



PJM60H12MNSA

N- Channel Depletion Mode MOSFETS

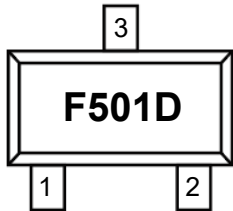
Product Summary

- $V_{DS}= 600V, I_D= 0.03A$
- $R_{DS(on)} < 700\Omega @ V_{GS}= 0V$
- $R_{DS(on)} < 800\Omega @ V_{GS}= 10V$

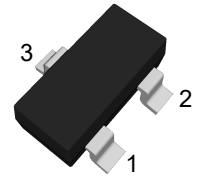
Features

- Depletion Mode
- ESD Improved Capability
- RoHS and Reach Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 1

Marking Code



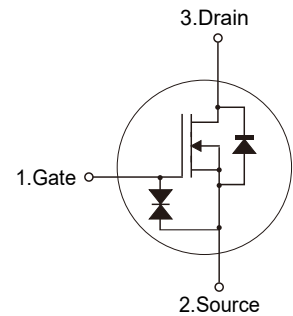
SOT-23



(Top View)

Pin	Description
1	Gate
2	Source
3	Drain

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	0.03	A
Drain Current-Pulsed	I_{DM}	0.12	A
Maximum Power Dissipation	P_D	0.5	W
Gate Source ESD (HBM-C=100pF, R=1.5k Ω)	$V_{ESD(G-S)}$	300	V
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	250	°C/W
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Electrical Characteristics

(Ta=25°C unless otherwise specified)

