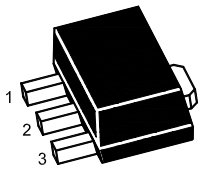
PJM10H13PSQ
P Enhancement Field Effect Transistor

SOT-89



1. Gate 2.Drain 3.Source
Marking: 10H13

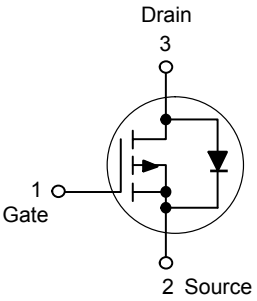
Features

- High density cell design for ultra low $R_{DS(on)}$
- Fully characterized avalanche voltage and current
- Excellent package for good heat dissipation

Applications

- Power switching application

Schematic diagram



Absolute Maximum Ratings

Ratings at T_a =25℃ unless otherwise specified.

Parameter	Symbol	Value	Units
Drain-Source Voltage	$-V_{DS}$	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	$-I_D$	13	A
Pulsed Drain Current Note1	$-I_{DM}$	30	A
Power Dissipation	P_D	1.35	W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55 to 150	°C
Thermal Characteristics			
Parameter	**Symbol**	**Typ.**	**Units**
Maximum Junction-to- Case Note2	$R_{\theta JC}$	93	°C/W

Electrical Characteristics(T_C =25℃, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Static Parameters						
Drain-Source Breakdown Voltage	$-BV_{DSS}$	$-I_D$=250μA, V_{GS}=0V	100	--	--	V
Zero Gate Voltage Drain Current	$-I_{DSS}$	$-V_{DS}$=100V, V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V	--	--	±10	μA
Gate Threshold Voltage Note3	$-V_{GS(th)}$	V_{DS}=V_{GS}, $-I_D$=250μA	1	--	3	V
Static Drain-Source On-Resistance Note3	$R_{DS(ON)}$	$-V_{GS}$=10V, $-I_D$=7A	--	--	290	mΩ
Dynamic Parameters						
Forward Transconductance Note3	g_{FS}	$-V_{DS}$=15V, $-I_D$=5A	12	--	--	S
Input Capacitance	C_{iss}	V_{GS}=0V, - V_{DS}=25V, f=1MHz	--	760	--	pF
Output Capacitance	C_{oss}		--	260	--	pF
Reverse Transfer Capacitance	C_{rss}		--	170	--	pF
Switching Parameters						
Total Gate Charge	Q_g	$-V_{GS}$=10V, $-V_{DD}$=50V, $-I_D$=10A	--	25	--	nC
Gate Source Charge	Q_{gs}		--	5	--	nC
Gate Drain Charge	Q_{gd}		--	7	--	nC
Turn-On DelayTime	$t_{D(on)}$	$-V_{DD}$=50V, $-I_D$=10A, R_G=9.1Ω, $-V_{GS}$=10V	--	14	--	ns
Turn-On Rise Time	t_r		--	18	--	ns
Turn-Off DelayTime	$t_{D(off)}$		--	50	--	ns
Turn-Off Fall Time	t_f		--	18	--	ns
Source-Drain Diode Parameters						
Body Diode Forward Voltage Note3	$-V_{SD}$	$-I_S$=10A, V_{GS}=0V	--	--	1.2	V
Body Diode Continuous Current Note2	$-I_S$		--	--	13	A

Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t≤10sec.
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%.

