

General Description

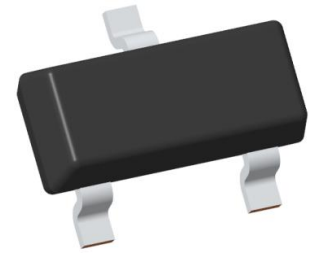
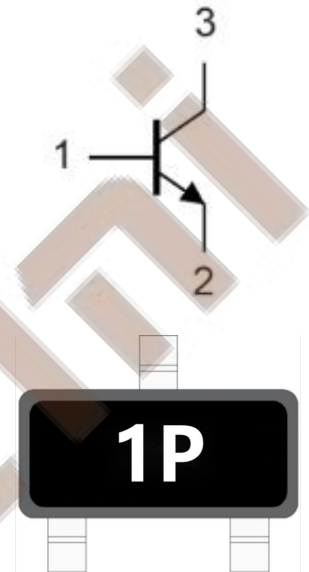


V_{CEO}	I_C	$V_{CE(sat)}$	f_T	T_{jMax}
40V	600mA	1V@ $I_C=500mA$	300MHz	150°C

Features

- SOT-23 Package
- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 3
- High temperature soldering guaranteed 260°C/10seconds

at terminals



Package Marking and Ordering Information

Product ID	Package	Marking	Qty(PCS)
MMBT2222A	SOT-23	1P	3000

Absolute Maximum Ratings (Ta=25°C unless otherwise noted)

Parameter	Symbols	Value	Units
Collector-Base Voltage	VCBO	75	V
Collector-Emitter Voltage	VCEO	40	V
Emitter -Base Voltage	VEBO	6	V
Collector Current-Continuous	IC	600	mA
Collector Power Dissipation	PC	300	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55-+150	°C
Thermal resistance From junction to ambient	RθJA	417	°C/W

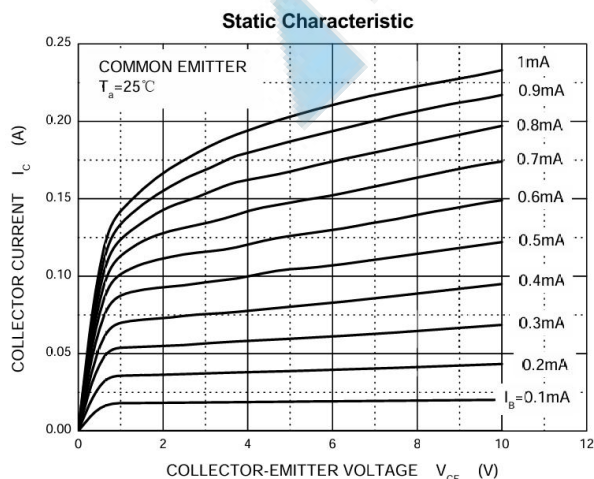
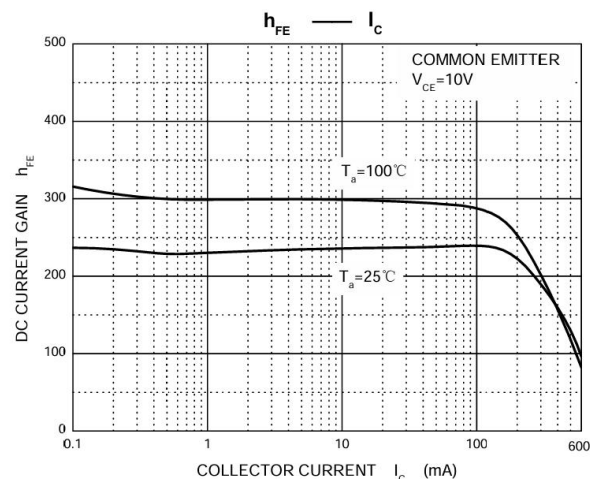
Electrical Characteristics(Ta=25°C unless otherwise noted)

