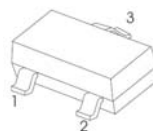


Features 特点

NPN Darlington Amplifier 达林顿放大

SOT-23



1.BASE
2.EMITTER
3.COLLECTOR

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings 最大额定值

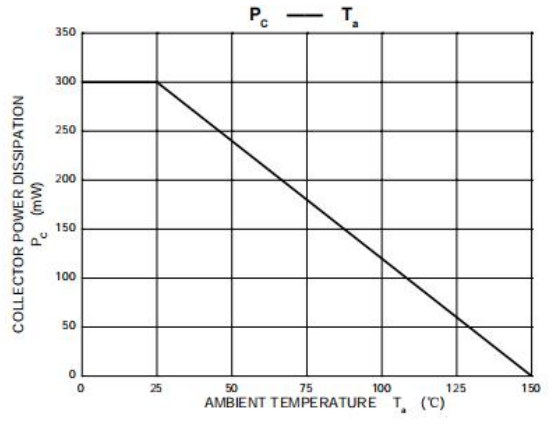
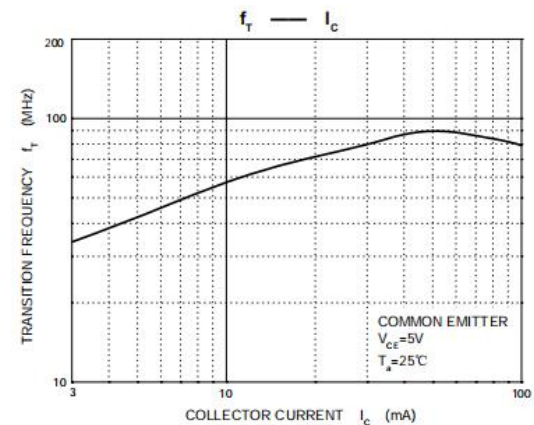
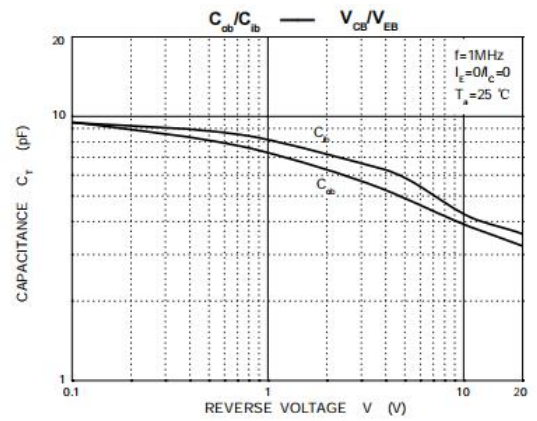
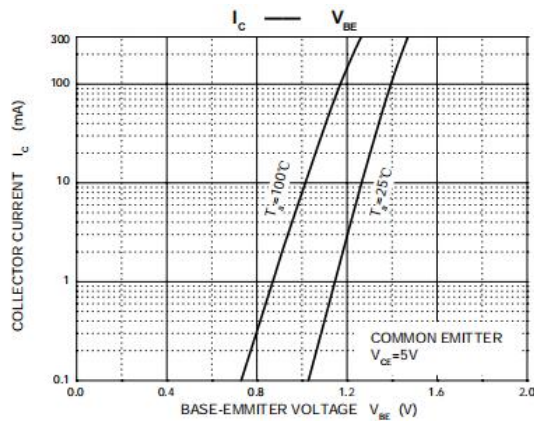
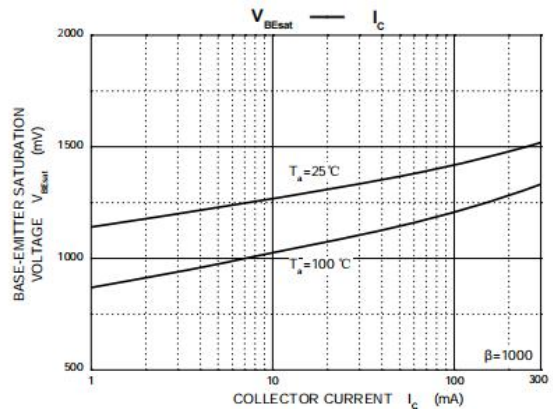
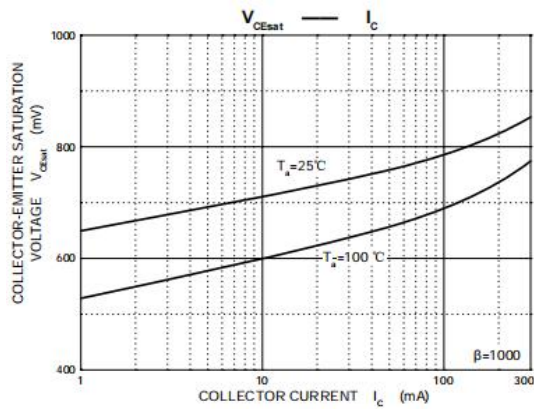
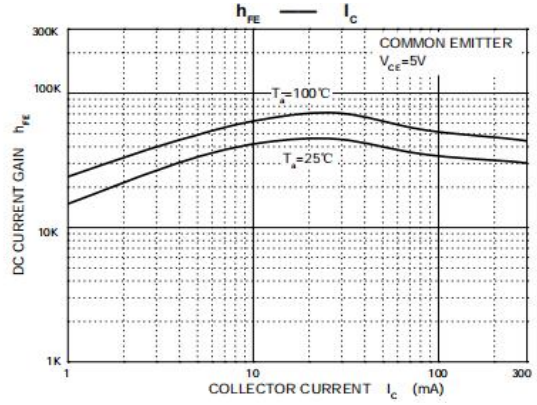
