



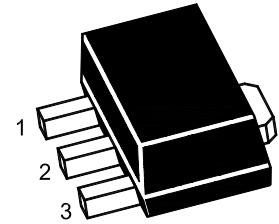
PJM03N60SQ

N-Channel Enhancement Mode Power MOSFET

Features

- Trench FET Power MOSFET
- $V_{DS} = 60V, I_D = 3A$
 $R_{DS(on)} < 105m\Omega @ V_{GS} = 10V$

SOT-89



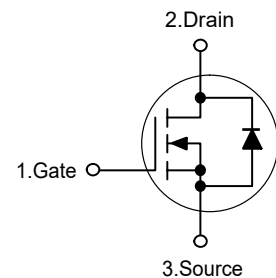
1. Gate 2. Drain 3. Source

Marking Code: W10

Applications

- DC/DC Converter
- Battery Switch

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter | Symbol | Value | Unit |
|---------------------------------------|-----------|-------------|------|
| Drain-Source Voltage | V_{DS} | 60 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Drain Current-Continuous | I_D | 3 | A |
| Drain Current-Pulsed ^{Note1} | I_{DM} | 10 | A |
| Maximum Power Dissipation | P_D | 1.5 | W |
| Junction Temperature | T_J | 150 | °C |
| Storage Temperature Range | T_{STG} | -55 to +150 | °C |

Thermal Characteristics

| | | | |
|--|-----------------|----|------|
| Thermal Resistance, Junction-to-Ambient ^{Note2} | $R_{\theta JA}$ | 83 | °C/W |
|--|-----------------|----|------|



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Electrical Characteristics

(Ta=25°C unless otherwise specified)

| Parameter | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---|---------------|---|------|------|-----------|------------|
| Static Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D=250\mu A$ | 60 | -- | -- | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=60V, V_{GS}=0V$ | -- | -- | 1 | μA |
| Gate-Body Leakage Current | I_{GSS} | $V_{GS}=\pm 20V, V_{DS}=0V$ | -- | -- | ± 100 | nA |
| Gate Threshold Voltage ^{Note3} | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu A$ | 1.0 | -- | 2.5 | V |
| Drain-Source On-Resistance ^{Note3} | $R_{DS(on)}$ | $V_{GS}=10V, I_D=3A$ | -- | 70 | 105 | m Ω |
| | | $V_{GS}=4.5V, I_D=3A$ | -- | 82 | 125 | m Ω |
| Forward Transconductance ^{Note3} | g_{FS} | $V_{DS}=5V, I_D=3A$ | 1.4 | 2.5 | -- | S |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS}=30V, V_{GS}=0V, f=1MHz$ | -- | 250 | -- | pF |
| Output Capacitance | C_{oss} | | -- | 26 | -- | pF |
| Reverse Transfer Capacitance | C_{rss} | | -- | 20 | -- | pF |
| Switching Characteristics | | | | | | |
| Turn-on Delay Time | $t_{d(on)}$ | $V_{DD}=30V, I_D=1.5A$ $V_{GS}=10V, R_{GEN}=1\Omega$ | -- | 6.5 | -- | nS |
| Turn-on Rise Time | t_r | | -- | 15.2 | -- | nS |
| Turn-off Delay Time | $t_{d(off)}$ | | -- | 15.2 | -- | nS |
| Turn-off Fall Time | t_f | | -- | 10.3 | -- | nS |
| Total Gate Charge | Q_g | $V_{DS}=30V, I_D=3A, V_{GS}=4.5V$ | -- | 7 | -- | nC |
| Gate-Source Charge | Q_{gs} | | -- | 1.2 | -- | nC |
| Gate-Drain Charge | Q_{gd} | | -- | 1.5 | -- | nC |
| Source-Drain Diode Characteristics | | | | | | |
| Diode Forward Voltage ^{Note3} | V_{SD} | $V_{GS}=0V, I_S=3A$ | -- | 0.8 | 1.2 | V |
| Diode Forward Current ^{Note2} | I_S | | -- | -- | 3 | A |

