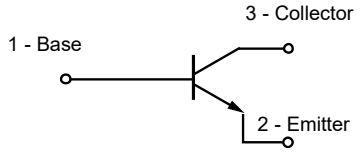
Description

NPN switching transistor in a SOT-23 plastic package.



Feature

- High current (max. 600 mA)
- Lead finish:100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature:260℃
- Device meets MSL 1 requirements
- Pure tin plating: 7 ~ 17 um
- Pin flatness：≤3mil

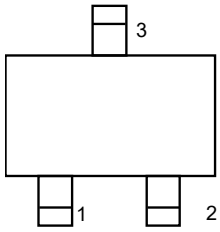


Fig.1 Simplified outline and symbol.

PT23T2222A/SOT-23

Applications

- Switching and linear amplification.

Maximum Ratings and Thermal Characteristics(T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Units
Collector-base voltage	V_{CBO}	75	V
Collector-emitter voltage	V_{CEO}	40	V
Emitter-base voltage	V_{EBO}	6	V
Collector current (DC)	I_C	600	mA
Collector Dissipation	P_C	300	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	417	℃/W
Storage temperature	T_{stg}	150	℃
Junction temperature	T_J	-55~150	℃

Electrical characteristics per line@(unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C = 10μA, I_E = 0	75			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C = 10mA, I_B = 0	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E = 10μA, I_C = 0	6			V
Collector cut-off current	I_{CBO}	V_{CB} = 60V,, I_E = 0			0.01	μA
Collector cut-off current	I_{CEX}	V_{CE} = 30V,$V_{BE(off)}$ = 3V			0.01	μA
Emitter cut-off current	I_{EBO}	V_{EB} = 3V, I_C = 0			0.1	μA
DC current gain	h_{FE}	V_{CE} = 10V, I_C = 150mA	100		300	
		V_{CE} = 10V, I_C = 500mA	42		-	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = 150mA; I_B = 15mA			0.3	V
		I_C = 500mA; I_B = 50mA			1.0	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C = 150mA; I_B = 15mA			1.2	V
		I_C = 500mA; I_B = 50mA			2.0	V
Transition frequency	f_T	V_{CE} = 20V, I_C = 20mA, f = 100MHz	300			MHz
Delay time	t_d	V_{CC} = 30V ,$V_{BE(off)}$ = -0.5V , I_C = 150mA ,I_{B1} = 15mA			10	ns
Rise time	t_r				25	ns
Storage time	t_s	V_{CC} = 30V , I_C = 150mA , I_{B1} = -I_{B2}=15mA			225	ns
Fall time	t_f				60	ns

pulse test: Pulse Width ≤300μs, Duty Cycle≤ 2.0%.

