

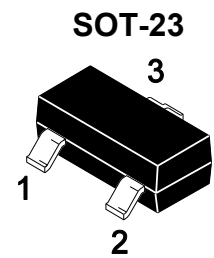


MMBTA92~MMBTA93

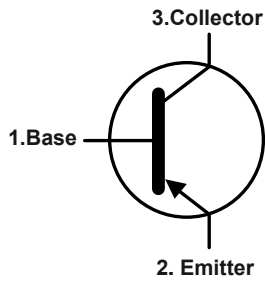
PNP Transistor

Features

- For Switching and AF Amplifier Applications.



Equivalent Circuit



1.Base 2.Emitter 3.Collector

Marking Code:
MMBTA92 : 2D
MMBTA93 : A93

Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CB0}$	300 200	V
Collector Emitter Voltage	$-V_{CEO}$	300 200	V
Emitter Base Voltage	$-V_{EBO}$	5	V
Collector Current	$-I_C$	500	mA
Maximum Power Dissipation	P_D	350	mW
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C



MMBTA92~MMBTA93

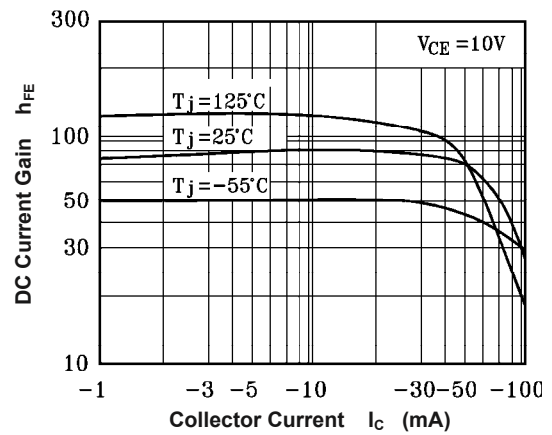
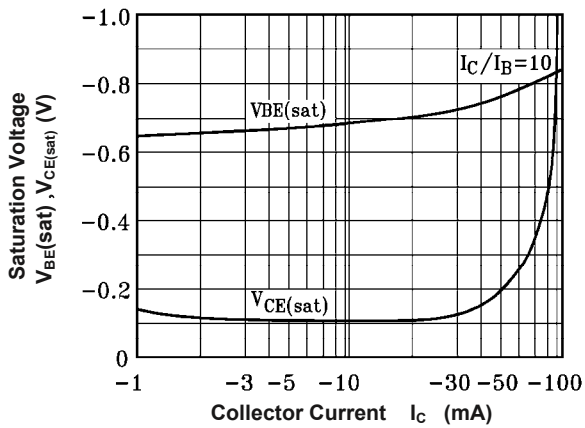
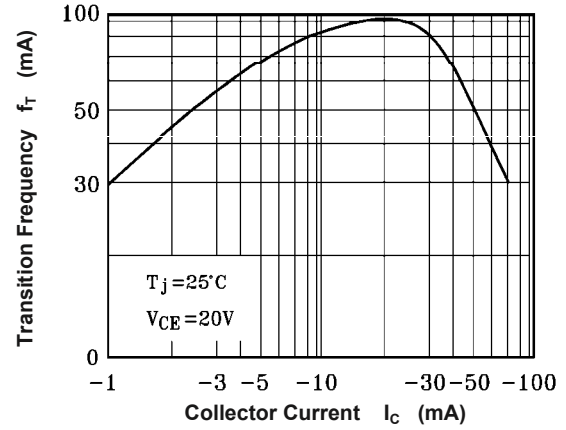
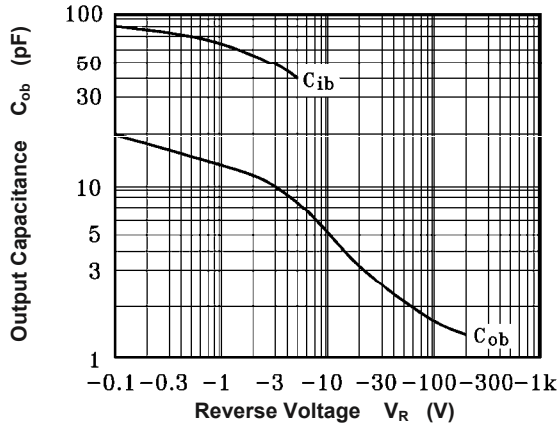
PNP Transistor