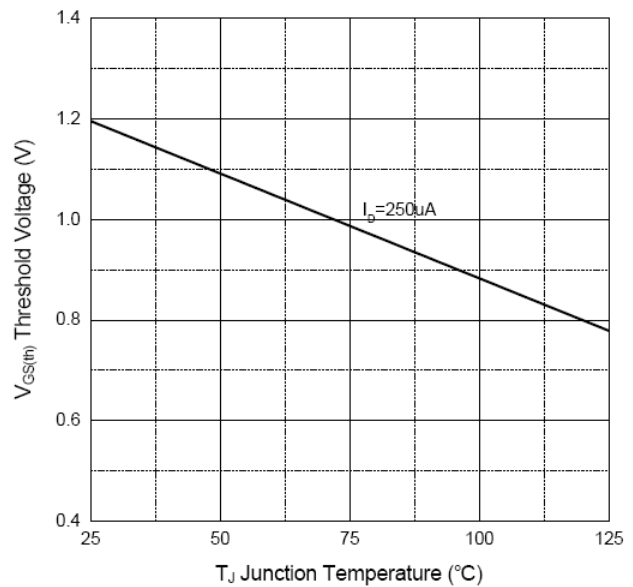
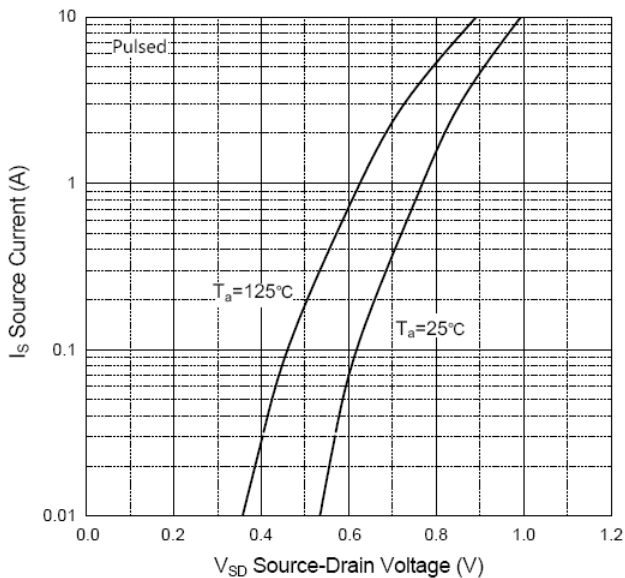
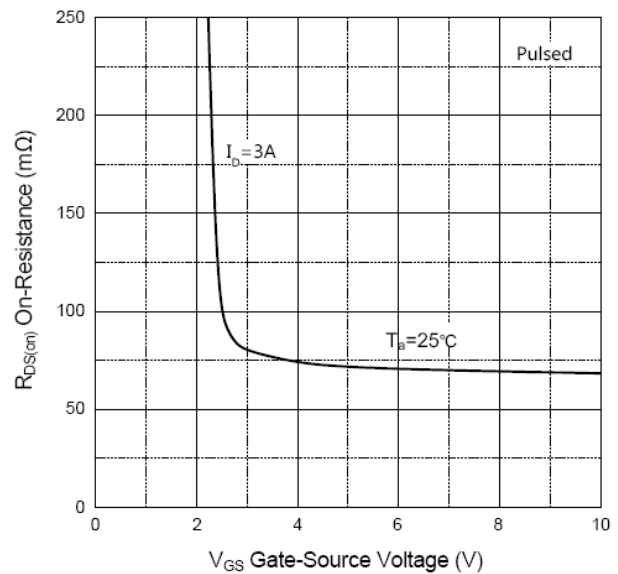
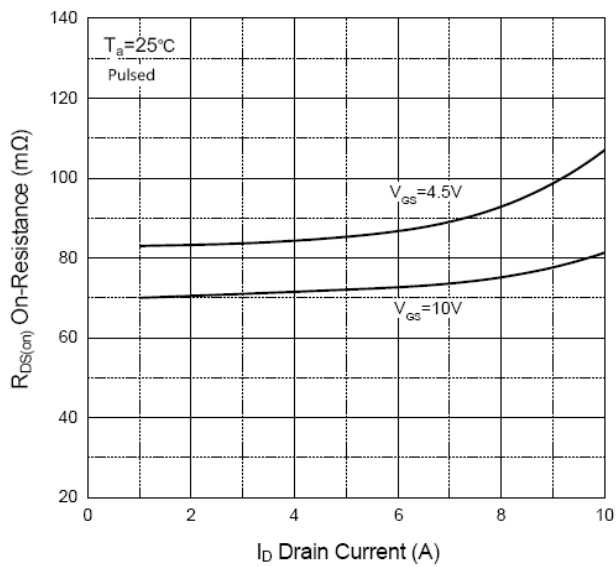
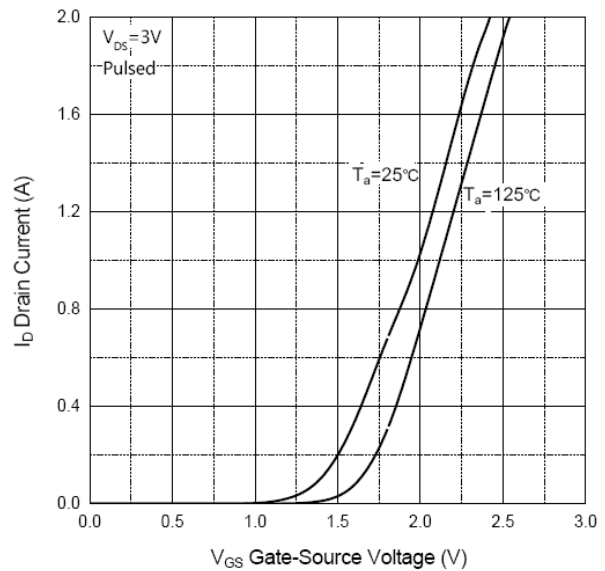
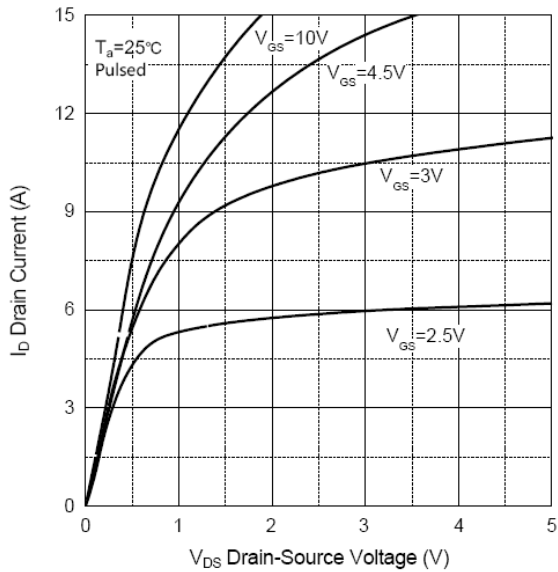
Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
 2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
 3. Pulse Test: Pulse width $\leq 300\mu s$, duty cycle $\leq 0.5\%$.