Typical Characteristics Curve

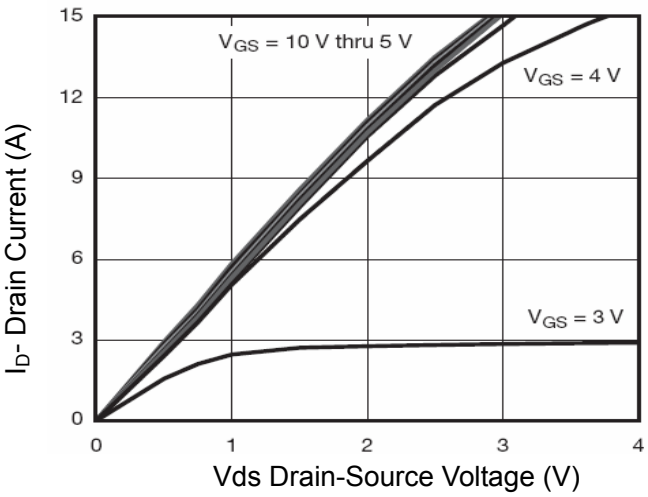


Figure 1 Output Characteristics

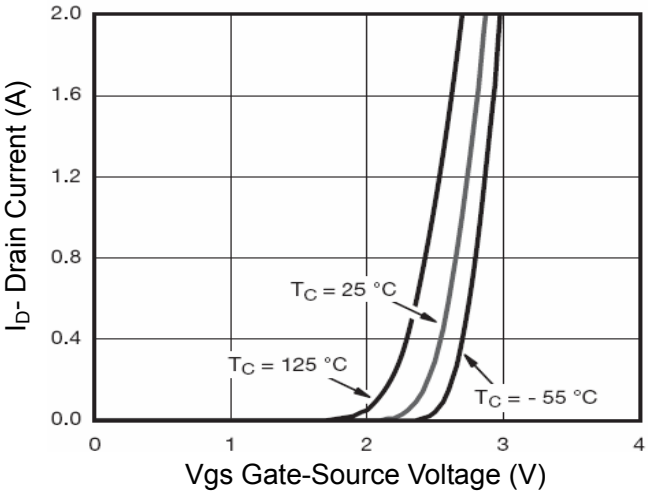


Figure 2 Transfer Characteristics

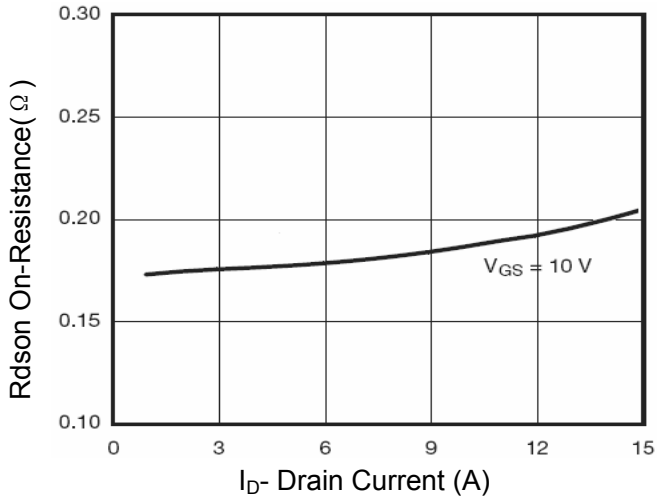