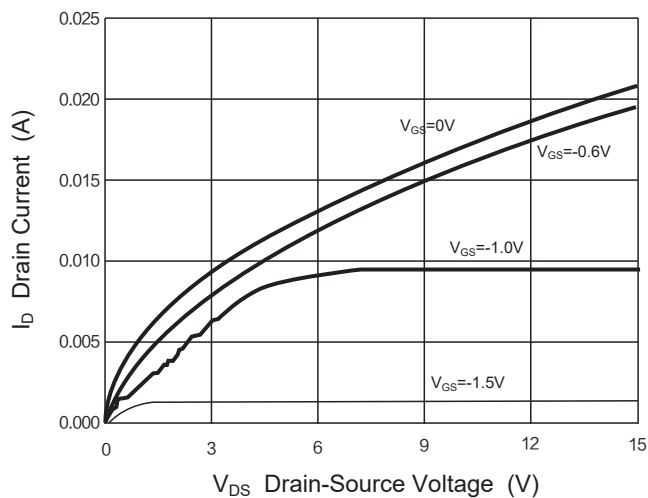
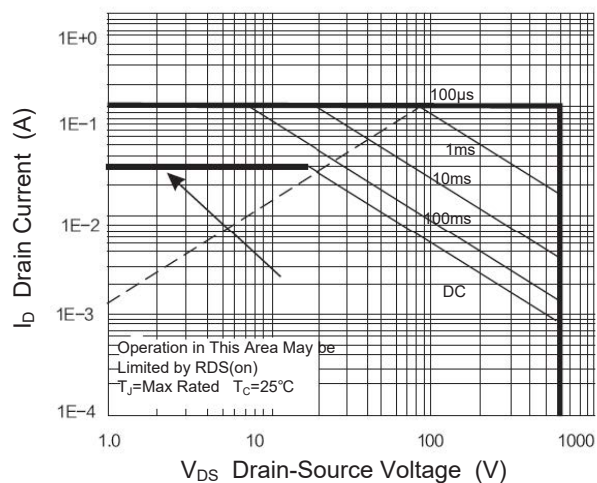
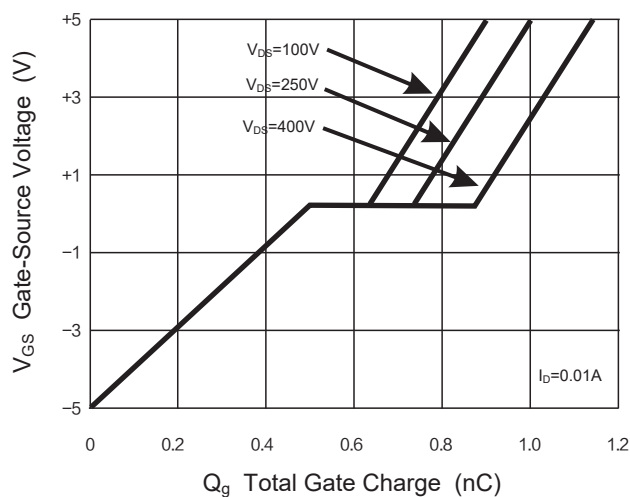
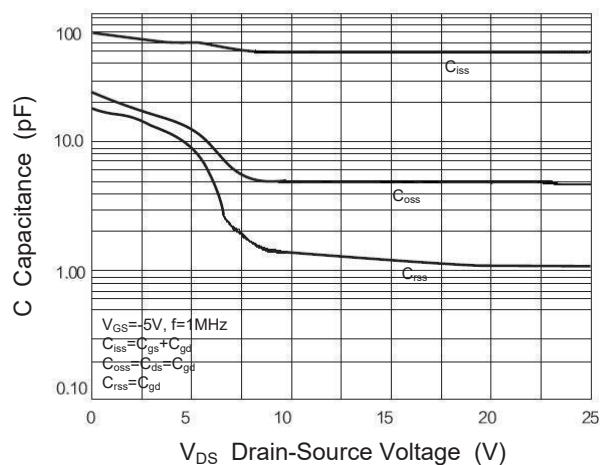
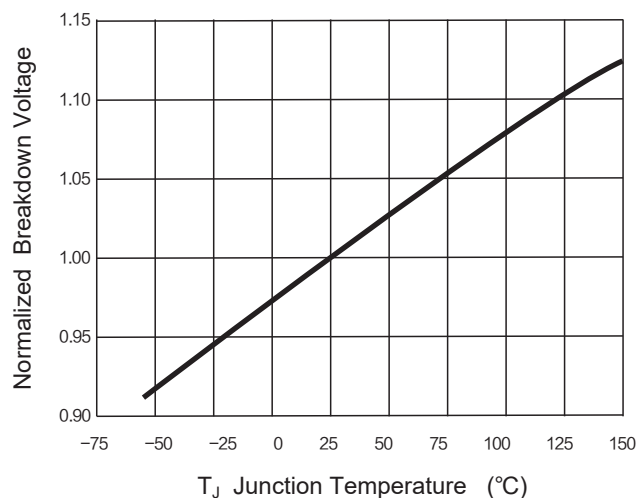
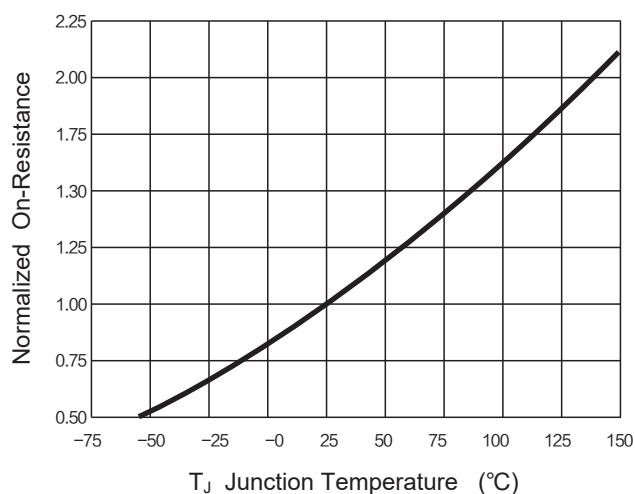
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
OFF Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=-5V, I_D=250\mu A$	600	--	--	V
Gate-Body Leakage Current	$I_{D(off)}$	$V_{DS}=600V, V_{GS}=-5V$	--	--	0.1	μA
		$V_{DS}=480V, V_{GS}=-5V, T_A=125^{\circ}C$	--	--	10	μA
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 10V$	--	--	± 200	nA
ON Characteristics						
Gate-to-Source Cut-off Voltage	$V_{GS(off)}$	$V_{DS}=3V, I_D=8\mu A$	-2.7	-1.8	-1	V
On-State Drain Current	I_{DSS}	$V_{GS}=0V, V_{DS}=25V$	12	--	--	mA
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=0V, I_D=3mA$	--	350	700	m Ω
		$V_{GS}=10V, I_D=16mA$	--	400	800	m Ω
Dynamic Characteristics						
Forward Transconductance	g_{FS}	$V_{DS}=50V, I_D=0.01A$	8	17	--	mS
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=-5V, f=1MHz$	--	50	--	pF
Output Capacitance	C_{oss}		--	4.53	--	pF
Reverse Transfer Capacitance	C_{rss}		--	1.08	--	pF
Total Gate Charge	Q_g	$V_{DD}=400V, I_D=0.01A, V_{GS}=-5V\sim 5V$	--	1.14	--	nC
Gate-Source Charge	Q_{gs}		--	0.5	--	nC
Gate-Drain Charge	Q_{gd}		--	0.37	--	nC
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=300V, I_D=0.01A, V_{GS}=-5V\sim 7V, R_G=6\Omega$	--	9.9	--	nS
Turn-on Rise Time	t_r		--	55.8	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	56.4	--	nS
Turn-off Fall Time	t_f		--	136	--	nS
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=-5V, I_F=16mA$	--	--	1.2	V
Diode Forward Current	I_S		--	--	0.025	A
Gate-Source Zener Diode						
Gate-Source Breakdown Voltage	V_{GSO}	$I_{GS}=\pm 1mA$ (Open Drain)	--	0.75	1.2	V