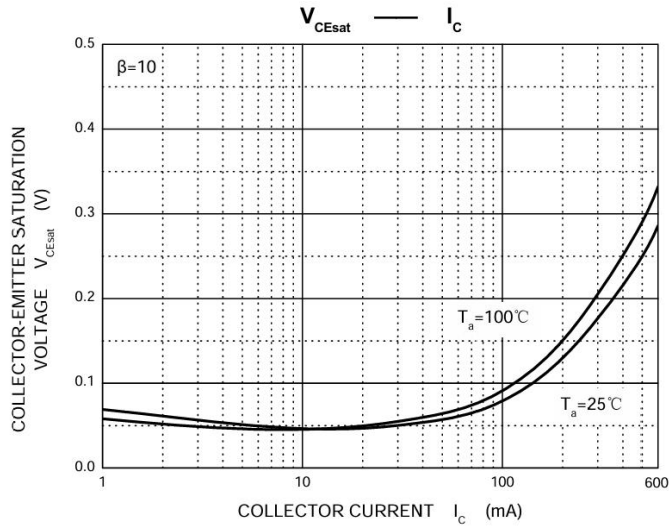
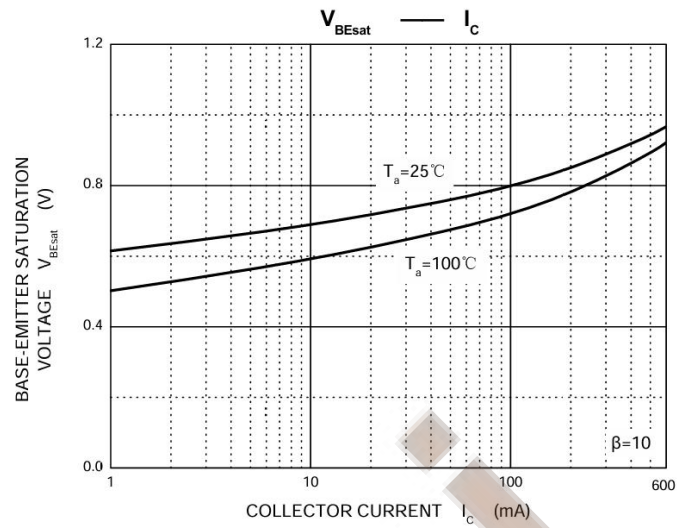
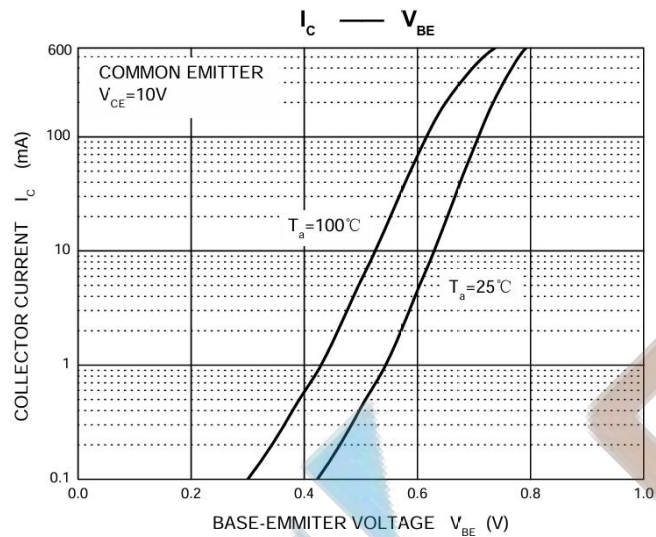
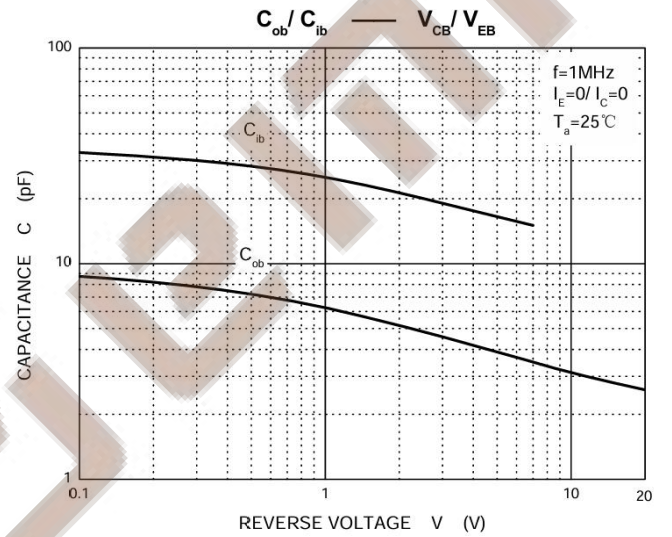
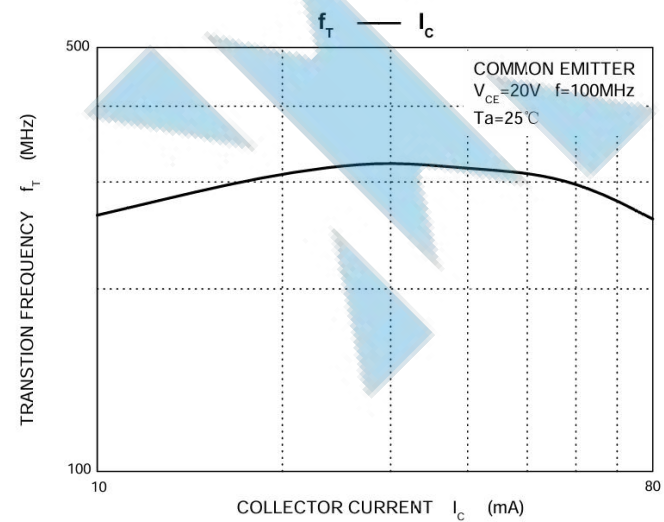
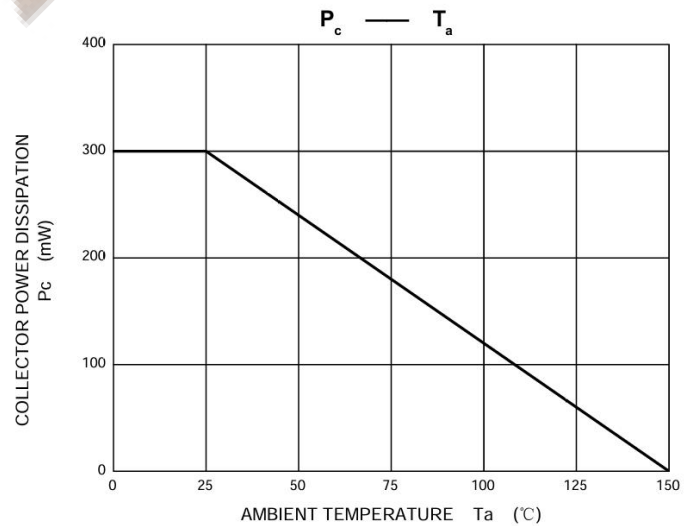
Parameter	Symbol	Conditions	Min.	Max.	Unit
Collector-base breakdown voltage	V(BR)CBO	IC=10uA, IE=0	75		V
Collector-emitter breakdown voltage	V(BR)CEO	IC=10mA, IB=0	40		V
Emitter-base breakdown voltage	V(BR)EBO	IE=10uA, IC=0	6		V
Collector cut-off current	ICBO	VCB=60V, IE=0		0.01	uA
Collector cut-off current	ICEX	VCE=30V, VEB(off)=3V		0.01	uA
Emitter cut-off current	IEBO	VEB=3V, IC=0		0.1	uA
DC current gain	hFE(1)	VCE=10V, IC=150mA	100	300	
	hFE(2)	VCE=10V, IC=0.1mA	40		
	hFE(3)	VCE=10V, IC=500mA	42		
Collector-emitter saturation voltage	VCE(sat)	IC=150mA, IB=15mA		0.3	V
		IC=500mA, IB=50mA		1	V
Base -emitter saturation voltage	VBE(sat)	IC=150mA, IB=15mA		1.2	V
		IC=500mA, IB=50mA		2.0	V
Transition frequency	fT	VCE=20V, IC=20mA, f=100MHz	300		MHz
Delay time	td	VCC=30V, VBE(off)=-0.5V,		10	nS
Rise time	tr	IC=150mA, IB1=15mA		25	nS
Storage time	ts	VCC=30V, IC=150mA, IB1=-IB2=15mA		225	nS
Fall time	tf			60	nS

