

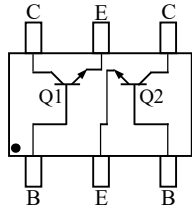
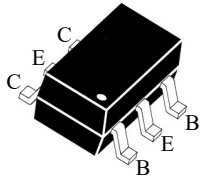


MMBT2222AD1H

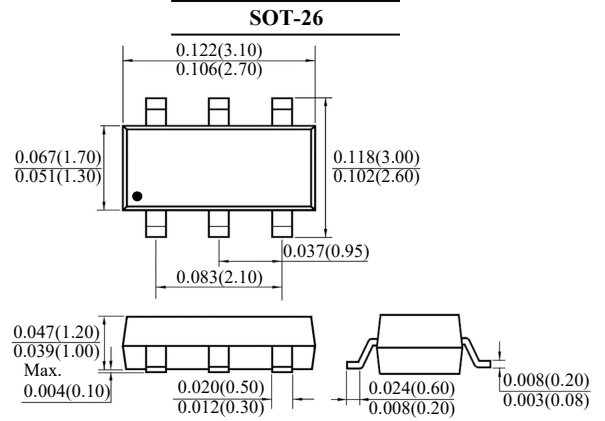
NPN TRANSISTORS

FEATURES

· Suffix "H" indicates Halogen-free parts, ex. MMBT2222AD1H.



B	Base
C	Collector
E	Emitter



Dimensions in inch and (millimeter)

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	75	V
Collector Emitter Voltage	V_{CEO}	40	V
Emitter Base Voltage	V_{EBO}	6	V
Collector Current	I_C	600	mA
Power Dissipation	P_D	350	mW
Thermal Resistance from Junction to Ambient (Note 1)	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	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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Q1 NPN Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Conditions	Symbol	Min.	Max.	Unit
DC Current Gain	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	h_{FE}	35	-	-
	$V_{CE}=10\text{V}, I_C=1\text{mA}$		50	-	
	$V_{CE}=10\text{V}, I_C=10\text{mA}$		75	-	
	$V_{CE}=1\text{V}, I_C=150\text{mA}$		50	-	
	$V_{CE}=10\text{V}, I_C=150\text{mA}$		100	300	
	$V_{CE}=10\text{V}, I_C=500\text{mA}$		40	-	
Collector Base Cutoff Current	$V_{CB}=60\text{V}$	I_{CBO}	-	100	nA
Emitter Base Cutoff Current	$V_{EB}=3\text{V}$	I_{EBO}	-	100	nA
Collector Base Breakdown Voltage	$I_C=10\mu\text{A}$	$V_{(BR)CBO}$	75	-	V
Collector Emitter Breakdown Voltage	$I_C=10\text{mA}$	$V_{(BR)CEO}$	40	-	V
Emitter Base Breakdown Voltage	$I_E=10\mu\text{A}$	$V_{(BR)EBO}$	6	-	V
Collector Emitter Saturation Voltage	$I_C=150\text{mA}, I_B=15\text{mA}$	$V_{CE(sat)}$	-	0.30	V
	$I_C=500\text{mA}, I_B=50\text{mA}$		-	1.00	
Base Emitter Saturation Voltage	$I_C=150\text{mA}, I_B=15\text{mA}$	$V_{BE(sat)}$	0.80	1.20	V
	$I_C=500\text{mA}, I_B=50\text{mA}$		-	2.00	
Transition Frequency	$V_{CE}=20\text{V}, I_E=20\text{mA}, f=100\text{MHz}$	f_T	300	-	MHz
Collector Output Capacitance	$V_{CB}=10\text{V}, f=100\text{KHz}$	C_{ob}	-	8	pF
Emitter Input Capacitance	$V_{EB}=0.5\text{V}, f=100\text{KHz}$	C_{ib}	-	30	pF
Delay Time	$V_{CC}=30\text{V}, V_{BE(OFF)}=0.5\text{V}, I_C=150\text{mA}, I_{B1}=15\text{mA}$	t_d	-	10	ns
Rise Time		t_r	-	25	
Storage Time		t_s	-	225	
Fall Time		t_f	-	60	
	$V_{CC}=30\text{V}, I_C=150\text{mA}, I_{B1}=-I_{B2}=15\text{mA}$				



