PJMG10H13PSQ

P-Channel Enhancement Mode Power MOSFET

Product Summary

- V_{DS}= -100V,I_D= -13A
- $R_{DS(on)}$< 150mΩ @V_{GS}= -10V
- $R_{DS(on)}$< 165mΩ @V_{GS}= -4.5V

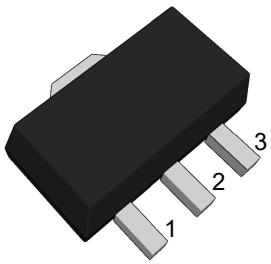
Features

- Advanced Split Gate Trench Technology
- RoHS and Reach Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 1

Application

- Power Switching Application
- Uninterruptible Power Supply

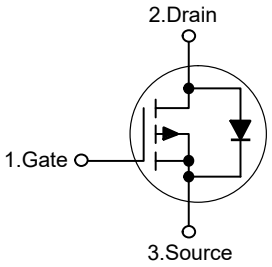
SOT-89



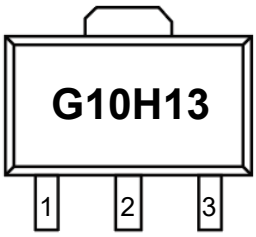
(Top View)

Pin	Description
1	Gate
2	Drain
3	Source

Schematic Diagram



Marking Code



Absolute Maximum Ratings

Ratings at 25℃ ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$-V_{DS}$	100	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	$-I_D$	13	A
Drain Current-Pulsed Note1	$-I_{DM}$	30	A
Maximum Power Dissipation	P_D	1.35	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Maximum Junction-to-Ambient Note2	$R_{\theta JA}$	93	°C/W

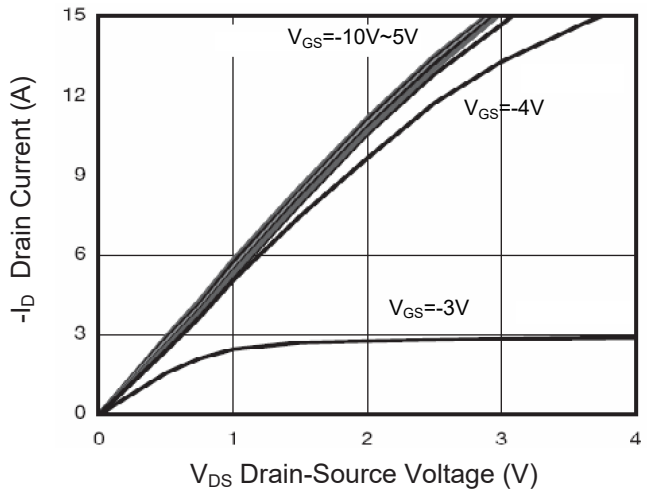
Electrical Characteristics

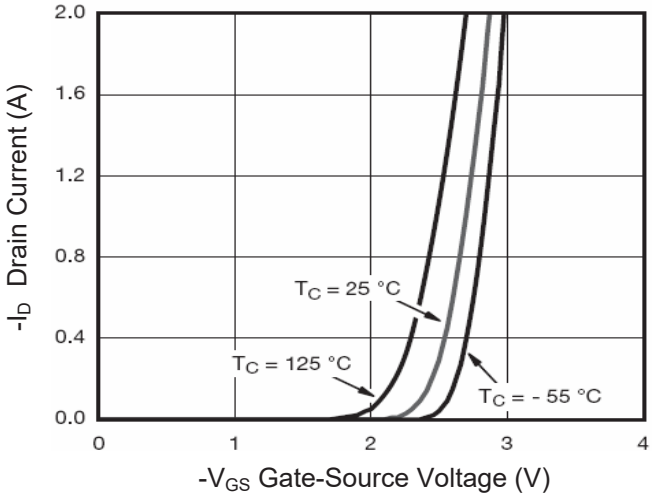
(Ta=25℃ unless otherwise specified)

