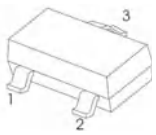
FEATURES

NPN General Purpose

SOT-23



1.BASE
2.EMITTER
3.COLLECTOR

MMBTA05 Marking: 1H
MMBTA06 Marking: 1GM

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings 最大额定值

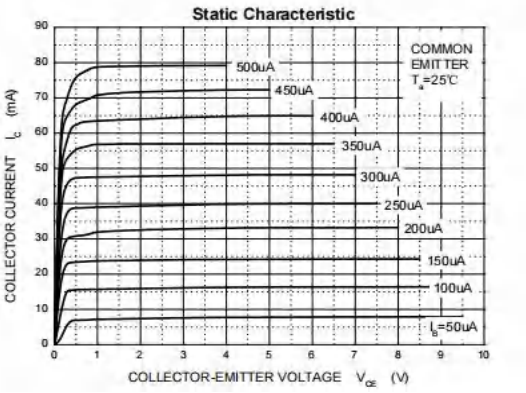
Characteristic 特性参数	Symbol 符号	Rat 额定值		Unit 单位
		MMBTA05	MMBTA06	
Collector-Base Voltage 集电极基极电压	V_{CBO}	60	80	V
Collector-Emitter Voltage 集电极发射极电压	V_{CEO}	60	80	V
Emitter-Base Voltage 发射极基极电压	V_{EBO}	4		V
Collector Current 集电极电流	I_C	500		mA
Power dissipation 耗散功率	$P_C(T_a=25℃)$	300		mW
Thermal Resistance Junction-Ambient 热阻	$R_{\Theta JA}$	417		℃/W
Junction and Storage Temperature 结温和储藏温度	T_J,T_{stg}	-55to+150℃		

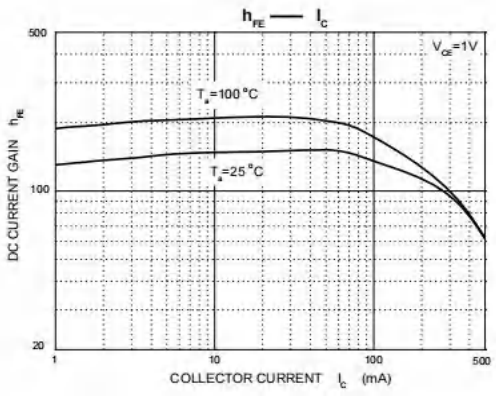
Electrical Characteristics 电特性

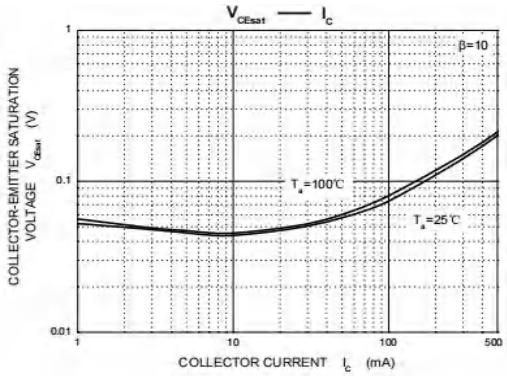
(T_A=25℃ unless otherwise noted 如无特殊说明，温度为 25℃)