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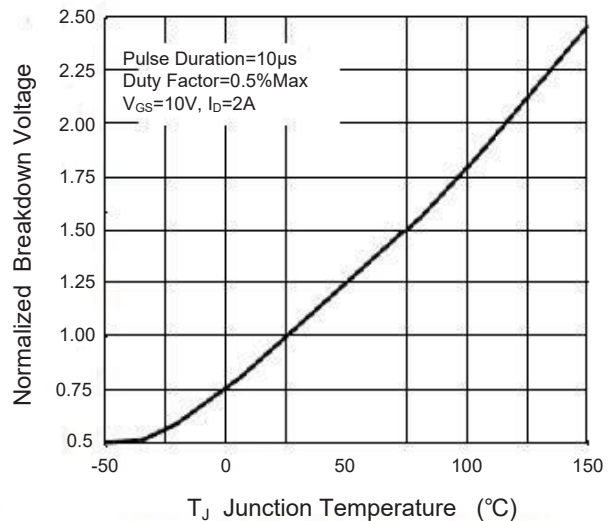
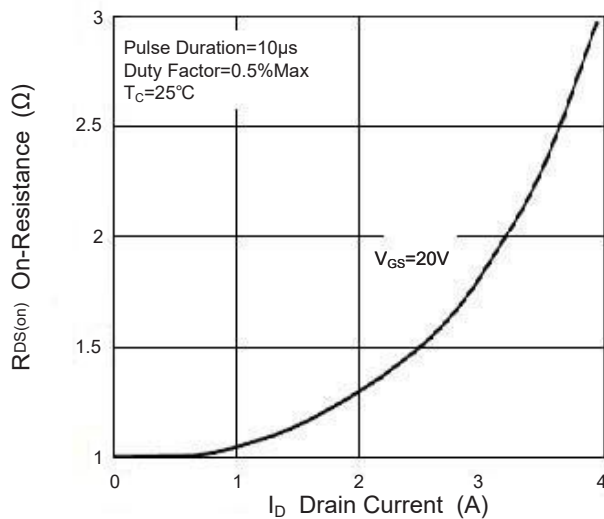
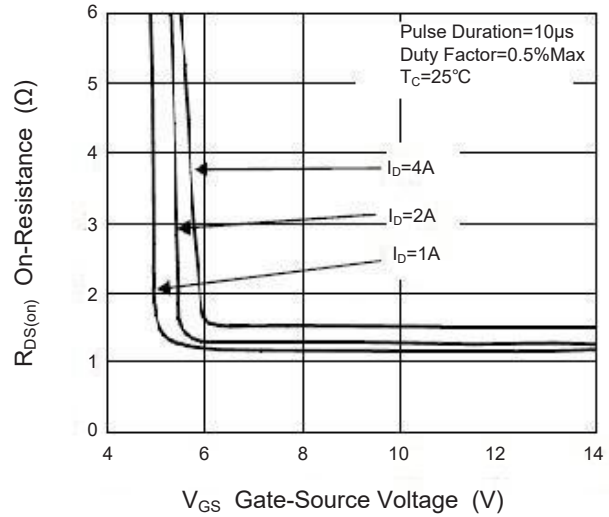
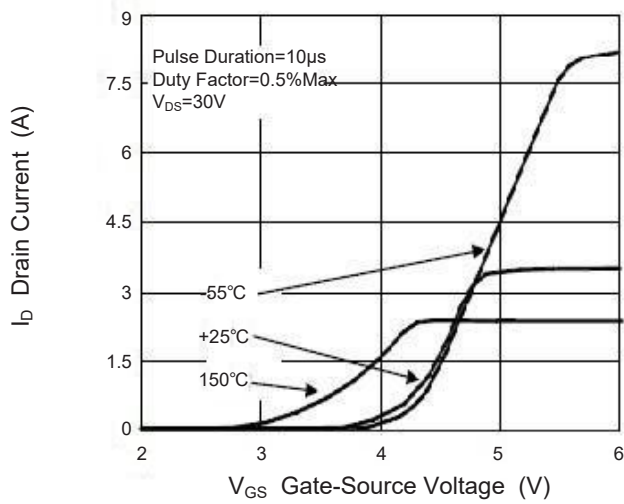
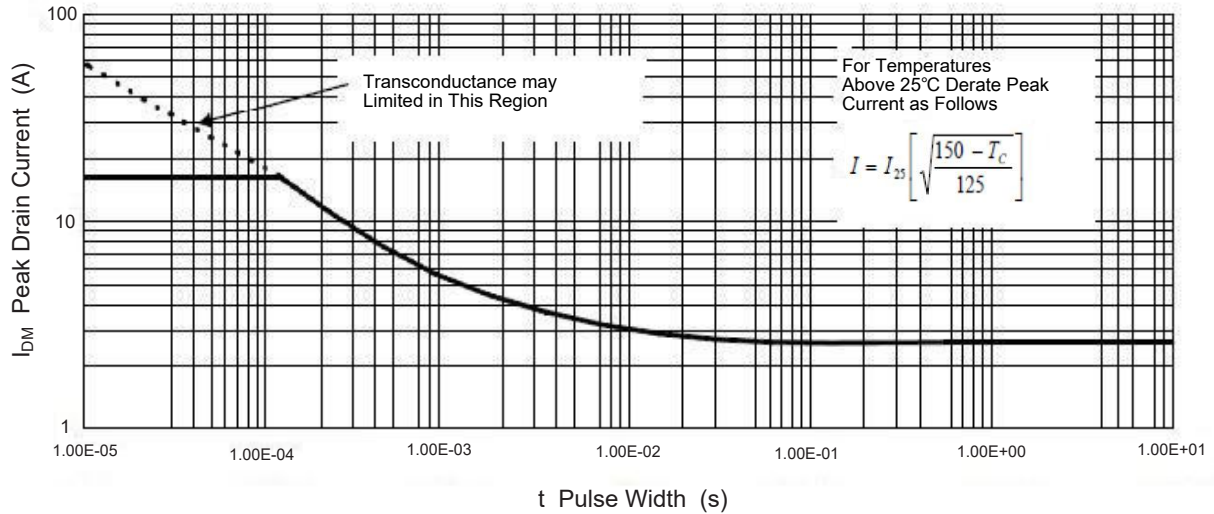
Typical Characteristic Curves