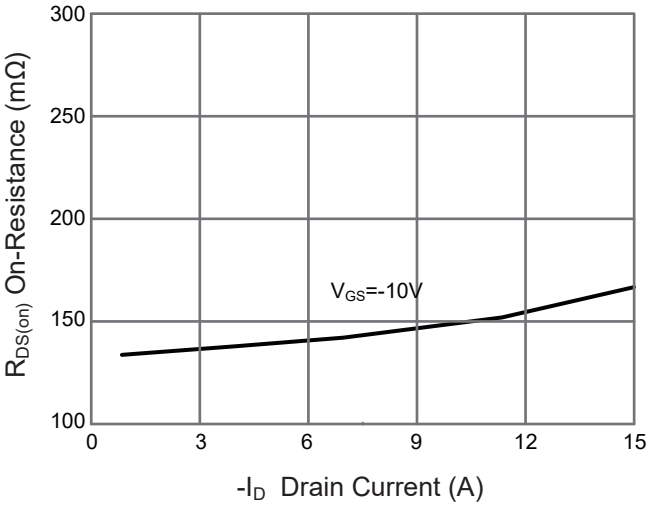
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$-V_{(BR)DSS}$	V_{GS}=0V,I_D=-250μA	100	--	--	V
Zero Gate Voltage Drain Current	$-I_{DSS}$	V_{DS}=-100V,V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	--	--	±10	μA
Gate Threshold Voltage Note3	$-V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	1	1.7	3	V
Drain-Source On-Resistance Note3	$R_{DS(on)}$	V_{GS}=-10V,I_D=-7A	--	125	150	mΩ
		V_{GS}=-4.5V,I_D=-4A	--	140	165	mΩ
Forward Transconductance Note3	g_{FS}	V_{DS}=-5V,I_D=-2A	--	7	--	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-25V,V_{GS}=0V,f=1MHz	--	725	--	pF
Output Capacitance	C_{oss}		--	79	--	pF
Reverse Transfer Capacitance	C_{rss}		--	15.5	--	pF
Gate Resistance	R_g	V_{DS}=0V,V_{GS}=0V,f=1MHz	--	19	--	Ω
Total Gate Charge	Q_g	V_{DS}=-50V,I_D=-10A, V_{GS}=-10V	--	25	--	nC
Gate-Source Charge	Q_{gs}		--	5	--	nC
Gate-Drain Charge	Q_{gd}		--	7	--	nC
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-50V, I_D=-10A V_{GS}=-10V,R_{GEN}=9.1Ω	--	14	--	nS
Turn-on Rise Time	t_r		--	18	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	50	--	nS
Turn-off Fall Time	t_f		--	18	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage Note3	$-V_{SD}$	V_{GS}=0V,I_S=-10A	--	--	1.2	V
Diode Forward Current Note2	$-I_S$		--	--	13	A

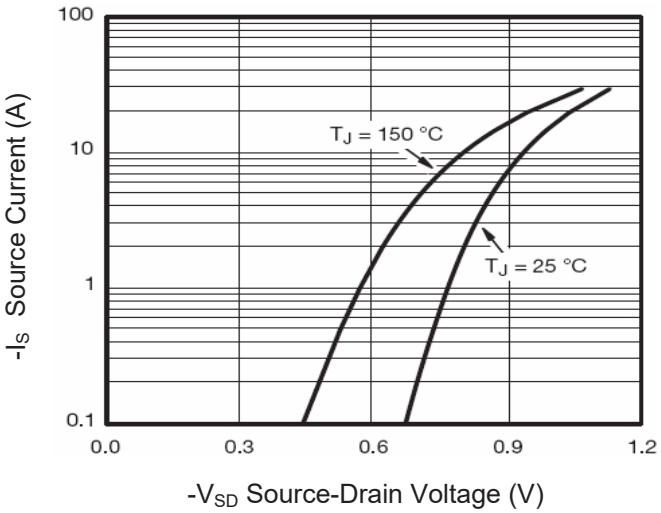
Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse width≤300μs, duty cycle≤0.5%.

