



PJMG10P60SQ

P-Channel Enhancement Mode Power MOSFET

Product Summary

- $V_{DS} = -60V, I_D = -10A$
- $R_{DS(on)} < 75m\Omega @ V_{GS} = -10V$
- $R_{DS(on)} < 110m\Omega @ V_{GS} = -4.5V$

Features

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

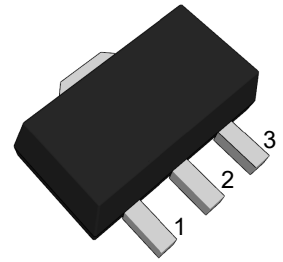
Application

- Load Switch
- PWM Application
- Power Management

Marking Code



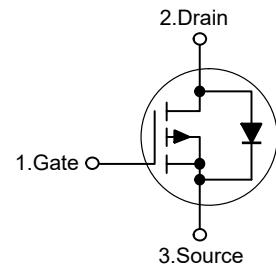
SOT-89



(Top View)

Pin	Description
1	Gate
2	Drain
3	Source

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	$-I_D$	10	A
Drain Current-Pulsed ^{Note1}	$-I_{DM}$	30	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 =-250μA	60	--	--	V
Zero Gate Voltage Drain Current	-I _{DSS}	V _{DS} =-48V, V _{GS} =0V	--	--	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
Gate Threshold Voltage ^{Note3}	-V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	1	1.8	2.5	V
Drain-Source On-Resistance ^{Note3}	R _{DS(on)}	V _{GS} =-10V, I _D =-8A	--	60	75	mΩ
		V _{GS} =-4.5V, I _D =-8A	--	80	110	mΩ
Forward Transconductance ^{Note3}	g _{FS}	V _{DS} =-5V, I _D =-1A	--	4.5	--	S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=1MHz	--	515	--	pF
Output Capacitance	C _{oss}		--	135	--	pF
Reverse Transfer Capacitance	C _{rss}		--	12	--	pF
Gate Resistance	R _g	V _{DS} =0V, V _{GS} =0V, f=1MHz	--	3	--	Ω
Total Gate Charge	Q _g	V _{DS} =-48V, I _D =-10A, V _{GS} =-4.5V	--	9.86	--	nC
Gate-Source Charge	Q _{gs}		--	3.08	--	nC
Gate-Drain Charge	Q _{gd}		--	2.95	--	nC
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =-15V, I _D =-1A, V _{GS} =-10V, R _{GEN} =3.3Ω	--	28.8	--	nS
Turn-on Rise Time	t _r		--	19.8	--	nS
Turn-off Delay Time	t _{d(off)}		--	60.8	--	nS
Turn-off Fall Time	t _f		--	7.2	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note3}	-V _{SD}	V _{GS} =0V, I _S =-10A	--	--	1.4	V
Diode Forward Current ^{Note2}	-I _S		--	--	10	A

