

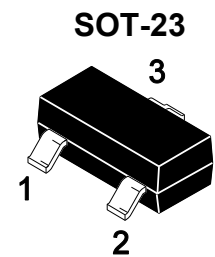


MMBTRC107SS~MMBTRC109SS

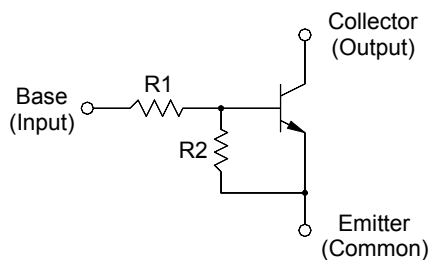
NPN Digital Transistor

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
MMBTRC107SS	10	47	7BR
MMBTRC108SS	22	47	8BR
MMBTRC109SS	47	22	9BR

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

Parameter	Symbol	Value	Unit
Output Voltage	V_o	50	V
Input Voltage	V_i	MMBTRC107SS 30,-6	V
		MMBTRC108SS 40,-7	
		MMBTRC109SS 40,-15	
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	$^\circ\text{C}$



MMBTRC107SS~MMBTRC109SS

NPN Digital Transistor

Electrical Characteristics (T_A=25°C)

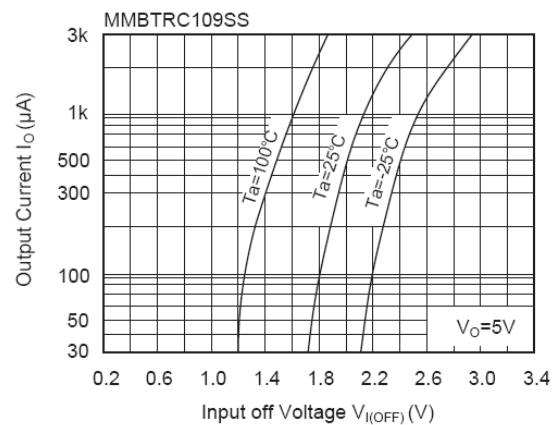
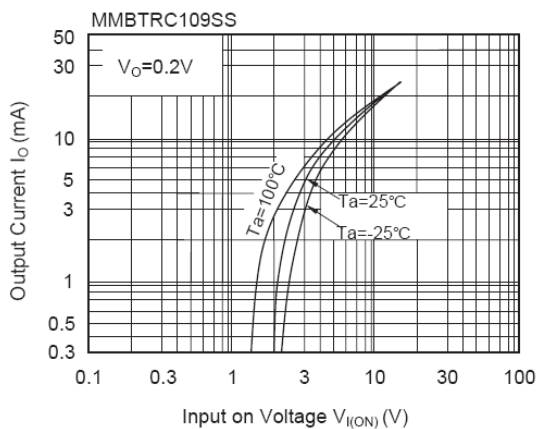
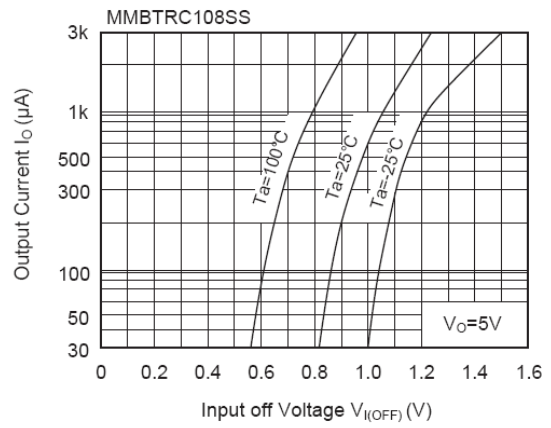
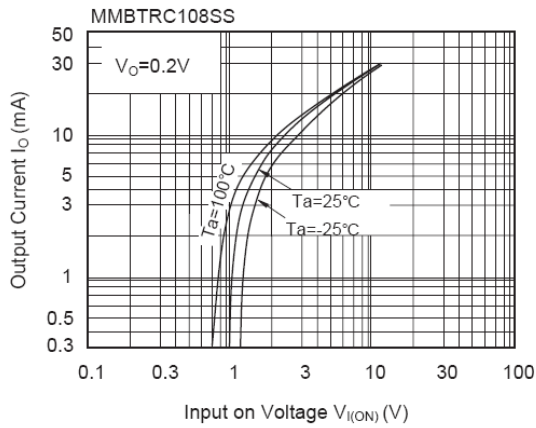