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Typical Characteristic Curves





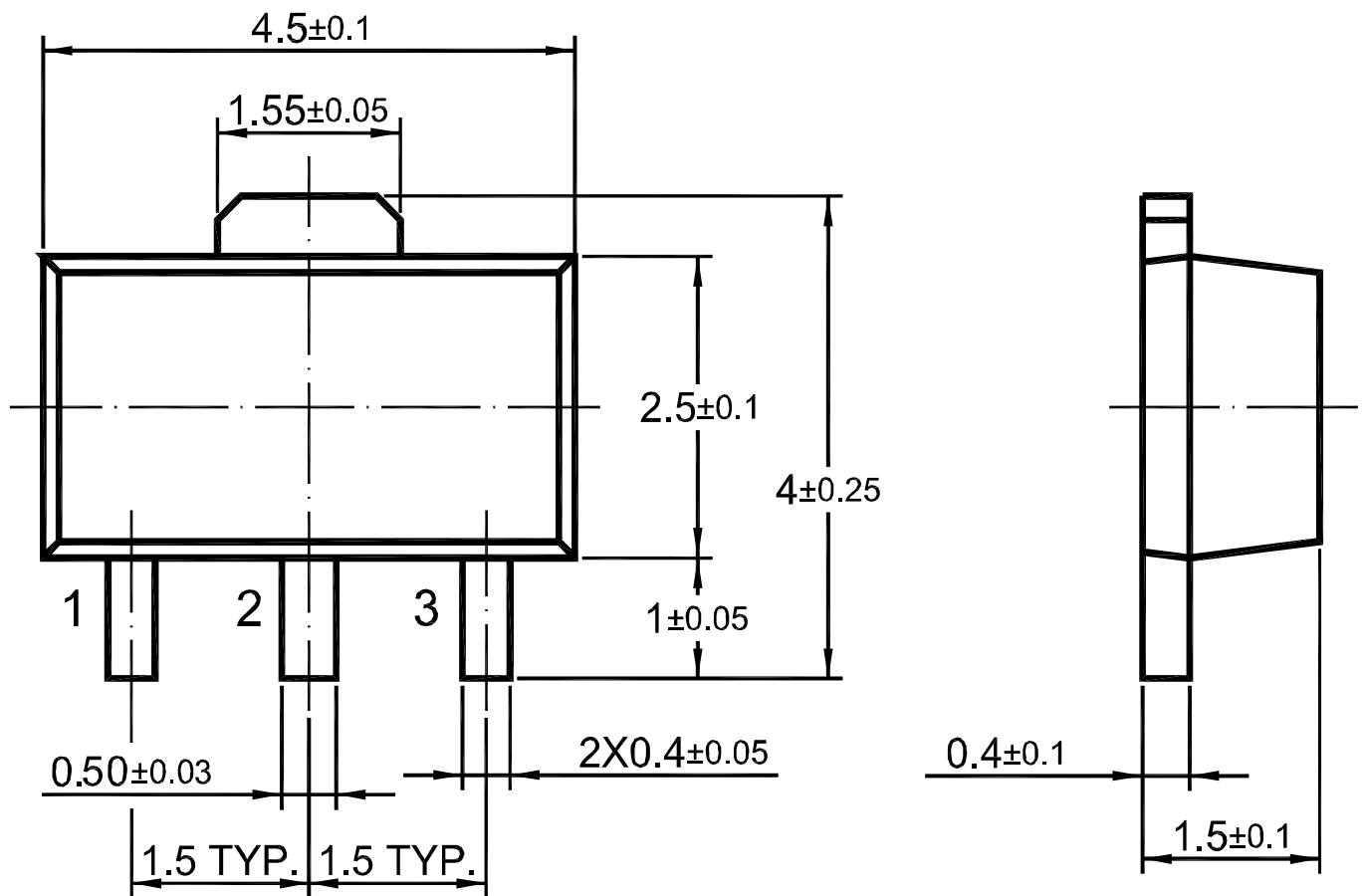
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Package Outline

