

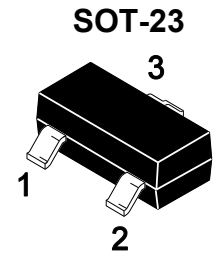


MMBTRA101SS~MMBTRA106SS

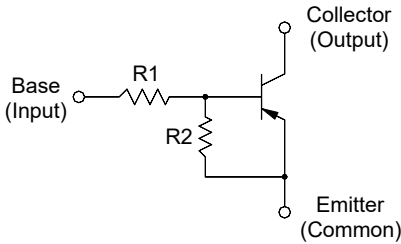
PNP Digital Transistor

Features

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



Equivalent Circuit



1.Base 2.Emitter 3.Collector

Resistor Values/Marking Code

Type	R1 (K Ω)	R2 (K Ω)	Marking Code
MMBTRA101SS	4.7	4.7	1BT
MMBTRA102SS	10	10	2BT
MMBTRA103SS	22	22	3BT
MMBTRA104SS	47	47	4BT
MMBTRA105SS	2.2	47	5BT
MMBTRA106SS	4.7	47	6BT

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Value	Unit
Output Voltage	$-V_O$	50	V
Input Voltage	$-V_I$	MMBTRA101SS	20,-10
		MMBTRA102SS	30,-10
		MMBTRA103SS	40,-10
		MMBTRA104SS	40,-10
		MMBTRA105SS	12,-5
		MMBTRA106SS	20,-5
Output Current	$-I_O$	100	mA
Maximum Power Dissipation	P_D	200	mW
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^{\circ}\text{C}$



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Electrical Characteristics (T_A=25°C)