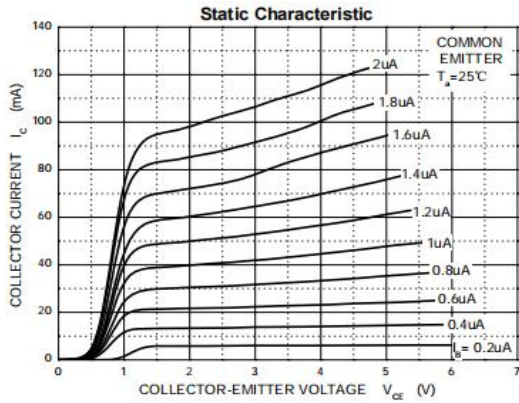
Characteristic 特性参数	Symbol 符号	Rat 额定值	Unit 单位
		MMBTA13/MMBTA14	
Collector-Base Voltage 集电极基极电压	V_{CBO}	30	V
Collector-Emitter Voltage 集电极发射极电压	V_{CEO}	30	V
Emitter-Base Voltage 发射极基极电压	V_{EBO}	10	V
Collector Current 集电极电流	I_C	300	mA
Power dissipation 耗散功率	$P_C(T_a=25^\circ\text{C})$	300	mW
Thermal Resistance Junction-Ambient 热阻	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature 结温和储藏温度	T_J, T_{stg}	MMBTA14 -55to+150 $^\circ\text{C}$	