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RATINGS AND CHARACTERISTIC CURVES

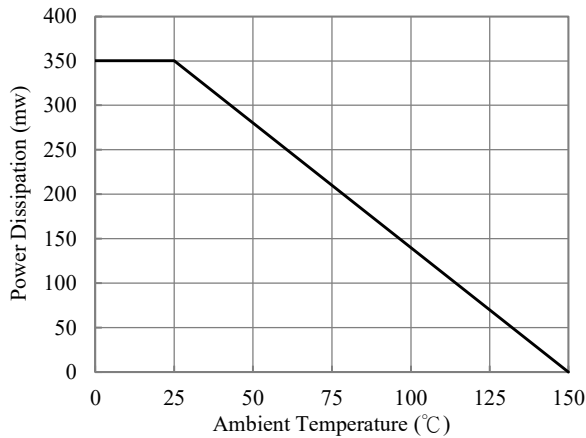


Fig. 1-Power Derating Curve

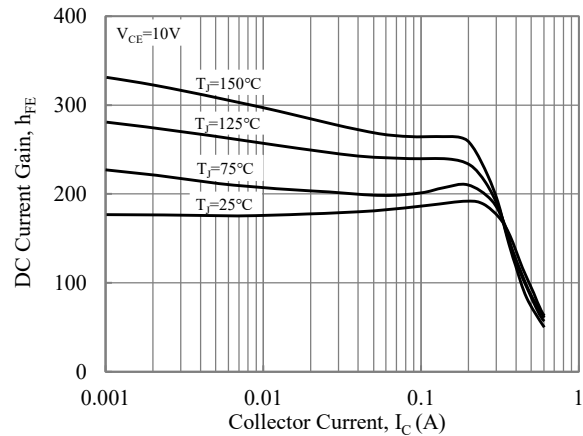


Fig. 2-Current Gain vs. Collector Current

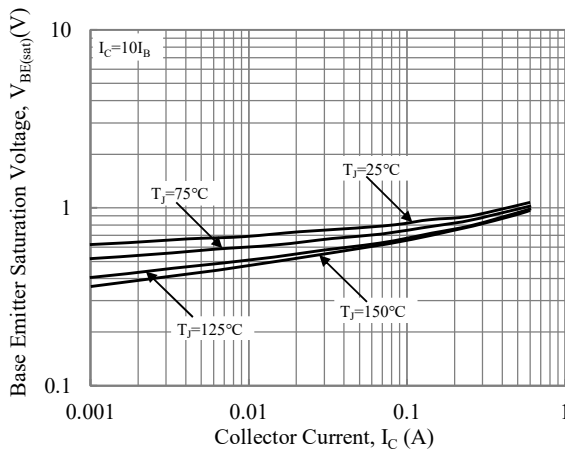


Fig. 3-Base Emitter Saturation Voltage vs. Collector Current