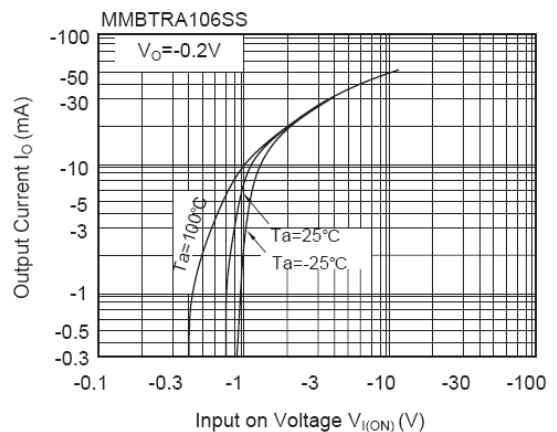
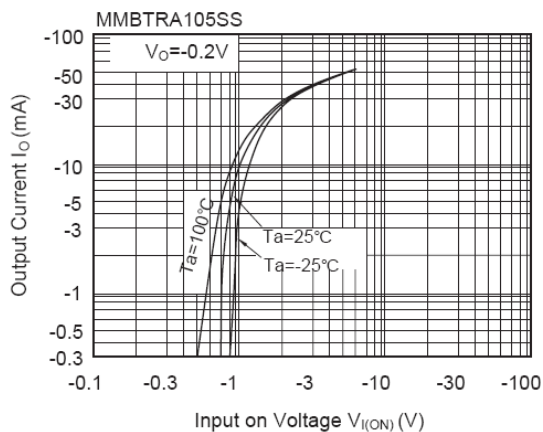
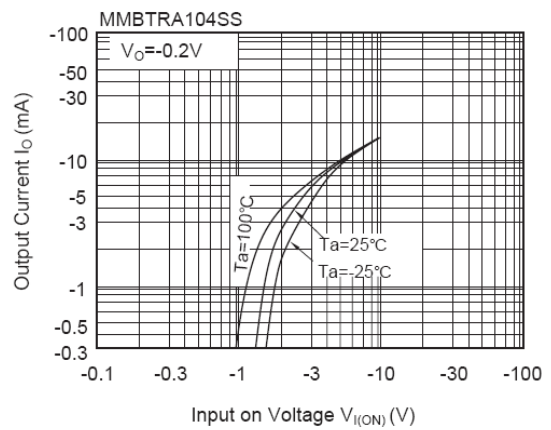
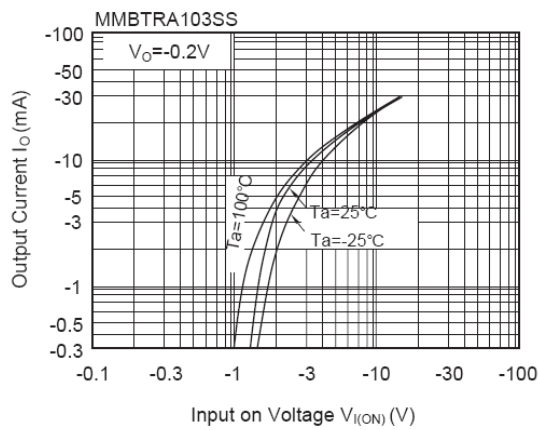
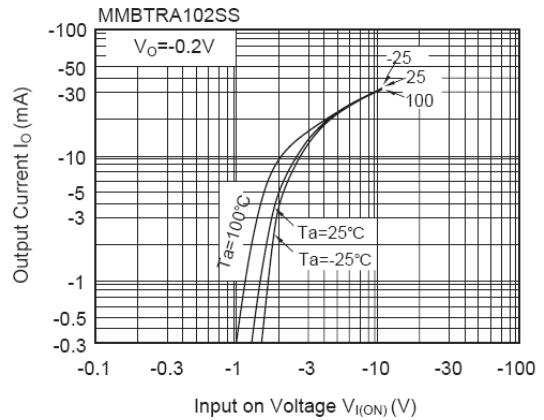
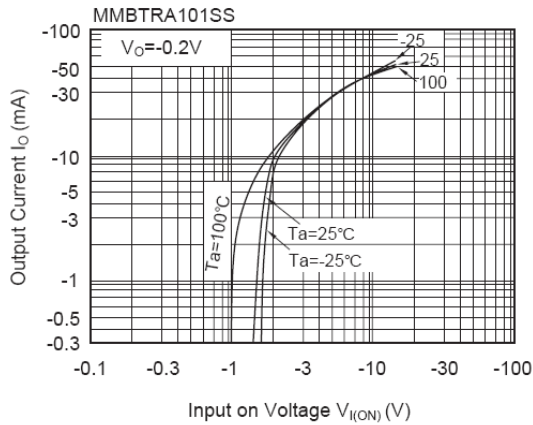
Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V _O = -5 V, I _O = -10 mA					
MMBTRA101SS	G _I	30	--	--	--
MMBTRA102SS		50	--	--	
MMBTRA103SS		70	--	--	
MMBTRA104SS		80	--	--	
MMBTRA105SS		80	--	--	
MMBTRA106SS		80	--	--	
Output Cutoff Current at V _O = -50 V	-I _{O(OFF)}	--	--	500	nA
Input Current at V _I = -5 V					
MMBTRA101SS	-I _I	--	--	1.8	mA
MMBTRA102SS		--	--	0.88	
MMBTRA103SS		--	--	0.36	
MMBTRA104SS		--	--	0.18	
MMBTRA105SS		--	--	3.6	
MMBTRA106SS		--	--	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					
MMBTRA101SS	-V _{I(ON)}	--	--	2	V
MMBTRA102SS		--	--	2.4	
MMBTRA103SS		--	--	3	
MMBTRA104SS		--	--	5	
MMBTRA105SS		--	--	1.1	
MMBTRA106SS		--	--	1.3	
Input Voltage (OFF) at V _O = -5 V, I _O = -0.1 mA					
MMBTRA101SS~104SS	-V _{I(OFF)}	1	--	--	V
MMBTRA105SS~106SS		0.5	--	--	
Transition Frequency at V _O = -10 V, I _O = -5 mA	f _T	--	200	--	MHz