Typical Characteristics

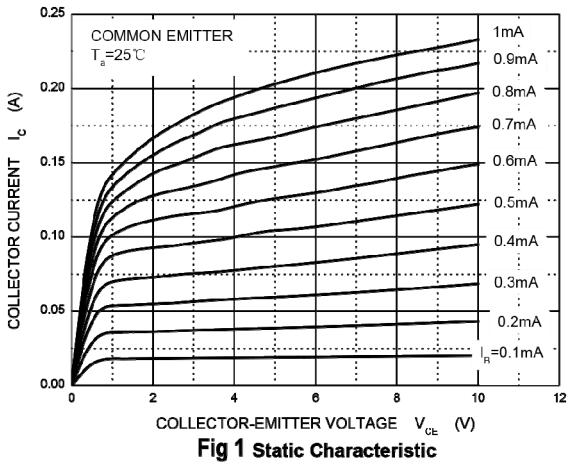


Fig 1 Static Characteristic

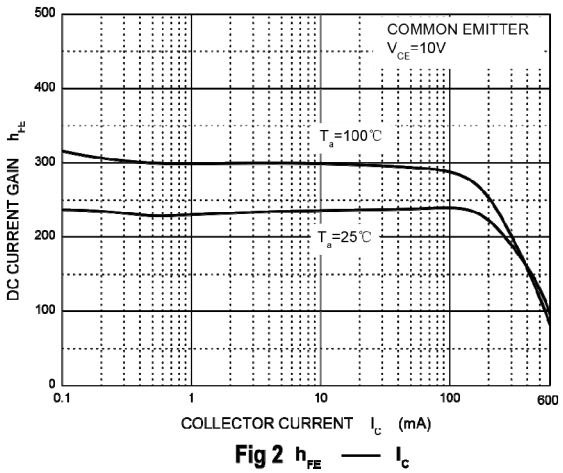


Fig 2 h_{FE} —— I_C

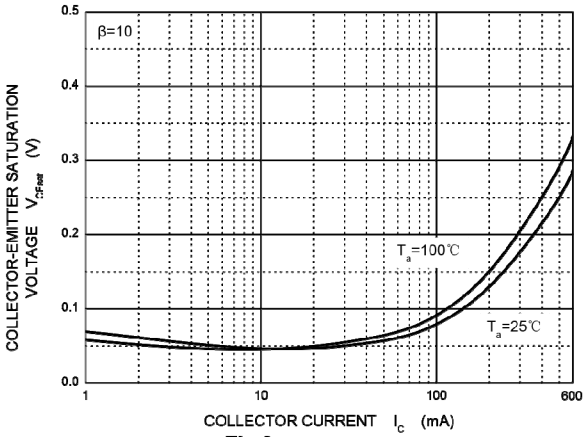


Fig 3 V_{CEsat} —— I_C

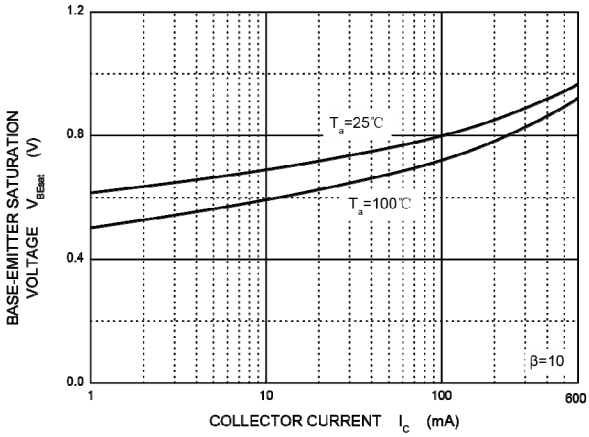


Fig 4 V_{BEsat} —— I_C

