



PJM2333PSC

P-Channel Enhancement Mode Power MOSFET

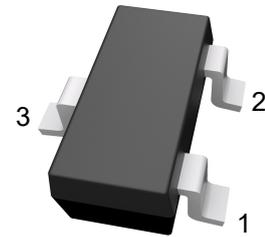
Features

- Surface mount package
- High power and current handling capability
- $V_{DS} = -12V, I_D = -6A$
 $R_{DS(on)} < 30m\Omega @ V_{GS} = -4.5V$

Application

- Load switch
- PWM application
- Power management

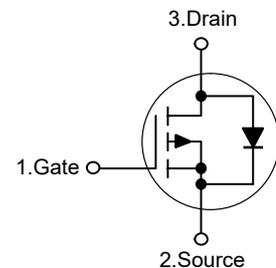
SOT-23-3



1. Gate 2. Source 3. Drain

Marking Code: Q33

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter | Symbol | Value | Unit |
|---------------------------------------|-----------|-------------|------|
| Drain-Source Voltage | $-V_{DS}$ | 12 | V |
| Gate-Source Voltage | V_{GS} | ± 12 | V |
| Drain Current-Continuous | $-I_D$ | 6 | A |
| Drain Current-Pulsed ^{Note1} | $-I_{DM}$ | 20 | A |
| Maximum Power Dissipation | P_D | 1.25 | W |
| Junction Temperature | T_J | 150 | °C |
| Storage Temperature Range | T_{STG} | -55 to +150 | °C |

Thermal Characteristics

| | | | |
|--|-----------------|-----|------|
| Thermal Resistance, Junction-to-Ambient ^{Note2} | $R_{\theta JA}$ | 100 | °C/W |
|--|-----------------|-----|------|



PJM2333PSC

P-Channel Enhancement Mode Power MOSFET

Electrical Characteristics

(Ta=25°C unless otherwise specified)

| Parameter | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---|----------------|--|------|------|-----------|------------|
| Static Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | $-V_{(BR)DSS}$ | $V_{GS}=0V, I_D=-250\mu A$ | 12 | -- | -- | V |
| Zero Gate Voltage Drain Current | $-I_{DSS}$ | $V_{DS}=-12V, V_{GS}=0V$ | -- | -- | 1 | μA |
| Gate-Body Leakage Current | I_{GSS} | $V_{GS}=\pm 12V, V_{DS}=0V$ | -- | -- | ± 100 | nA |
| Gate Threshold Voltage ^{Note3} | $-V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=-250\mu A$ | 0.4 | 0.65 | 1 | V |
| Drain-Source On-Resistance ^{Note3} | $R_{DS(on)}$ | $V_{GS}=-4.5V, I_D=-6A$ | -- | 19 | 30 | m Ω |
| | | $V_{GS}=-2.5V, I_D=-5A$ | -- | 26 | 45 | m Ω |
| Forward Transconductance ^{Note3} | g_{FS} | $V_{DS}=-5V, I_D=-6A$ | -- | 17 | -- | S |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS}=-6V, V_{GS}=0V, f=1MHz$ | -- | 1100 | -- | pF |
| Output Capacitance | C_{oss} | | -- | 390 | -- | pF |
| Reverse Transfer Capacitance | C_{rss} | | -- | 300 | -- | pF |
| Switching Characteristics | | | | | | |
| Turn-on Delay Time | $t_{d(on)}$ | $V_{DD}=-6V, I_D=-1A$ $V_{GS}=-4.5V, R_{GEN}=6\Omega,$ $R_L=6\Omega$ | -- | 25 | -- | nS |
| Turn-on Rise Time | t_r | | -- | 45 | -- | nS |
| Turn-off Delay Time | $t_{d(off)}$ | | -- | 72 | -- | nS |
| Turn-off Fall Time | t_f | | -- | 60 | -- | nS |
| Total Gate Charge | Q_g | $V_{DS}=-6V, I_D=-6A, V_{GS}=-4.5V$ | -- | 11.5 | -- | nC |
| Gate-Source Charge | Q_{gs} | | -- | 1.5 | -- | nC |
| Gate-Drain Charge | Q_{gd} | | -- | 3.2 | -- | nC |
| Source-Drain Diode Characteristics | | | | | | |
| Diode Forward Voltage ^{Note3} | $-V_{SD}$ | $V_{GS}=0V, I_S=-6A$ | -- | -- | 1.2 | V |
| Diode Forward Current ^{Note2} | $-I_S$ | | -- | -- | 6 | A |

