

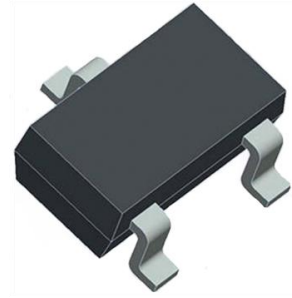
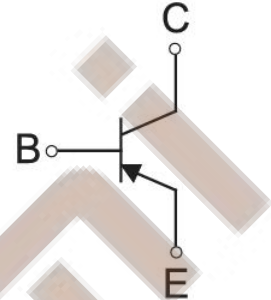
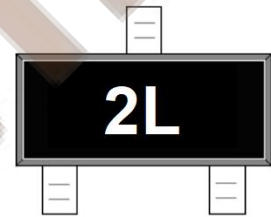
General Description

V_{CEO}	I_C	$V_{CE(sat)}$	f_T	T_{jMax}
-150V	-600mA	-0.2V	100MHz	150°C

Features

- SOT-523 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)
MMBT5401T	SOT-523	2L	3000

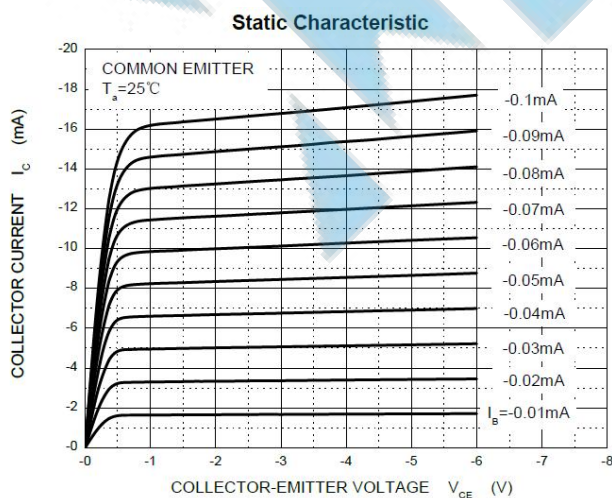
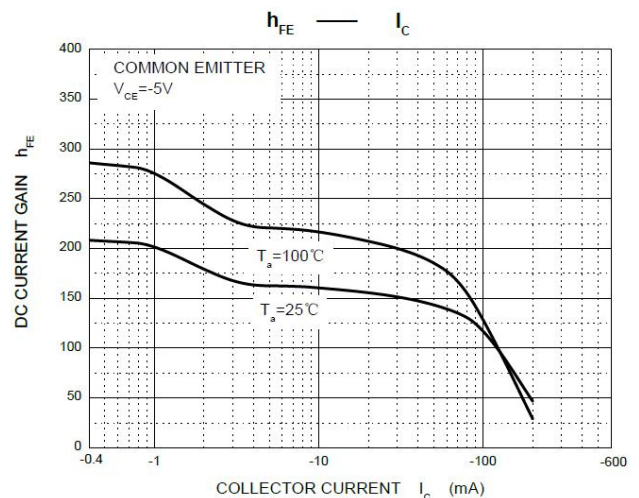
Absolute Maximum Ratings (Ta=25°C unless otherwise noted)