CLASSIFICATION OF hFE(1)

RANK	L	H
RANGE	100-200	200-300
MARKING	1P	

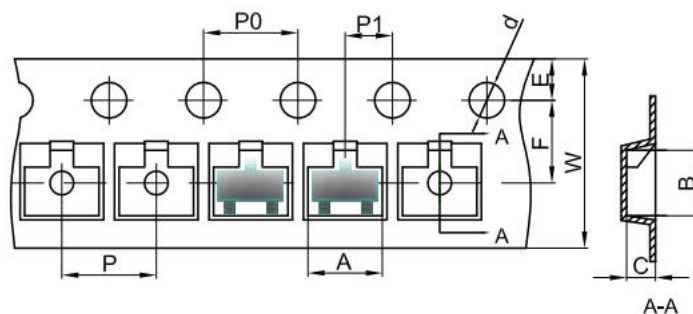
Typical characteristics



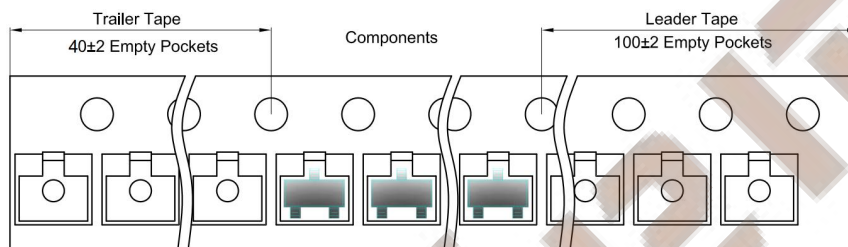


Package Information

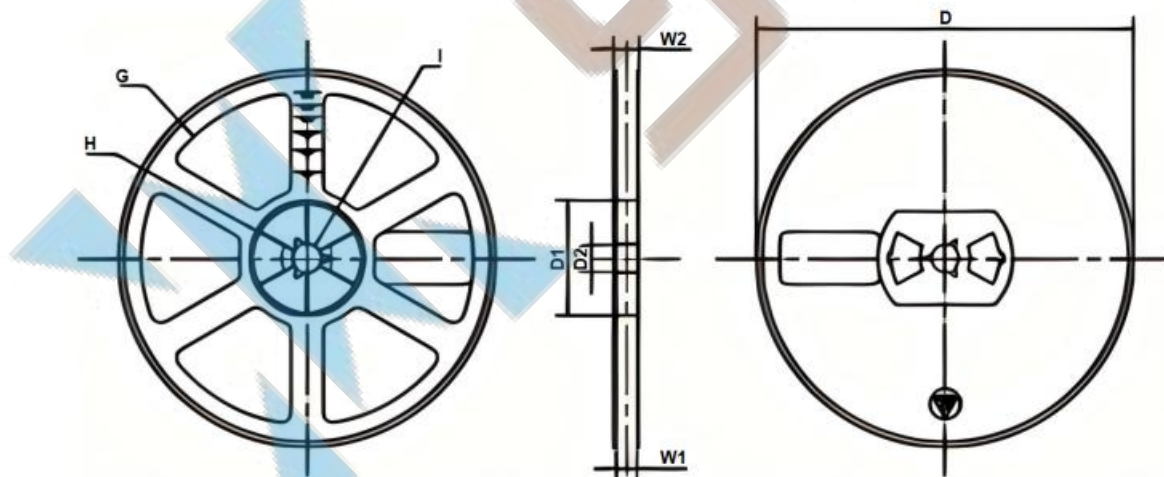
Carrier Dimension(mm)



Dimensions are in millimeter											
Pkg Type	A	B	C	d	E	F	P0	P	P1	10*P0	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	40.00	8.00
(Tolerance)	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.2	±0.1



Reel Dimension(mm)



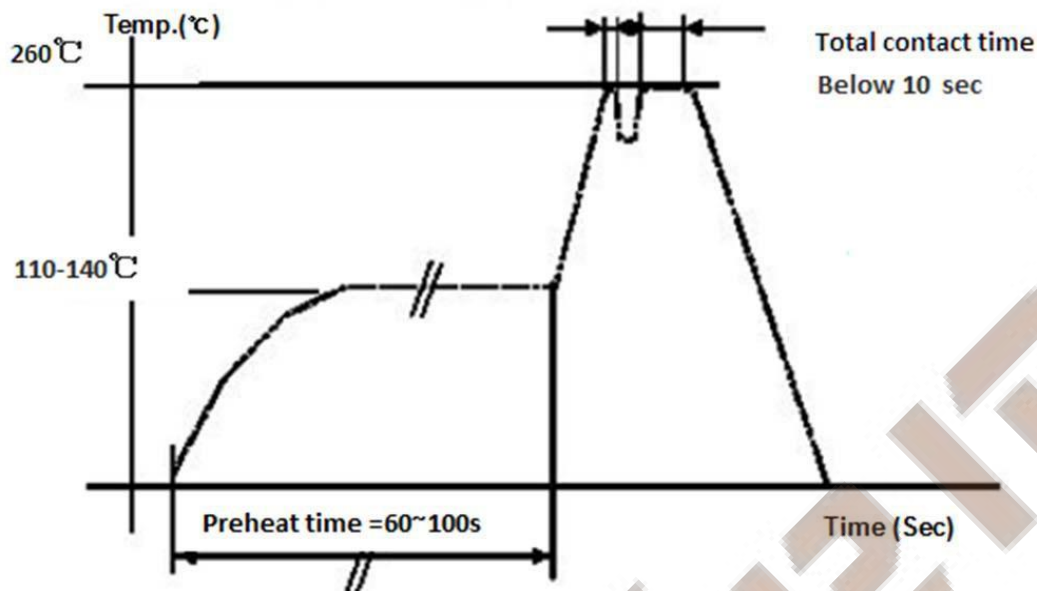
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Φ178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30
Tolerance	±2	±1	±1	±1	±1	±1	±1	±1