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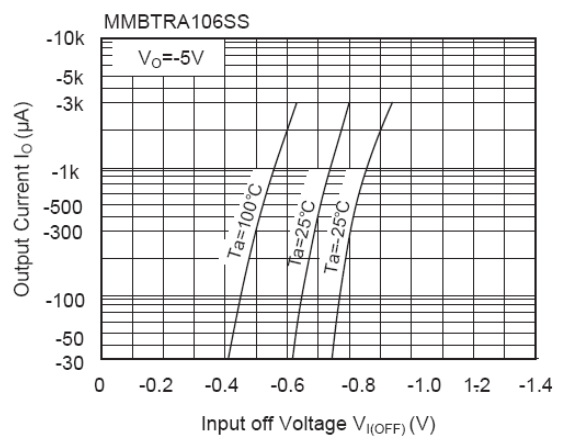
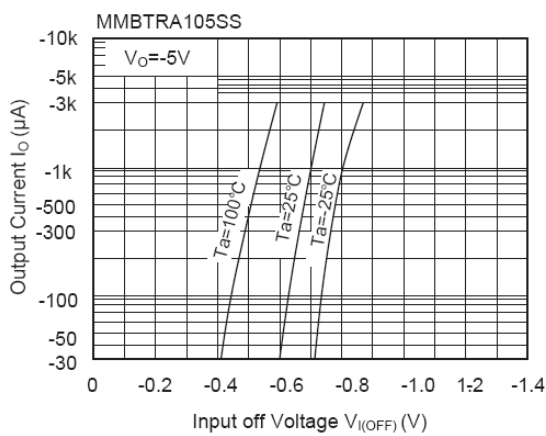
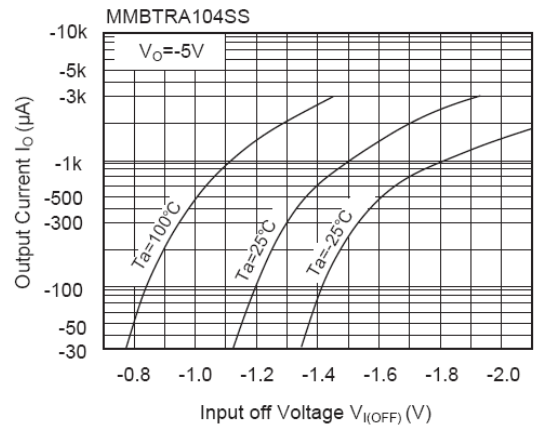
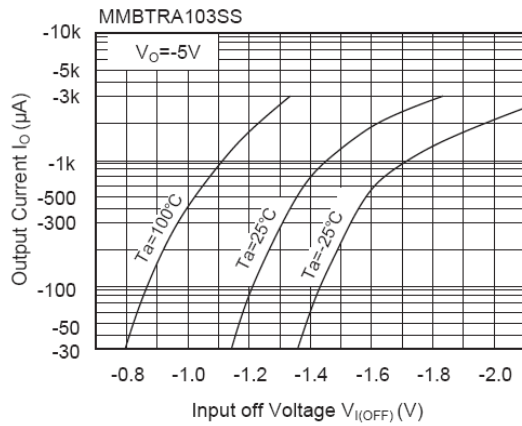
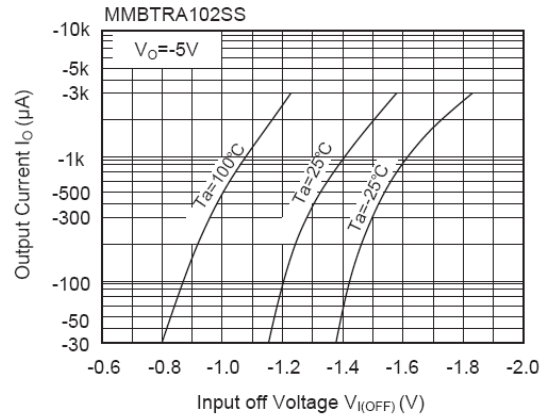
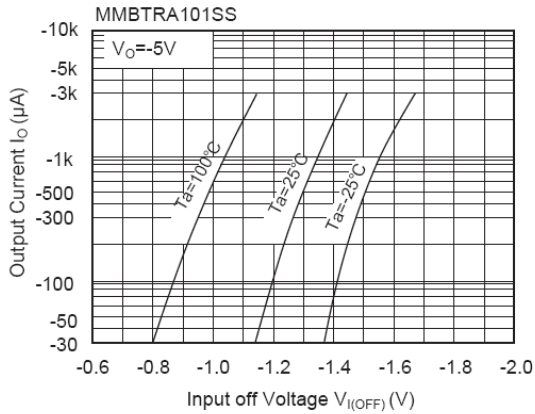
Typical Characteristic Curves