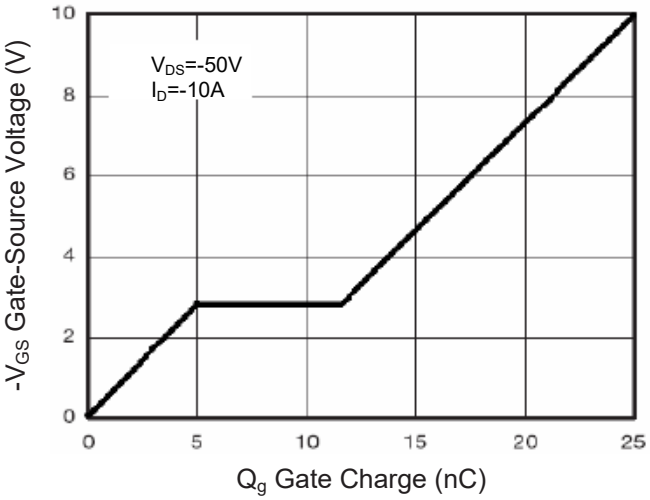
Typical Characteristic Curves

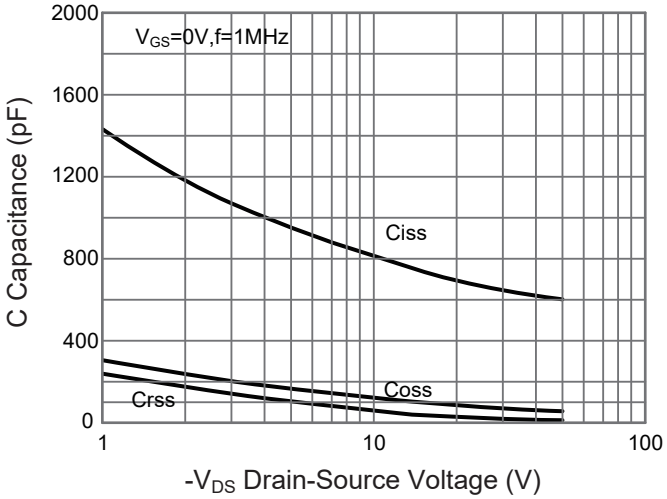


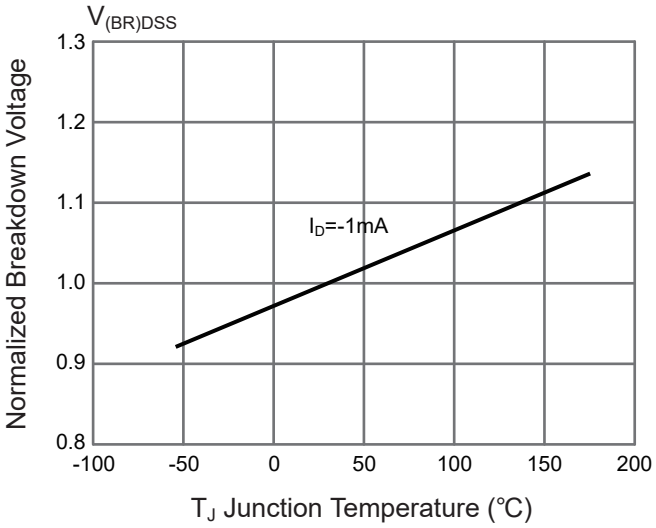


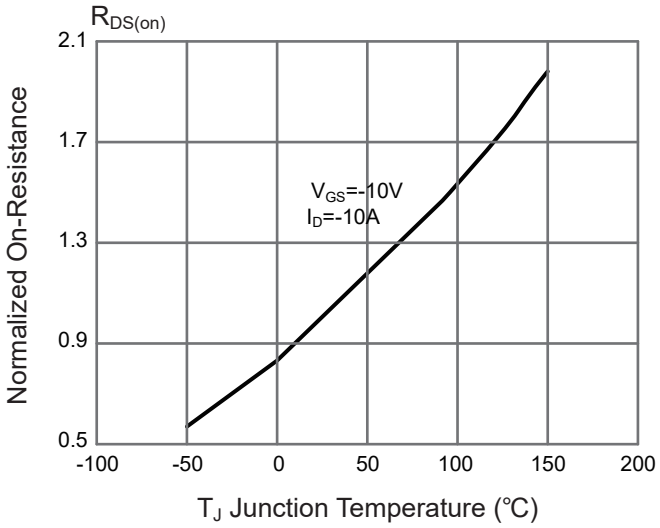








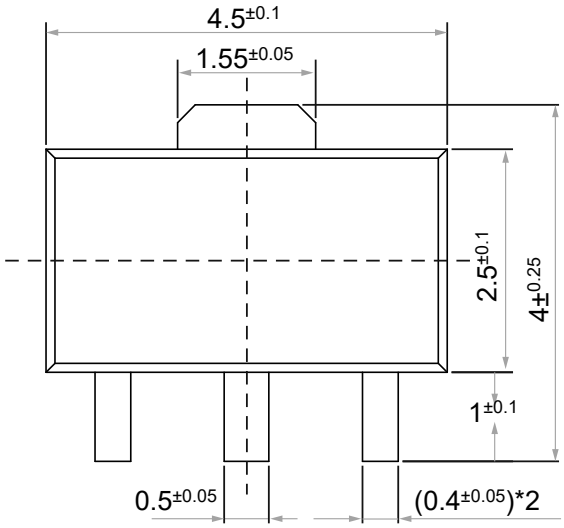

V(BR)DSS
Normalized Breakdown Voltage
1.3
1.2
1.1
1.0
0.9
0.8
ID=-1mA
-100
-50
0
50
100
150
200
TJ Junction Temperature (℃)


RDS(on)
Normalized On-Resistance
2.1
1.7
1.3
0.9
0.5
VGS=-10V
ID=-10A
-100
-50
0
50
100
150
200
TJ Junction Temperature (℃)

