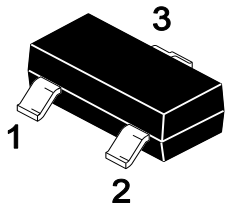
PJM02N60SA
N- Enhancement Mode Field Effect Transistor

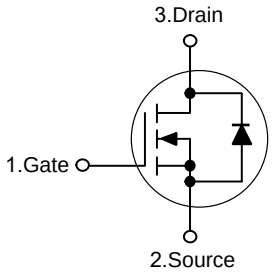
Features

- $R_{DS(ON)}$ < 85mΩ @V_{GS} = 10V
  $R_{DS(ON)}$ < 120mΩ @V_{GS} = 4.5V
  V_{DS}=60V, I_D=2A
- High power and current handing capability

SOT-23



Schematic diagram



Applications

- DC/DC Converter
- Battery Switch

Absolute Maximum Ratings

Ratings at 25℃ ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	2	A
Pulsed Drain Current Note1	I_{DM}	10	A
Total Power Dissipation	P_D	0.9	W
Operating Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	- 55 to + 150	℃

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction to Ambient Note2	$R_{\theta JA}$	139	℃/W

Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	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} =60V,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	1.3	2	V
Drain-Source On-Resistance Note3	$R_{DS(on)}$	V_{GS} =10V, I_D =3A			105	mΩ
		V_{GS} =4.5V, I_D =2A			125	
Forward Tranconductance Note3	g_{FS}	V_{DS} =15V, I_D =2A		3		S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} =30V,V_{GS} =0V,f =1MHz		510		pF
Output Capacitance	C_{oss}			34		
Reverse Transfer Capacitance	C_{rss}			26		
SWITCHING Characteristics						
Total Gate Charge	Q_g	V_{DS} =30V,I_D =3A,V_{GS}=4.5V		7.5		nC
Gate-Source Charge	Q_{gs}			1.4		
Gate-Drain Charge	Q_{gd}			3		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V,V_{DD}=30V,I_D =1.5A ,R_G=1Ω		6		ns
Turn-On Rise Time	t_r			15		
Turn-Off Delay Time	$t_{d(off)}$			15		
Turn-Off Fall Time	t_f			10		
Source-Drain Diode characteristics						
Body Diode Voltage	V_{SD}	I_S=3A,V_{GS}=0V			1.2	V

Notes :

