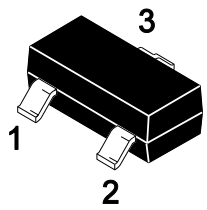
MMBTA92~MMBTA93
PNP Transistor

Features

- For Switching and AF Amplifier Applications.

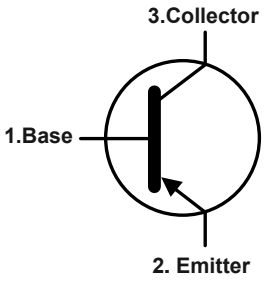
SOT-23



1.Base 2.Emitter 3.Collector

Marking Code:
MMBTA92 : 2D
MMBTA93 : A93

Equivalent Circuit



Absolute Maximum Ratings

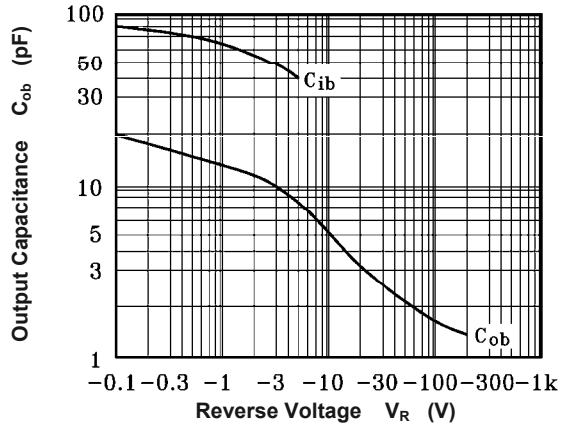
Ratings at 25℃ ambient temperature unless otherwise specified.

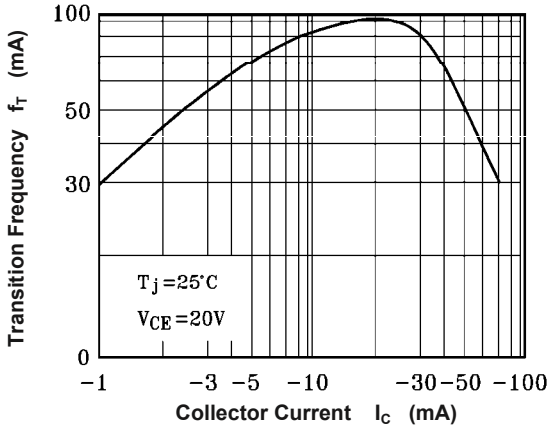
Parameter		Symbol	Value	Unit
Collector Base Voltage	MMBTA92	$-V_{CBO}$	300	V
	MMBTA93		200	
Collector Emitter Voltage	MMBTA92	$-V_{CEO}$	300	V
	MMBTA93		200	
Emitter Base Voltage		$-V_{EBO}$	5	V
Collector Current		$-I_C$	500	mA
Maximum Power Dissipation		P_D	350	mW
Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{STG}	-55 to +150	℃

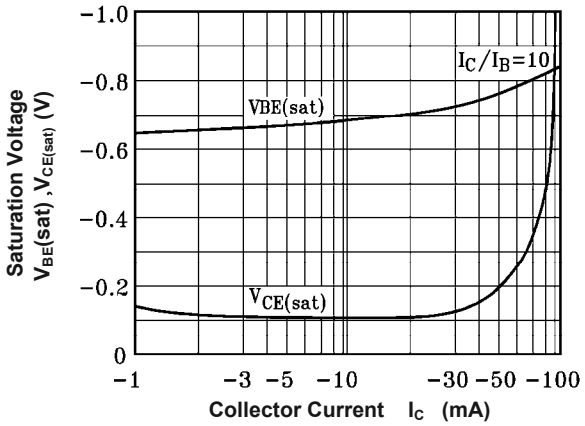
Electrical Characteristics (T_A=25℃)