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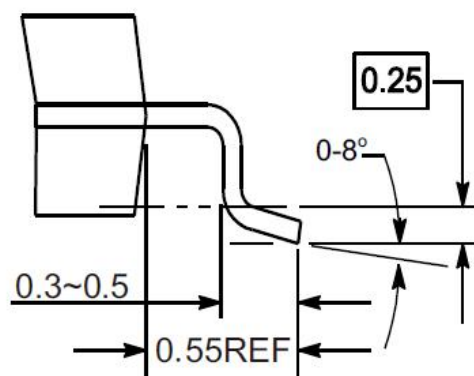
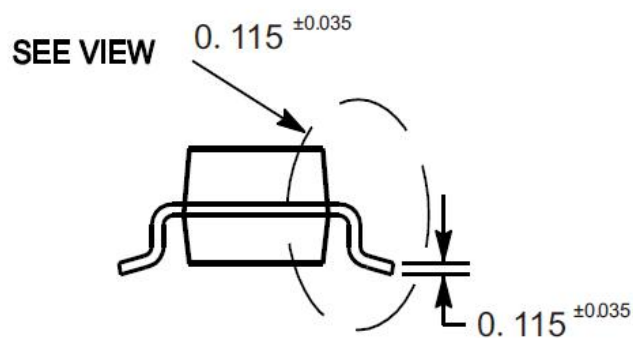
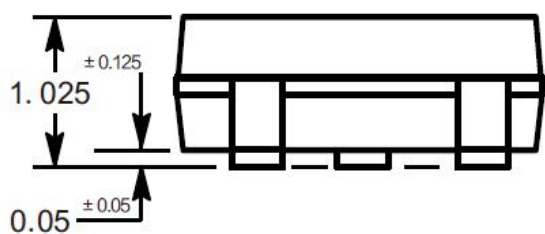
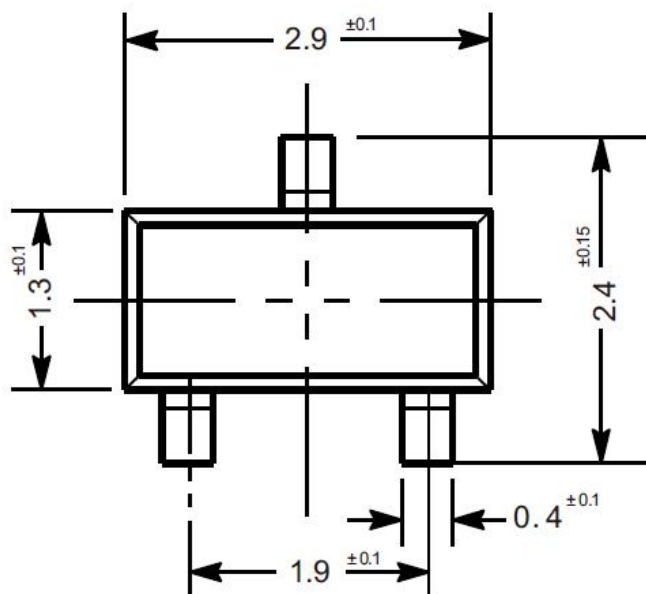
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Package Outline