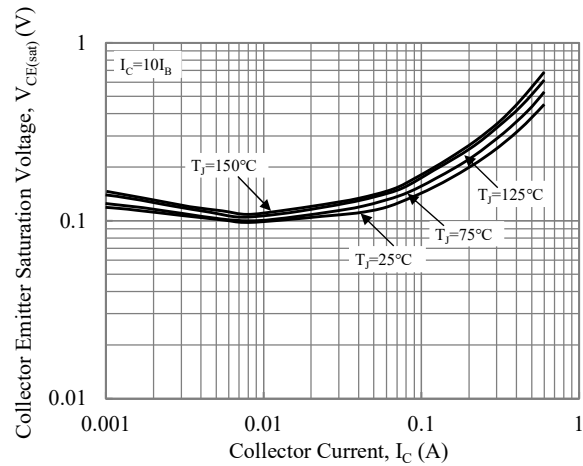


Fig. 4-Collector Emitter Saturation Voltage vs. Collector Current

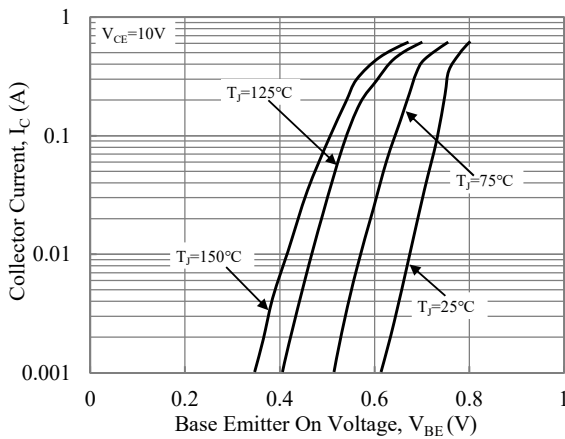


Fig. 5-Base Emitter Voltage vs. Collector Current

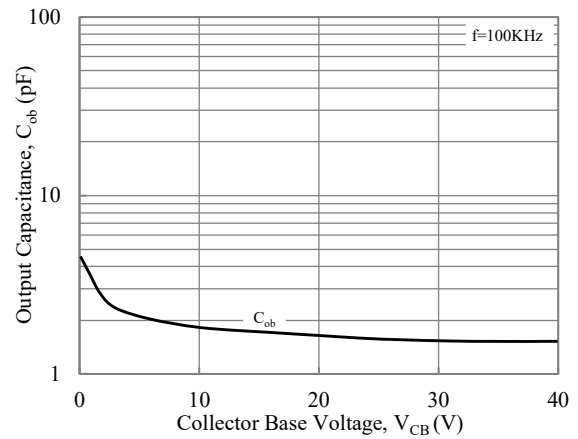


Fig. 6-Output Capacitance



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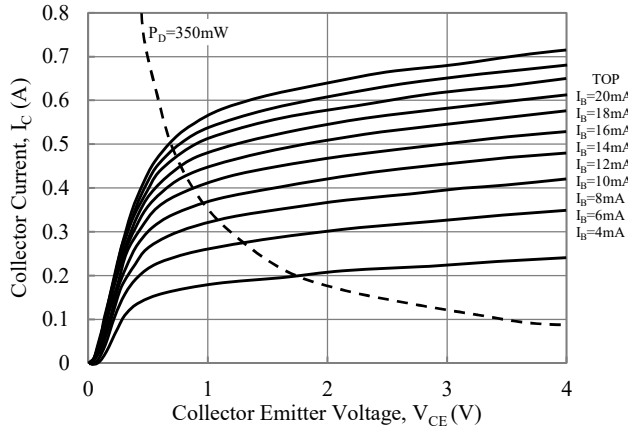


