



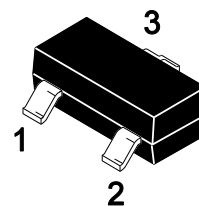
MMBTRC101SS~MMBTRC106SS

NPN Digital Transistor

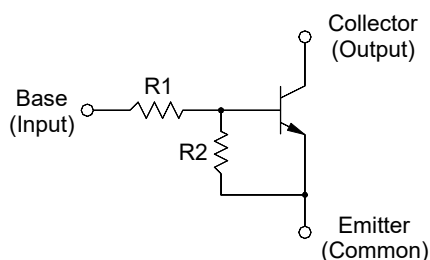
Features

- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process

SOT-23



Equivalent Circuit



1.Base 2.Emitter 3.Collector

Resistor Values/Marking Code

Type	R1 (K Ω)	R2 (K Ω)	Marking Code
MMBTRC101SS	4.7	4.7	1BR
MMBTRC102SS	10	10	2BR
MMBTRC103SS	22	22	3BR
MMBTRC104SS	47	47	4BR
MMBTRC105SS	2.2	47	5BR
MMBTRC106SS	4.7	47	6BR

Absolute Maximum Ratings (T_A=25°C)

Parameter		Symbol	Value	Unit
Output Voltage		V _O	50	V
Input Voltage	MMBTRC101SS	V _I	20,-10	V
	MMBTRC102SS		30,-10	
	MMBTRC103SS		40,-10	
	MMBTRC104SS		40,-10	
	MMBTRC105SS		12,-5	
	MMBTRC106SS		20,-5	
Output Current		I _O	100	mA
Maximum Power Dissipation		P _D	200	mW
Junction Temperature		T _J	150	°C
Storage Temperature Range		T _{STG}	-55 to +150	°C



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Electrical Characteristics (T_A=25°C)

