

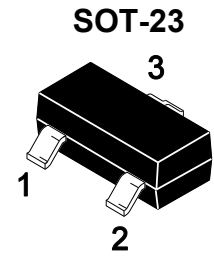


# MMBTRA107SS~MMBTRA109SS

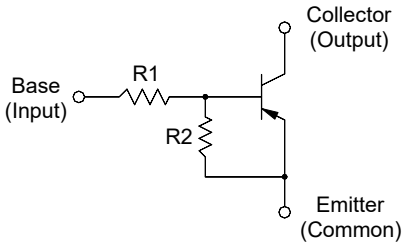
## PNP Digital Transistor

### 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 $\Omega$ )	R2 (K $\Omega$ )	Marking Code
MMBTRA107SS	10	47	7BT
MMBTRA108SS	22	47	8BT
MMBTRA109SS	47	22	9BT

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

Parameter	Symbol	Value	Unit
Output Voltage	$-V_O$	50	V
Input Voltage	$-V_I$	MMBTRA107SS	30,-6
		MMBTRA108SS	40,-7
		MMBTRA109SS	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	$^{\circ}\text{C}$



# MMBTRA107SS~MMBTRA109SS

## PNP Digital Transistor

### Electrical Characteristics (T<sub>A</sub>=25°C)

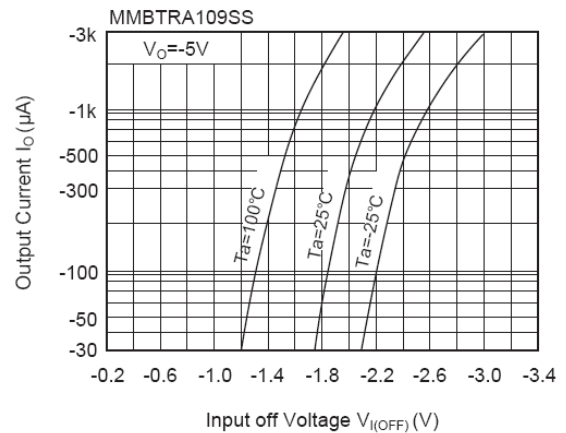
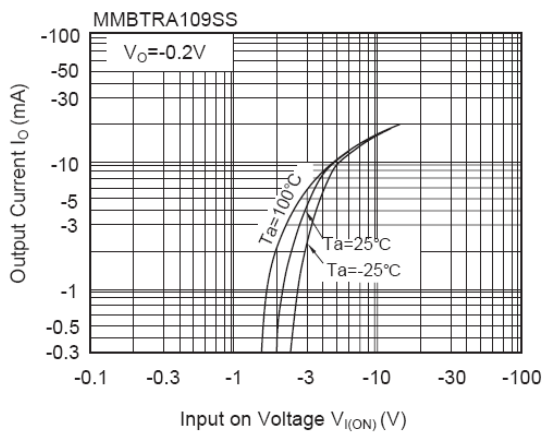
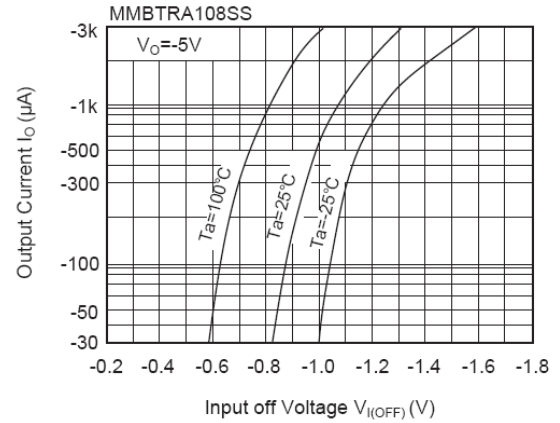
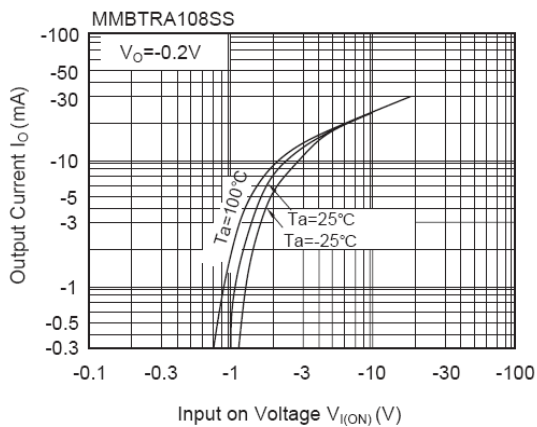
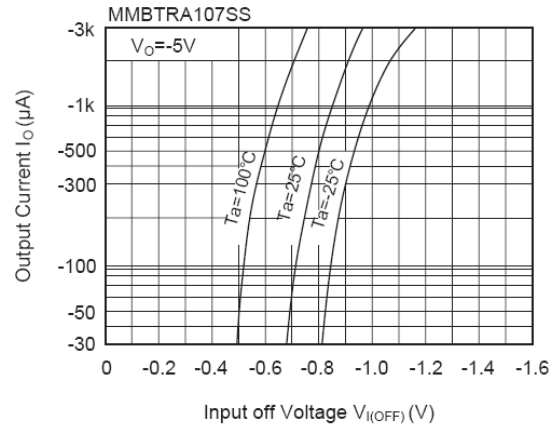
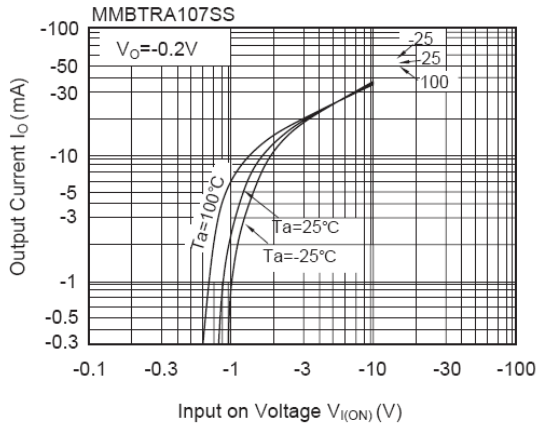
Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V <sub>O</sub> = -5 V, I <sub>O</sub> = -10 mA	G <sub>I</sub>	80	--	--	--
MMBTRA107SS		80	--	--	--
MMBTRA108SS		70	--	--	--
MMBTRA109SS					
Output Cutoff Current at V <sub>O</sub> = -50 V	-I <sub>O(OFF)</sub>	--	--	500	nA
Input Current at V <sub>I</sub> = -5 V	-I <sub>I</sub>	--	--	0.88	mA
MMBTRA107SS		--	--	0.36	
MMBTRA108SS		--	--	0.16	
MMBTRA109SS					
Output Voltage (ON) at I <sub>O</sub> = -10 mA, I <sub>I</sub> = -0.5 mA	-V <sub>O(ON)</sub>	--	--	0.3	V
Input Voltage (ON) at V <sub>O</sub> = -0.2 V, I <sub>O</sub> = -5 mA	-V <sub>I(ON)</sub>	--	--	1.8	V
MMBTRA107SS		--	--	2.6	
MMBTRA108SS		--	--	5.8	
MMBTRA109SS					
Input Voltage (OFF) at V <sub>O</sub> = -5 V, I <sub>O</sub> = -0.1 mA	-V <sub>I(OFF)</sub>	0.5	--	--	V
MMBTRA107SS		0.6	--	--	
MMBTRA108SS		1.5	--	--	
MMBTRA109SS					
Transition Frequency at V <sub>O</sub> = -10 V, I <sub>O</sub> = -5 mA	f <sub>T</sub>	--	200	--	MHz