Figure 3 Rdson- Drain Current

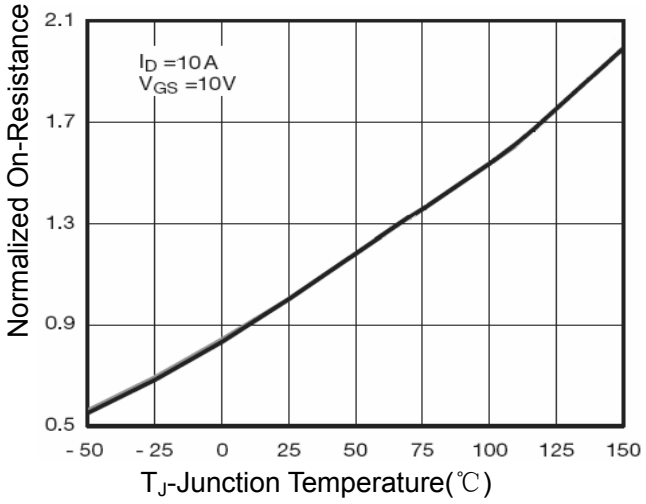


Figure 4 Rdson-JunctionTemperature

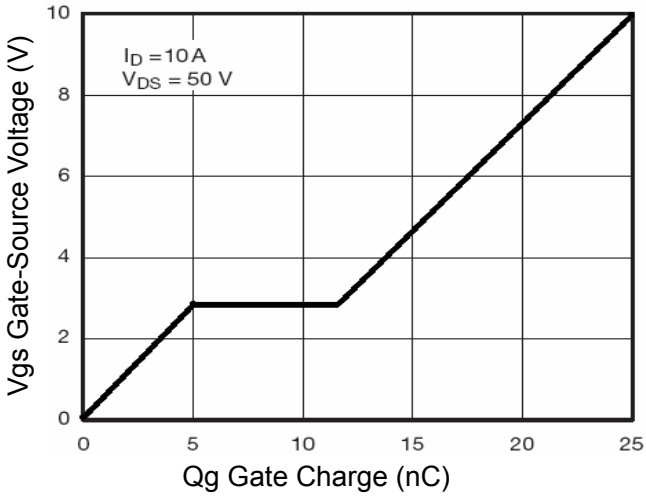


Figure 5 Gate Charge

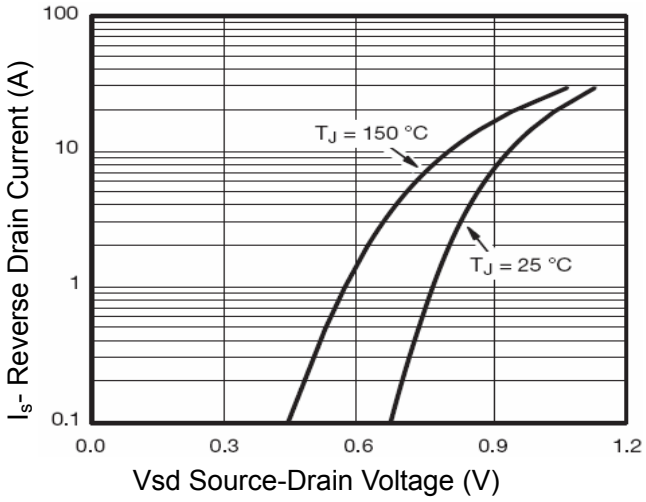