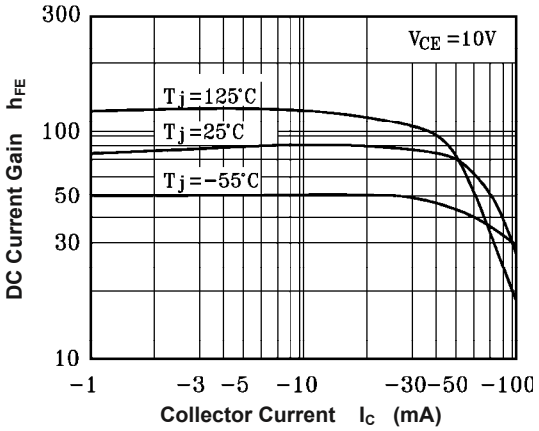
Parameter		Symbol	Min.	Max.	Unit
DC Current Gain at V_{CE} = -10 V, I_C = -1 mA at V_{CE} = -10 V, I_C = -10 mA at V_{CE} = -10 V, I_C = -30 mA		H_{FE}	 25 80 25	 -- 200 --	--
Collector Base Cutoff Current at V_{CB} = -200V at V_{CB} = -160V	 MMBTA92 MMBTA93	$-I_{CBO}$	 -- --	 0.25 0.25	μA
Emitter Base 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