# MMBTRA107SS~MMBTRA109SS

## PNP Digital Transistor

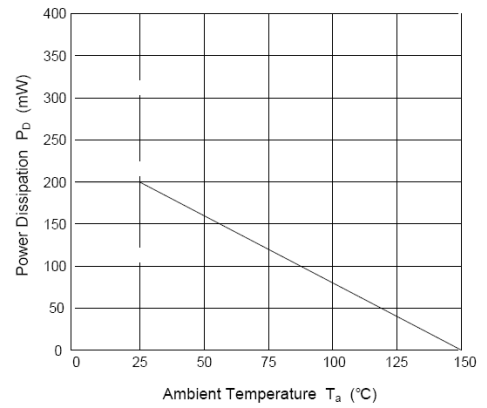
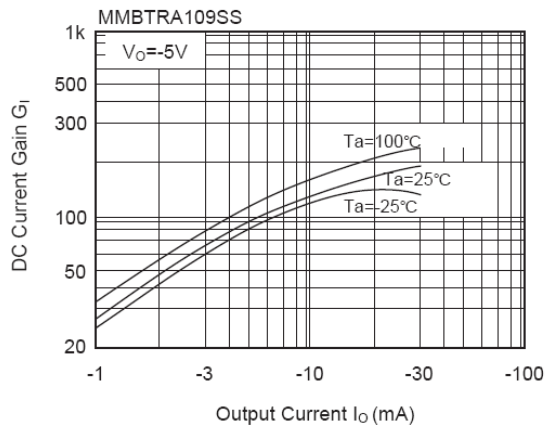
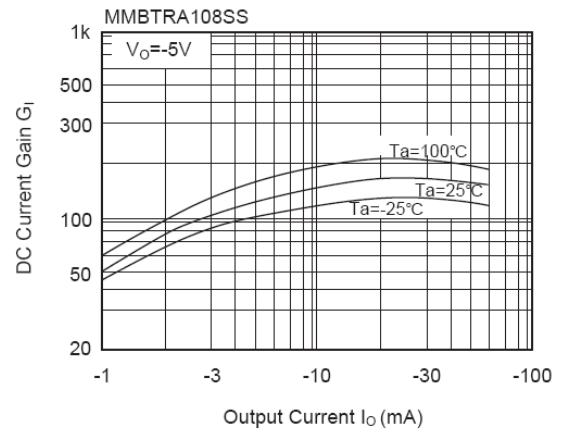
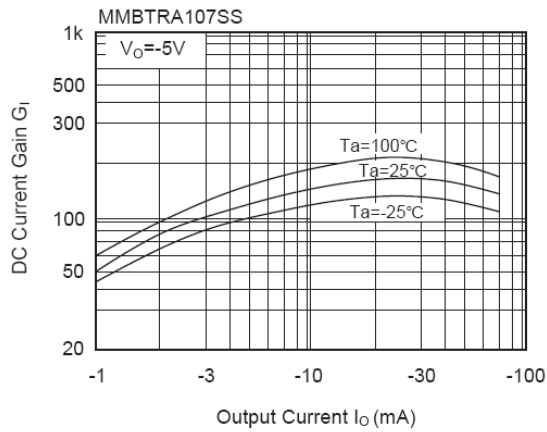
### Typical Characteristic Curves