Figure 6 Source- Drain Diode Forward

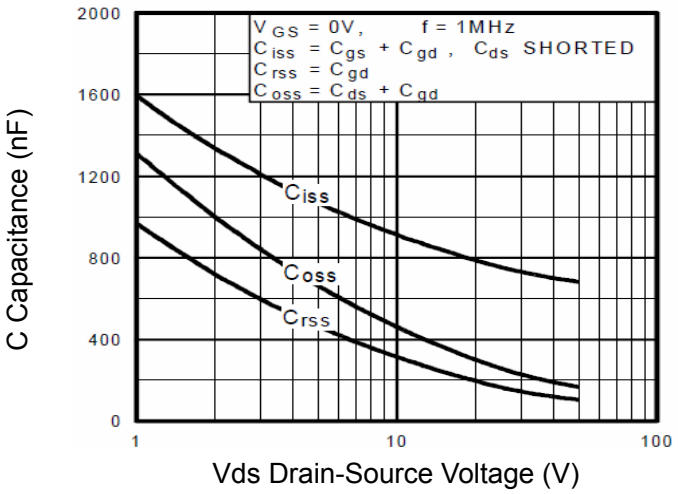


Figure 7 Capacitance vs Vds

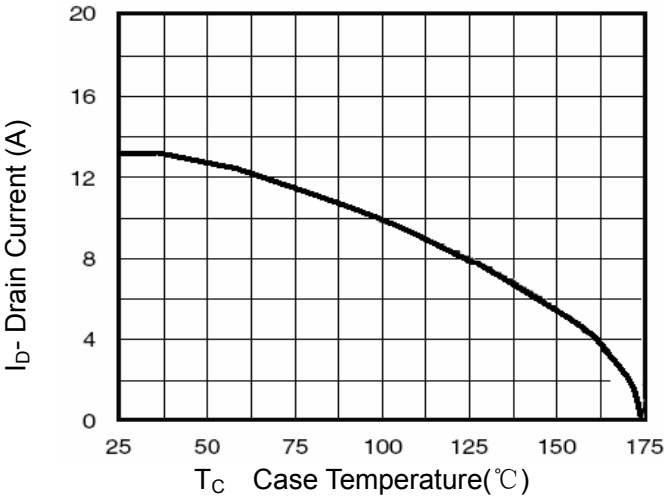


Figure 9 Drain Current vs Case Temperature

