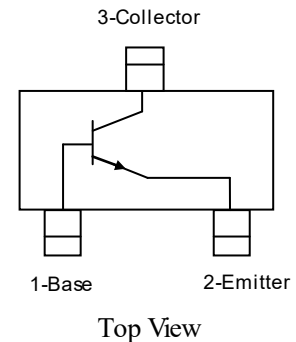


**High EB High DC gain Ultra-Small package switch transistor**
**Feature**

This device is Pb-Free, Halogen Free/BFR Free and RoHS compliant.

- Package: SOT-523
- Emitter-Base Breakdown Voltage 11V
- High DC current gain typical 380
- Low Saturation Voltage 80mv
- 0.15 continuous collector current
- NPN switch transistor


**Mechanical Characteristics**

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

**Electrical characteristics per line@25 °C ( unless otherwise specified)**

Parameter	Symbol	Value	Units
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	50	V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	80	V
Emitter -Base Breakdown Voltage	$V_{(BR)EBO}$	11	V
Collector Current	$I_C$	0.15	A
Total Dissipation @25°C	$P_{tot}$	0.15	W
Storage Temperature	$T_{stg}$	-65~150	°C
Max. Operating Junction Temperature	$T_j$	150	°C

Absolute maximum rating@25°C

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Collector-Base Breakdown Voltage	$BV_{CB0}$	$I_C=50\mu A$	80			V
Collector-Emitter Breakdown Voltage	$BV_{CE0}$	$I_C=1mA$	50			V
Emitter-Base Breakdown Voltage	$BV_{EB0}$	$I_E=50\mu A$		11		V
Collector Cut-off Current ( $I_E=0$ )	$I_{CB0}$	$V_{CB}=60V$			0.1	$\mu A$
Emitter Cut-off Current ( $I_C=0$ )	$I_{EB0}$	$V_{EB}=7V$			0.1	$\mu A$
DC Current Gain	$h_{FE}$	$I_C=1mA, V_{CE}=6V$	200		350	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=50mA, I_B=5mA$	-	0.08		V
Transition frequency	$f_T$	$V_{CE}=12V, I_E=-2mA, f=100MHz$		200		MHz
Output Capacitance	$C_{ob}$	$V_{CE}=12V, I_E=0mA, f=1MHz$		2	3.5	pF