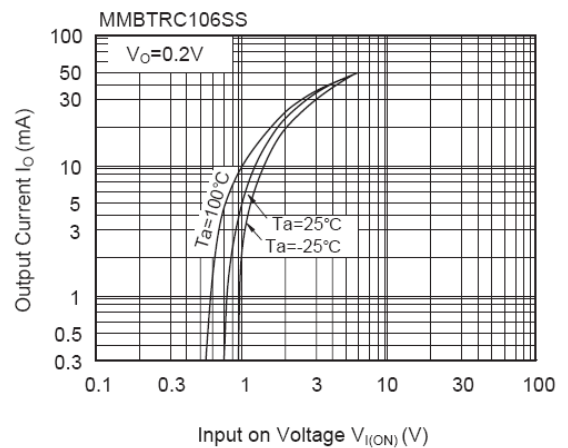
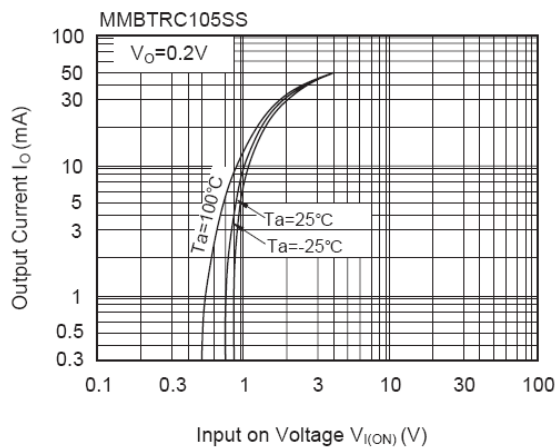
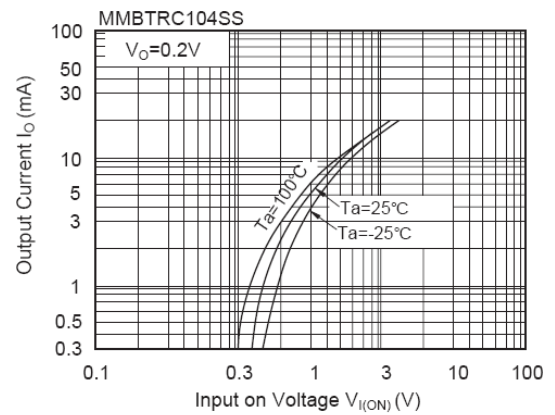
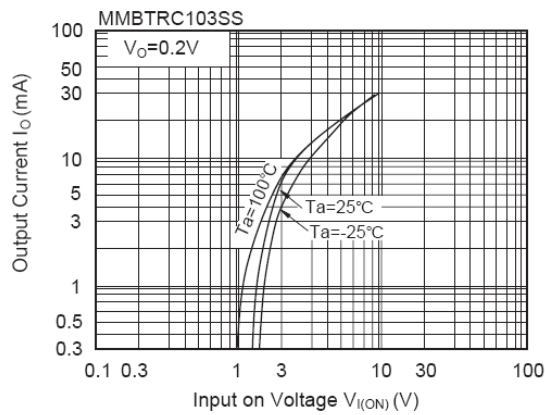
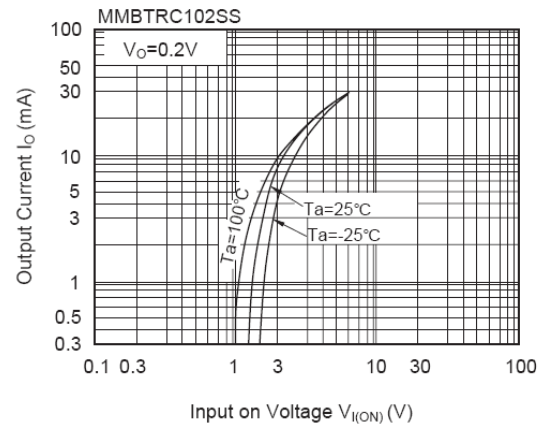
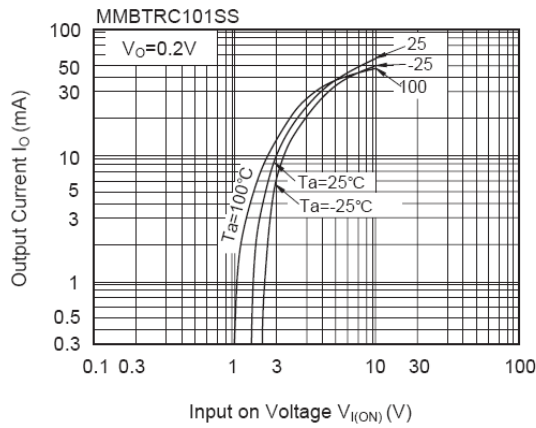
Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V _O = 5 V, I _O = 10 mA	G _I	30	--	--	--
MMBTRC101SS		50	--	--	
MMBTRC102SS		70	--	--	
MMBTRC103SS		80	--	--	
MMBTRC104SS		80	--	--	
MMBTRC105SS		80	--	--	
MMBTRC106SS		80	--	--	
Output Cutoff Current at V _O = 50 V	I _{O(OFF)}	--	--	500	nA
Input Current at V _I = 5 V	I _I	--	--	1.8	mA
MMBTRC101SS		--	--	0.88	
MMBTRC102SS		--	--	0.36	
MMBTRC103SS		--	--	0.18	
MMBTRC104SS		--	--	3.6	
MMBTRC105SS		--	--	1.8	
MMBTRC106SS		--	--	1.8	
Output Voltage (ON) at I _O = 10 mA, I _I = 0.5 mA	V _{O(ON)}	--	--	0.3	V
Input Voltage (ON) at V _O = 0.2 V, I _O = 5 mA	V _{I(ON)}	--	--	2	V
MMBTRC101SS		--	--	2.4	
MMBTRC102SS		--	--	3	
MMBTRC103SS		--	--	5	
MMBTRC104SS		--	--	1.1	
MMBTRC105SS		--	--	1.3	
MMBTRC106SS		--	--	1.3	
Input Voltage (OFF) at V _O = 5 V, I _O = 0.1 mA	V _{I(OFF)}	1	--	--	V
MMBTRC101SS~104SS		0.5	--	--	
MMBTRC105SS~106SS					
Transition Frequency at V _O = 10 V, I _O = 5 mA	f _T	--	200	--	MHz