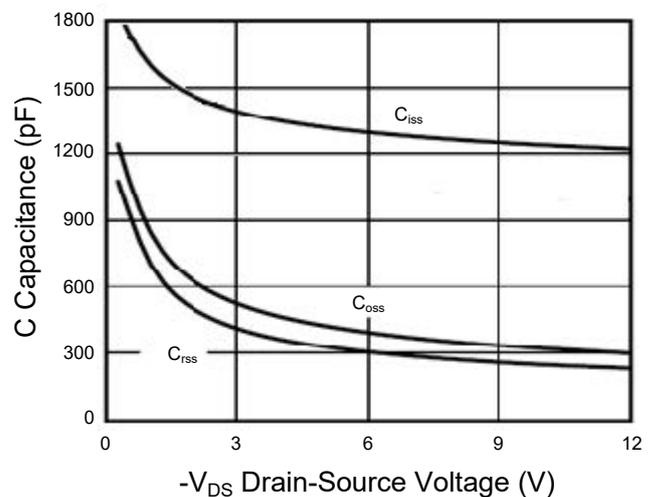
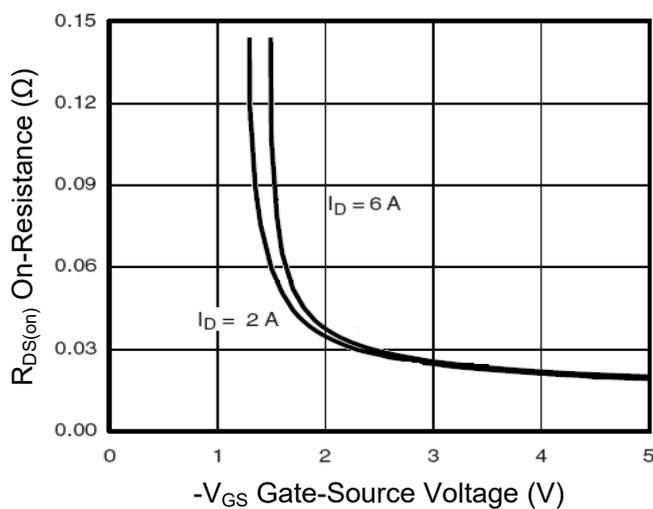
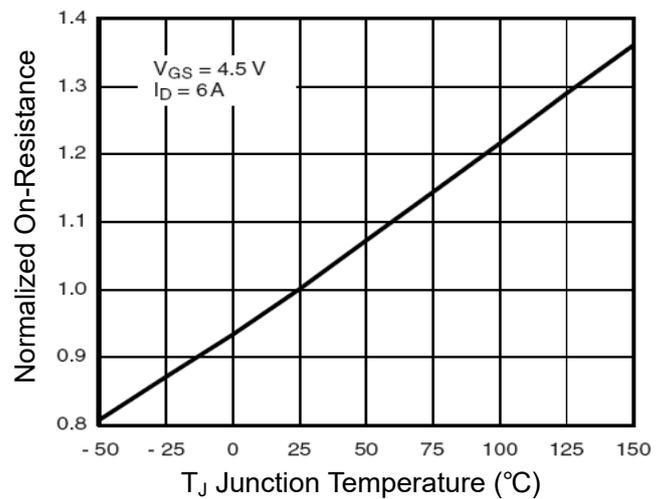
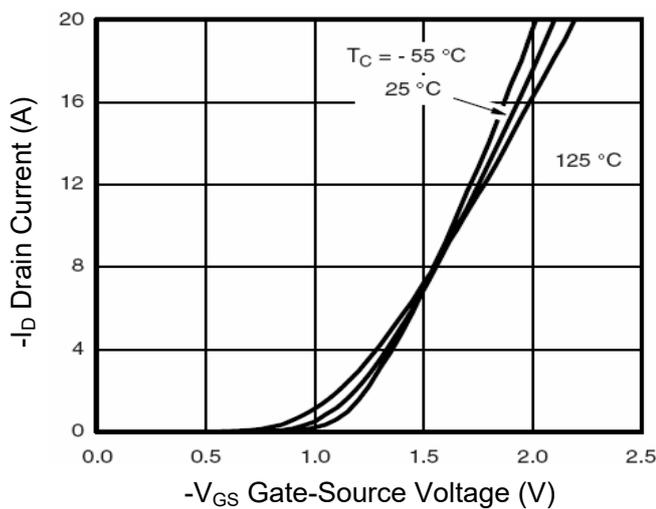