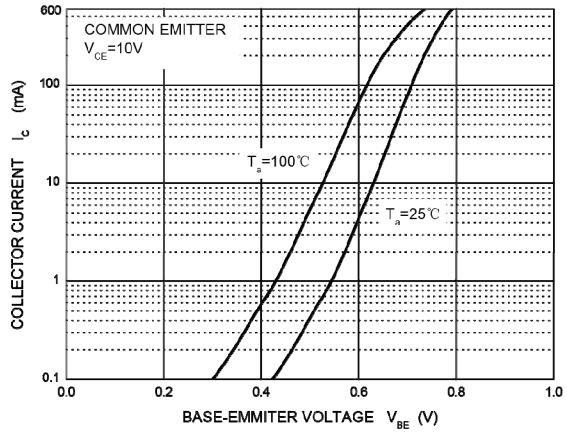


Fig 5 I_C —— V_{BE}

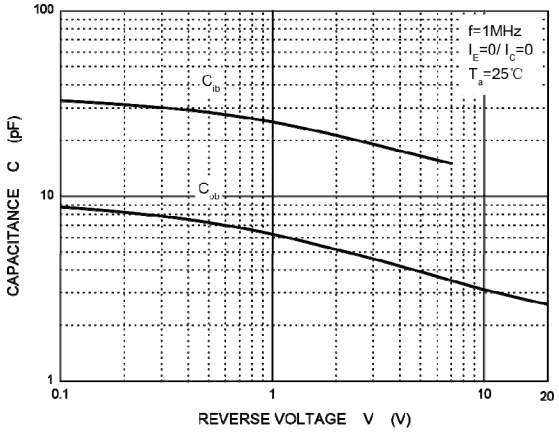


Fig 6 C_{ob}/ C_{ib} —— V_{CB}/ V_{EB}

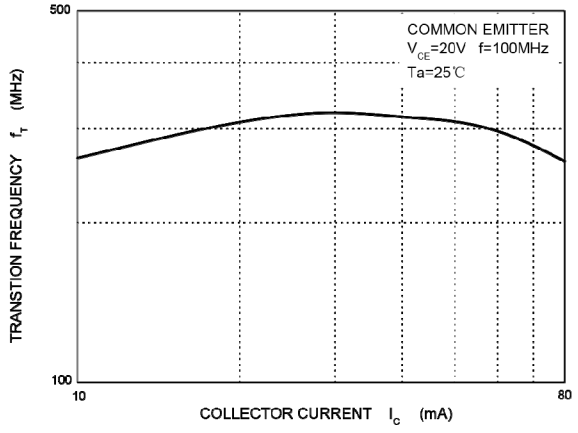


Fig 7 f_T —— I_C

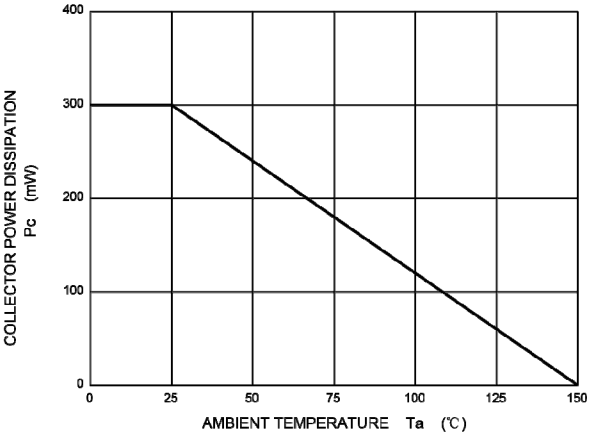
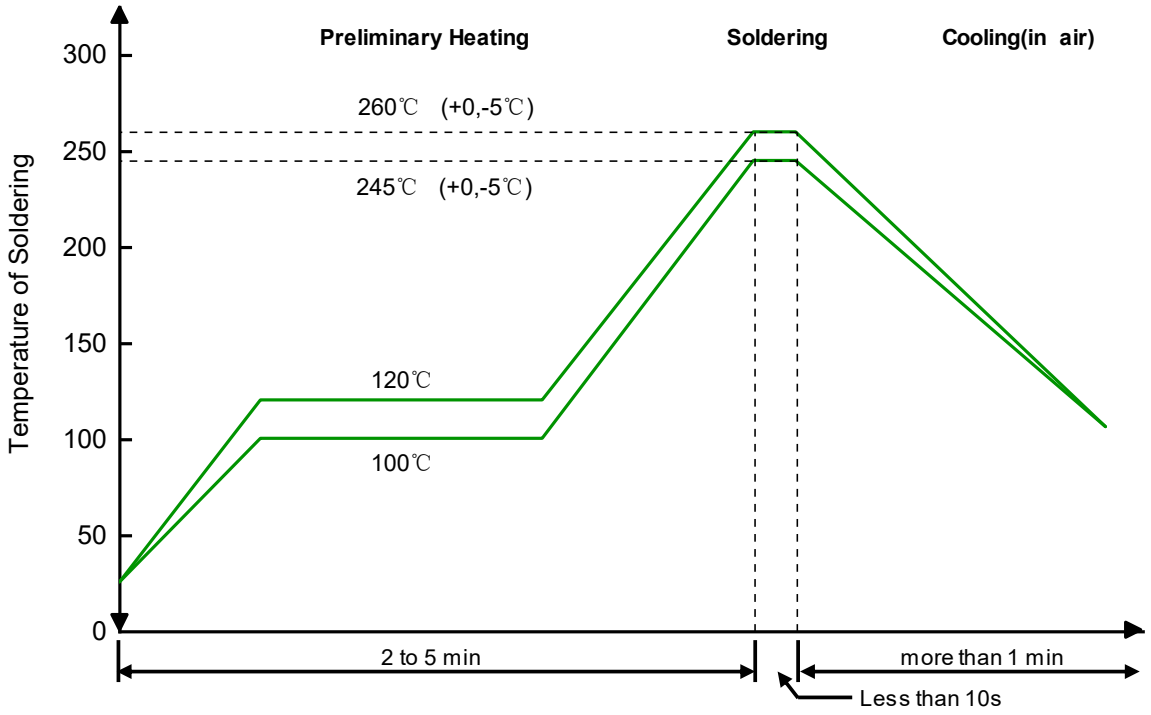