MMBTRC101SS~MMBTRC106SS

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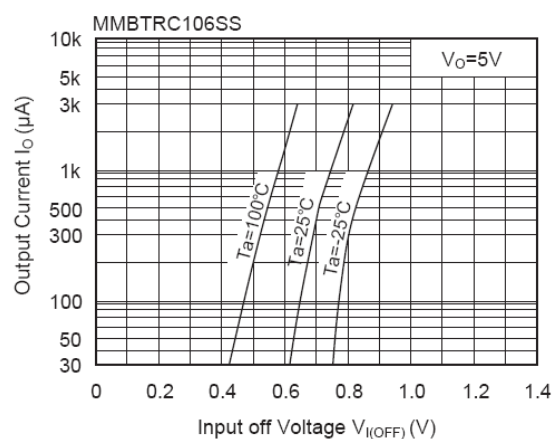
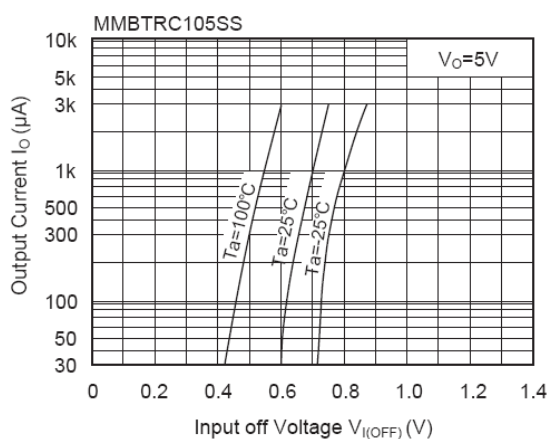
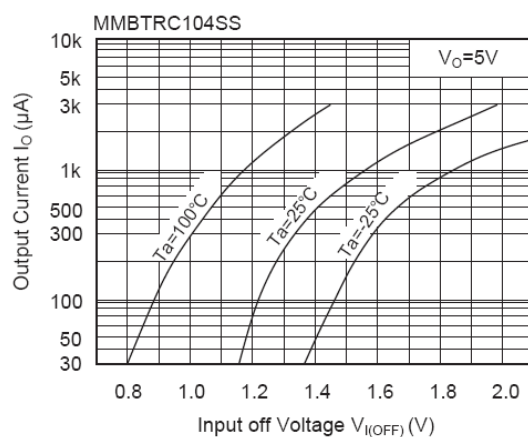
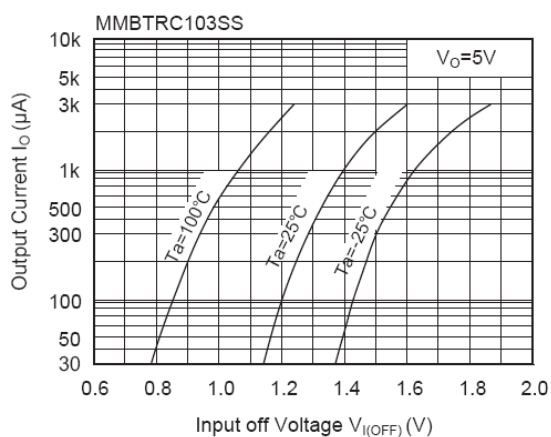
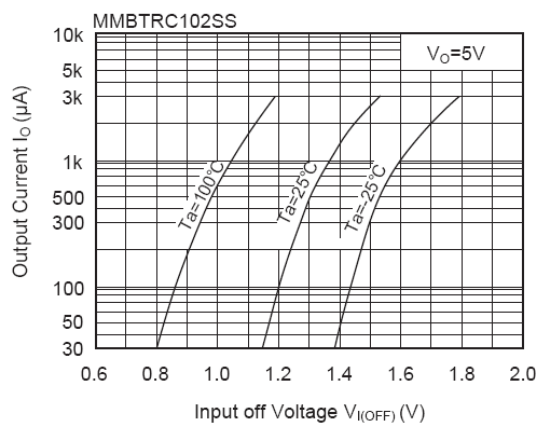
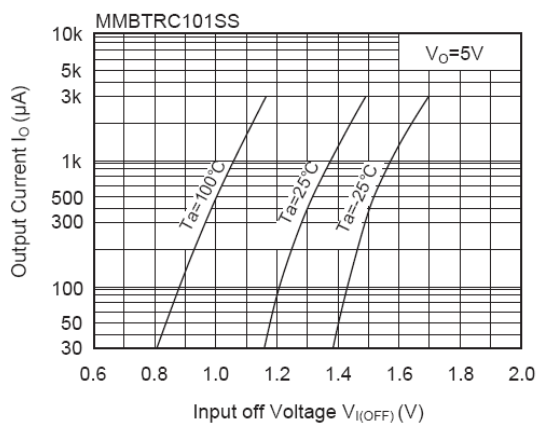
Typical Characteristic Curves