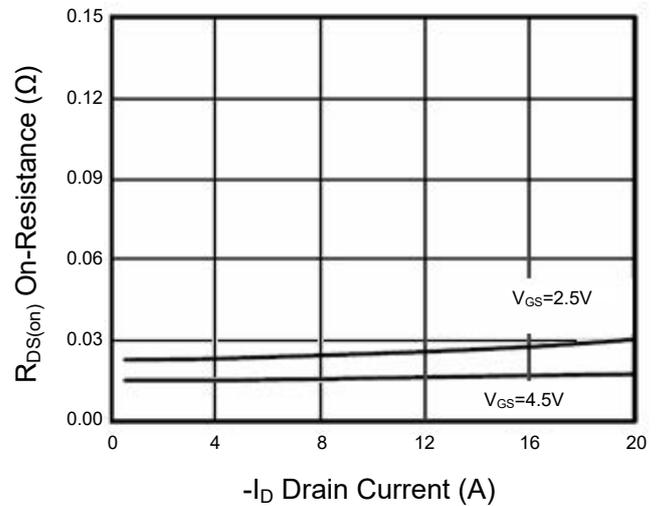
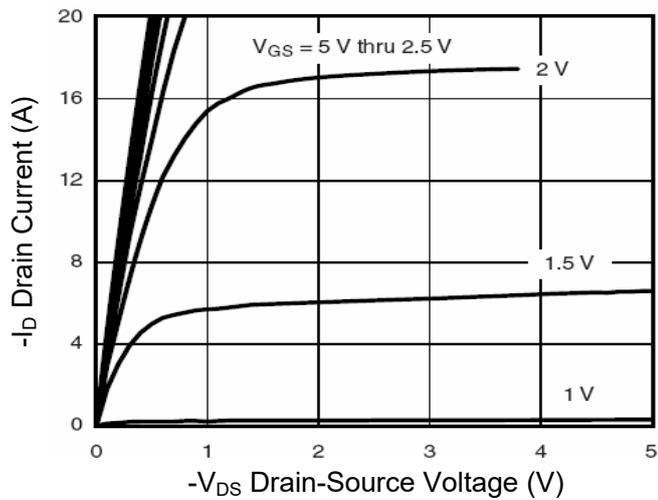
Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. Surface Mounted on FR4 Board, $t \leq 10$ sec.