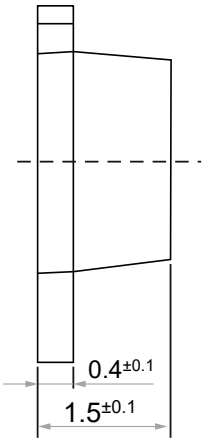
Package Outline

SOT-89

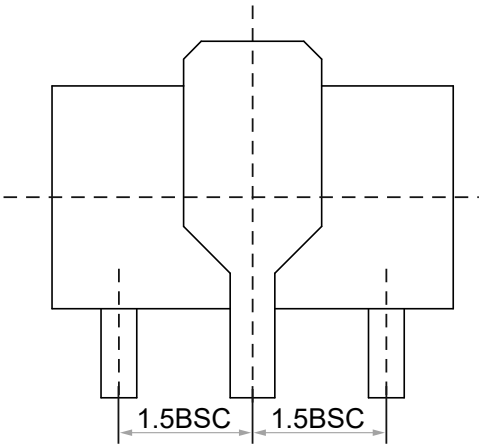
Dimensions in mm



TOP VIEW



SIDE VIEW



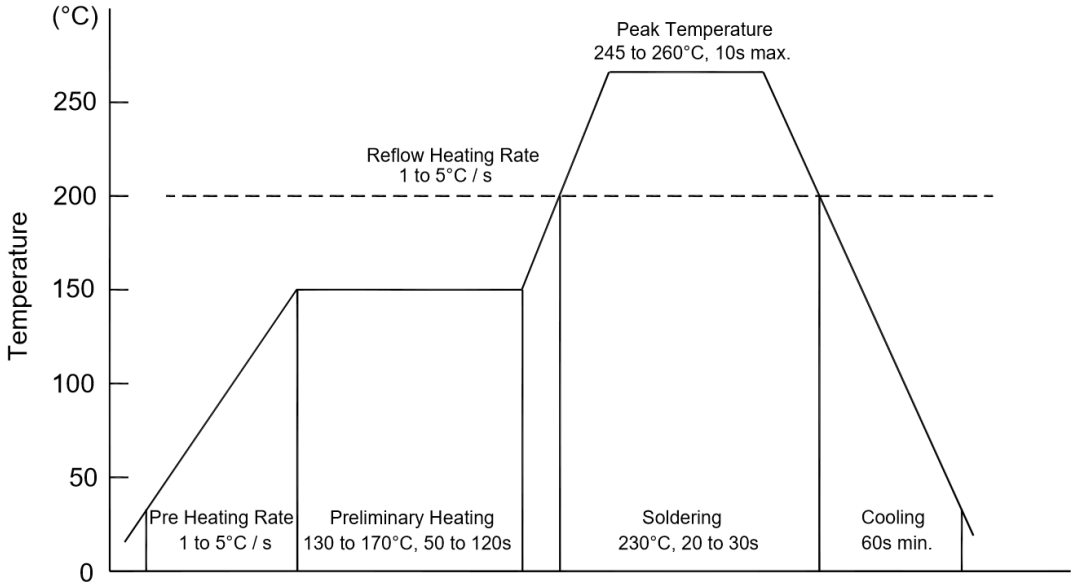
BOTTOM VIEW

Ordering Information

Device	Package	Shipping