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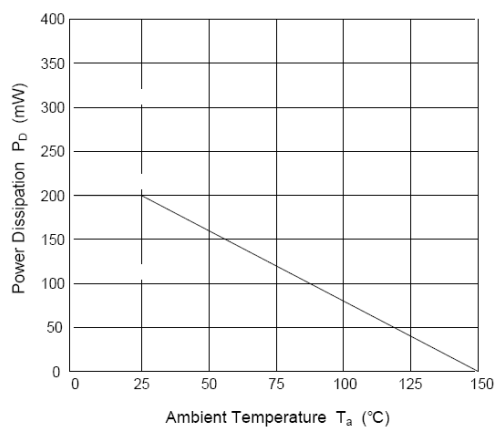
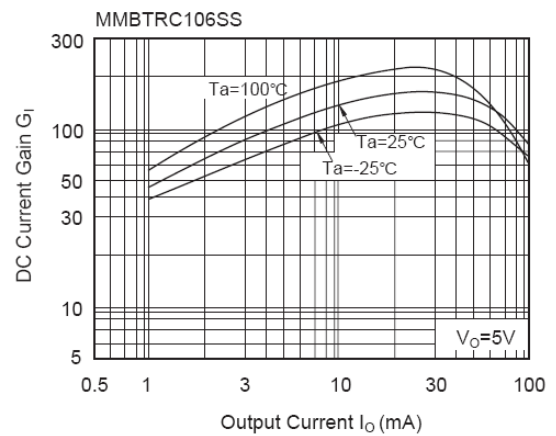
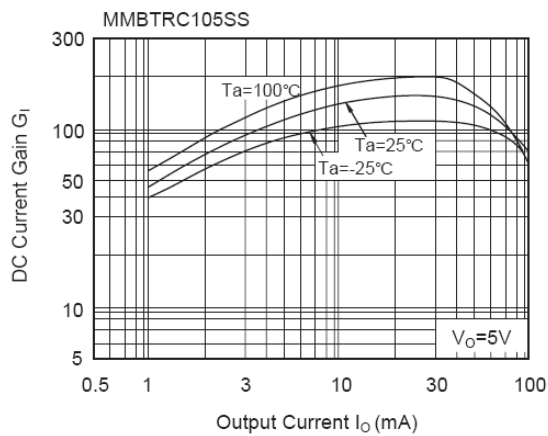
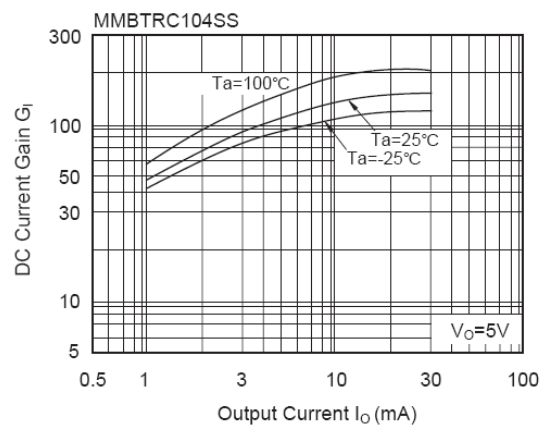
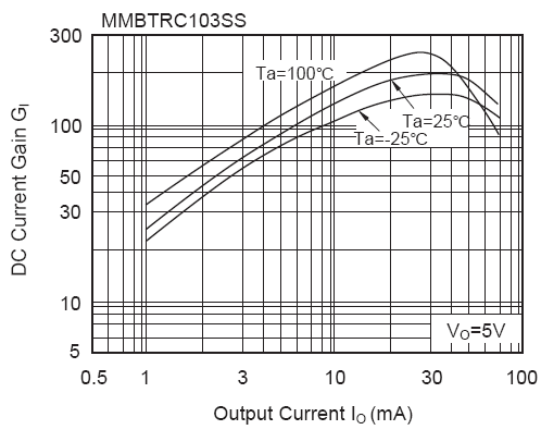
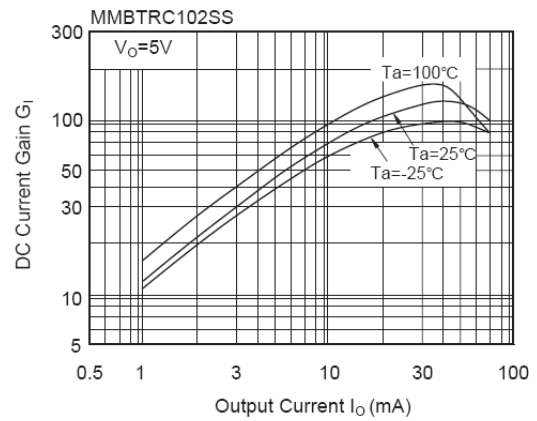
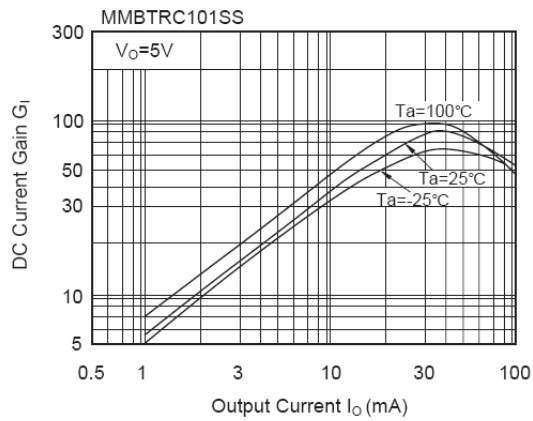
NPN Digital Transistor