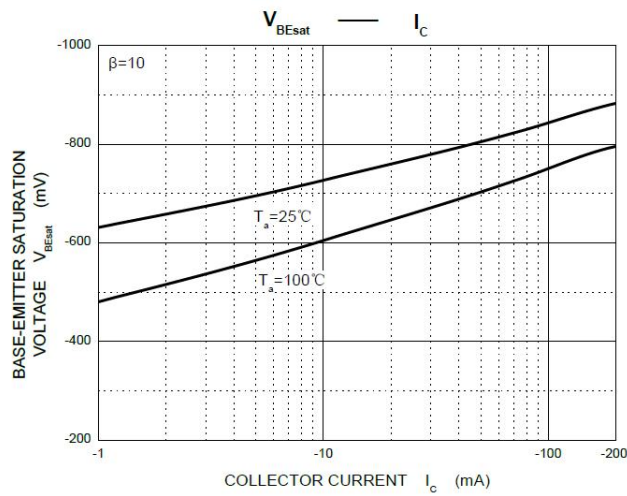
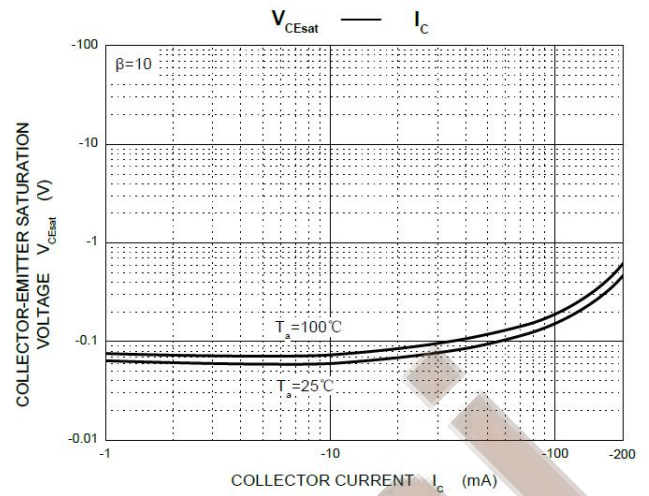
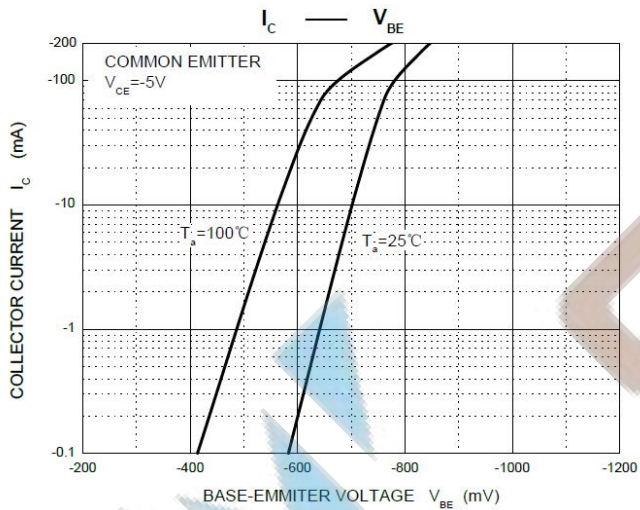
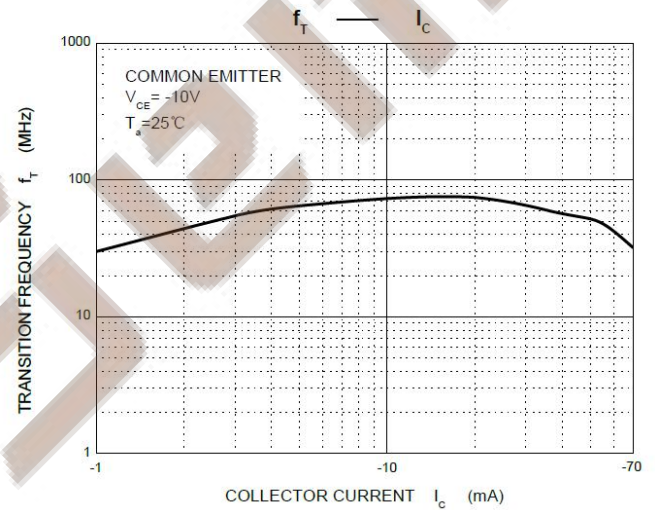
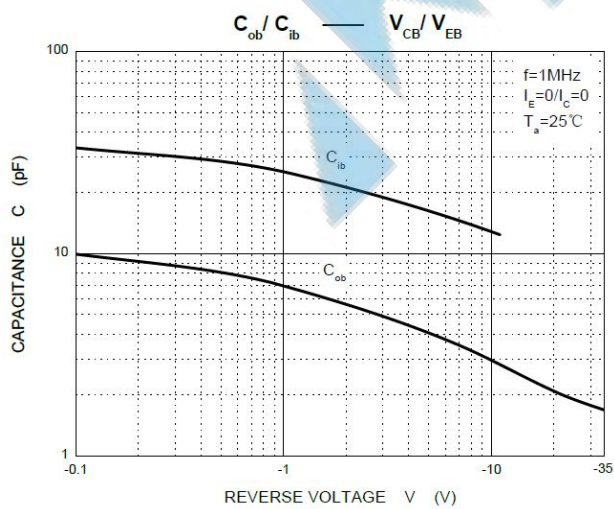
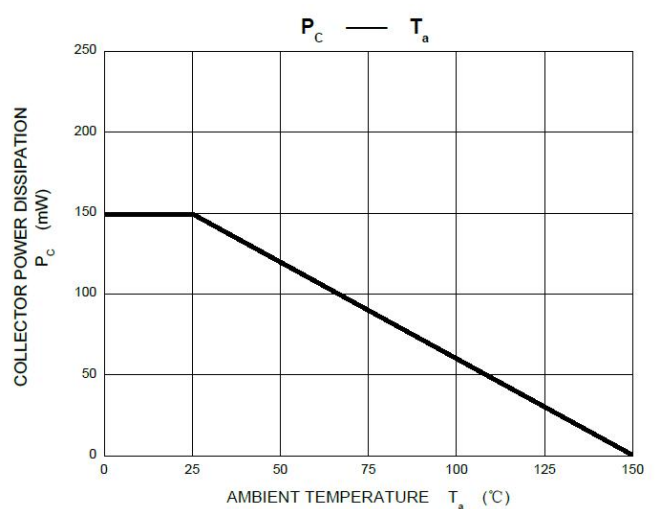
Parameter	Symbols	Value	Units
Collector-Base Voltage	VCBO	-160	V
Collector-Emitter Voltage	VCEO	-150	V
Emitter -Base Voltage	VEBO	-5	V
Collector Current-Continuous	IC	-600	mA
Collector Power Dissipation	PC	150	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55-+150	°C
Thermal resistance from junction to ambient	R θ JA	833	°C/W