Electrical Characteristics (T_A=25°C)

Parameter		Symbol	Min.	Max.	Unit
DC Current Gain at V _{CE} = -10 V, I _C = -1 mA at V _{CE} = -10 V, I _C = -10 mA at V _{CE} = -10 V, I _C = -30 mA		H _{FE}	25 80 25	-- 200 --	--
Collector Base Cutoff Current at V _{CB} = -200V at V _{CB} = -160V	MMBTA92 MMBTA93	-I _{CBO}	-- --	0.25 0.25	μA
Emitter Base Cutoff Current at V _{EB} = -3 V at V _{EB} = -3 V	MMBTA92 MMBTA93	-I _{EBO}	-- --	0.1 0.1	μA
Collector Base Breakdown Voltage at I _C = -100 μA	MMBTA92 MMBTA93	-V _{(BR)CBO}	300 200	-- --	V
Collector Emitter Breakdown Voltage at I _C = -1 mA	MMBTA92 MMBTA93	-V _{(BR)CEO}	300 200	-- --	V
Emitter Base Breakdown Voltage at I _E = -100 μA		-V _{(BR)EBO}	5	--	V
Collector Emitter Saturation Voltage at I _C = -20 mA, I _B = -2 mA		-V _{CE(sat)}	--	0.5	V
Base Emitter Saturation Voltage at I _C = -20 mA, I _B = -2 mA		-V _{BE(sat)}	--	0.9	V
Transition Frequency at V _{CE} = -20 V, I _C = -10 mA, f = 100 MHz		F _T	50	--	MHz
Output Capacitance at V _{CB} = -20 V, f = 1 MHz	MMBTA92 MMBTA93	C _{ob}	--	6 8	pF



