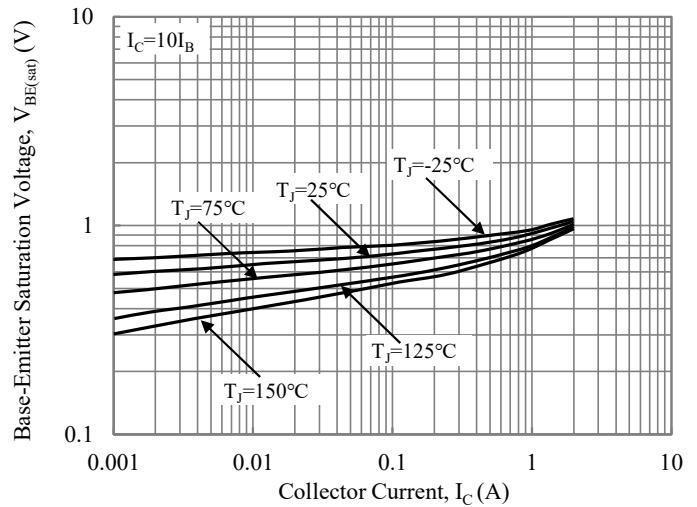


Fig. 4 Base-Emitter Saturation Voltage vs. Collector Current

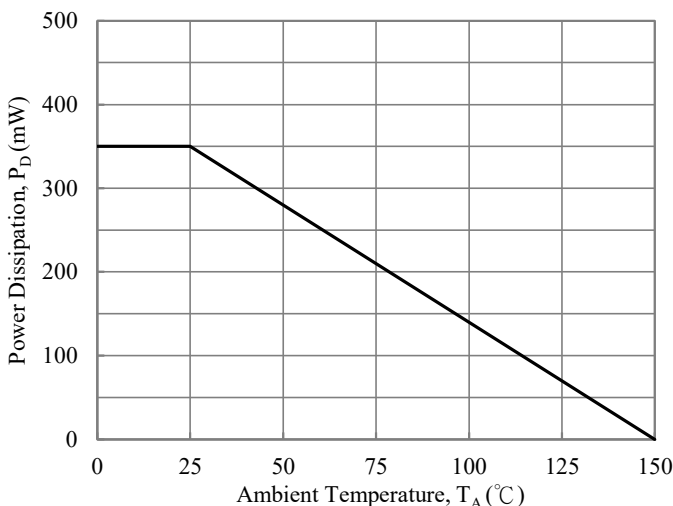


Fig. 5 Power Derating Curve

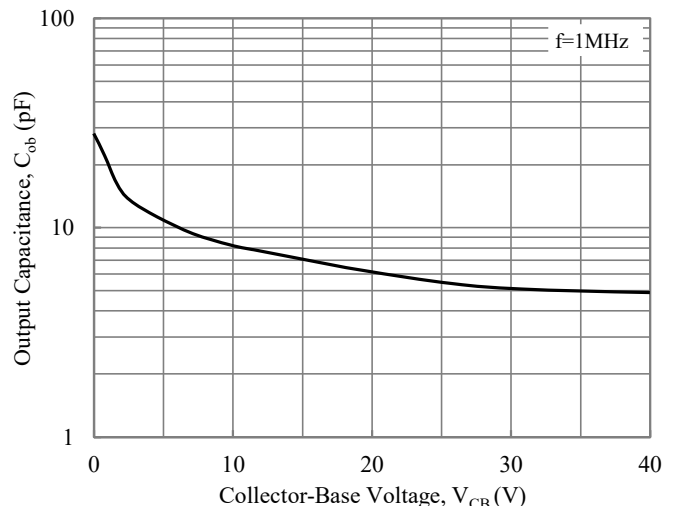


Fig. 6 Output Capacitance



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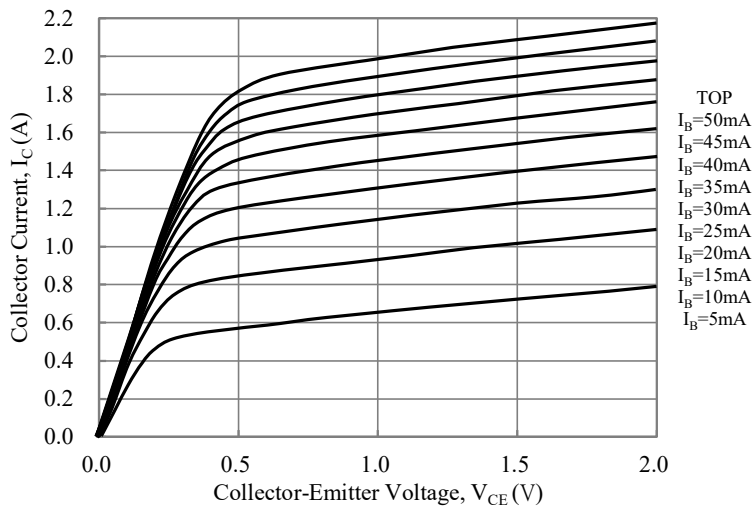