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

Parameter	Symbol	Conditions	Min.	Max.	Unit
Collector-base breakdown voltage	V(BR)CBO	IC=-100uA, IE=0	-160		V
Collector-emitter breakdown voltage	V(BR)CEO	IC=-1mA, IB=0	-150		V
Emitter-base breakdown voltage	V(BR)EBO	IE=-10uA, IC=0	-5		V
Collector cut-off current	ICBO	VCE=-120V, IE=0V		-50	nA
Emitter cut-off current	IEBO	VEB=-3V, IC=0V		-50	nA
DC current gain	hFE(1)	VCE=-5V, IC=-1mA	50		
	hFE(2)	VCE=-5V, IC=-10mA	100	300	
	hFE(3)	VCE=-5V, IC=-50mA	50		
Collector-emitter saturation voltage	VCE(sat)	IC=-50mA, IB=-5mA		-0.50	V
		IC=-10mA, IB=-1mA		-0.20	V
Base -emitter saturation voltage	VBE(sat)	IC=-50mA, IB=-5mA		-1.00	V
		IC=-10mA, IB=-1mA		-1.00	V
Transition frequency	fT	VCE=-10V, IC=-10mA, f=100MHz	100		MHz
Collector output capacitance	Cob	VCE=-10V, IE=0, f=1MHz		6	pF