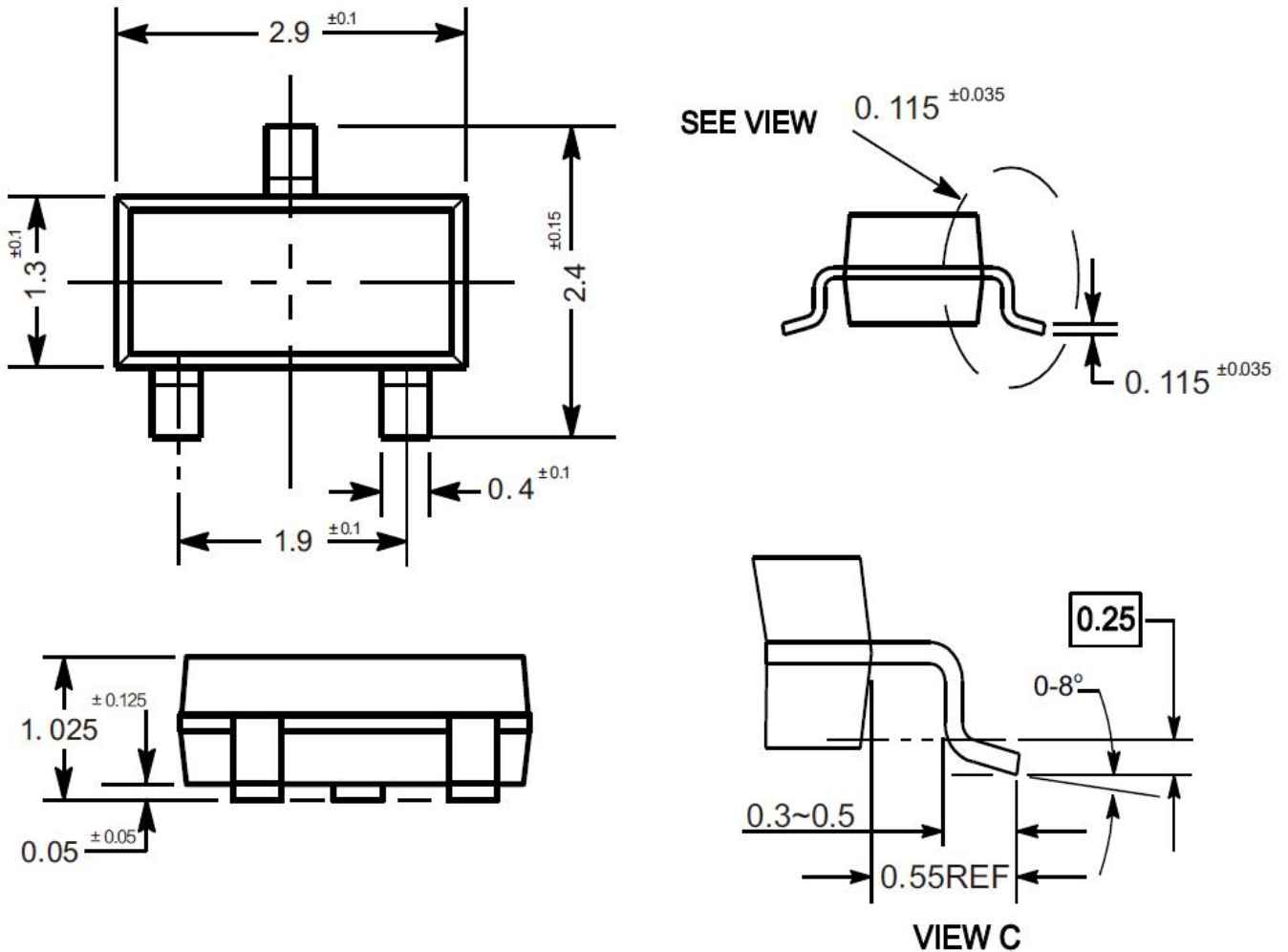
Typical Characteristic Curves



Package Outline

SOT-23

Dimensions in mm

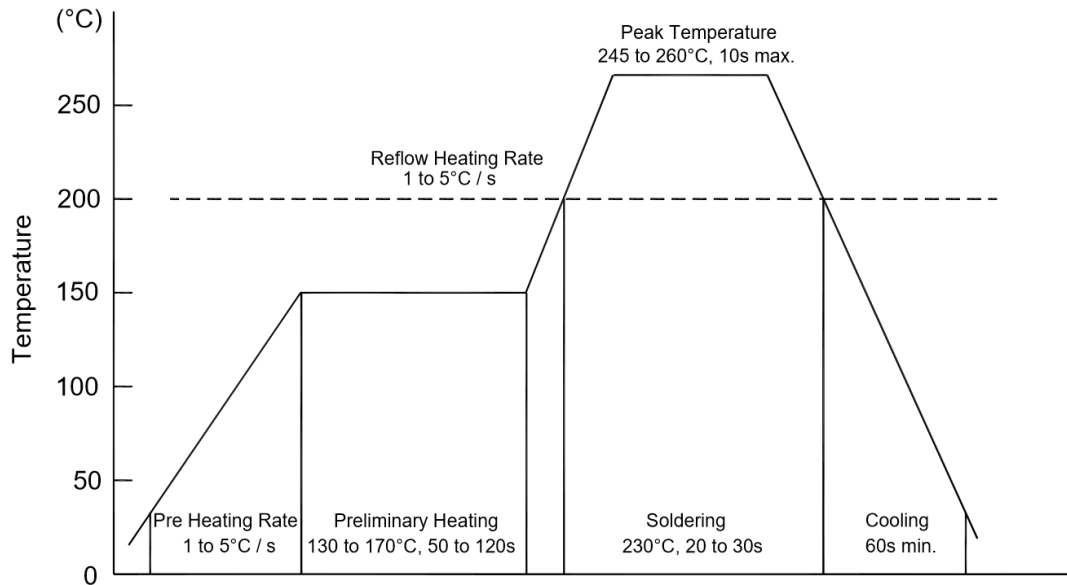


Ordering Information

Device	Package	Shipping
MMBTA92~MMBTA93	SOT-23	3,000PCS/Reel&7inches

Conditions of Soldering and Storage

◆ Recommended condition of reflow soldering



Recommended peak temperature is over 245 °C. If peak temperature is below 245 °C, you may adjust the following parameters:

- Time length of peak temperature (longer)
- Time length of soldering (longer)
- Thickness of solder paste (thicker)