SOT-89

Dimensions in mm



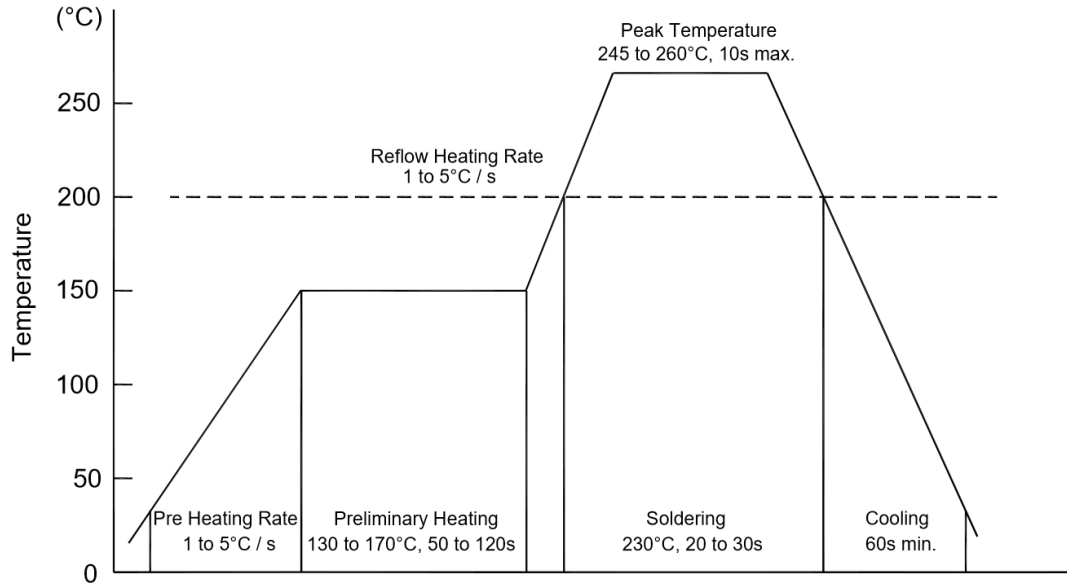
Ordering Information

| Device | Package | Shipping |
|------------|---------|------------------------|
| PJM03N60SQ | SOT-89 | 1,000PCS/Reel&7inches |
| | | 3,000PCS/Reel&13inches |