# MMBTRA107SS~MMBTRA109SS

## PNP Digital Transistor





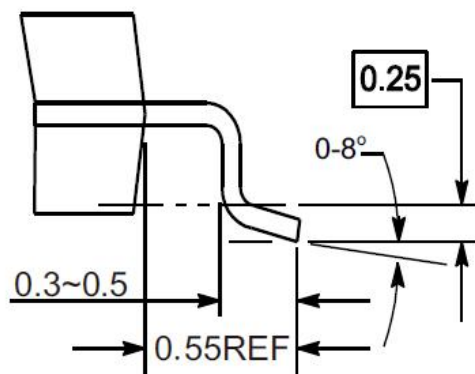
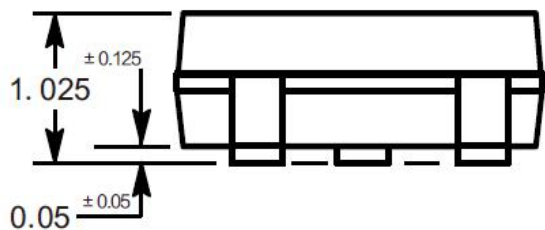
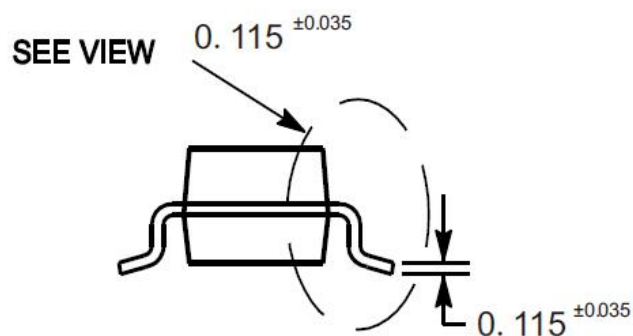
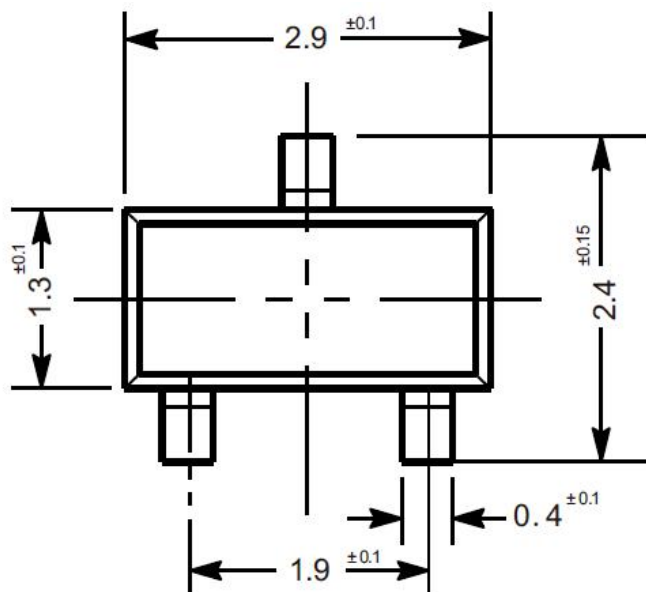
# MMBTRA107SS~MMBTRA109SS

## PNP Digital Transistor

### Package Outline

SOT-23

Dimensions in mm



VIEW C

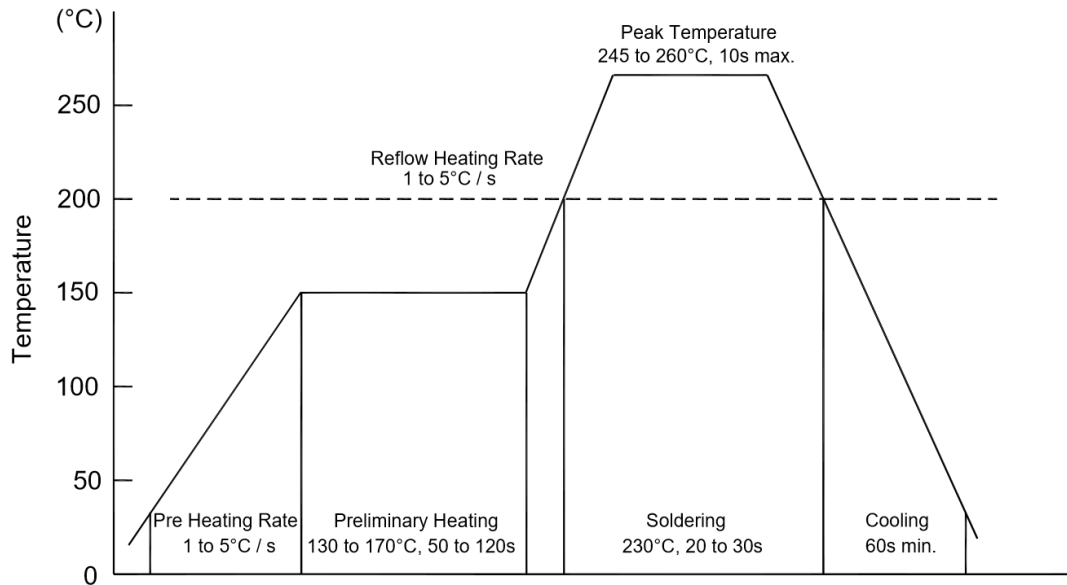
### Ordering Information

Device	Package	Shipping
MMBTRA107SS~MMBTRA109SS	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