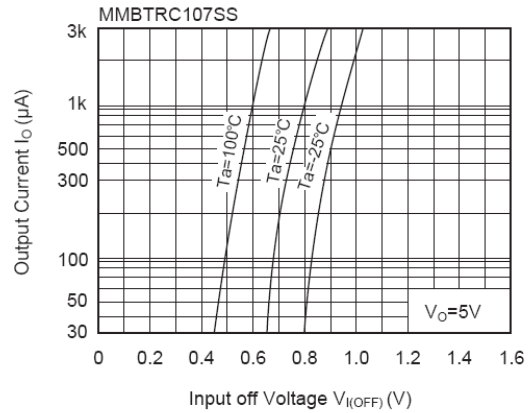
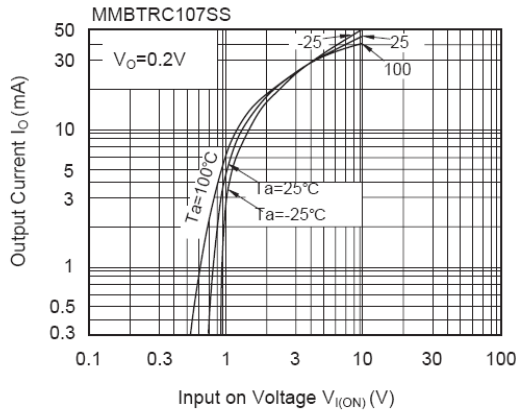
Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V _O = 5 V, I _O = 10 mA	G _I	80	--	--	--
MMBTRC107SS		80	--	--	
MMBTRC108SS		70	--	--	
MMBTRC109SS					
Output Cutoff Current at V _O = 50 V	I _{O(OFF)}	--	--	500	nA
Input Current at V _I = 5 V	I _I	--	--	0.88	mA
MMBTRC107SS		--	--	0.36	
MMBTRC108SS		--	--	0.16	
MMBTRC109SS					
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)}	--	--	1.8	V
MMBTRC107SS		--	--	2.6	
MMBTRC108SS		--	--	5.8	
MMBTRC109SS					
Input Voltage (OFF) at V _O = 5 V, I _O = 0.1 mA	V _{I(OFF)}	0.5	--	--	V
MMBTRC107SS		0.6	--	--	
MMBTRC108SS		1.5	--	--	
MMBTRC109SS					
Transition Frequency at V _O = 10 V, I _O = 5 mA	f _T	--	200	--	MHz