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

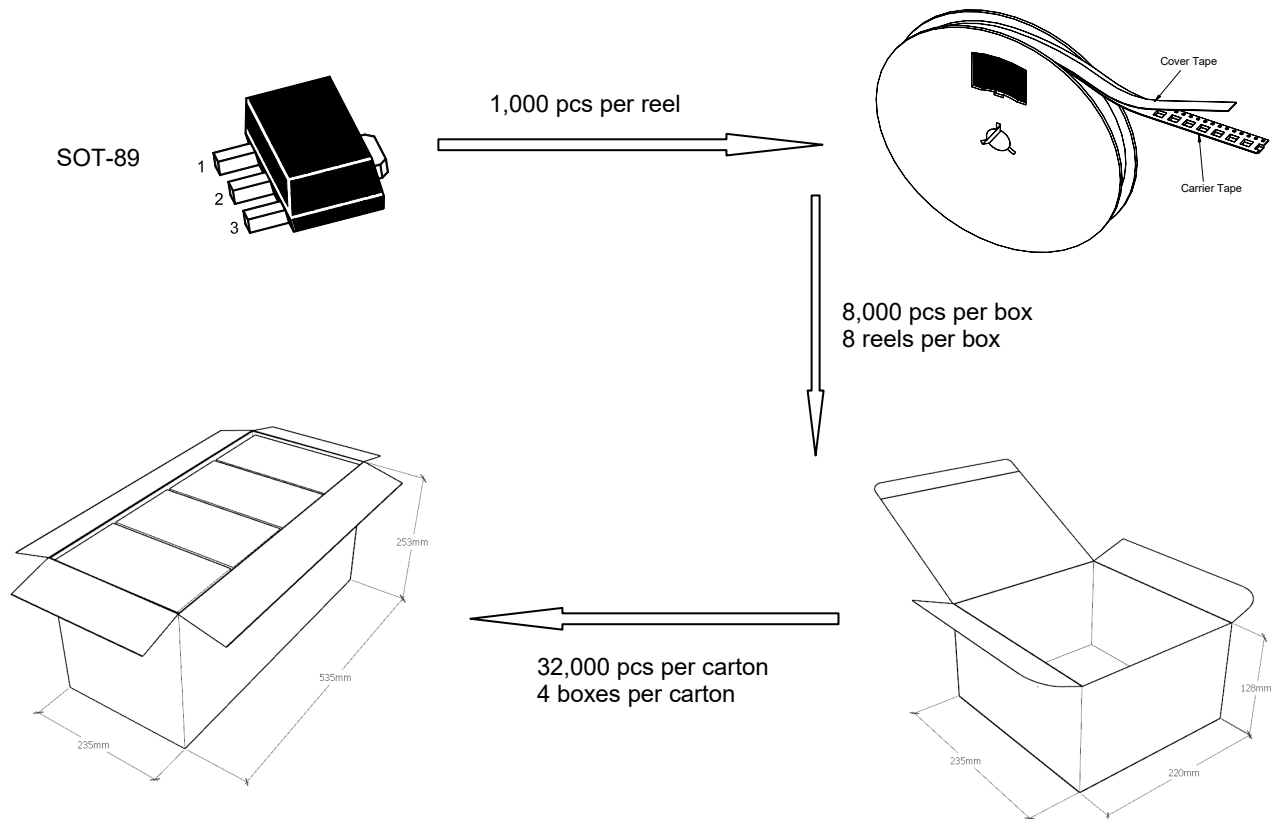


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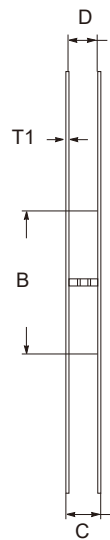
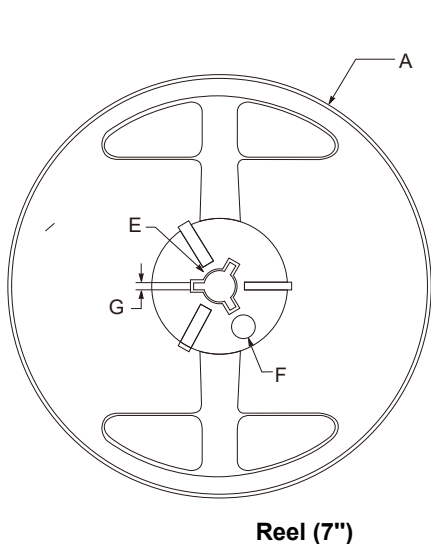
N-Channel Enhancement Mode Power MOSFET

Package Specifications

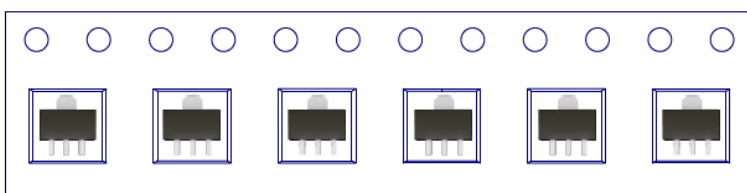
- The method of packaging (1,000PCS/Reel&7inches)



◆ Embossed tape and reel data



| symbol | Value(unit:mm) |
|--------|---------------------|
| A | $\Phi 179 \pm 1$ |
| B | 60.5 ± 0.2 |
| C | 15.3 ± 0.3 |
| D | 12.5~13.7 |
| E | $\Phi 13.5 \pm 0.2$ |
| F | $\Phi 10.0 \pm 0.2$ |
| G | 2.7 ± 0.2 |
| T1 | 1.0 ± 0.2 |