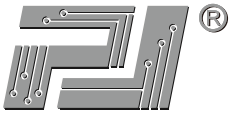




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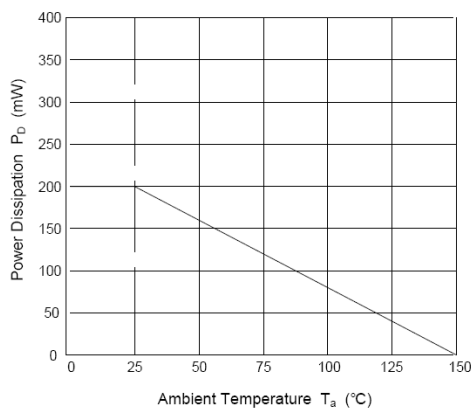
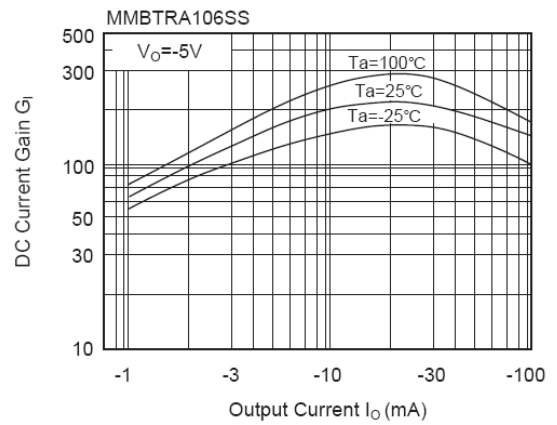
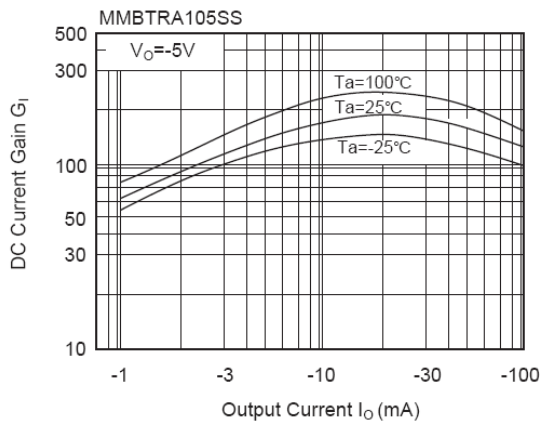
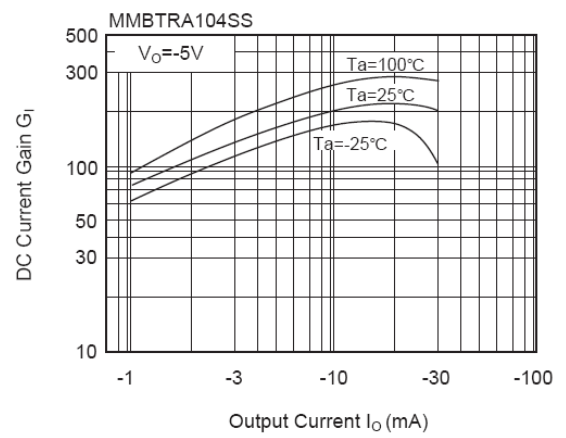
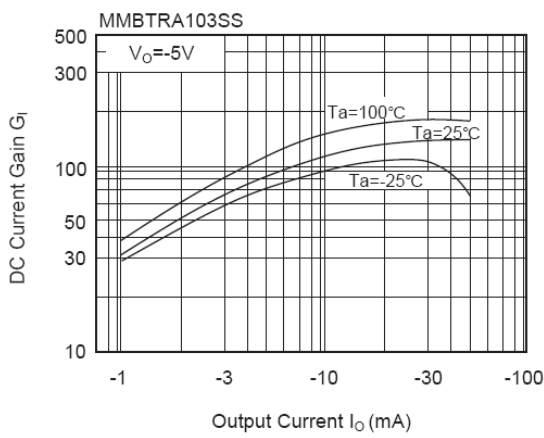
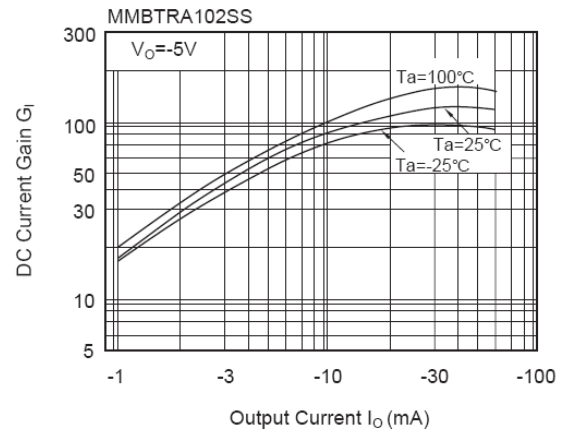
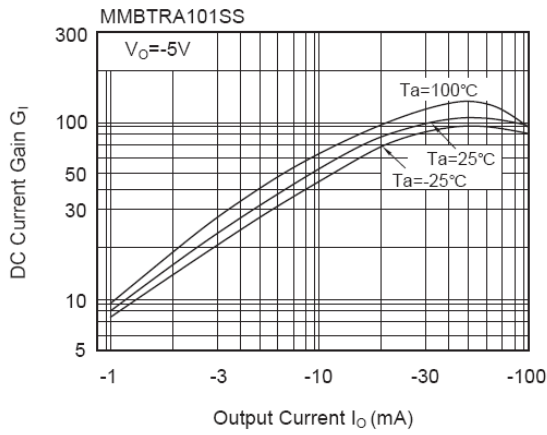
PNP Digital Transistor