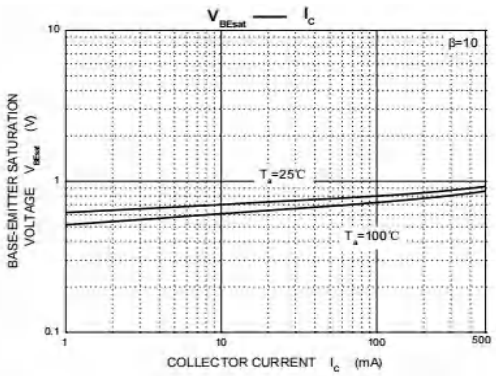
Characteristic 特性参数		Symbol 符号	Min 最小值	Type 典型值	Max 最大值	Unit 单位
Collector-Base Breakdown Voltage 集电极基极击穿电压 (I_C= 100μA，I_E=0)	MMBTA05 MMBTA06	BV_{CBO}	60 80	—	—	V
Collector-Emitter Breakdown Voltage 集电极发射极击穿电压 (I_C= 10mA，I_B=0)	MMBTA05 MMBTA06	BV_{CEO}	60 80	—	—	V
Emitter-Base Breakdown Voltage 发射极基极击穿电压 (I_E= 100μA，I_C=0)		BV_{EBO}	4	—	—	V
Collector-Base Leakage Current 集电极基极漏电流	MMBTA05(V_{CB}=60V,I_E=0) MMBTA06(V_{CB}=80V,I_E=0)	I_{CBO}	—	—	100	nA
Collector-Emitter Leakage Current 集电极发射极漏电流	MMBTA05(V_{CB}=60V,I_B=0) MMBTA06(V_{CB}=60V,I_B=0)	I_{CEO}	—	—	100	nA
Emitter-Base Leakage Current 发射极基极漏电流(V_{EB}=4V，I_C=0)		I_{EBO}	—	—	100	nA
DC Current Gain(V_{CE}= 1V,I_C= 10mA) 直流电流增益(V_{CE}= 1V,I_C= 100mA)		H_{FE}	100 100	—	400	
Collector-Emitter Saturation Voltage 集电极发射极饱和压降(I_C= 100mA，I_B= 10mA)		$V_{CE(sat)}$	—	—	0.25	V
Base-Emitter Saturation Voltage 基极发射极饱和压降(I_C= 100mA，I_B= 10mA)		$V_{BE(sat)}$	—	—	1.2	V
Base-Emitter On Voltage 基极发射极导通电压(V_{CE}= 1V，I_C= 100mA)		$V_{BE(on)}$	—	—	1.2	V
Transition Frequency 特征频率(V_{CE}= 2V，I_C= 10mA)		f_T	100	—	—	MHz
Output Capacitance 输出电容(V_{CB}= 10V，I_E=0, f=1MHz)		C_{ob}	—	10	—	pF