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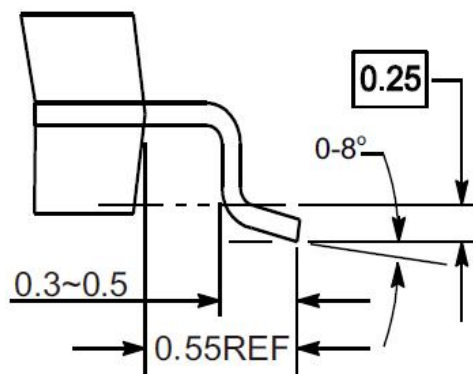
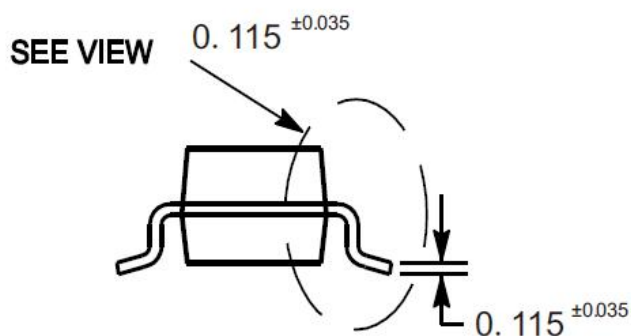
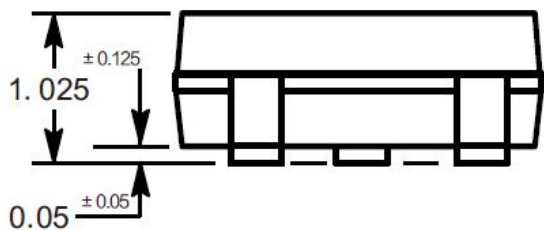
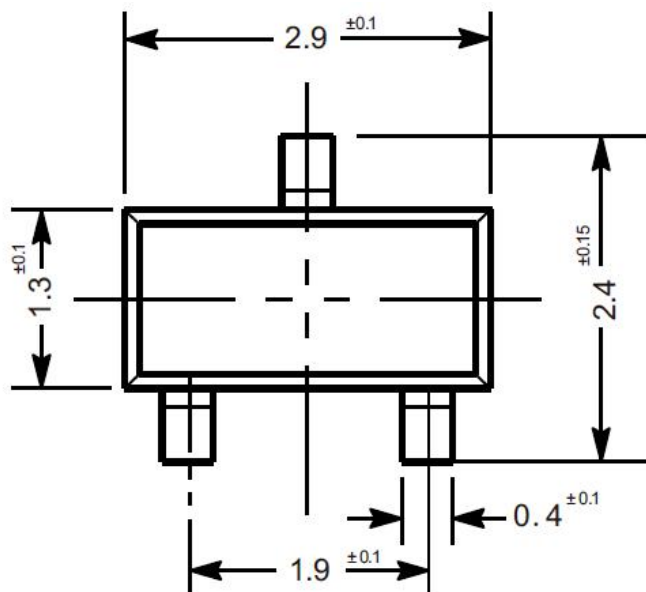
MMBTRC101SS~MMBTRC106SS