SOT-23

Dimensions in mm



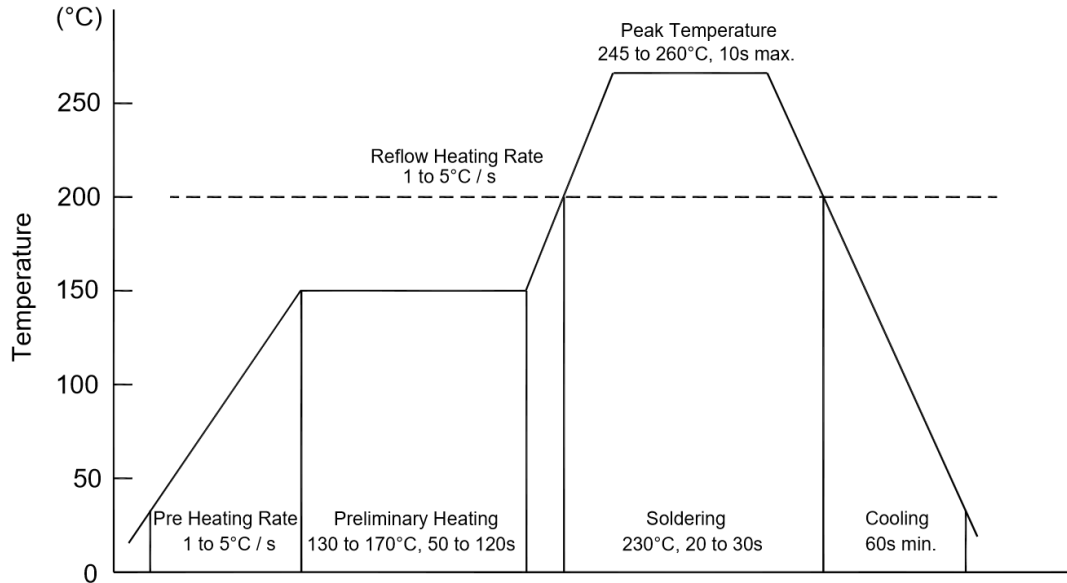
Ordering Information

Device	Package	Shipping
PJM60H12MNSA	SOT-23	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