MMBTRA101SS~MMBTRA106SS

PNP Digital Transistor





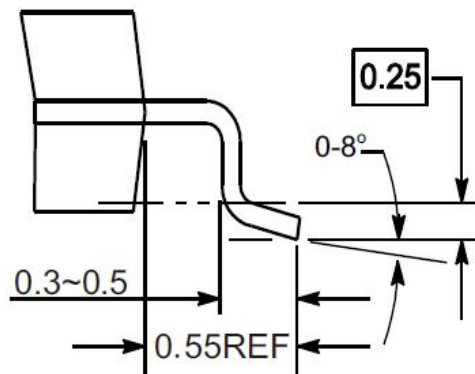
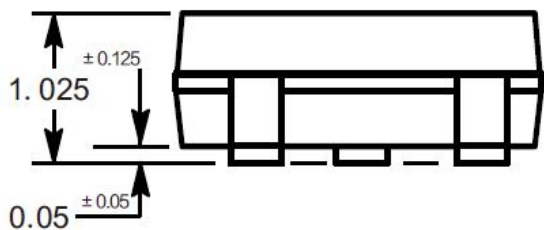
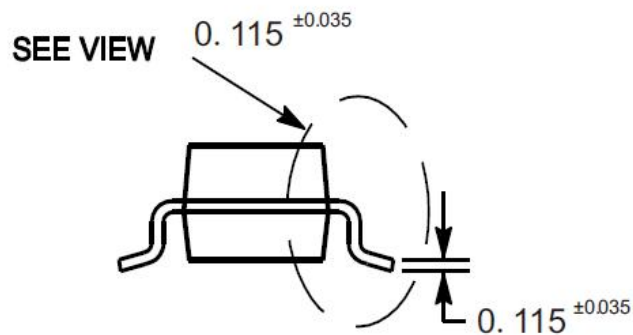
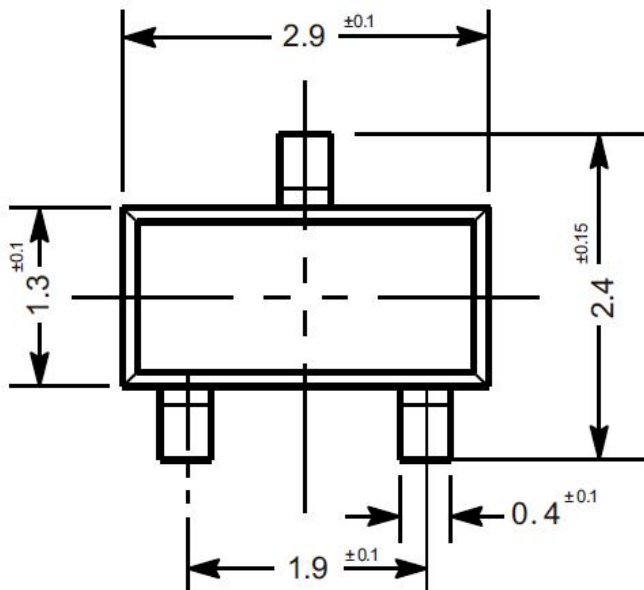
MMBTRA101SS~MMBTRA106SS