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

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

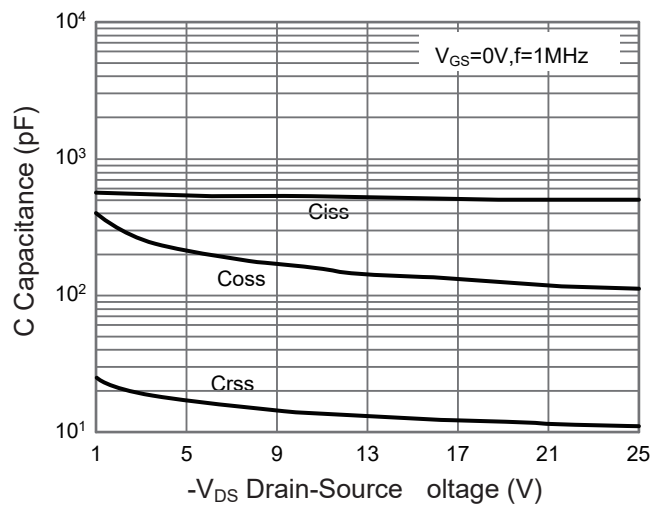
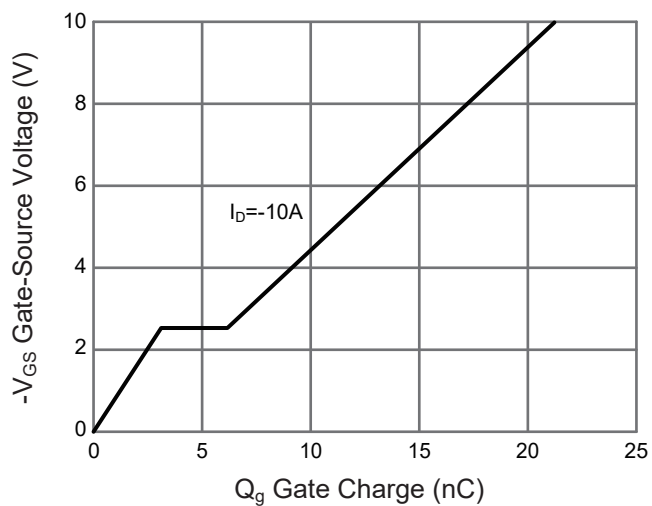
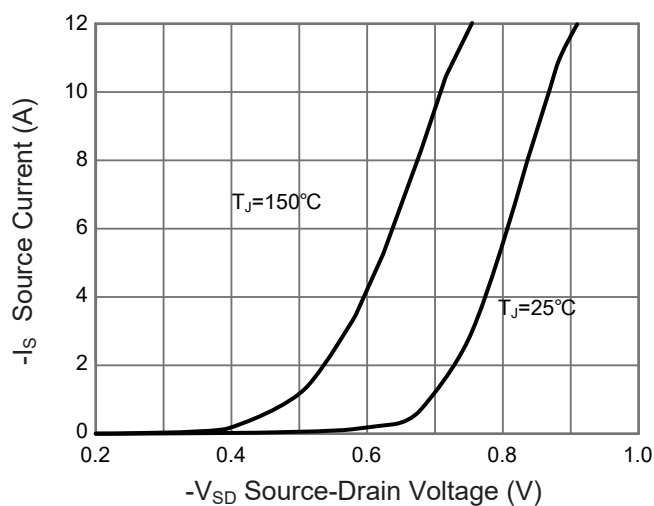
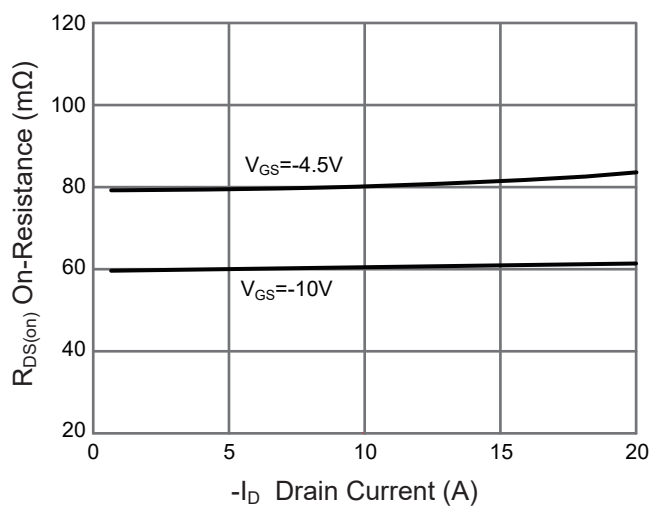
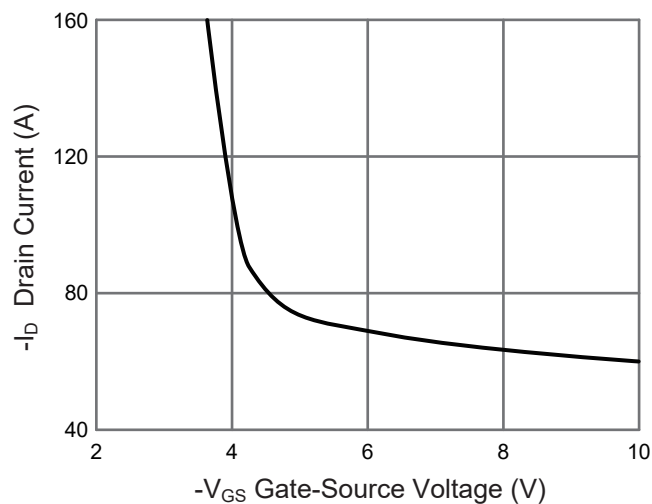
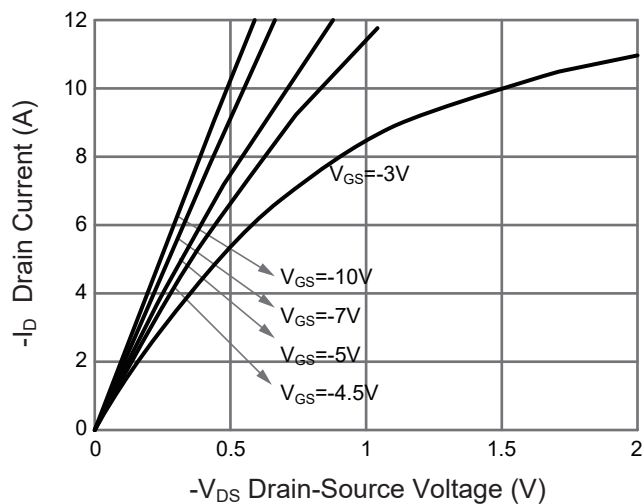
3. Pulse Test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.