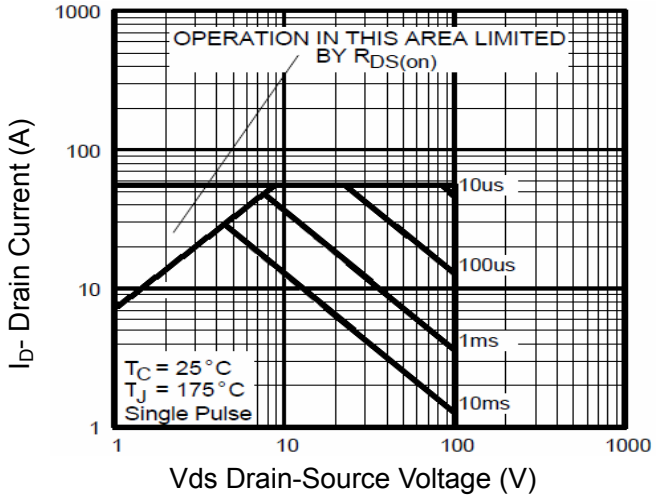


Figure 8 Safe Operation Area

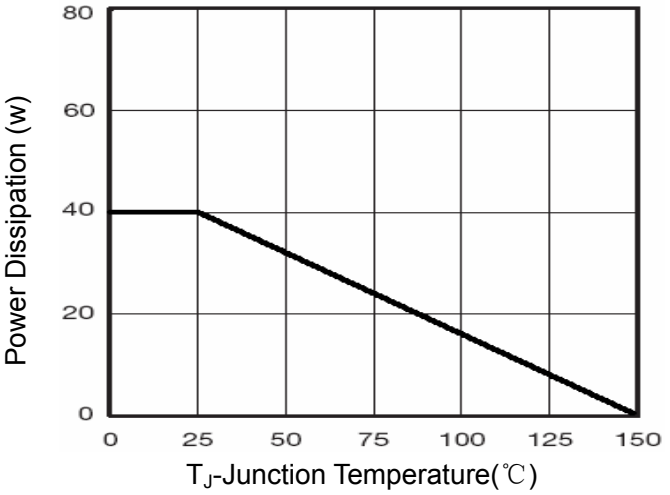


Figure 10 Power De-rating

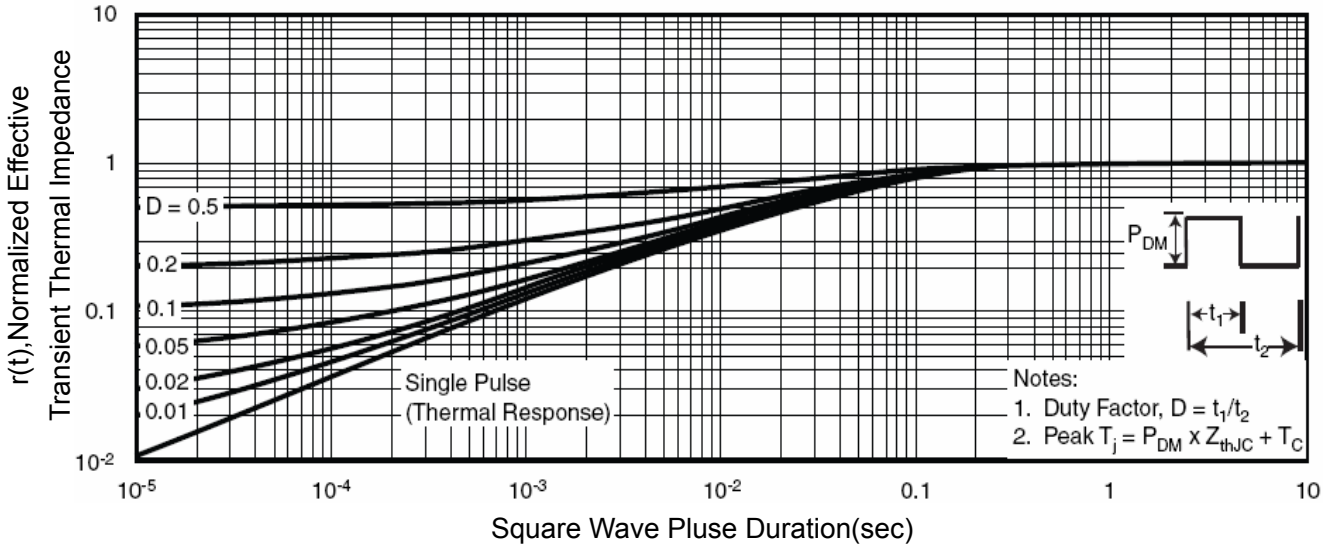
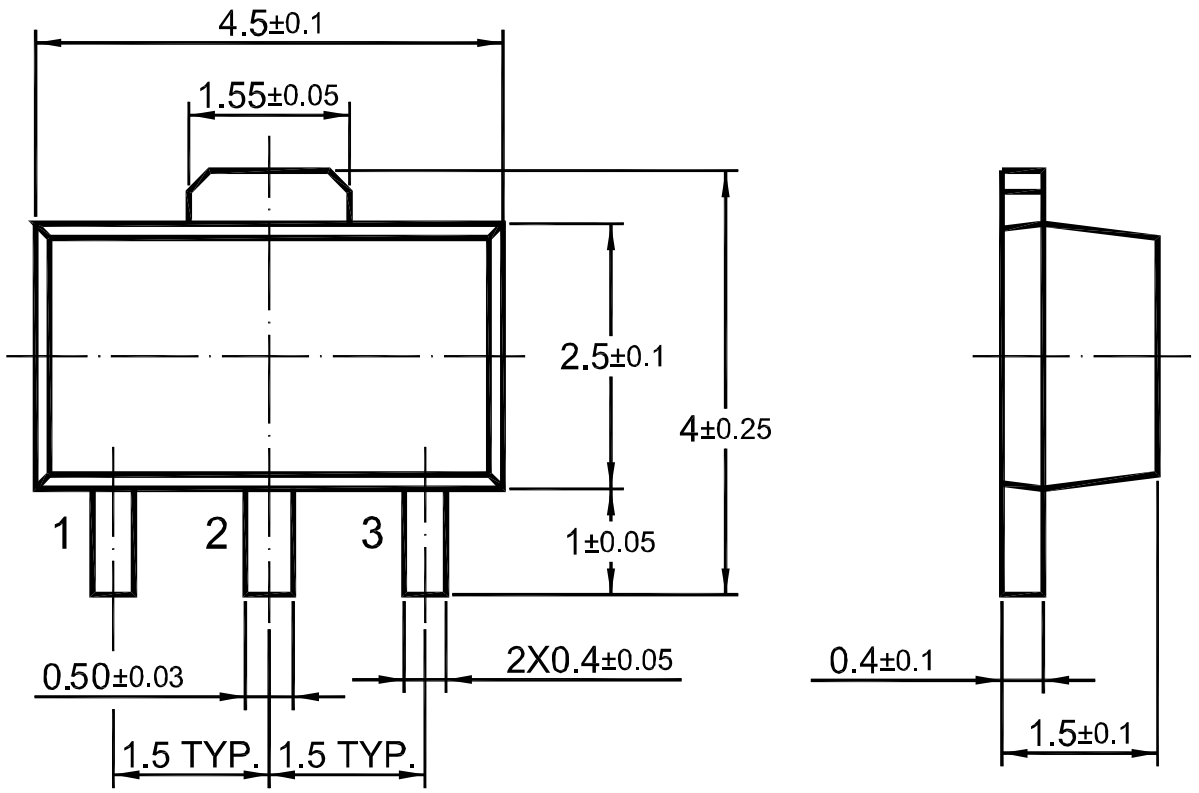