3. Pulse Test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.



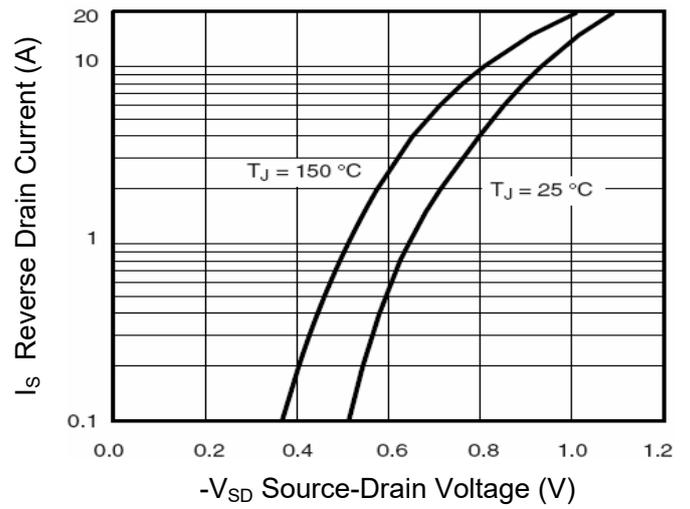
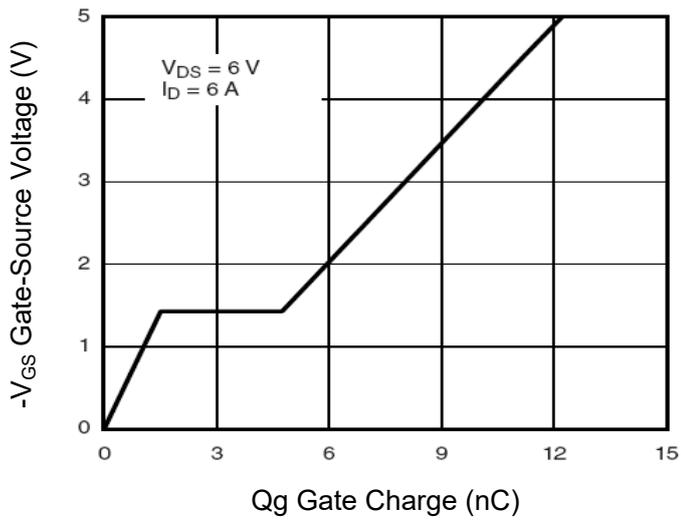
Typical Characteristic Curves