MMBTRC107SS~MMBTRC109SS

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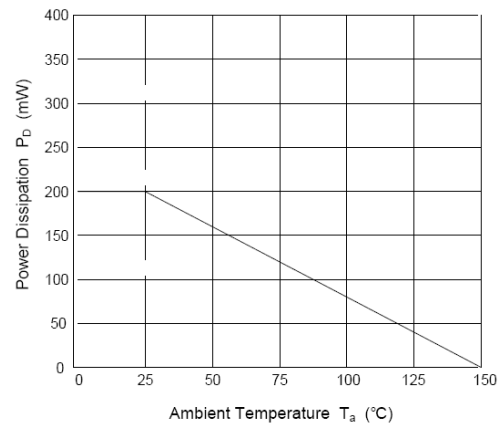
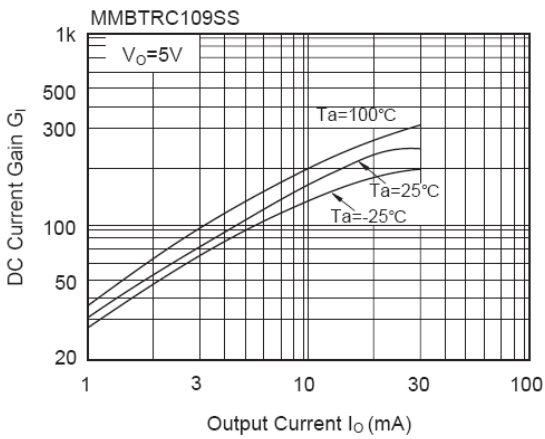
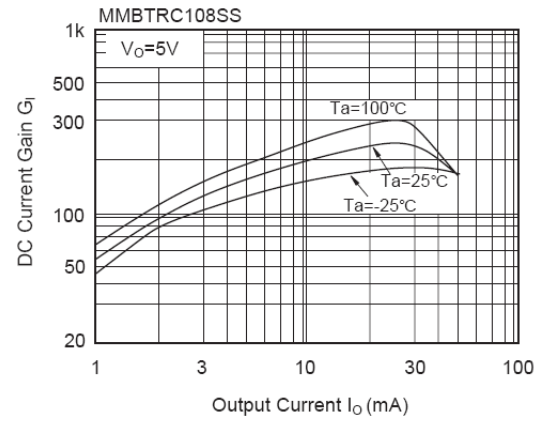
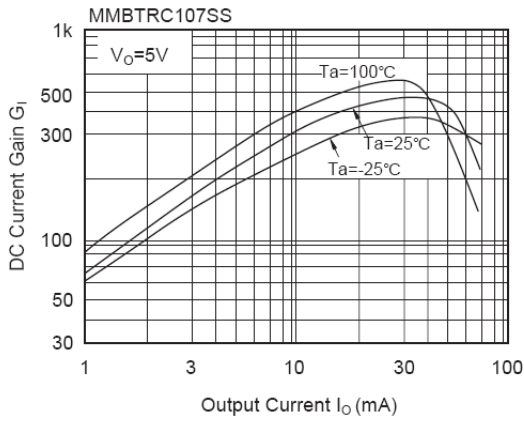
Typical Characteristic Curves





MMBTRC107SS~MMBTRC109SS

NPN Digital Transistor





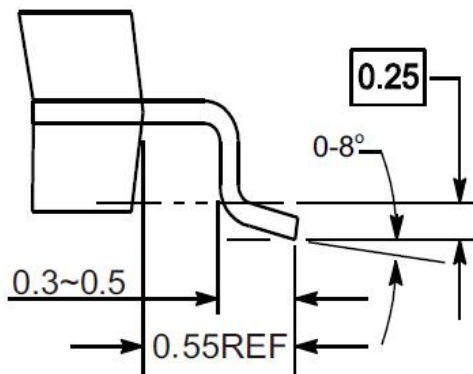
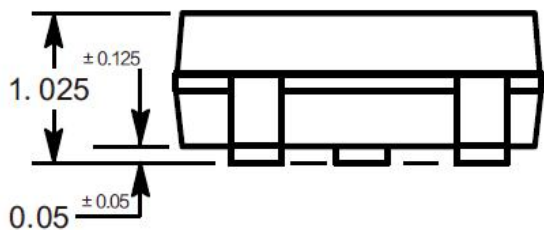
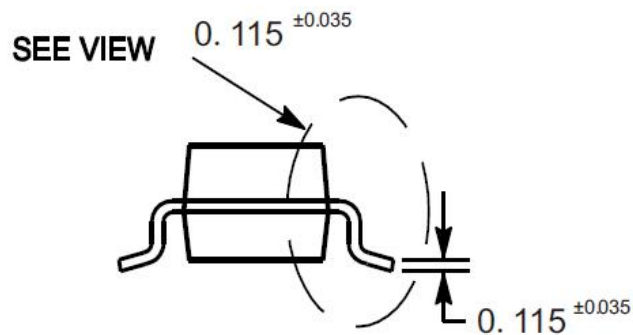
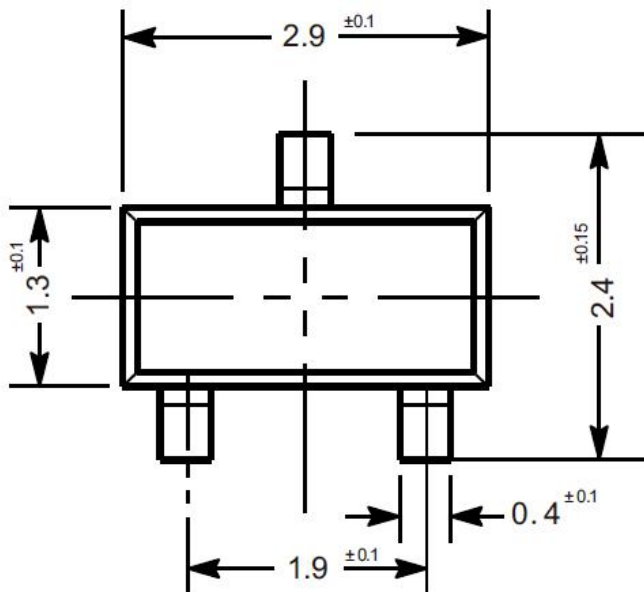
MMBTRC107SS~MMBTRC109SS