Electrical Characteristics 电特性

($T_A=25^{\circ}\text{C}$ unless otherwise noted 如无特殊说明, 温度为 25°C)

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($I_C=100\mu\text{A}$, $I_E=0$)	BV_{CBO}	30	—	—	V
Collector-Emitter Breakdown Voltage 集电极发射极击穿电压($I_C=100\mu\text{A}$, $I_B=0$)	BV_{CEO}	30	—	—	V
Emitter-Base Breakdown Voltage 发射极基极击穿电压($I_E=100\mu\text{A}$, $I_C=0$)	BV_{EBO}	10	—	—	V
Collector-Base Leakage Current 集电极基极漏电流($V_{CB}=30\text{V}$, $I_E=0$)	I_{CBO}	—	—	100	nA
Collector-Emitter Leakage Current 集电极发射极漏电流($V_{CE}=30\text{V}$, $I_B=0$)	I_{CEO}	—	—	100	nA
Emitter-Base Leakage Current 发射极基极漏电流($V_{EB}=10\text{V}$, $I_C=0$)	I_{EBO}	—	—	100	nA
DC Current Gain($V_{CE}=5\text{V}$, $I_C=10\text{mA}$)MMBTA13 ($V_{CE}=5\text{V}$, $I_C=10\text{mA}$)MMBTA14 直流电流增益($V_{CE}=5\text{V}$, $I_C=100\text{mA}$)MMBTA13 ($V_{CE}=5\text{V}$, $I_C=100\text{mA}$)MMBTA14	H_{FE}	5000 10000 10000 20000	—	—	
Collector-Emitter Saturation Voltage 集电极发射极饱和压降($I_C=100\text{mA}$, $I_B=100\mu\text{A}$)	$V_{CE(sat)}$	—	—	1.5	V
Base-Emitter Saturation Voltage 基极发射极饱和压降($I_C=100\text{mA}$, $I_B=100\mu\text{A}$)	$V_{BE(sat)}$	—	—	2	V
Base-Emitter On Voltage 基极发射极导通电压($V_{CE}=5\text{V}$, $I_C=100\text{mA}$)	$V_{BE(on)}$	—	—	2	V
Transition Frequency 特征频率($V_{CE}=5\text{V}$, $I_C=10\text{mA}$)	f_T	125	—	—	MHz
Output Capacitance 输出电容($V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$)	C_{ob}	—	—	12	pF

Typical Characteristic Curve 典型特性曲线



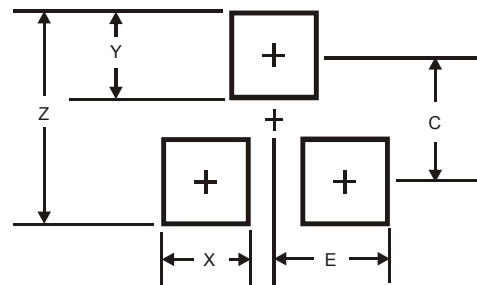
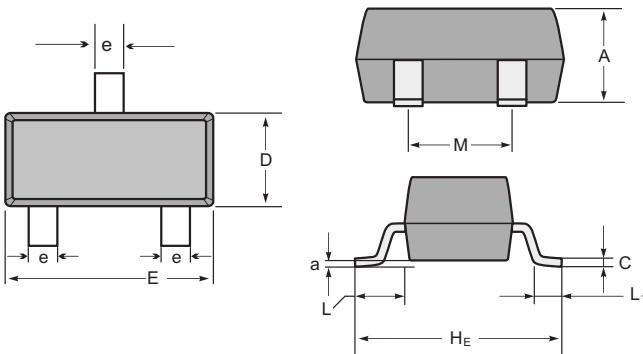
Soldering parameters

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



Package Dimensions & Suggested Pad Layout

SOT23

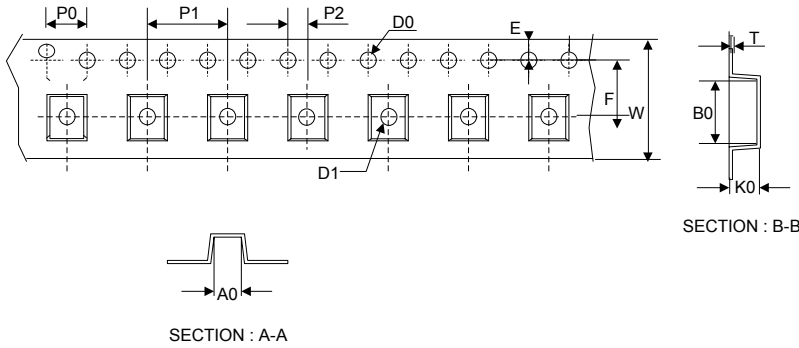


SOT-23 mechanical data

UNIT	A	C	D	E	He	e	M	L	L1	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 & reel 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
7" Reel	K0	1.45±0.10
	T	0.25±0.05
	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	