PJMG10H13PSQ	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 ^{O}C. If peak temperature is below 245 ^{O}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

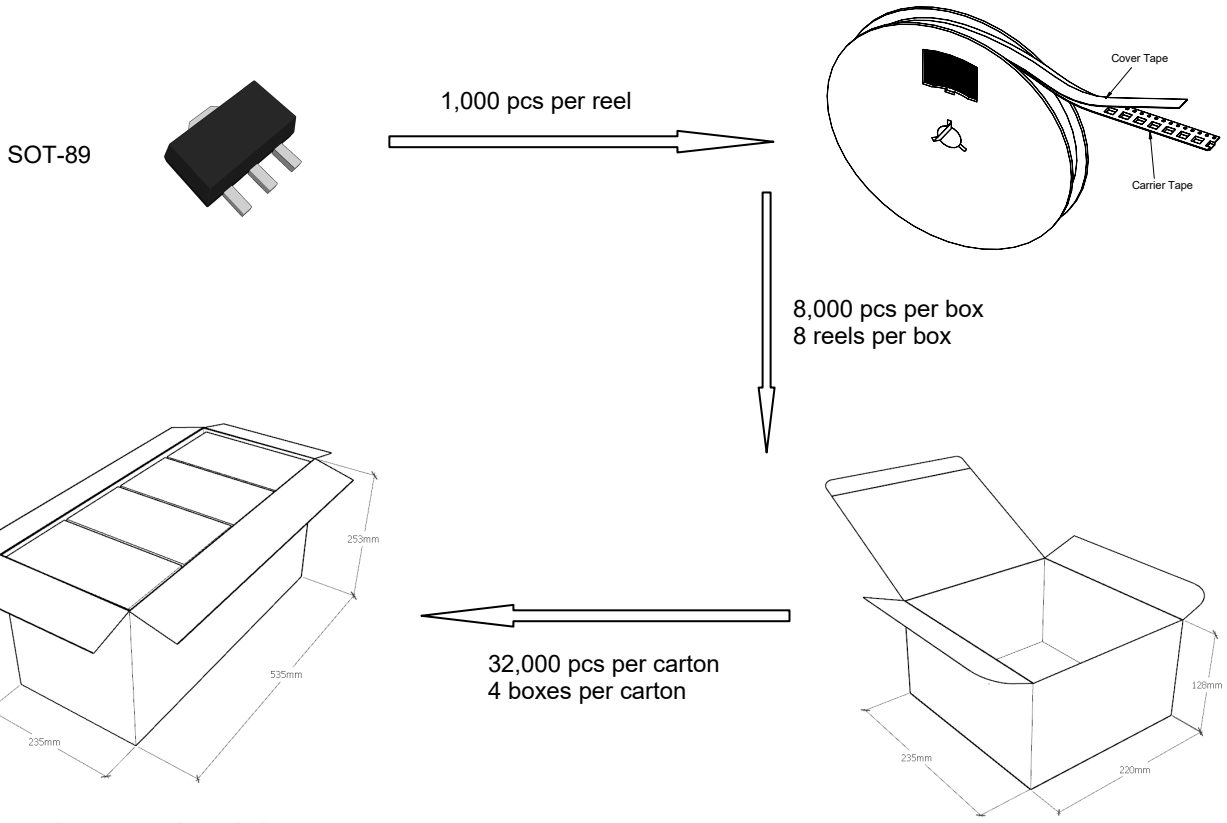
- Temperature: 370 ^{O}C
- Time: 3s max.
- Times: one time

