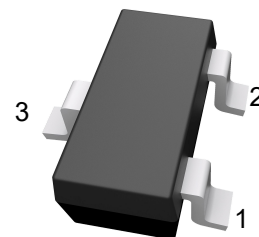


### Features

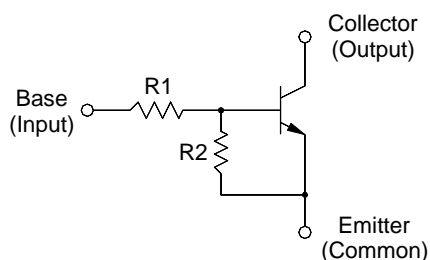
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process

SOT-23-3



1.Base 2.Emitter 3.Collector

### Equivalent Circuit



### Resistor Values/Marking Code

Type	R1 (K $\Omega$ )	R2 (K $\Omega$ )	Marking Code
DTC123ESC	2.2	2.2	17CR

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

Parameter	Symbol	Value	Unit
Output Voltage	$V_O$	50	V
Input Voltage	$V_I$	12,-10	V
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	$^{\circ}\text{C}$



# DTC123ESC

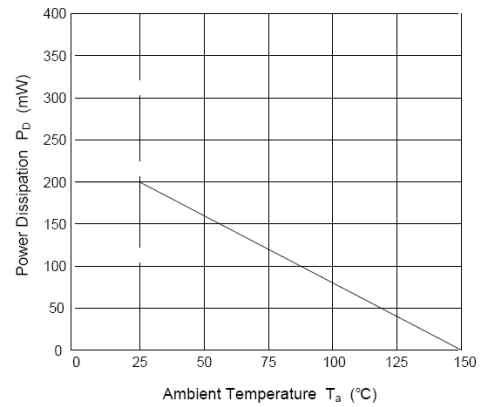
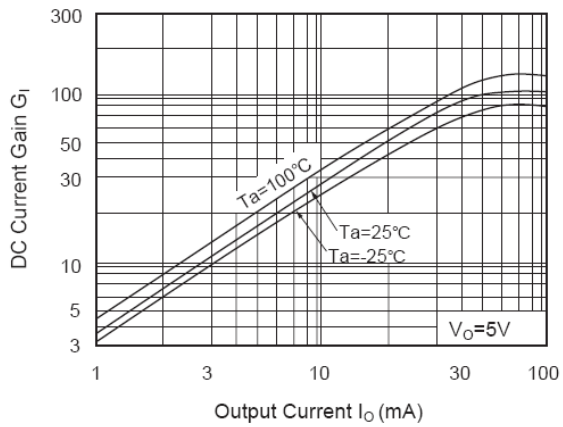
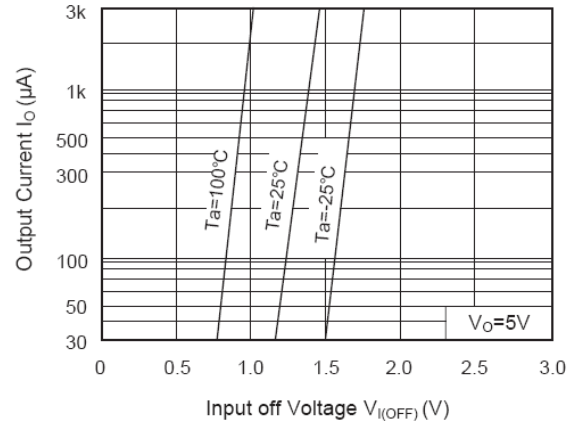
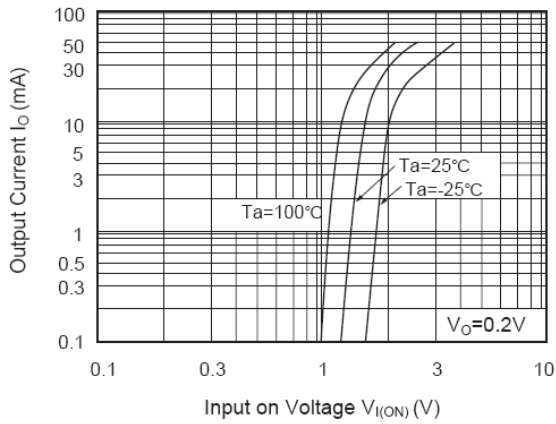
## NPN Digital Transistor

### 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> = 20 mA	G <sub>I</sub>	20	--	--	--
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>	--	--	3.8	mA
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> = 0.3 V, I <sub>O</sub> = 20 mA	V <sub>I(ON)</sub>	--	--	3	V
Input Voltage (OFF) at V <sub>CC</sub> = 5 V, I <sub>O</sub> = 100 μA	V <sub>I(OFF)</sub>	0.5	--	--	V
Transition Frequency at V <sub>O</sub> = 10 V, I <sub>O</sub> = 5 mA	f <sub>T</sub>	--	250	--	MHz