◆ Conditions of hand soldering

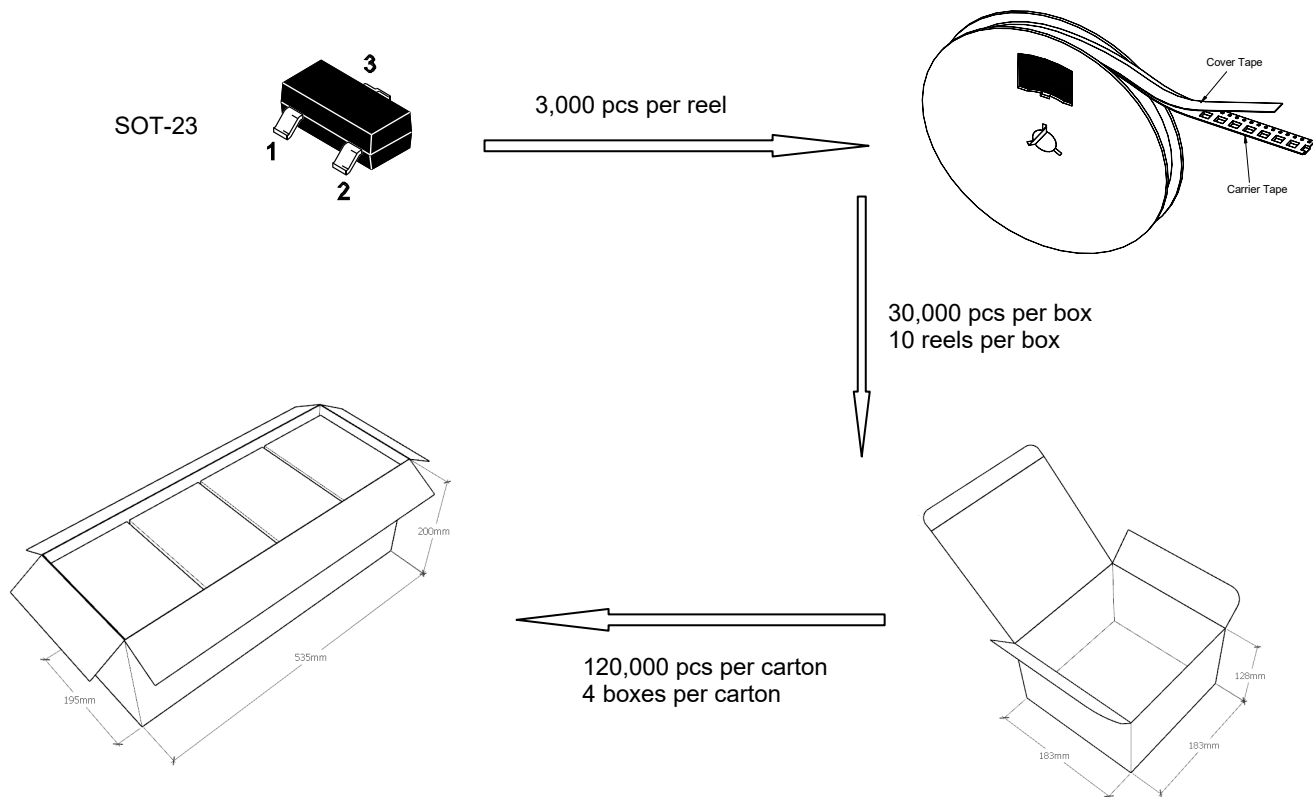
- Temperature: 370 °C
- Time: 3s max.
- Times: one time

◆ Storage conditions

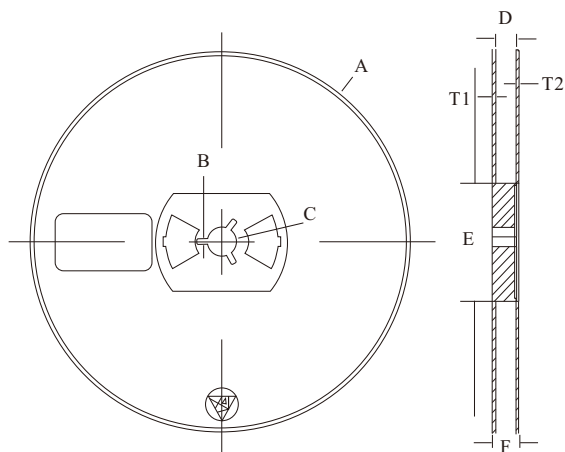
- **Temperature**
5 to 40 °C
- **Humidity**
30 to 80% RH
- **Recommended period**
One year after manufacturing

Package Specifications

- The method of packaging



◆ Embossed tape and reel data



Symbol	Value (unit: mm)
A	$\varnothing 177.8 \pm 1$
B	2.7 ± 0.2
C	$\varnothing 13.5 \pm 0.2$
E	$\varnothing 54.5 \pm 0.2$
F	12.3 ± 0.3
D	$9.6 + 2 / - 0.3$
T1	1.0 ± 0.2
T2	1.2 ± 0.2

Reel (7")