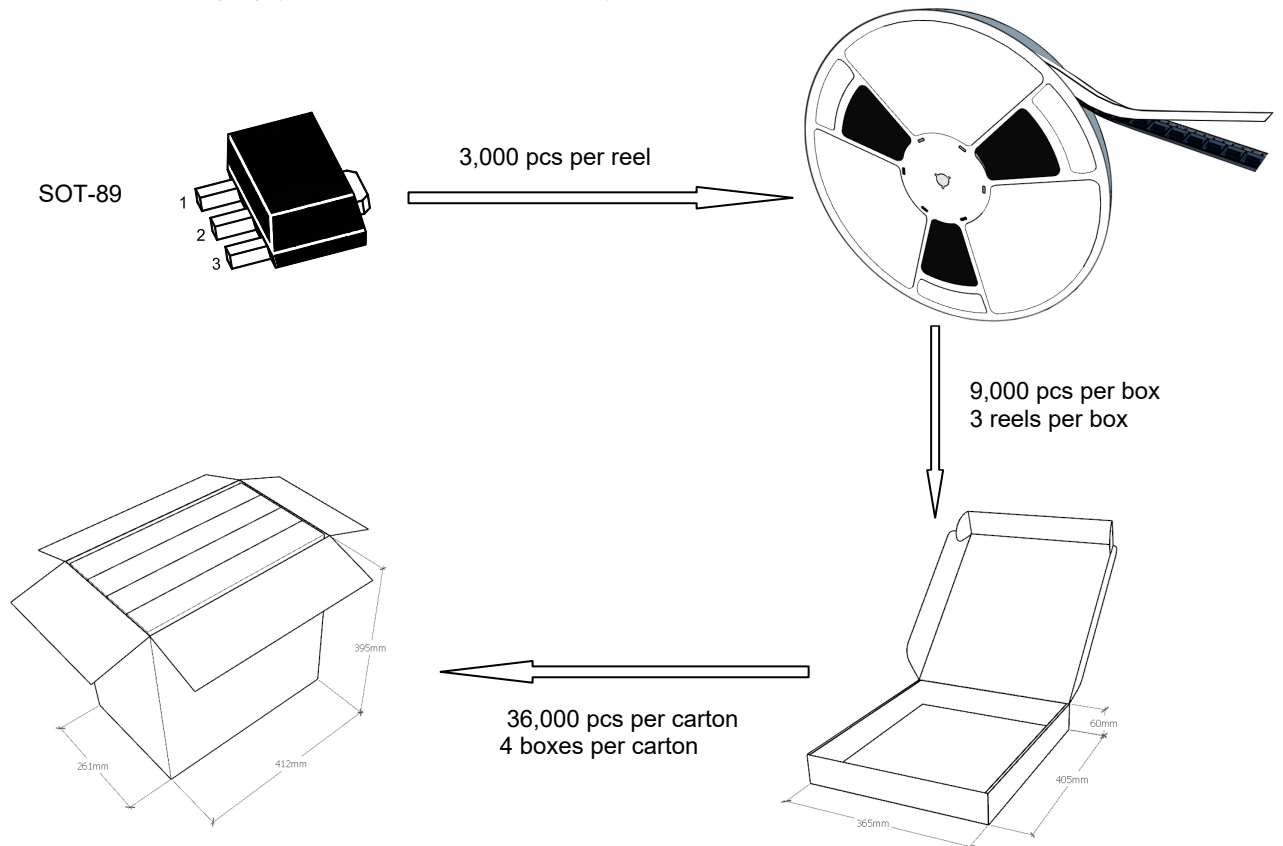


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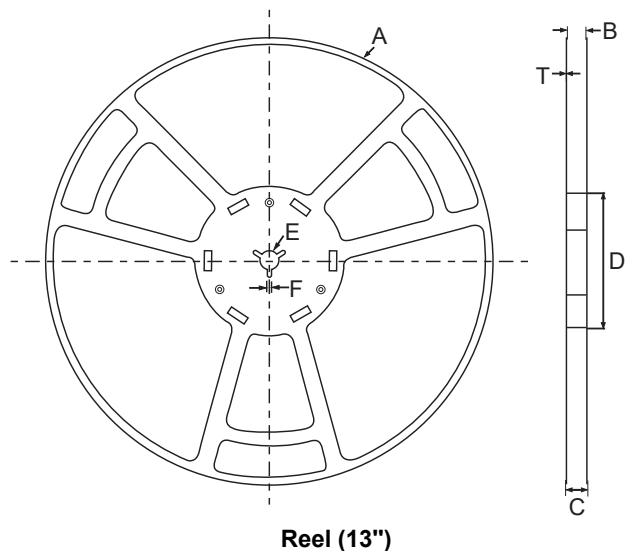
N-Channel Enhancement Mode Power MOSFET

Package Specifications

- The method of packaging (3,000PCS/Reel&13inches)



◆ Embossed tape and reel data



| symbol | Value(unit:mm) |
|--------|--------------------|
| A | $\phi 330\pm 1$ |
| B | 12.7 ± 0.5 |
| C | 16.5 ± 0.3 |
| D | $\phi 99.5\pm 0.5$ |
| E | $\phi 13.6\pm 0.3$ |
| F | 2.8 ± 0.3 |
| T | 1.9 ± 0.2 |