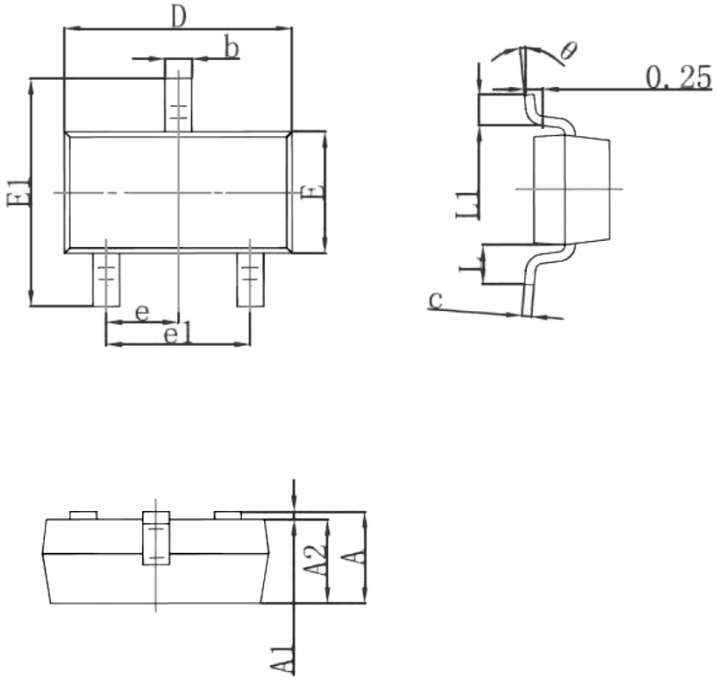
Fig 8 P_c —— T_a

Solder Reflow Recommendation

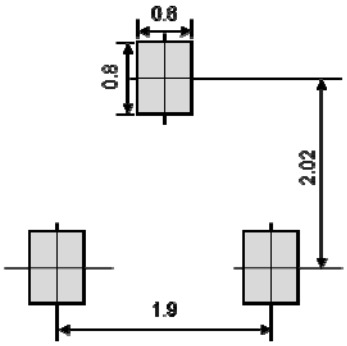


Remark: Pb free for 260℃; Pb for 245℃.

Product dimension(SOT-23)



Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 Typ.		0.037 Typ.	
e1	1.800	2.000	0.071	0.079
L	0.550 Ref.		0.022 Ref.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°



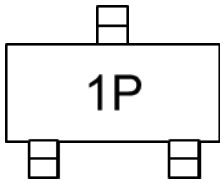
Unit:mm

Suggested PCB Layout

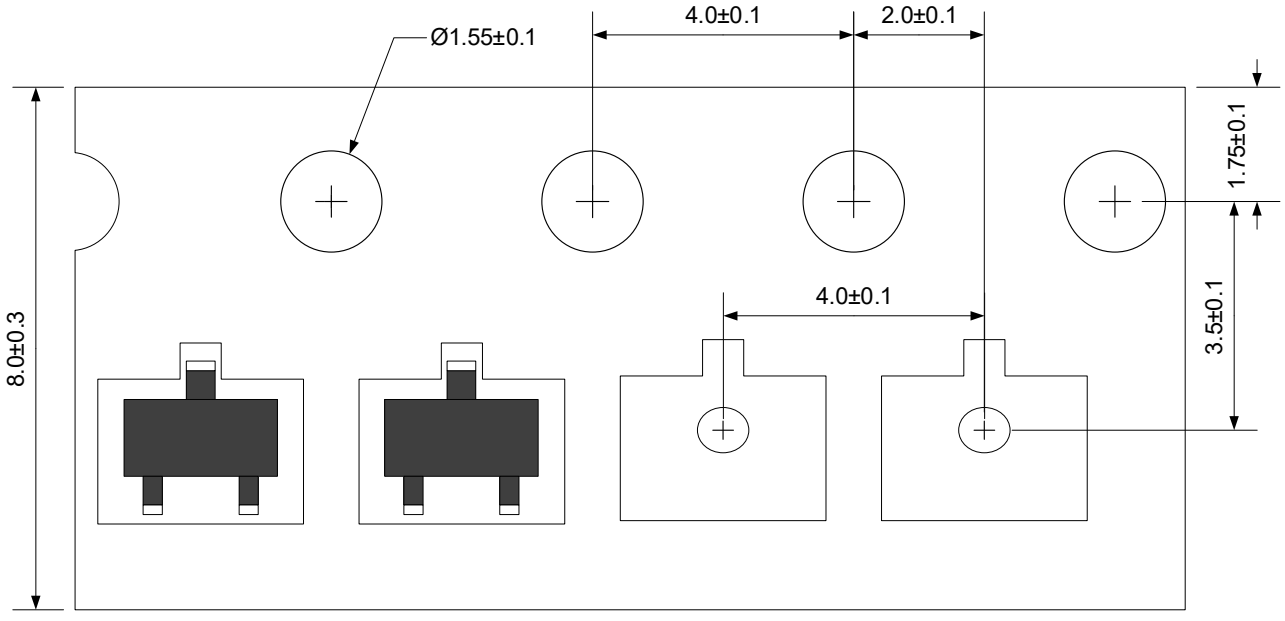
Ordering information

Device	Package	Shipping
PT23T2222A	SOT-23 (Pb-Free)	3000 / Tape & Reel

Marking information



Load with information



Unit:mm

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