NPN Digital Transistor

Package Outline

SOT-23

Dimensions in mm



VIEW C

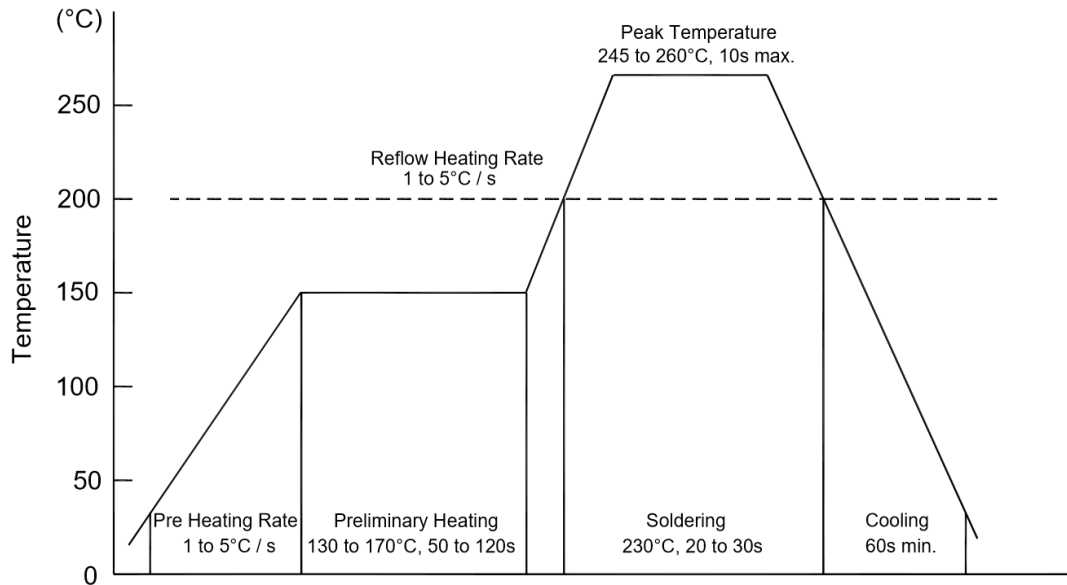
Ordering Information

Device	Package	Shipping
MMBTRC101SS~MMBTRC106SS	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