Typical Characteristics

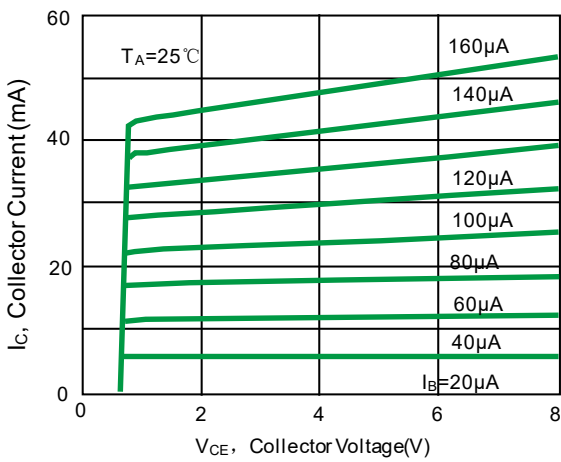


Figure 1.  $I_C$ - $V_{CE}$

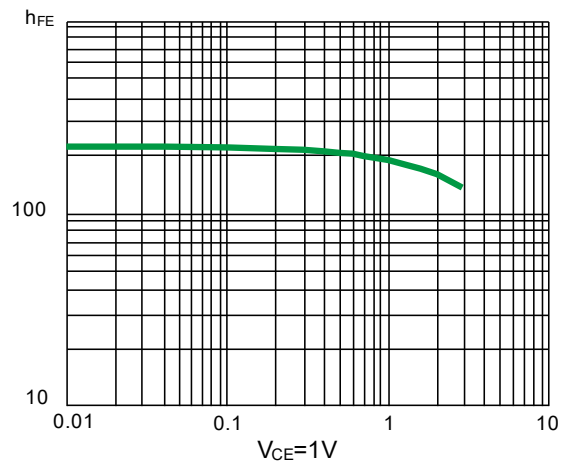


Fig 2.DC Current Gain

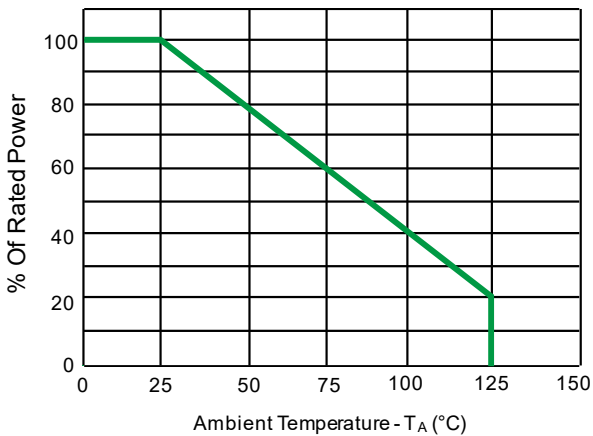


Fig3. Power Derating Curve

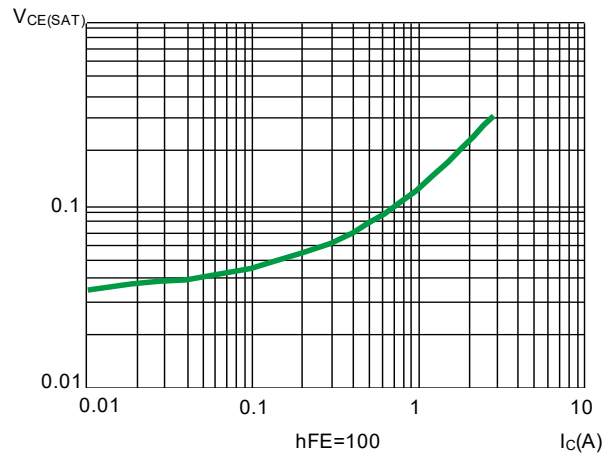


Fig 4. Collector-Emitter Saturation Voltage

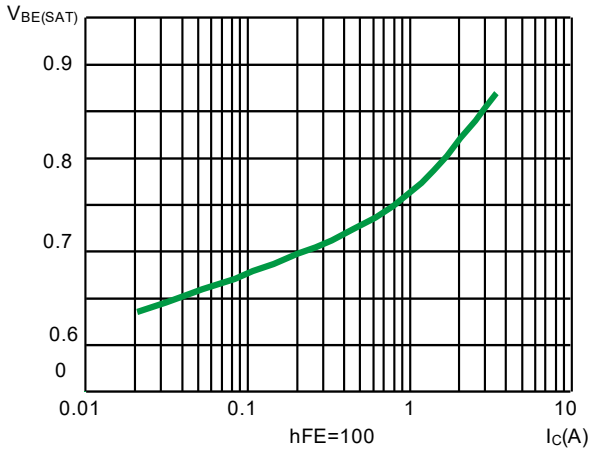


Fig 5. Base-Emitter Saturation Voltage

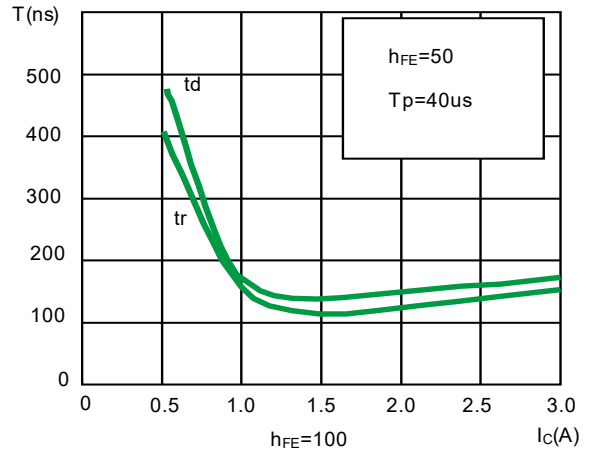


Fig 6. Switching Times Resistive Load

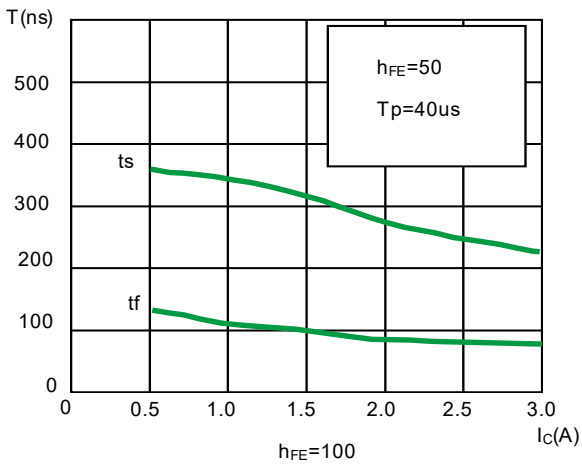
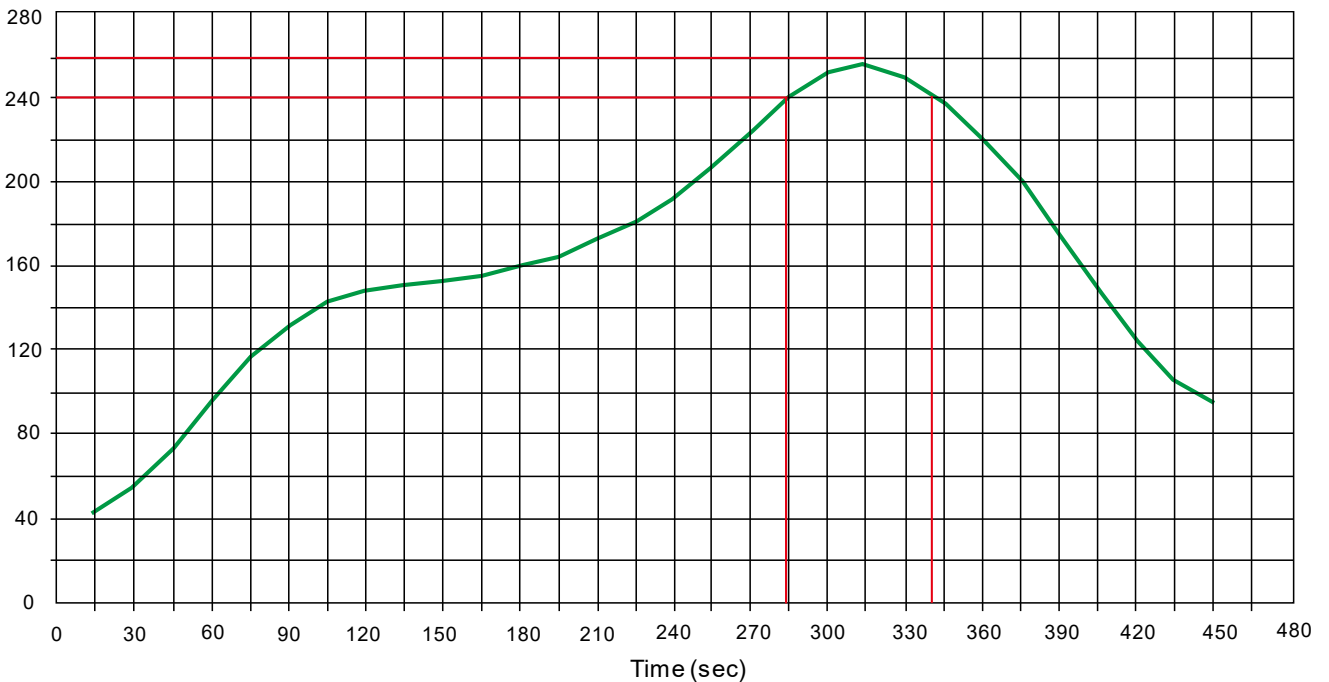