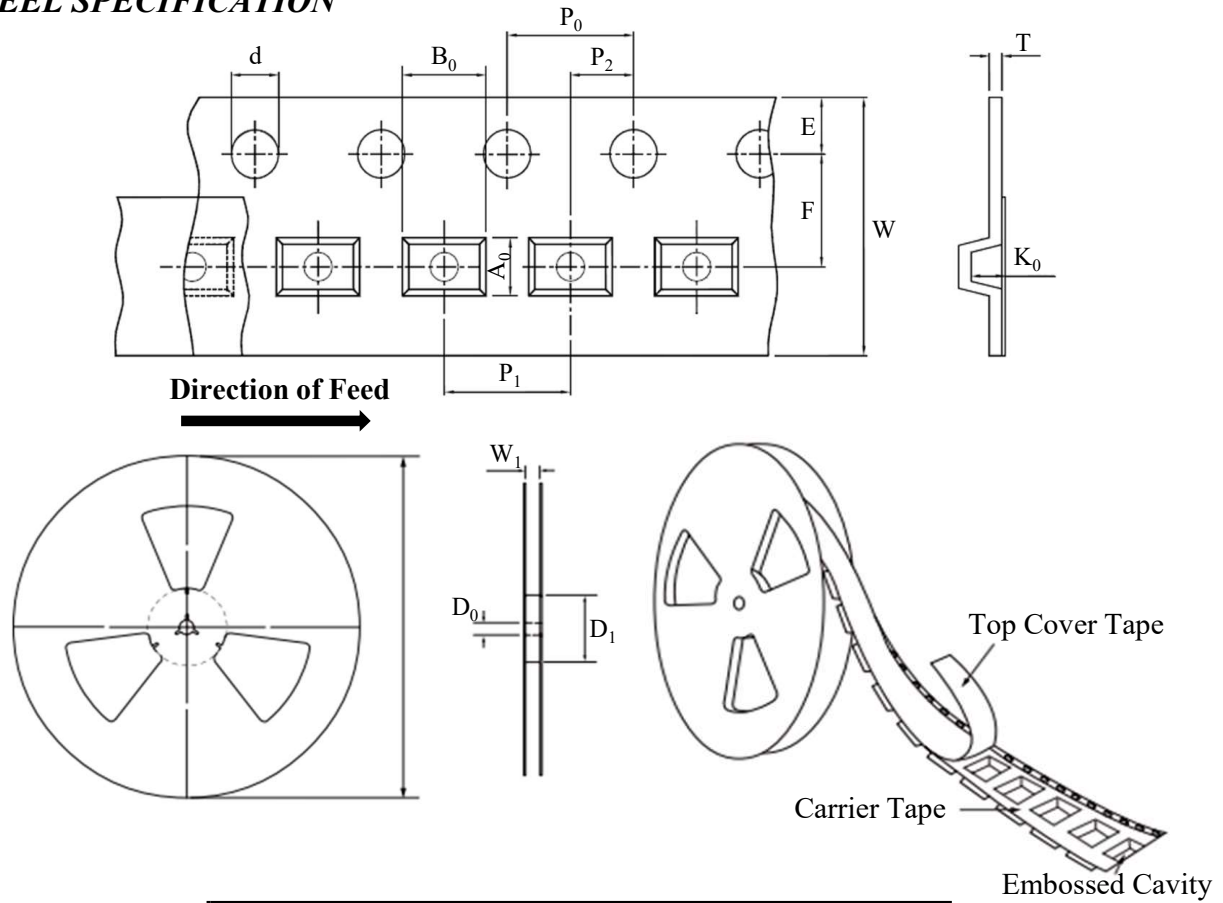
Fig. 7 Output Characteristics Curve



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TAPE & REEL SPECIFICATION



Item	Symbol	SOT-23
Carrier width	A_0	3.30 ± 0.10
Carrier length	B_0	3.00 ± 0.10
Carrier depth	K_0	1.70 ± 0.10
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

ORDER INFORMATION

Package	Reel Size	Quantity
SOT-23	7"	3,000

MARKING CODE

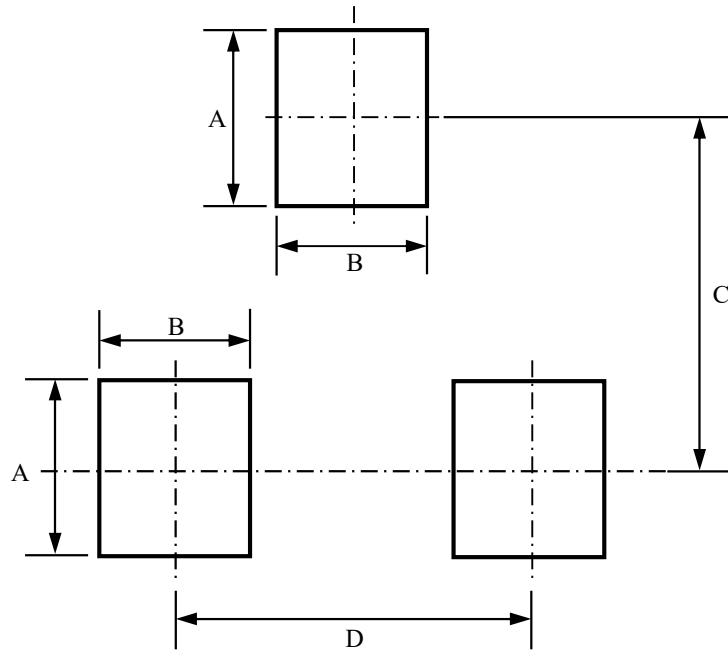
Part Number	Marking Code
MMBT3820H	D7



MMBT3820H

NPN TRANSISTOR

SUGGESTED SOLDER PAD LAYOUT



Unit :mm

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