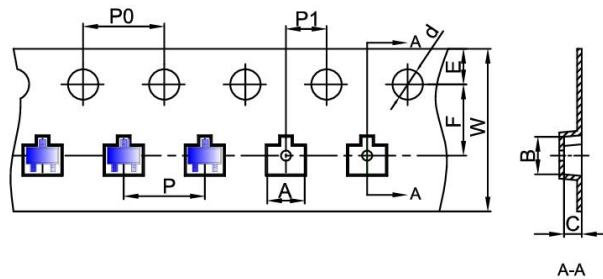
*Pulse test: pulse width ≤ 300us, duty cycle ≤ 2.0%

Typical characteristics


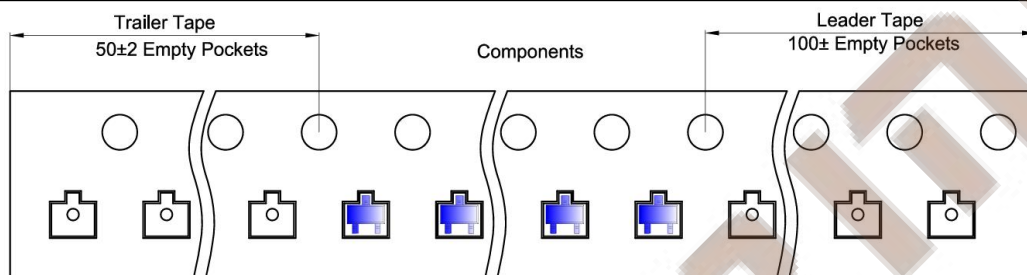


Package Information

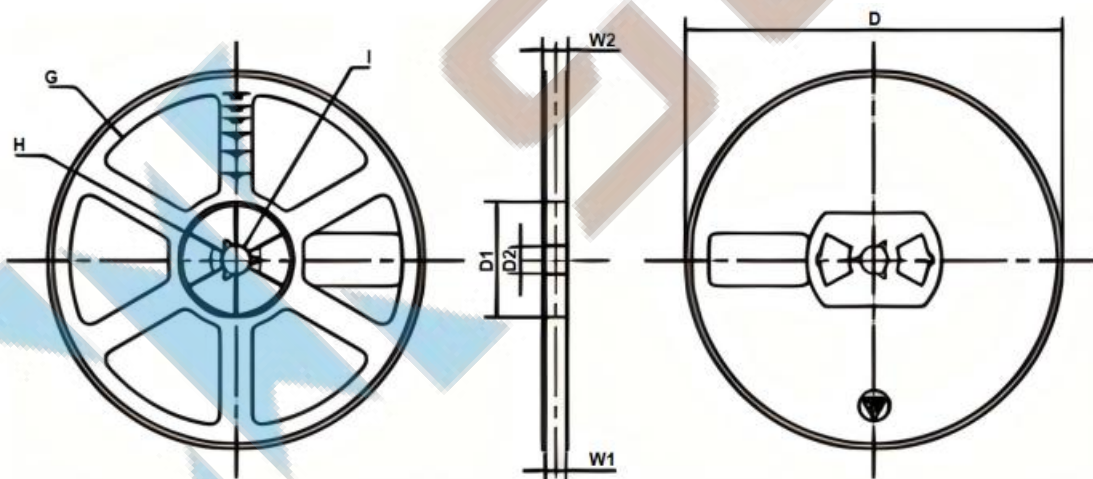
Carrier Dimension(mm)



Dimensions are in millimeter										
Pkg Type	A	B	C	d	E	F	P0	P	P1	W
SOT-523	1.85	1.85	0.875	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00