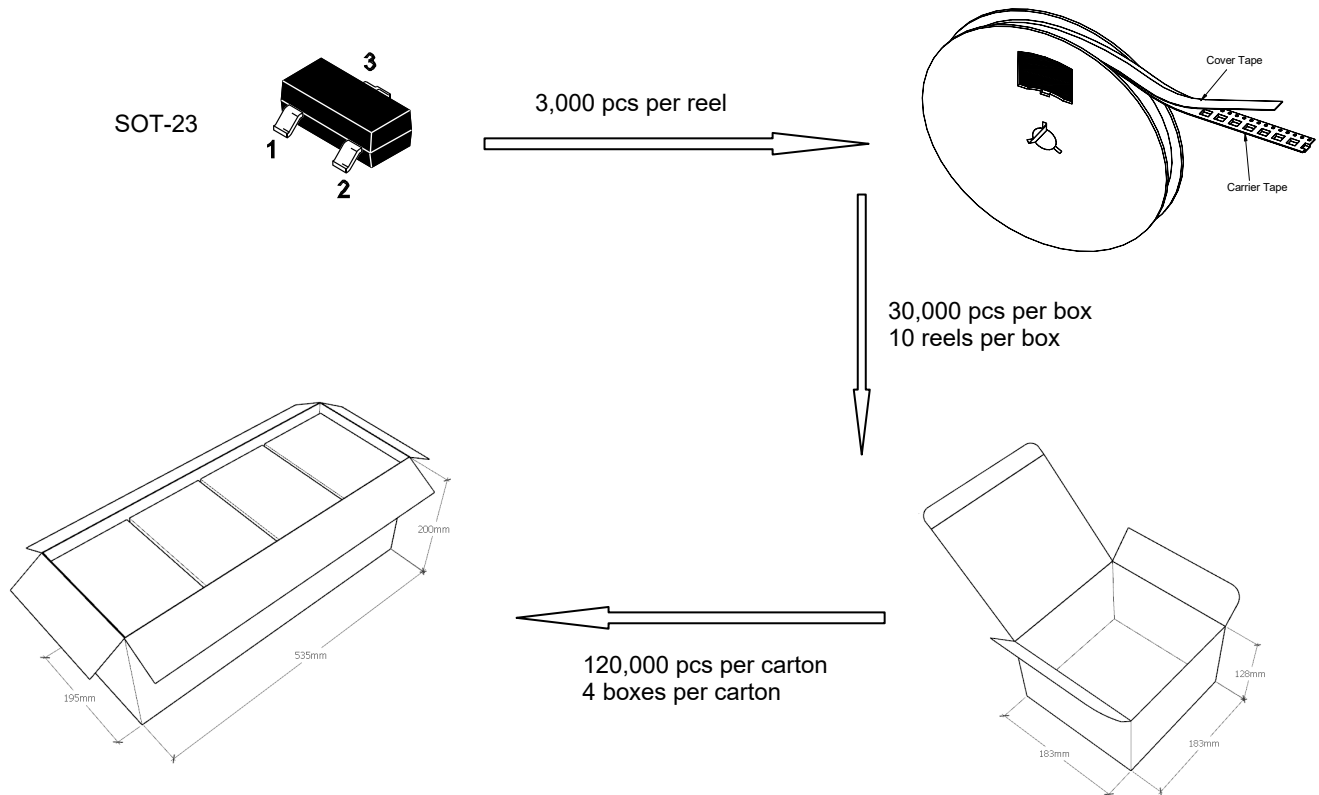
- Temperature: 370 °C
- Time: 3s max.
- Times: one time

◆ Storage conditions

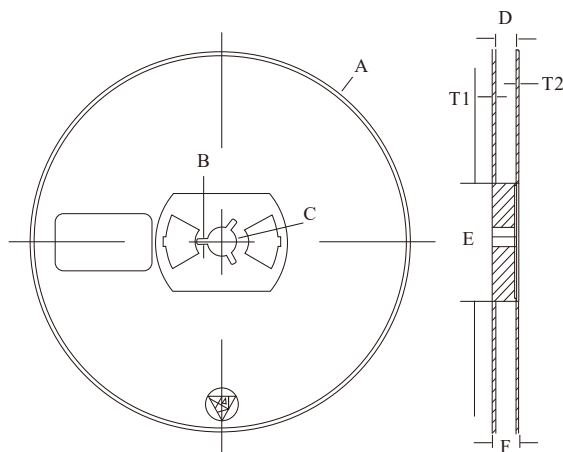
- **Temperature**
5 to 40 °C
- **Humidity**
30 to 80% RH
- **Recommended period**
One year after manufacturing

Package Specifications

- The method of packaging



◆ Embossed tape and reel data



Symbol	Value (unit: mm)
A	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")