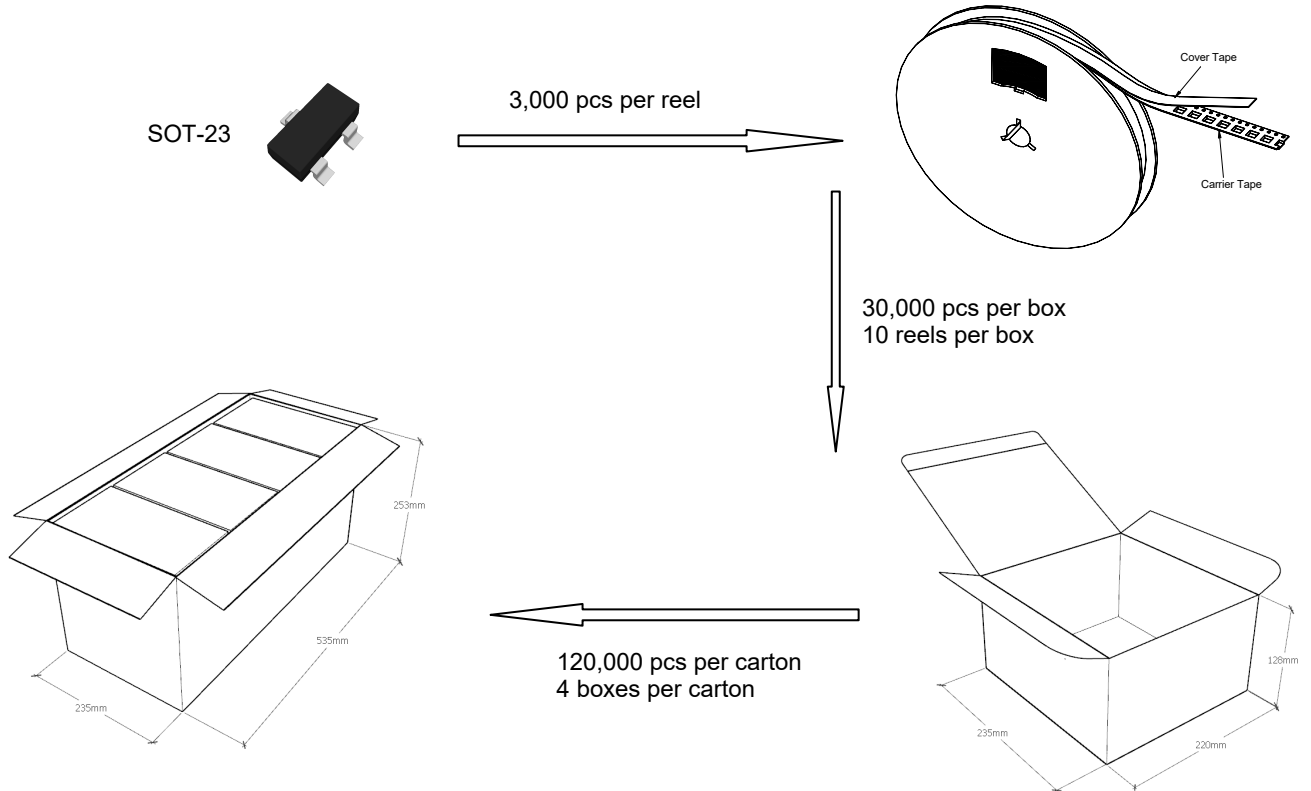
- Temperature: 370 °C
- Time: 3s max.
- Times: one time

◆ Storage conditions

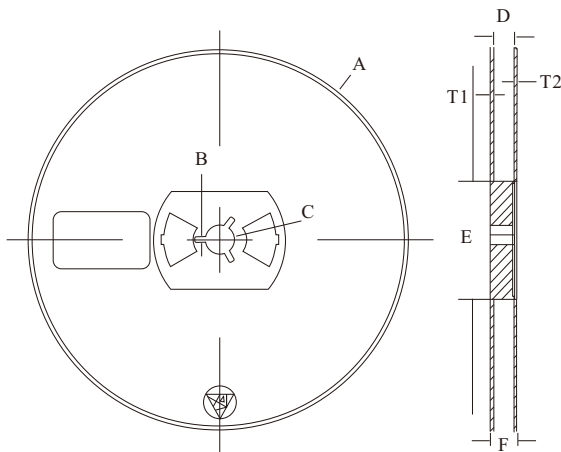
- **Temperature**
5 to 40 °C
- **Humidity**
30 to 80% RH
- **Recommended period**
One year after manufacturing

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")