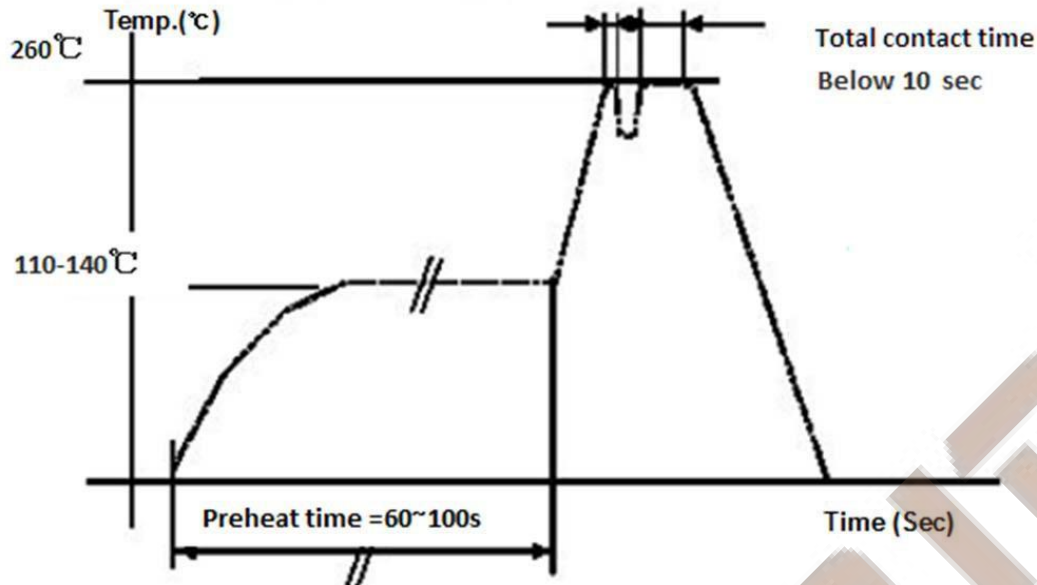
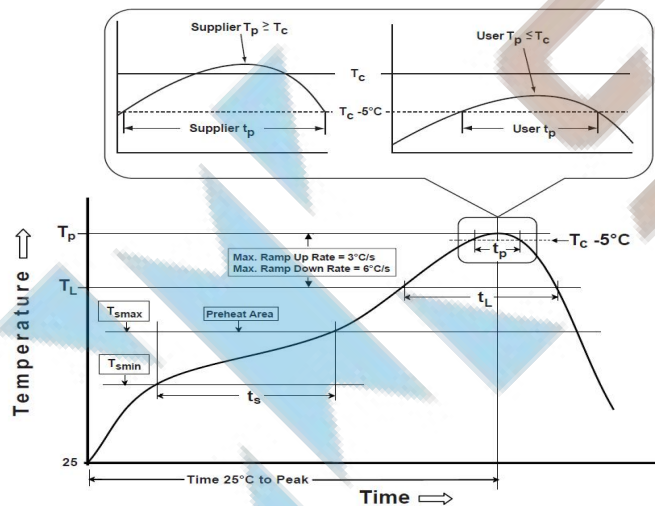
Reel Dimension(mm)



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)
SOT523	7'	178	3	210*208*203	45	440*400*230	180

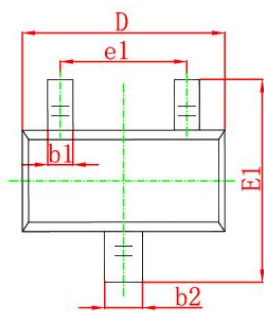
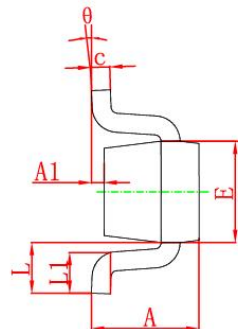
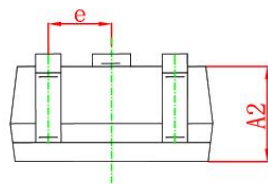
Recommended Soldering Profile for Rectifier Diodes (Pb Free)
a) Wave Soldering Profile

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

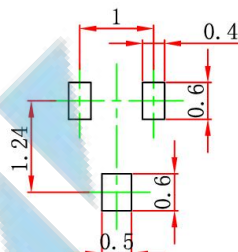
When using an electric soldering iron for manual soldering, it is recommended that the temperature does not exceed 300°C and the soldering time is less than 10 seconds.

Package Mechanical Data



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

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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