◆ Storage conditions

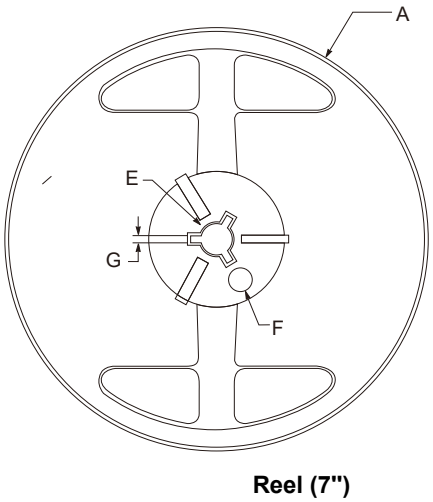
- **Temperature**
  5 to 40 ^{O}C
- **Humidity**
  30 to 80% RH
- **Recommended period**
  One year after manufacturing

Package Specifications

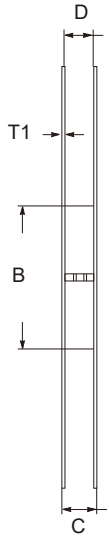
- The method of packaging (1,000PCS/Reel&7inches)



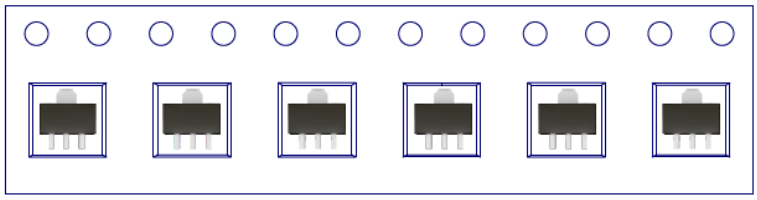
◆ **Embossed tape and reel data**



Reel (7")