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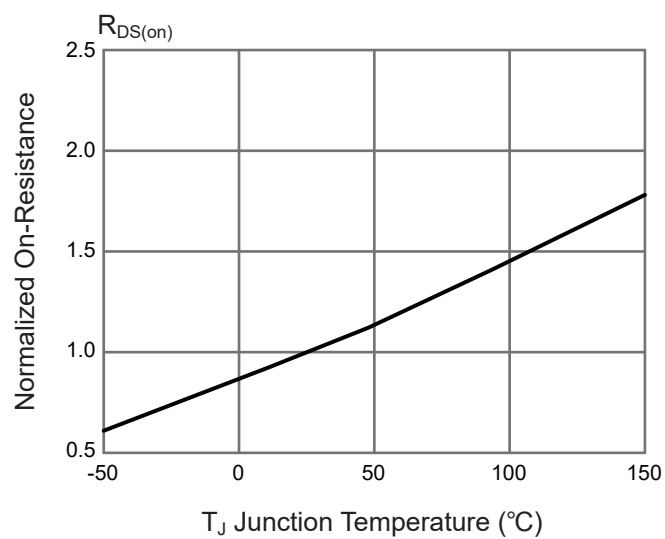
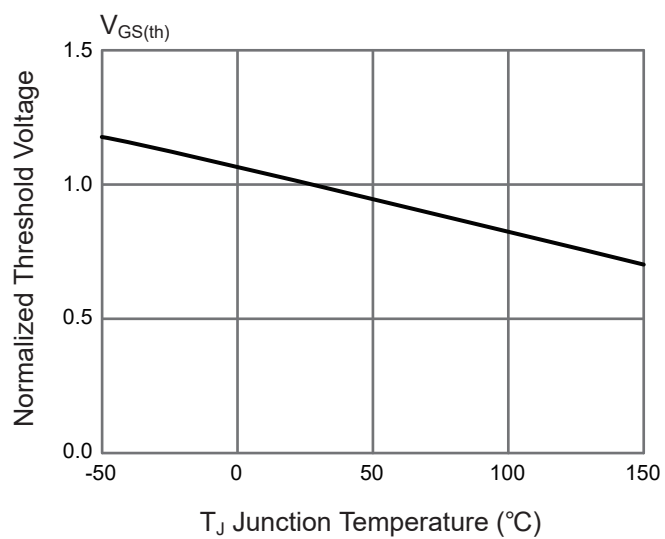
Typical Characteristic Curves