PNP Digital Transistor

Package Outline

SOT-23

Dimensions in mm



VIEW C

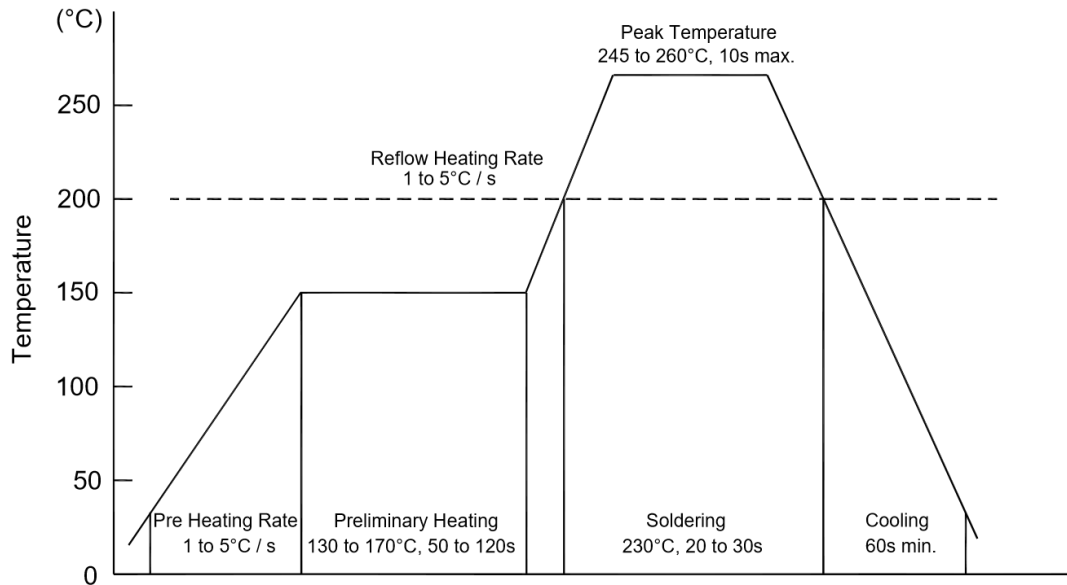
Ordering Information

Device	Package	Shipping
MMBTRA101SS~MMBTRA106SS	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