NPN Digital Transistor

Package Outline

SOT-23

Dimensions in mm



VIEW C

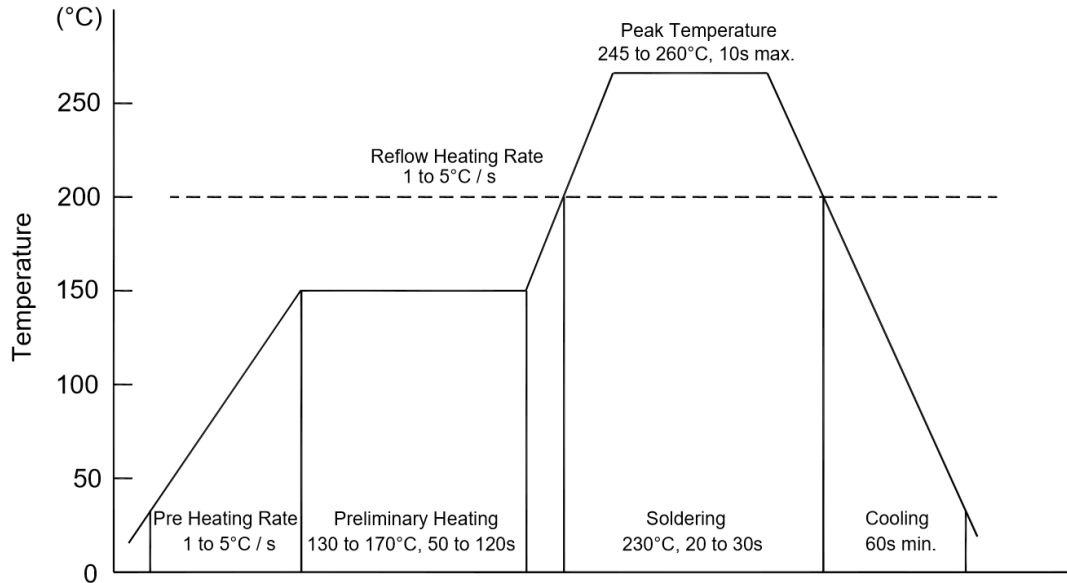
Ordering Information

Device	Package	Shipping
MMBTRC107SS~MMBTRC109SS	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