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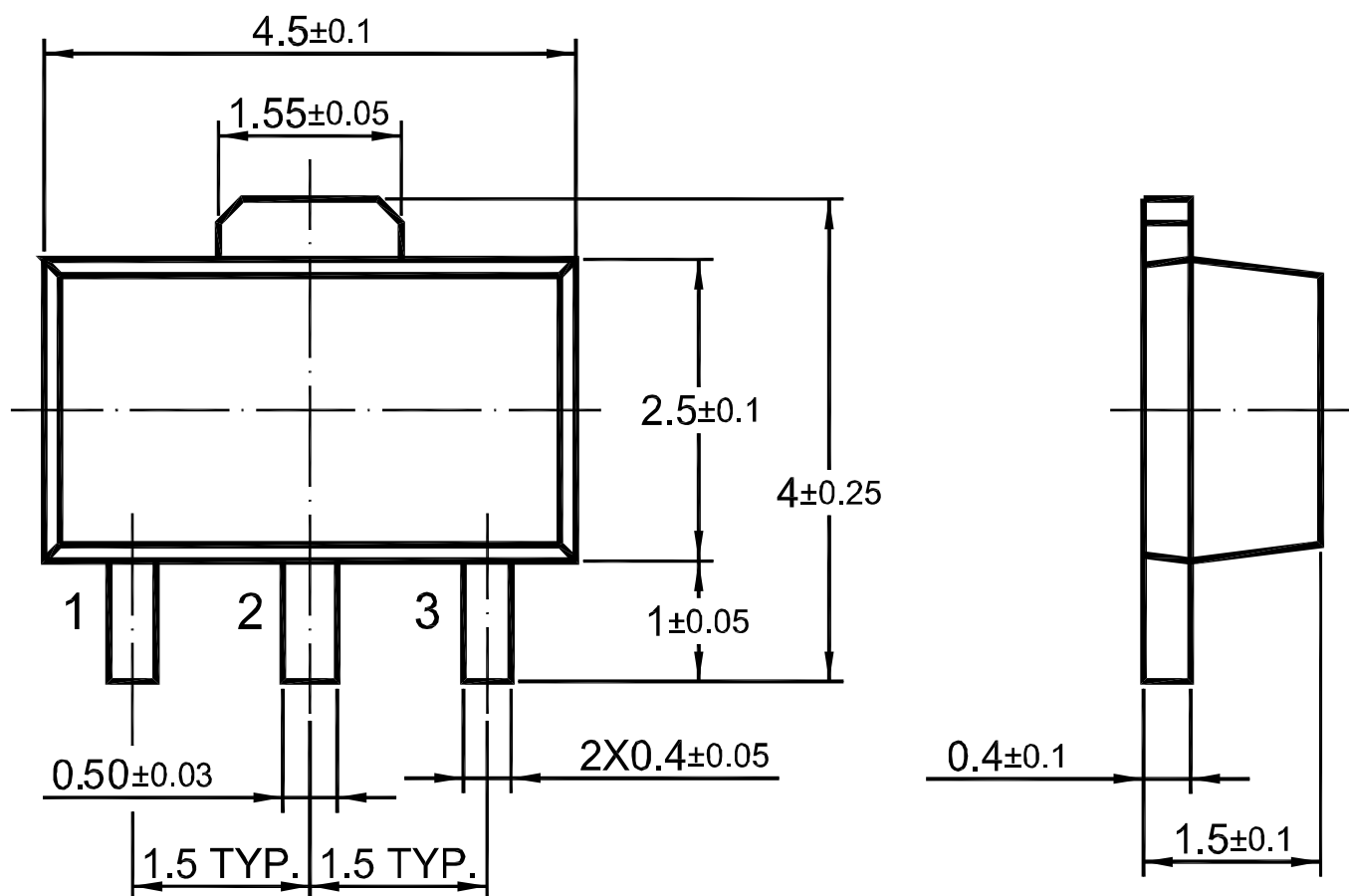
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Package Outline