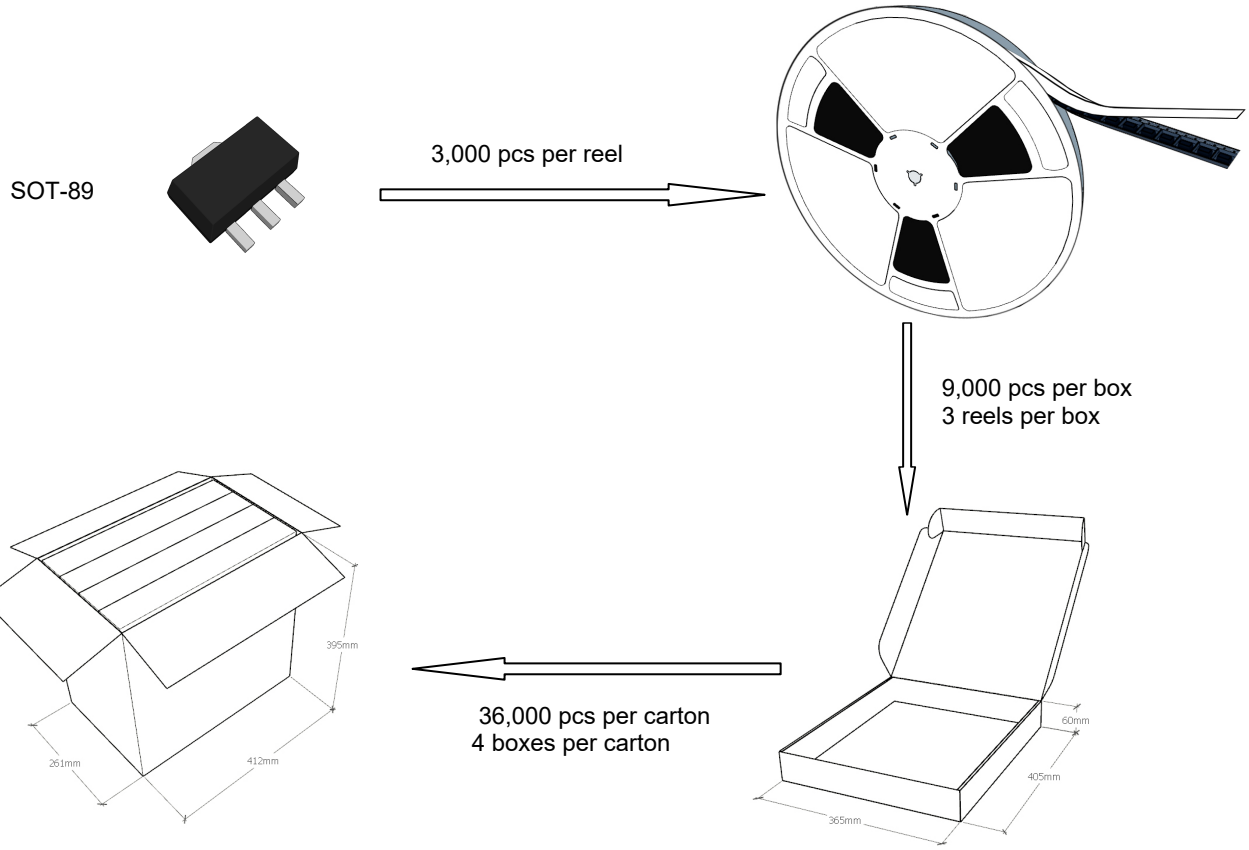


symbol	Value(unit:mm)
A	Φ179±1
B	60.5±0.2
C	15.3±0.3
D	12.5~13.7
E	Φ13.5±0.2
F	Φ10.0±0.2
G	2.7±0.2
T1	1.0±0.2

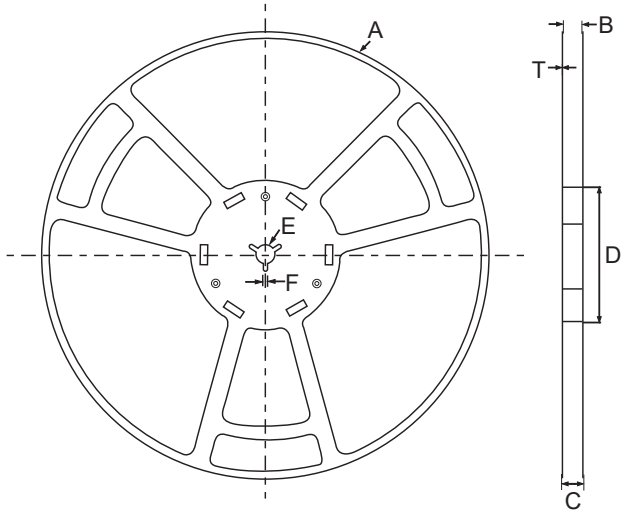


Package Specifications

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



◆ **Embossed tape and reel data**



Reel (13")

symbol	Value(unit:mm)
A	ϕ330±1
B	12.7±0.5
C	16.5±0.3
D	ϕ99.5±0.5
E	ϕ13.6±0.3
F	2.8±0.3
T	1.9±0.2