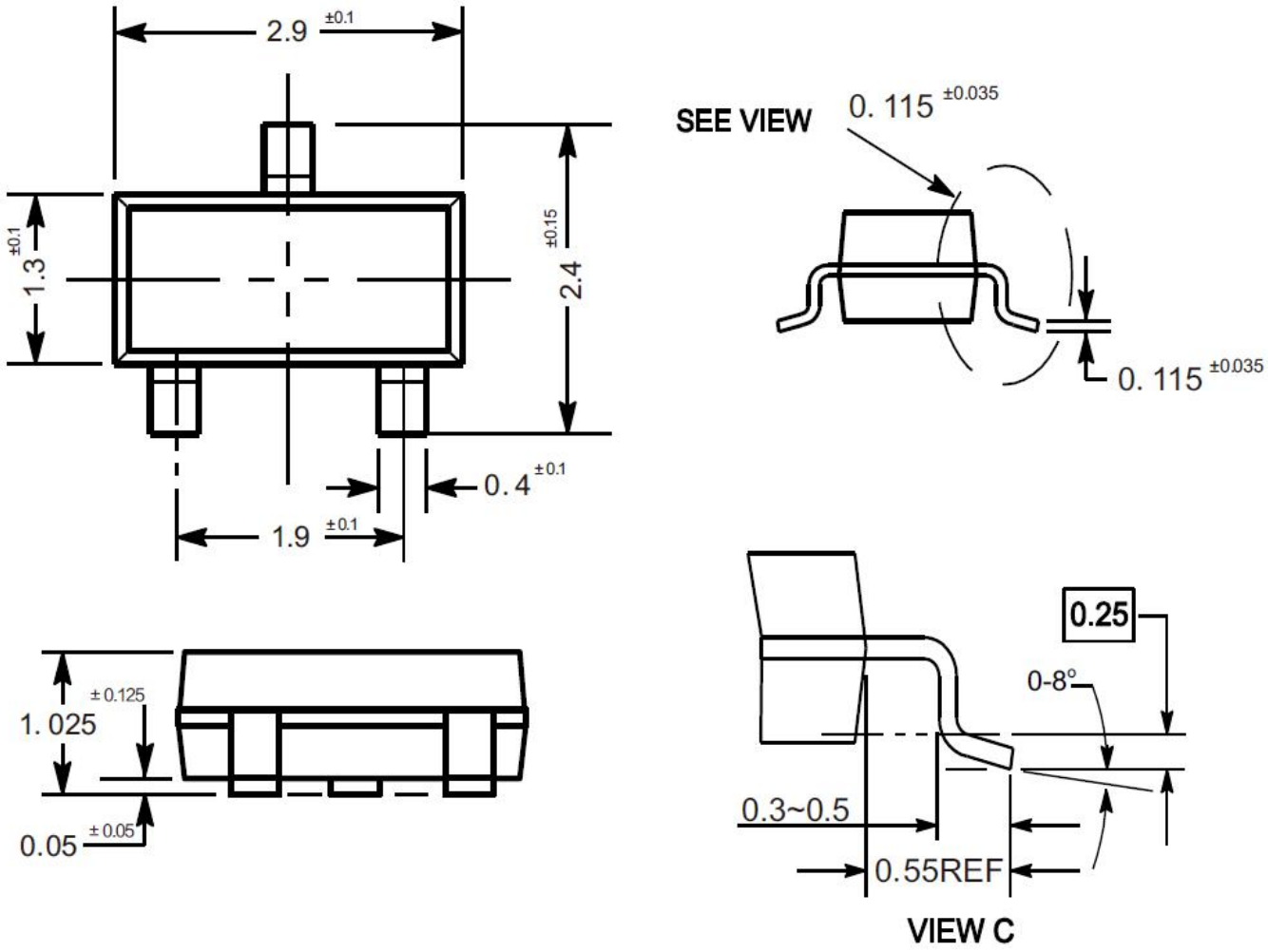






Package Outline

SOT-23
Dimensions in mm

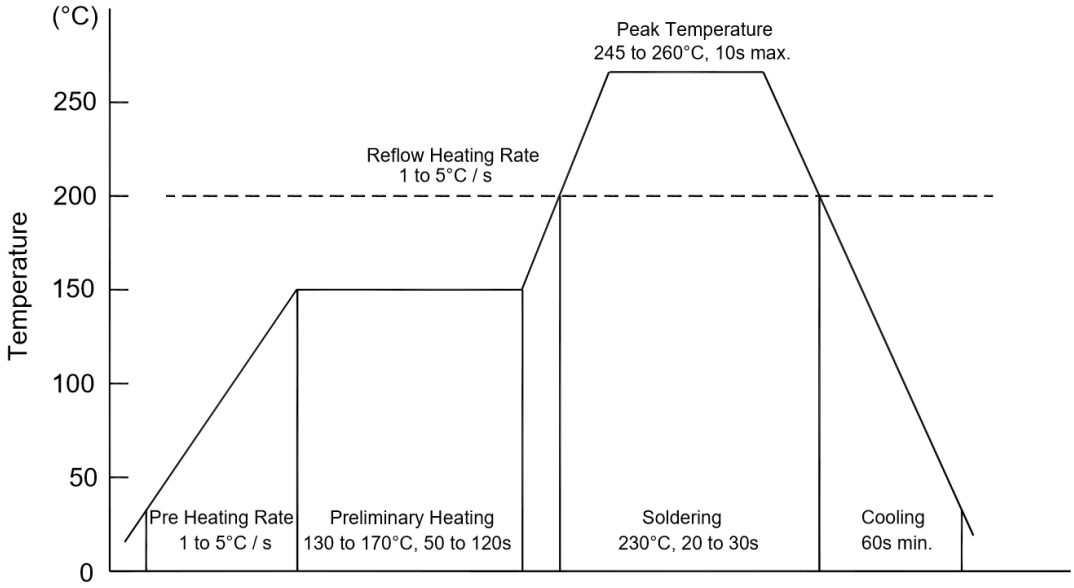


Ordering Information

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 ^{O}C. If peak temperature is below 245 ^{O}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

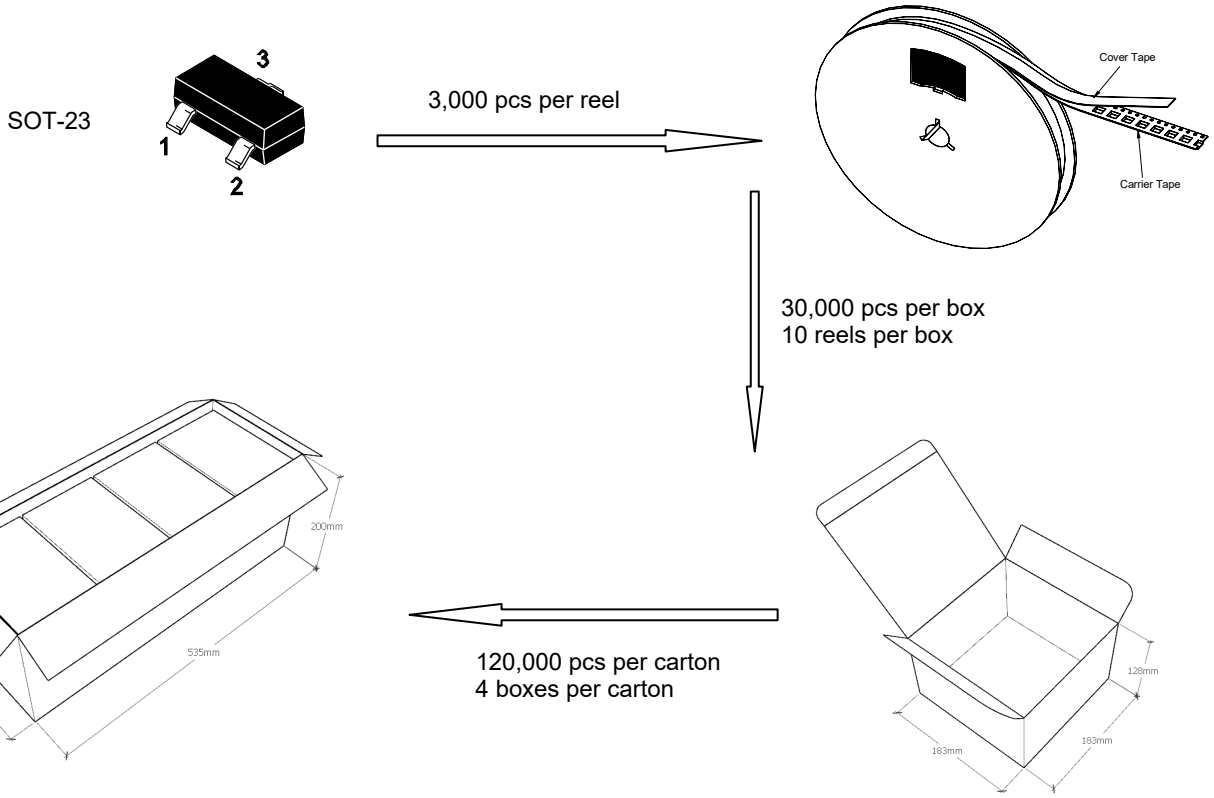
- Temperature: 370 ^{O}C
- Time: 3s max.
- Times: one time