SOT-89

Dimensions in mm



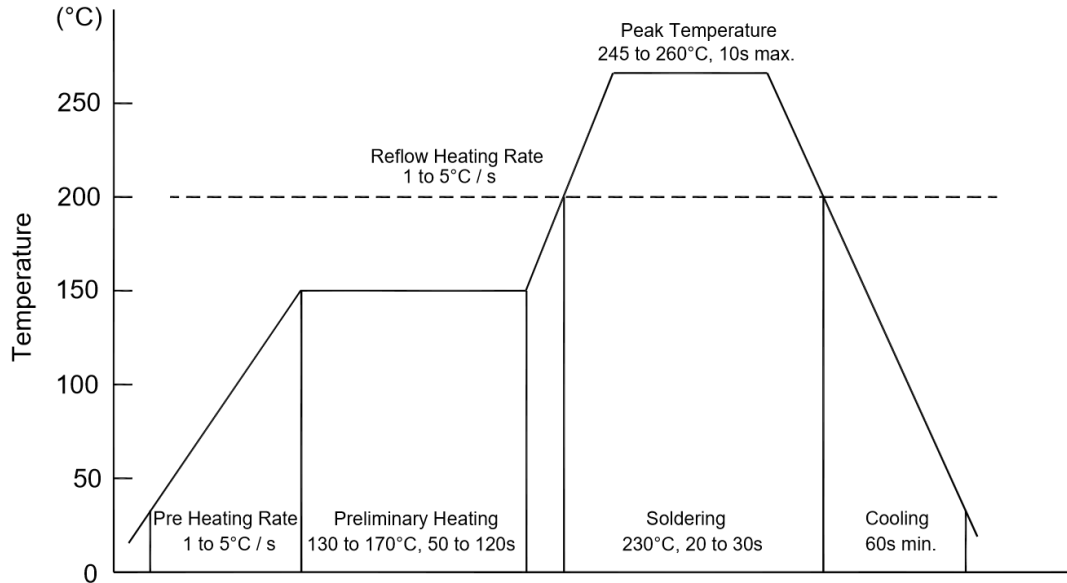
Ordering Information

Device	Package	Shipping
PJMG10P60SQ	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