Figure 11 Normalized Maximum Transient Thermal Impedance

Package Outline

SOT-89

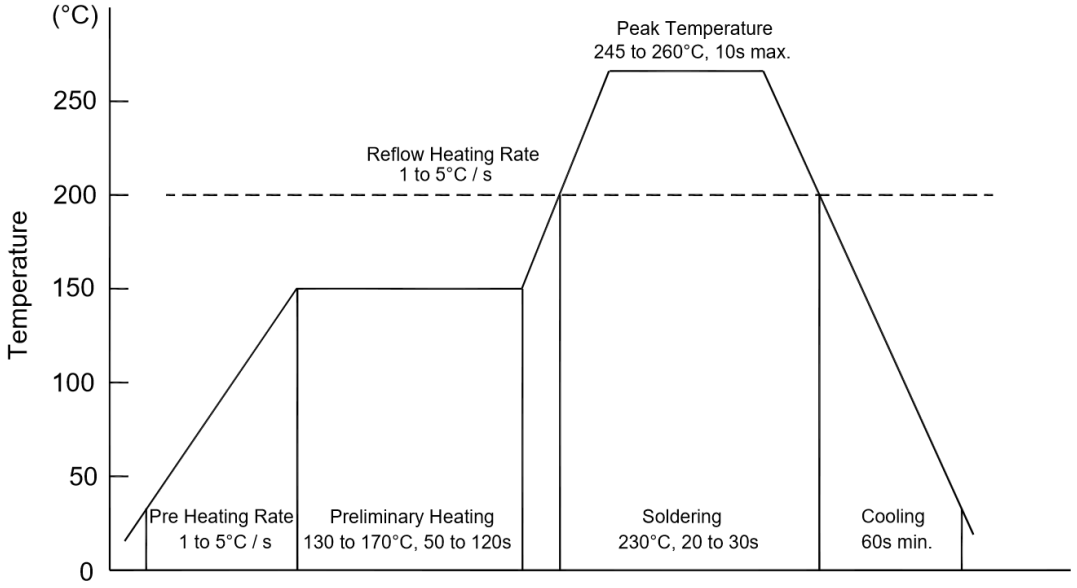


Ordering Information

Device	Package	Shipping
PJM10H13PSQ	SOT-89	1,000PCS/T&R (7 inch)

Conditions of Soldering and Storage

◆ Recommended condition of reflow soldering



Recommended peak temperature is over 245 ℃. If peak temperature is below 245 ℃, 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