Package Specifications

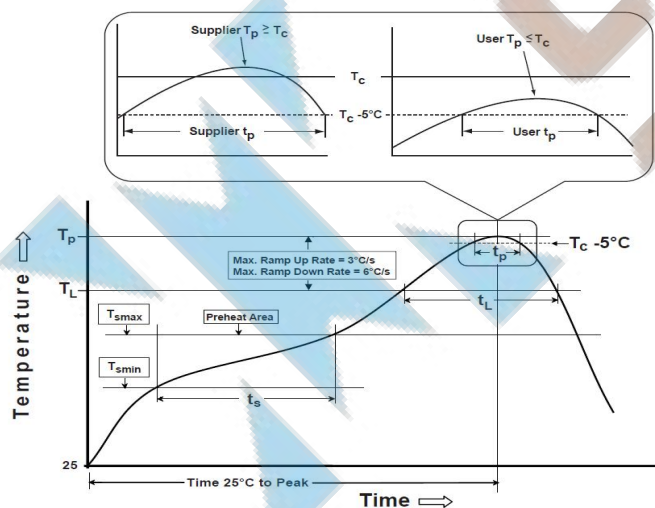
Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SOT23	7'	178	3	210*208*203	45	440*400*230	180

Recommended Soldering Profile for Rectifier Diodes (Pb Free)

a) Wave Soldering Profile



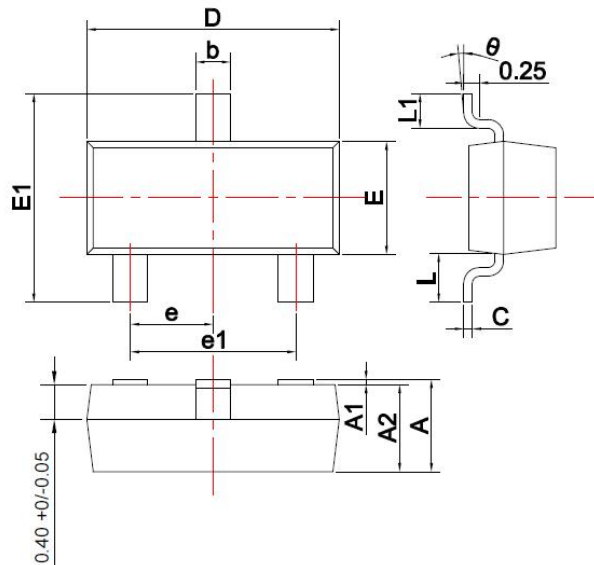
b) Reflow Soldering Profile (Pb Free Application), refer to IPC/JEDEC J-STD-020



Preheat/Soak Temperature Min (Tsmin) Temperature Max (Tsmax) Time (ts) from (Tsmin to Tsmax)	50 °C 200 °C 60-120 seconds
Melting Point of Solder (Sn Ag Cu)	217°C
Ramp-up Rate to 217°C(Melting Point of Solder)	3°C/sec
Time at Temp.>217°C (Melting Point of Solder)	60~150 Sec
Peak Temperature	255±5°C
Time within 5°Cbelow Peak Temp.	20~40 Sec
Cooling Rate	6°C/sec (max)
Time from 25°C to Peak Temp.	8min (max)

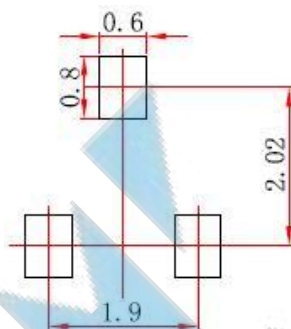
c) Manual Soldering

When using an electric soldering iron for manual soldering, it is recommended that the temperature does not exceed 300°C and the soldering time is less than 10 seconds.

Package Mechanical Data


SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Unit: mm

Suggested Pad Layout


Note:
 1. Controlling dimension: In millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.

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