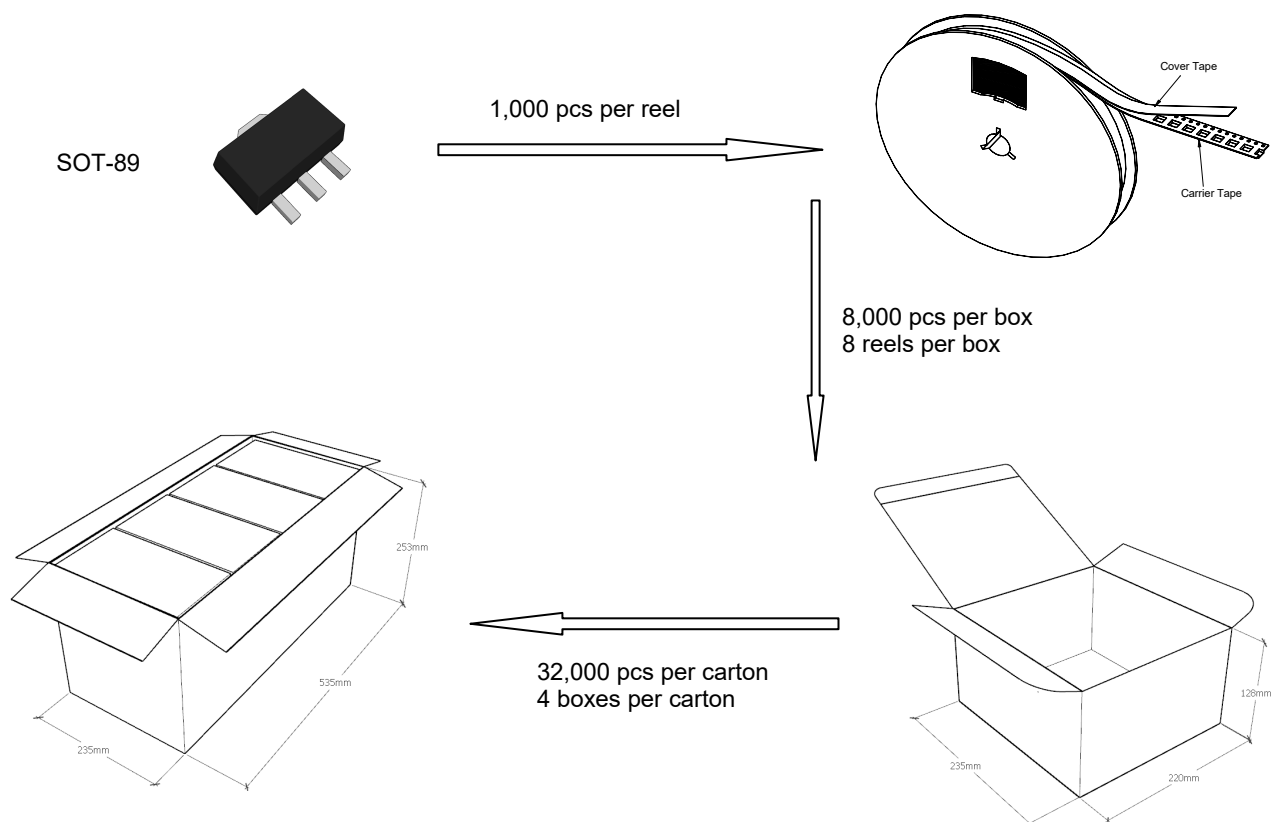


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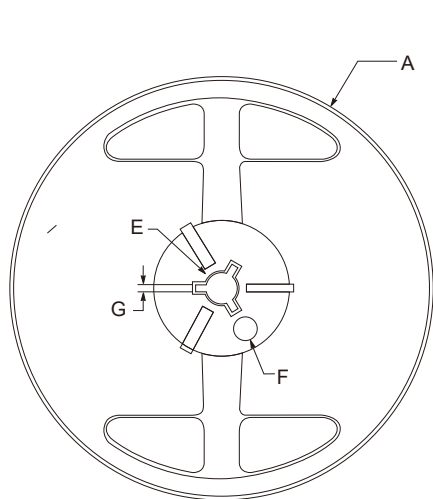
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Package Specifications

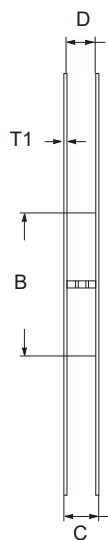
- The method of packaging (1,000PCS/Reel&7inches)



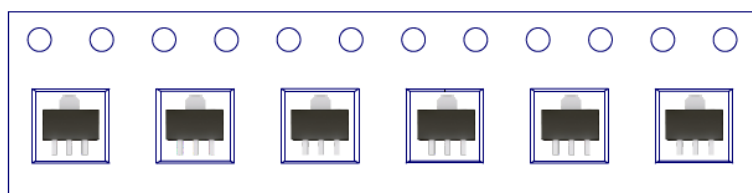
◆ Embossed tape and reel data



Reel (7")