PJM2333PSC

P-Channel Enhancement Mode Power MOSFET





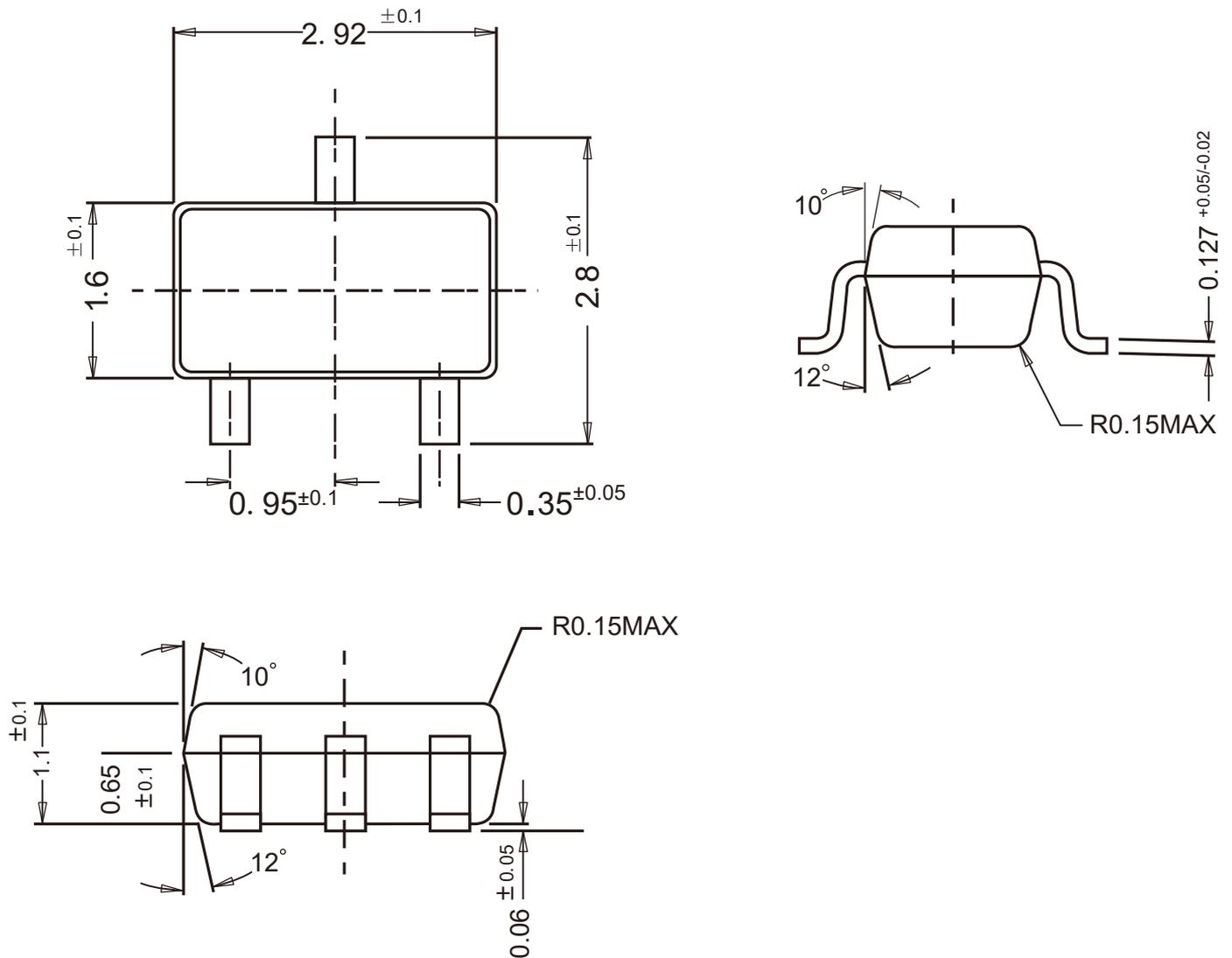
PJM2333PSC

P-Channel Enhancement Mode Power MOSFET

Package Outline

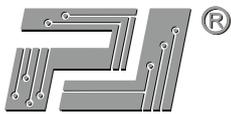
SOT-23-3

Dimensions in mm



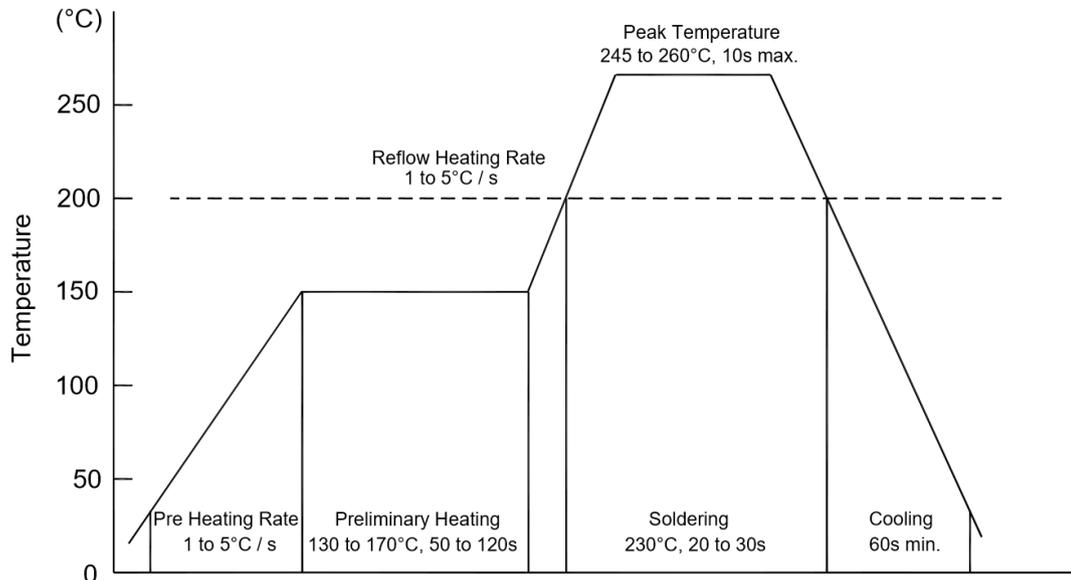
Ordering Information

| Device | Package | Shipping |
|------------|----------|-----------------------|
| PJM2333PSC | 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