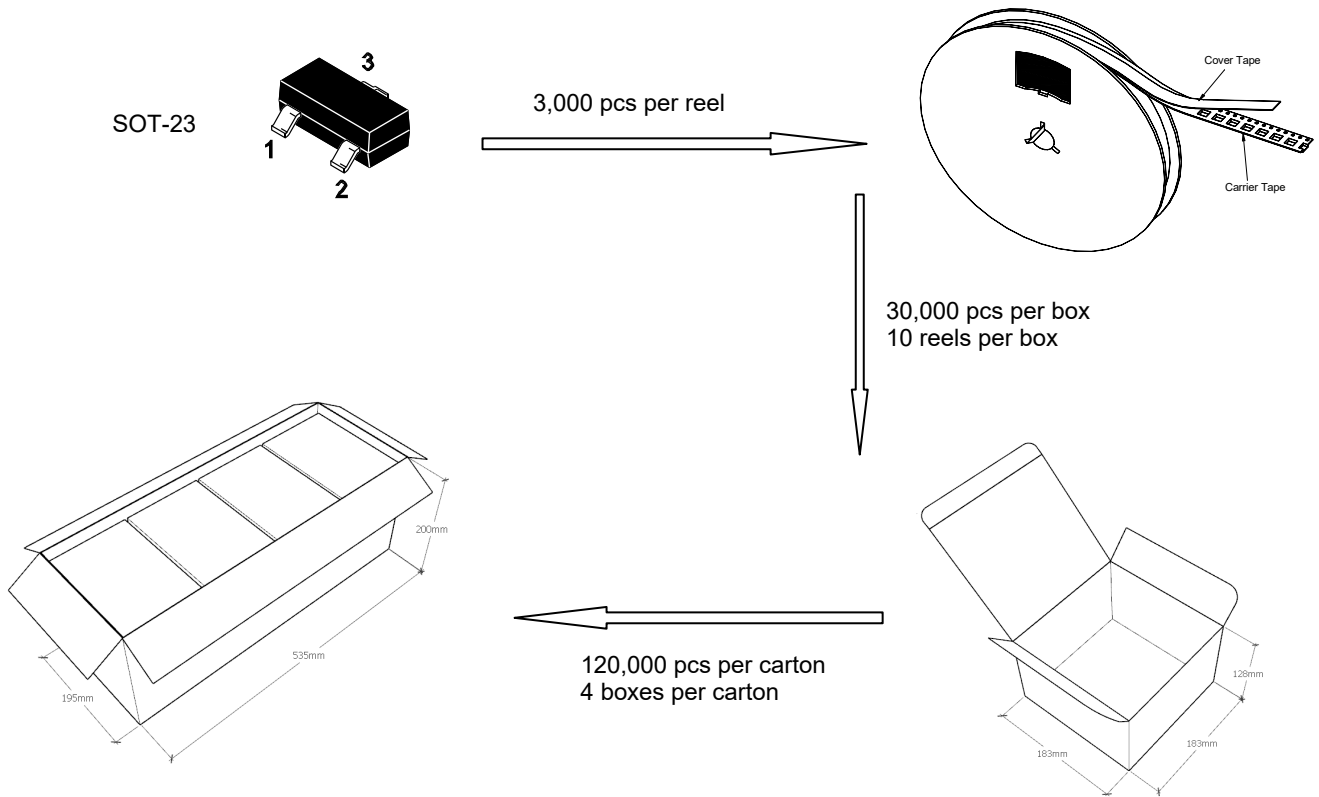
- Temperature: 370 °C
- Time: 3s max.
- Times: one time

◆ Storage conditions

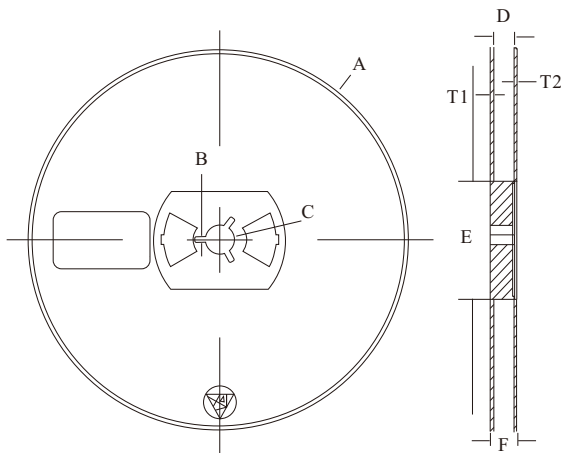
- **Temperature**
5 to 40 °C
- **Humidity**
30 to 80% RH
- **Recommended period**
One year after manufacturing

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")