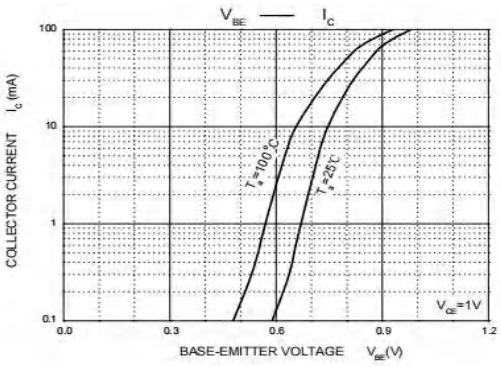
RATING AND CHARACTERISTIC CURVES

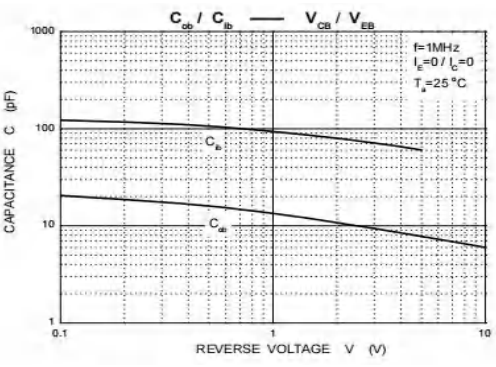


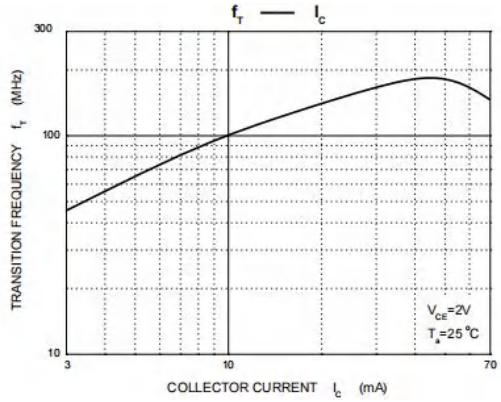


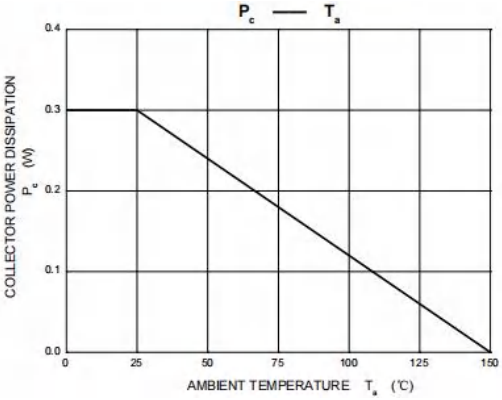








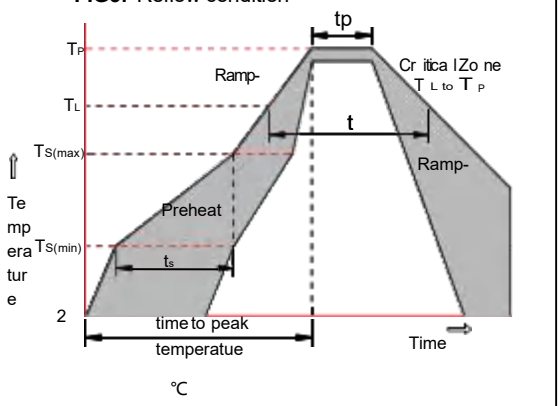




Soldering parameters

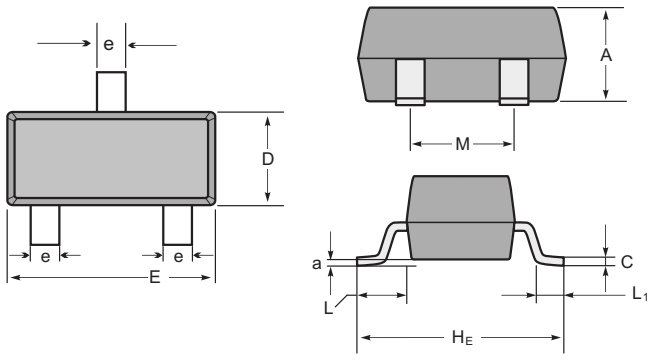
Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

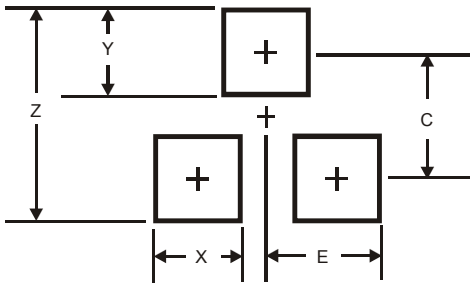
FIG5: Reflow condition



Package Dimensions & Suggested Pad Layout

SOT23





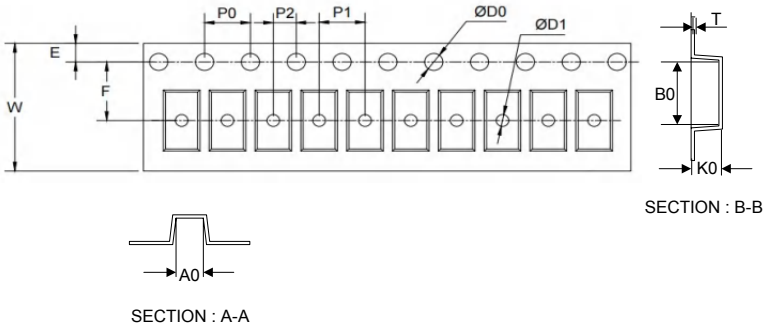
SOT-23 mechanical data

UNIT		A	C	D	E	H_E	e	M	L	L_1	a
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)	0.0
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7			0.15
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)	0.0
	min	35	3	47	110	87	12	67			6

Dimensions	SOT23
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

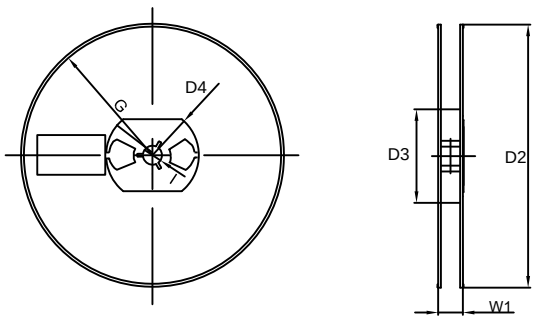
Tape & rell specification

Tape



Symbol	Dimension (mm)
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.10
D0	1.55±0.10
D1	1.05±0.10
E	1.55±0.10
F	3.60±0.10
W	8.00±0.10
A0	3.80±0.20
B0	3.25±0.20
K0	1.45±0.10
T	0.25±0.05

7” Reel



D2	178.0±3.0
D3	55Min.
D4	R24.0±3.0
G	R82.0±3.0
I	13.0±2.0
W1	11.0±3.0

Quantity: 3000PCS