### Typical Characteristic Curves





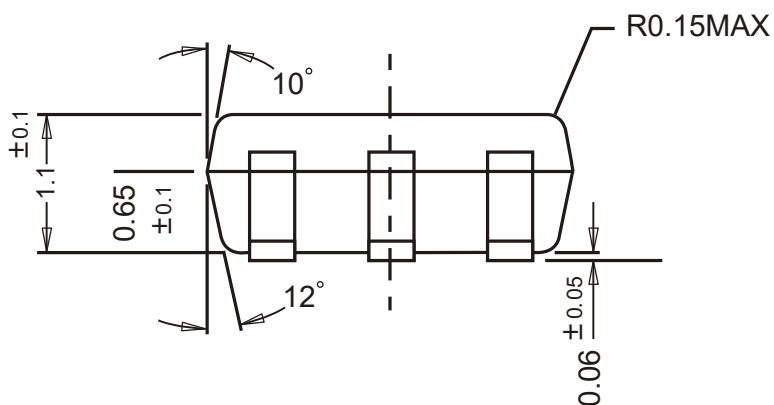
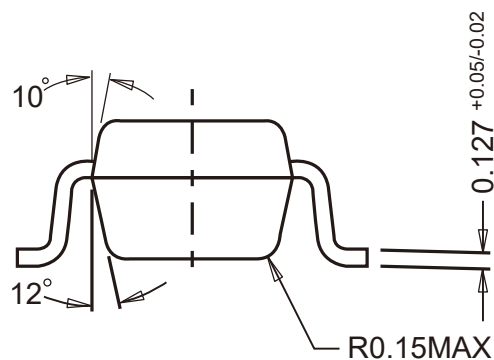
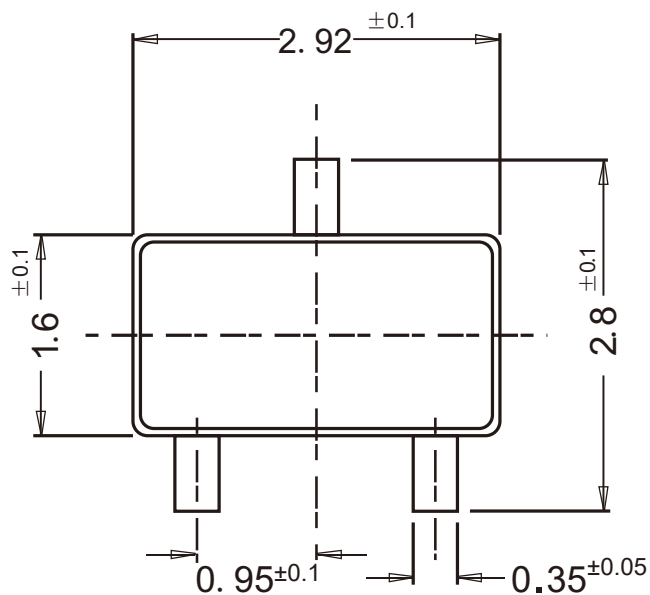
# DTC123ESC

## NPN Digital Transistor

### Package Outline

SOT-23-3

Dimensions in mm

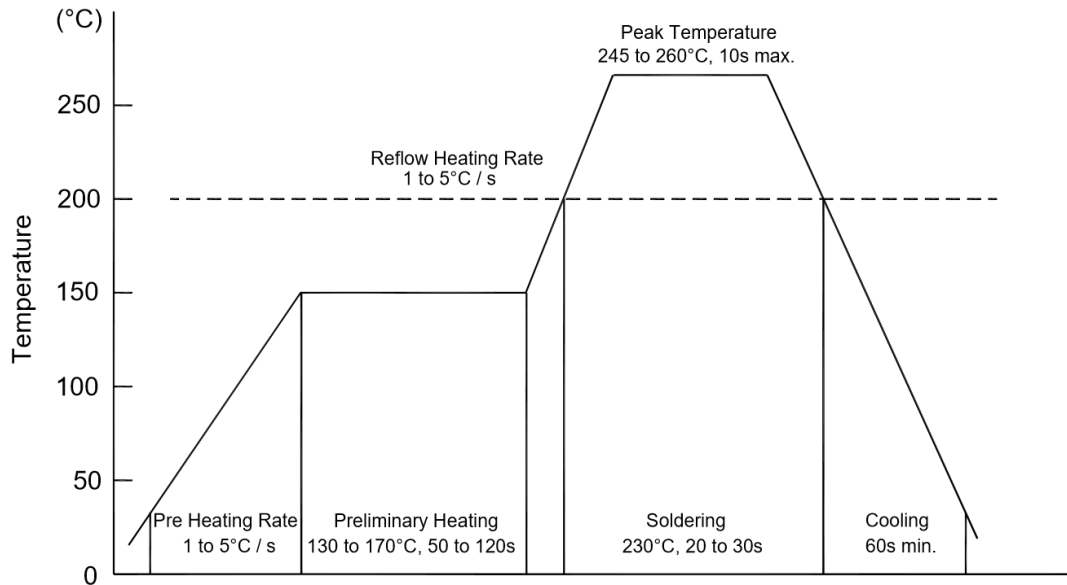


### Ordering Information

Device	Package	Shipping
DTC123ESC	SOT-23-3	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