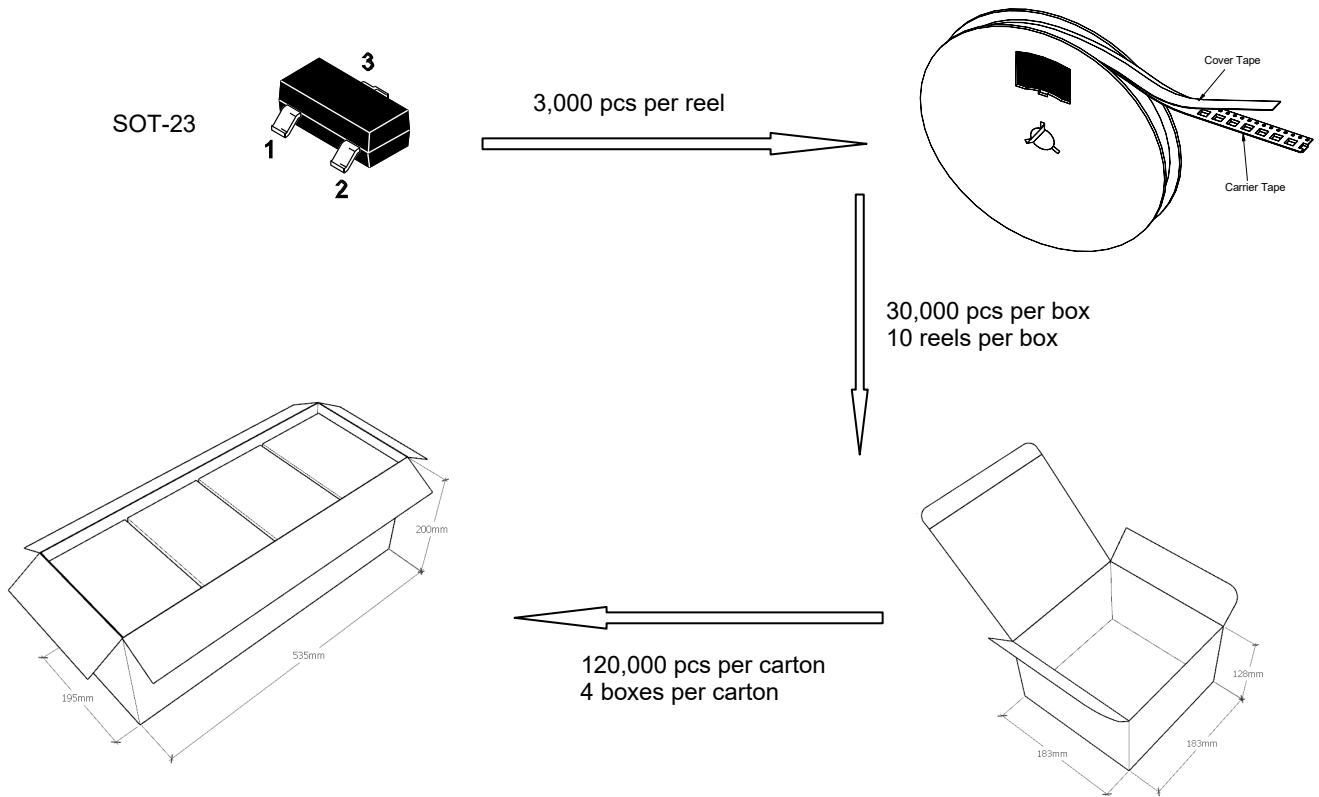
- Temperature: 370 °C
- Time: 3s max.
- Times: one time

◆ Storage conditions

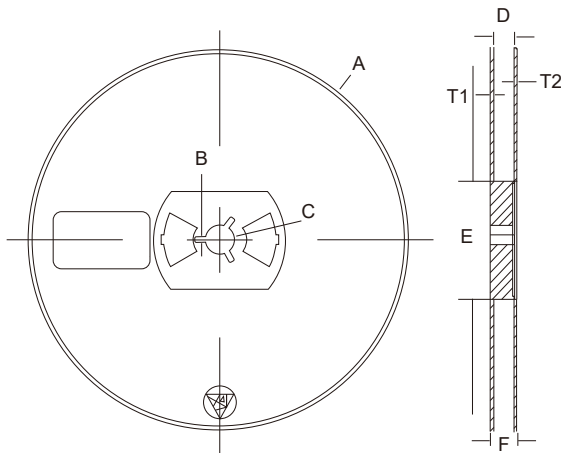
- **Temperature**
5 to 40 °C
- **Humidity**
30 to 80% RH
- **Recommended period**
One year after manufacturing

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")