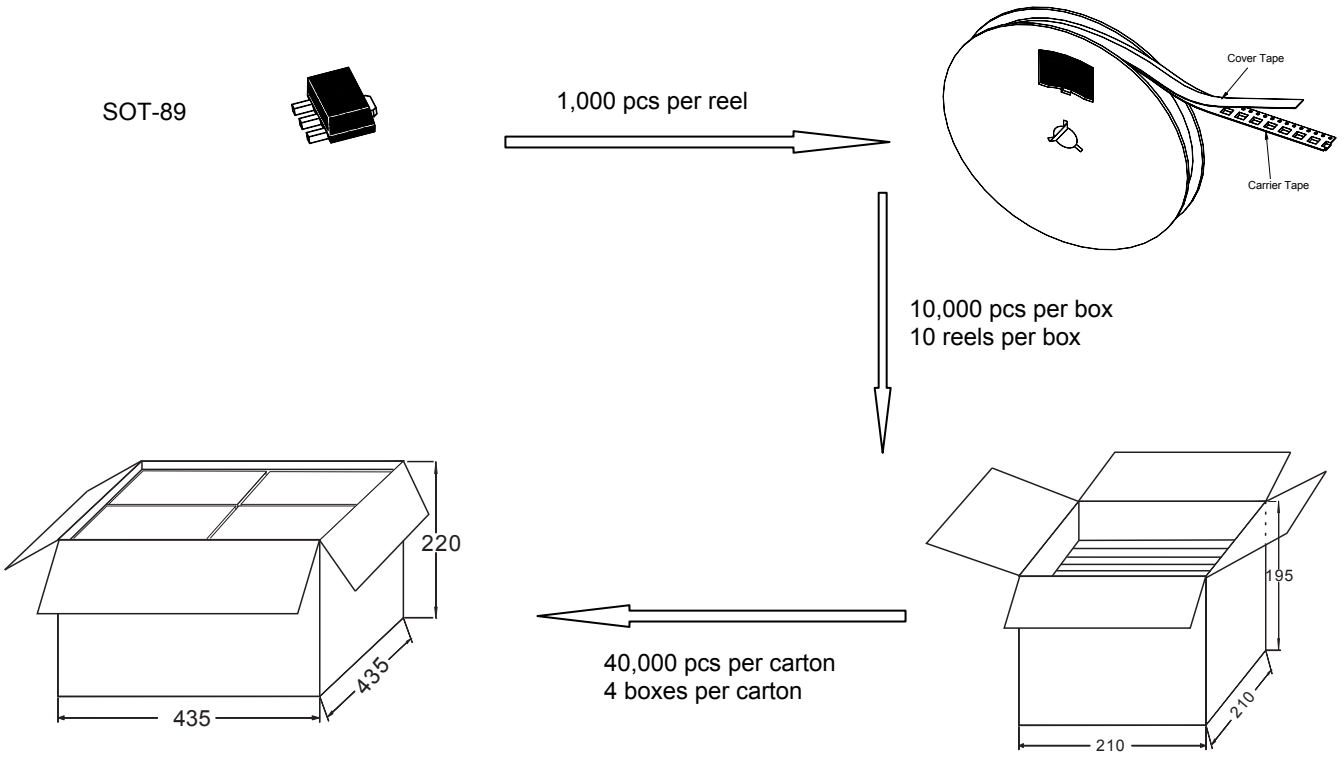
- Temperature: 370 ℃
- Time: 3s max.
- Times: one time

◆ Storage conditions

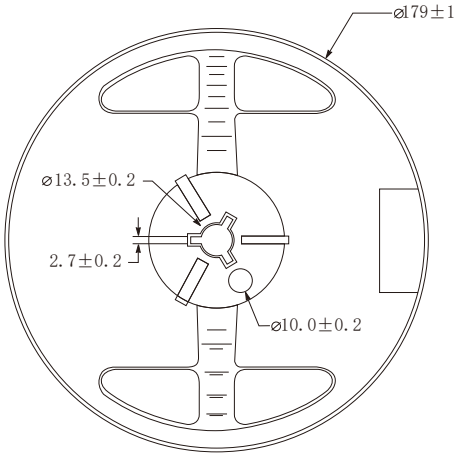
- **Temperature**
  5 to 40 ℃
- **Humidity**
  30 to 80% RH
- **Recommended period**
  One year after manufacturing

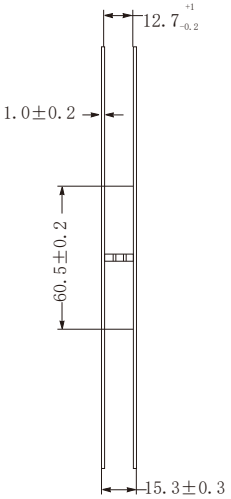
Package Specifications unit: mm

◆ **The method of packaging**

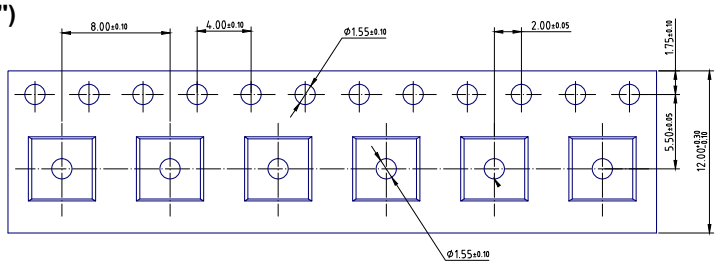


◆ **Embossed tape and reel data**





Reel (7")



Tape (12mm)