◆ Storage conditions

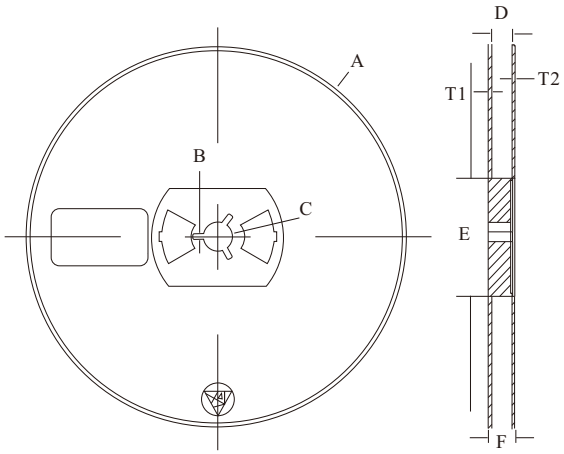
- **Temperature**
  5 to 40 ^{O}C
- **Humidity**
  30 to 80% RH
- **Recommended period**
  One year after manufacturing

Package Specifications

- The method of packaging

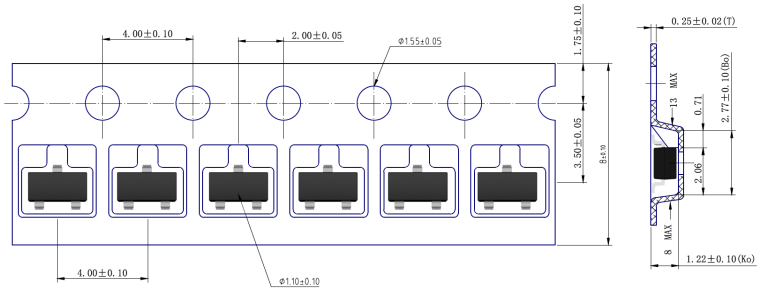


◆ Embossed tape and reel data



Symbol	Value (unit: mm)
A	Ø 177.8±1
B	2.7±0.2
C	Ø 13.5±0.2
E	Ø 54.5±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")



Contact Information

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For additional information, please contact your local Sales Representative.

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Product Specification Statement

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The product parameters described in the product specification are numerical values, characteristics, and functions obtained through actual testing or theoretical calculations of the product in an independent or ideal state. Due to the complexity of product applications and variations in test conditions and equipment, there may be slight fluctuations in parameter test values. TANI shall not guarantee that the actual performance of the product when installed in the customer's system or equipment will be entirely consistent with the product specification, especially concerning dynamic parameters. It is recommended that users consult with professionals for product selection and system design. Users should also thoroughly validate and assess whether the actual parameters and performance when installed in their respective systems or equipment meet their requirements or expectations. Additionally, users should exercise caution in verifying product compatibility issues, and TANI assumes no responsibility for the application of the product. TANI strives to provide accurate and up -to- date information to the best of our ability. However, due to technical, human, or other reasons, TANI cannot guarantee that the information provided in the product specification is entirely accurate and error-free. TANI shall not be held responsible for any losses or damages resulting from the use or reliance on any information in these product specifications.

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