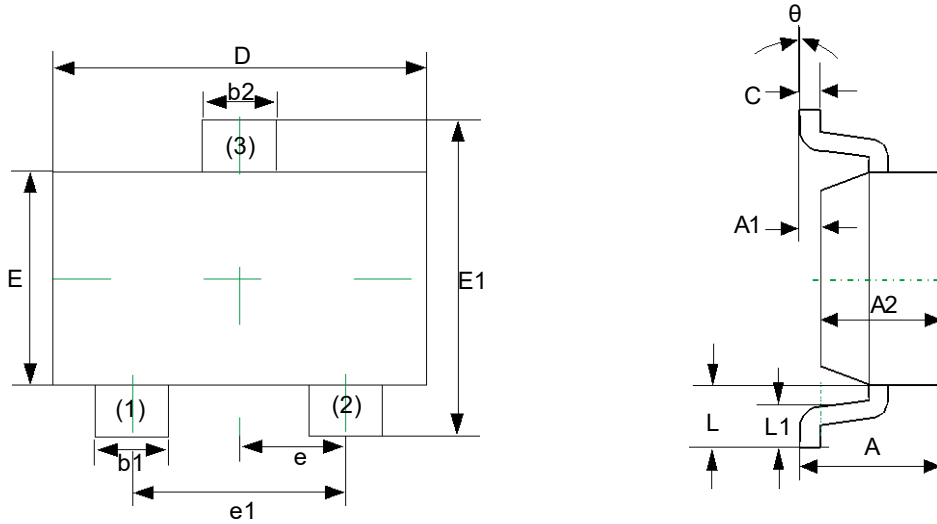
Fig 7. Switching Times Resistive Load

### Solder Reflow Recommendation

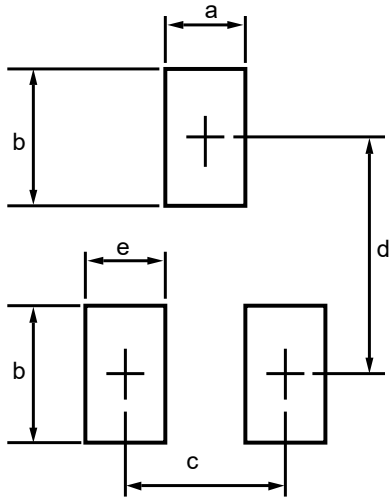
Peak Temp=257°C, Ramp Rate=0.802deg. °C/sec



Product dimension (SOT-523)

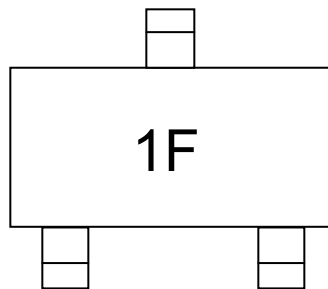


Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500TYP		0.020TYP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



Dim	Millimeters	
	MIN	MAX
a	--	0.5
b	--	0.6
c	--	1.0
d	--	1.24
e	--	0.4


Marking information



Ordering information

Device	Package	Reel	Shipping
PNT523T503E0-2	SOT-523 (Pb-Free)	7"	3000 / Tape & Reel


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