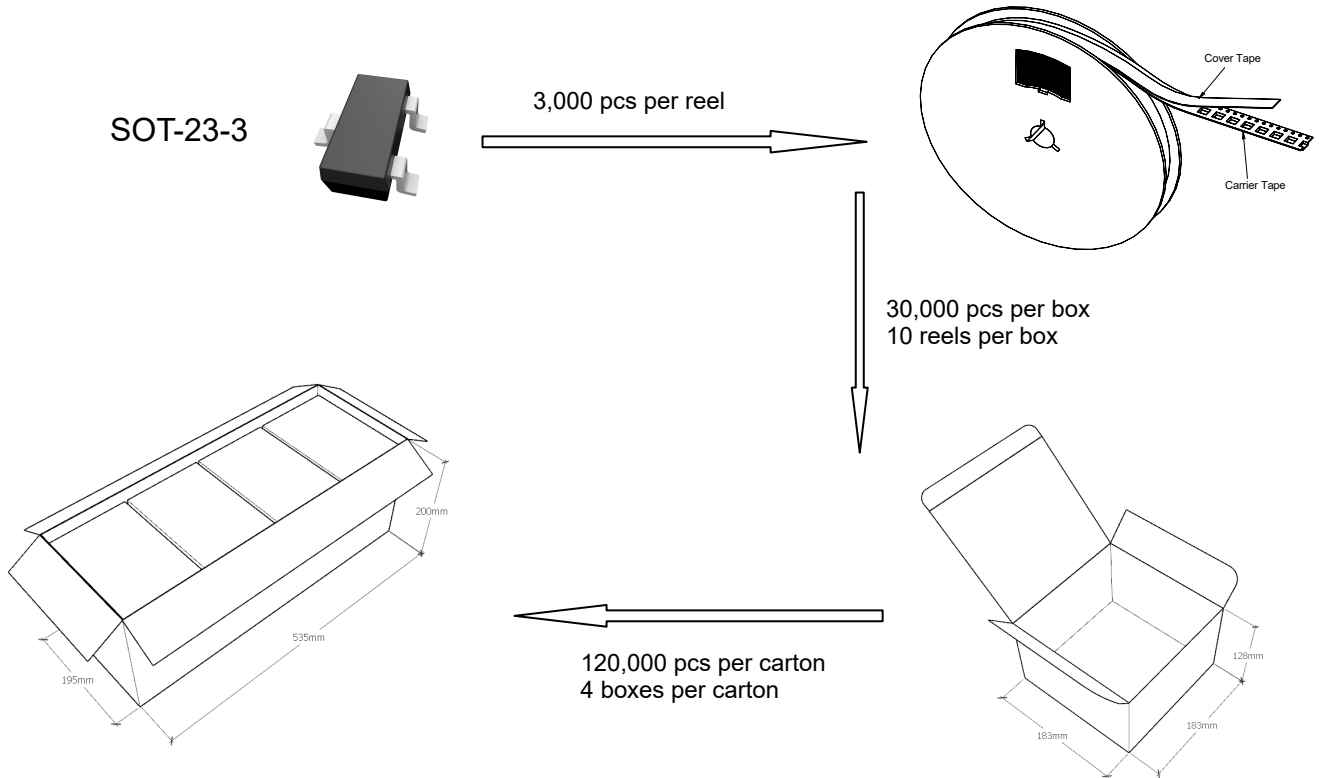
- Temperature: 370 °C
- Time: 3s max.
- Times: one time

#### ◆ Storage conditions

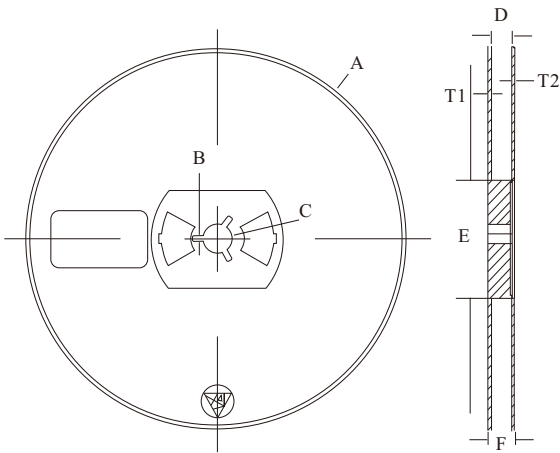
- **Temperature**  
5 to 40 °C
- **Humidity**  
30 to 80% RH
- **Recommended period**  
One year after manufacturing

### 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")