Fig. 7-Output Characteristics Curve

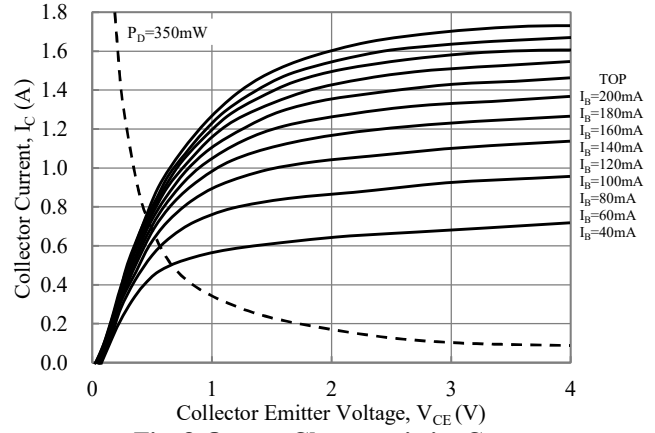


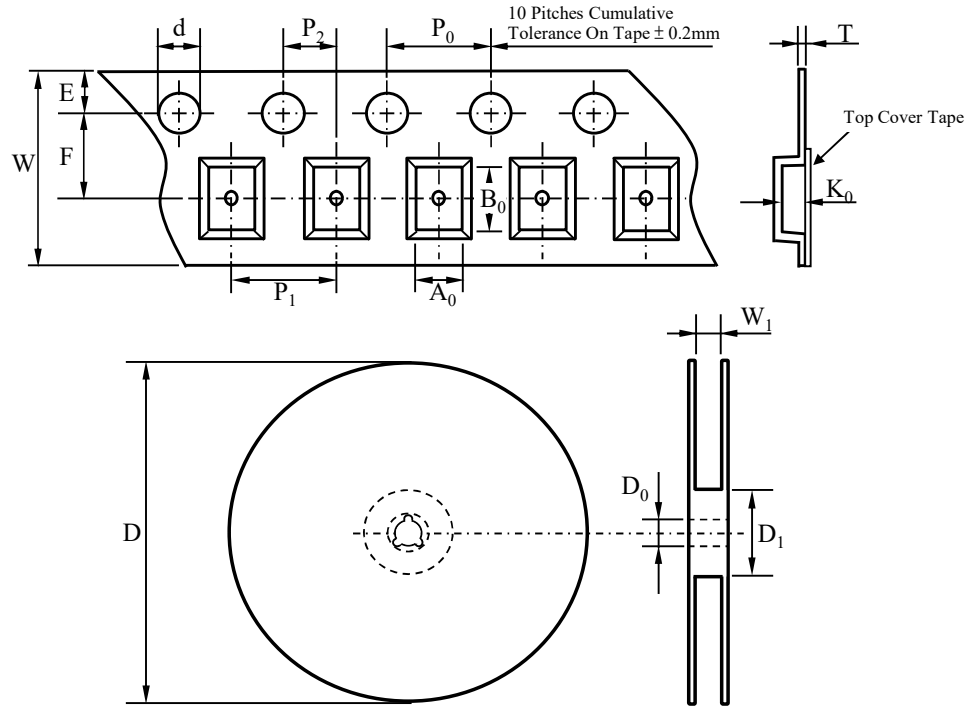
Fig. 8-Output Characteristics Curve



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TAPE & REEL SPECIFICATION



Item	Symbol	SOT-26
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	0.60 ± 0.10
Tape width	W	8.00 ± 0.30
Reel width	W1	MAX. 10.00

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

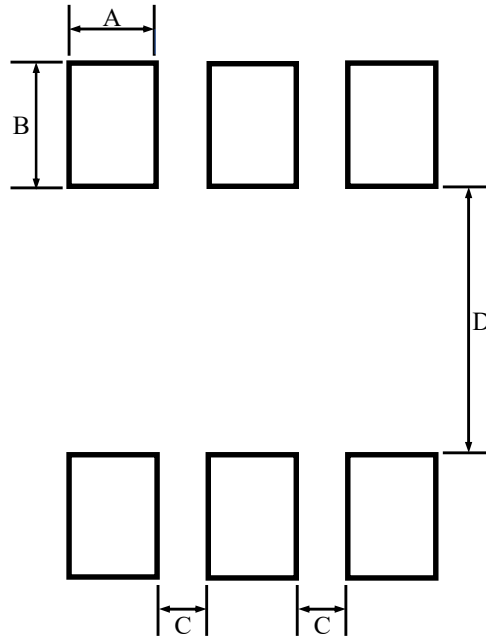
Part Number	Marking Code	Reel Size	Quantity
MMBT2222AD1H	1N	7"	3,000



MMBT2222AD1H

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SUGGESTED SOLDER PAD LAYOUT



Unit :mm

PACKAGE	A	B	C	D
SOT-26	0.70	1.00	0.25	1.40