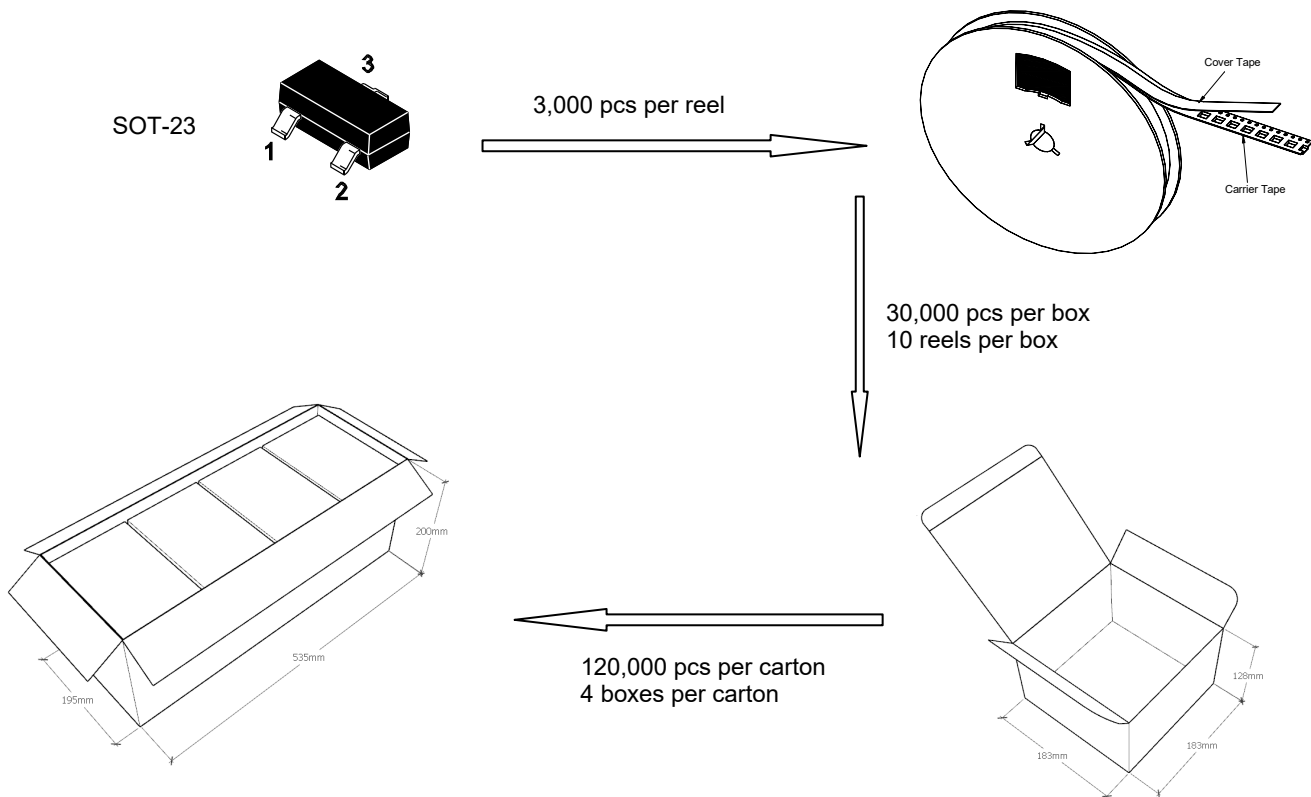
- Temperature: 370 °C
- Time: 3s max.
- Times: one time

#### ◆ Storage conditions

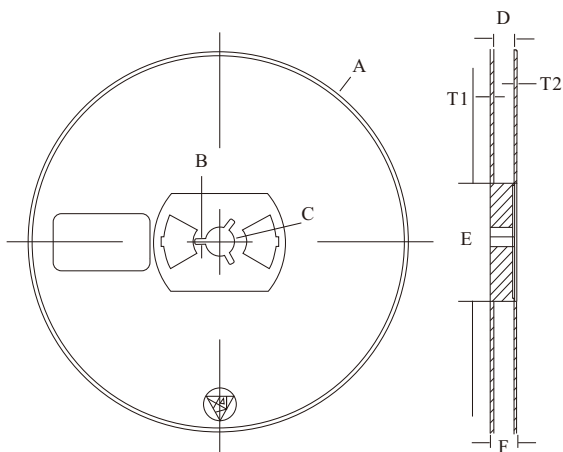
- **Temperature**  
5 to 40 °C
- **Humidity**  
30 to 80% RH
- **Recommended period**  
One year after manufacturing

### 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")