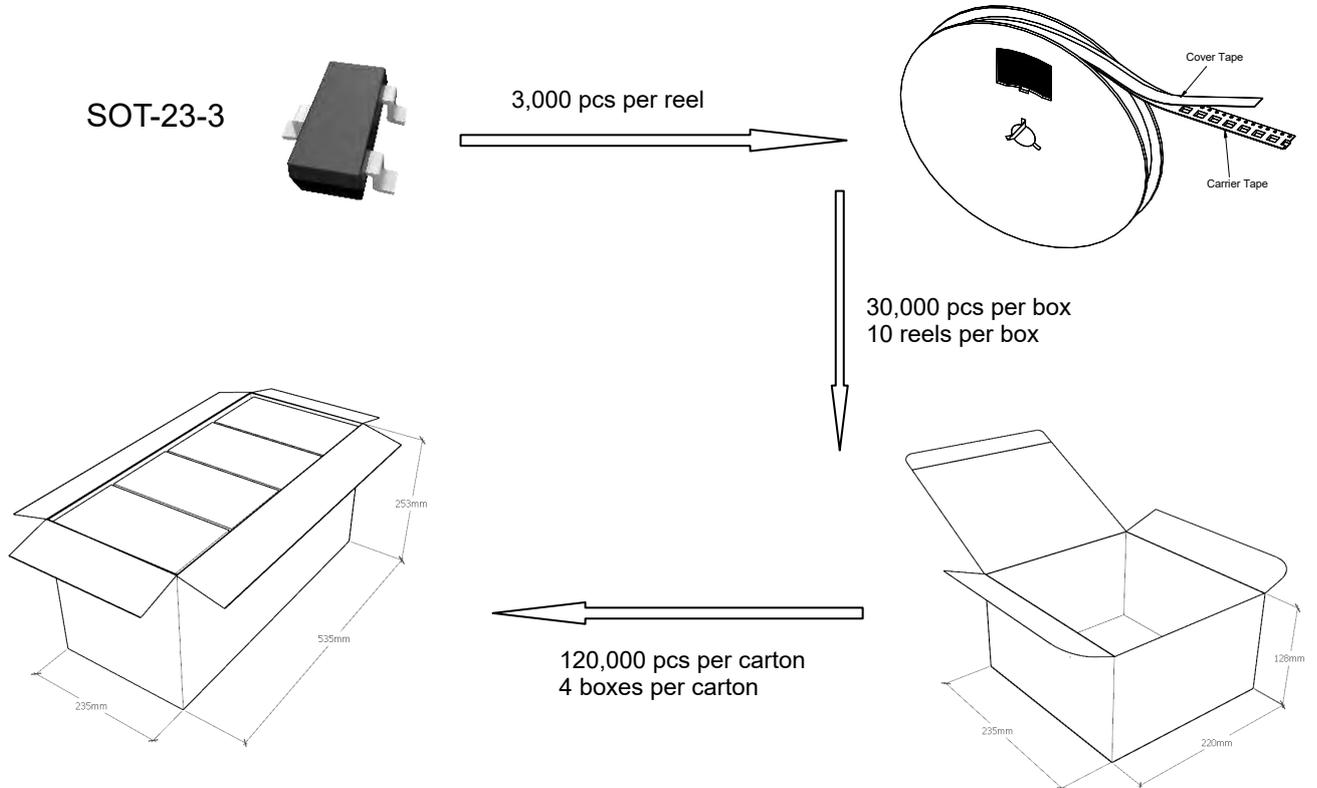
- Temperature: 370 °C
- Time: 3s max.
- Times: one time

◆ Storage conditions

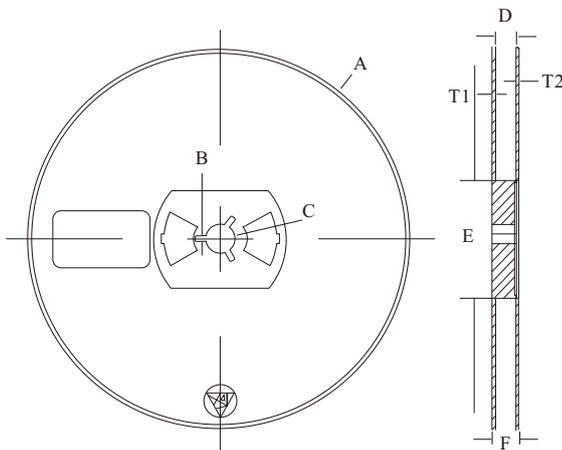
- **Temperature**
5 to 40 °C
- **Humidity**
30 to 80% RH
- **Recommended period**
One year after manufacturing

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")