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



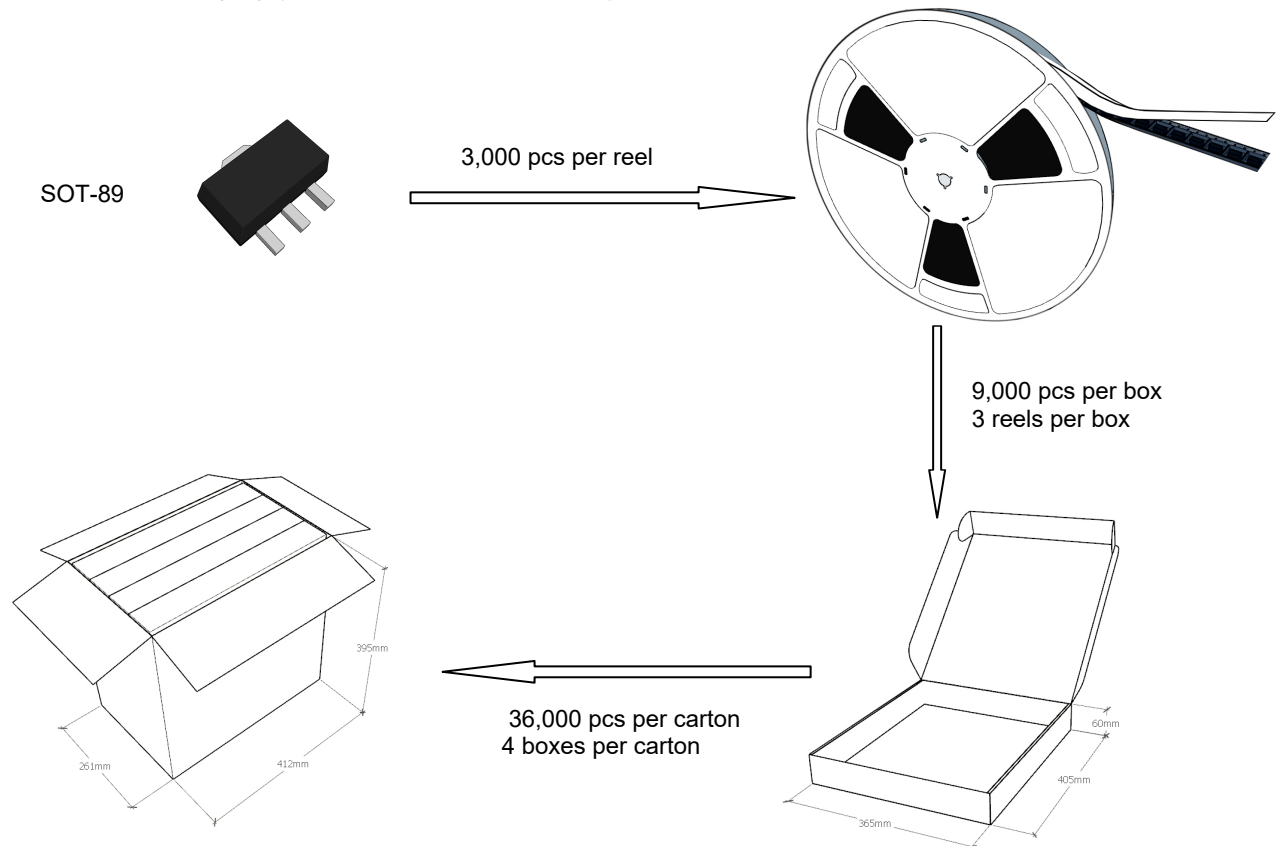


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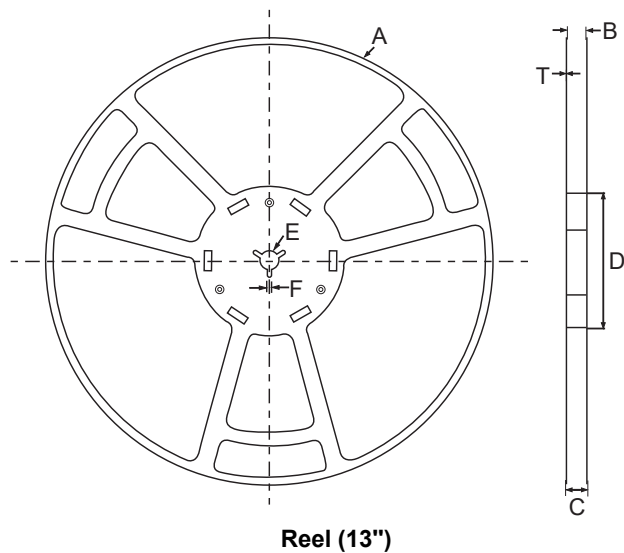
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Package Specifications

- 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