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

Typical Characteristics Curves

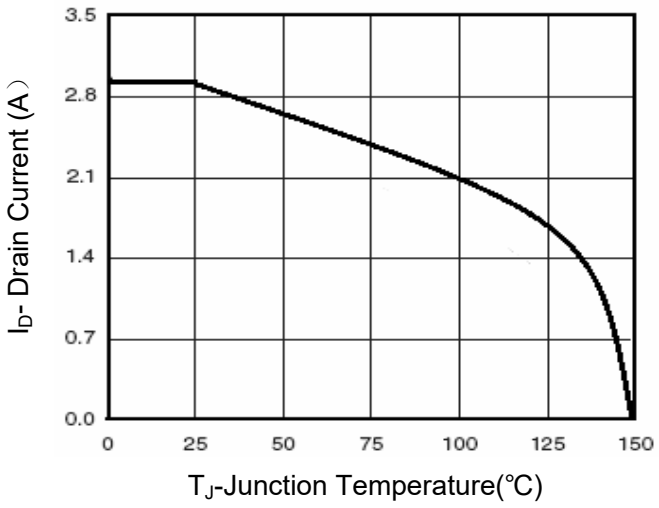


Figure 1 Drain Current

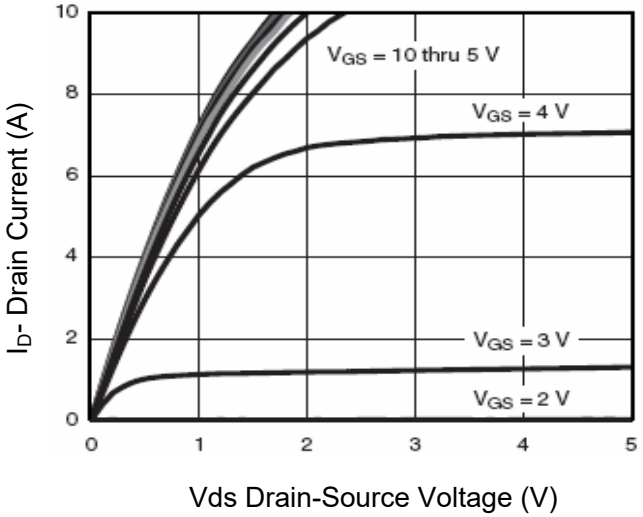


Figure 2 Output Characteristics

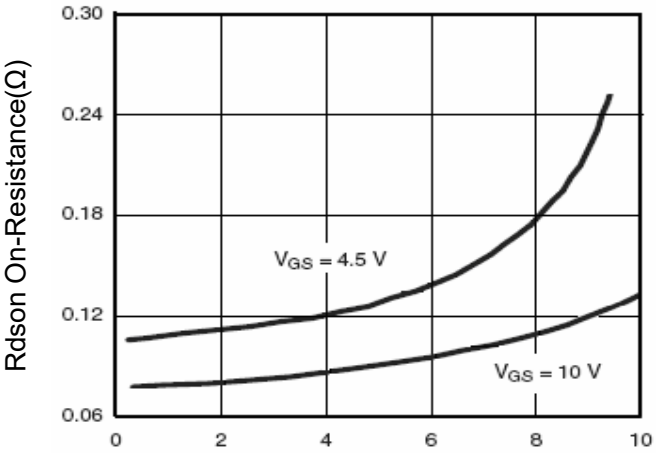


Figure 3 Drain-Source On-Resistance

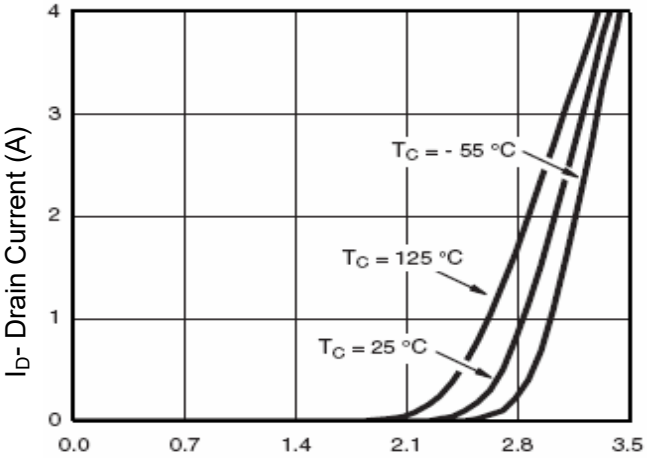


Figure 4 Transfer Characteristics

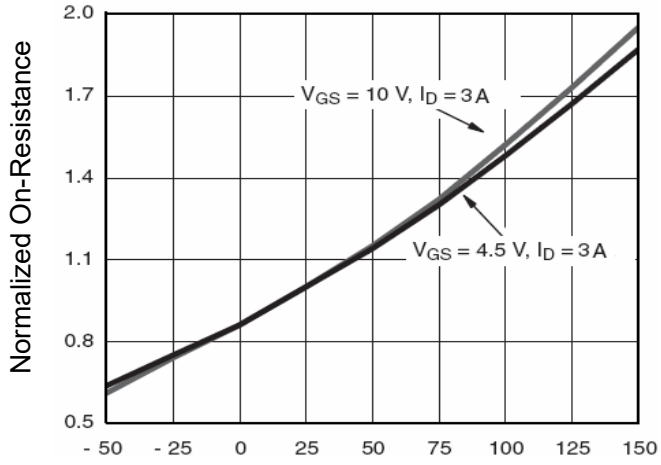


Figure 5 Drain-Source On-Resistance

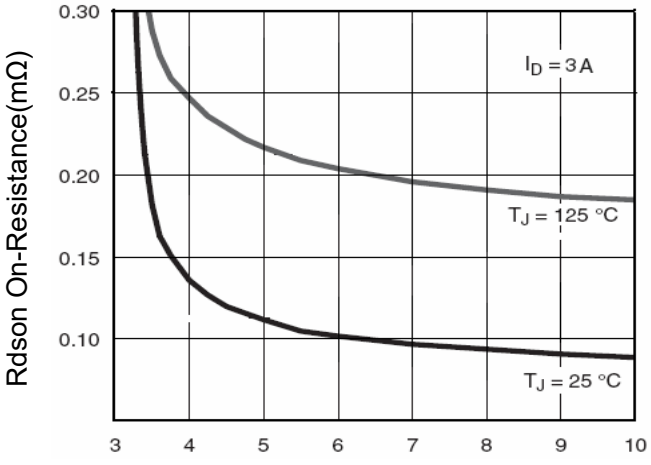


Figure 6 Rdson vs Vgs

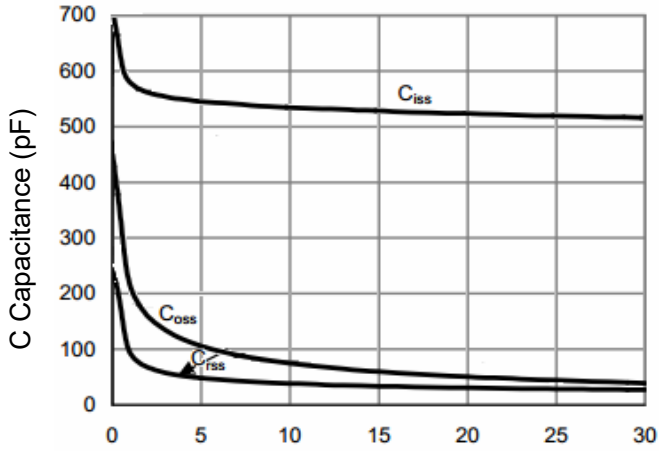


Figure 7 Capacitance vs Vds

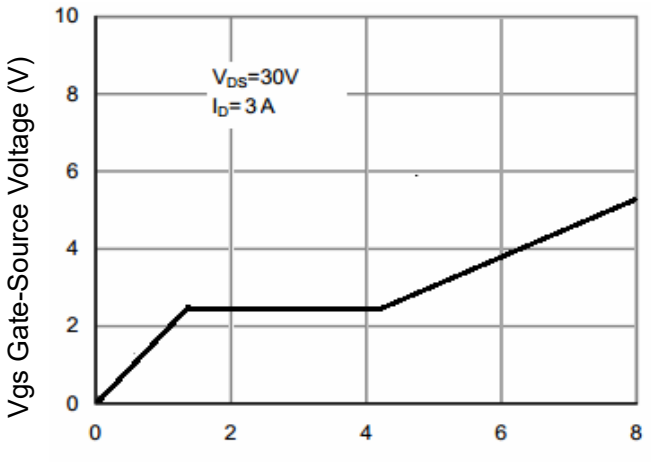


Figure 8 Gate Charge

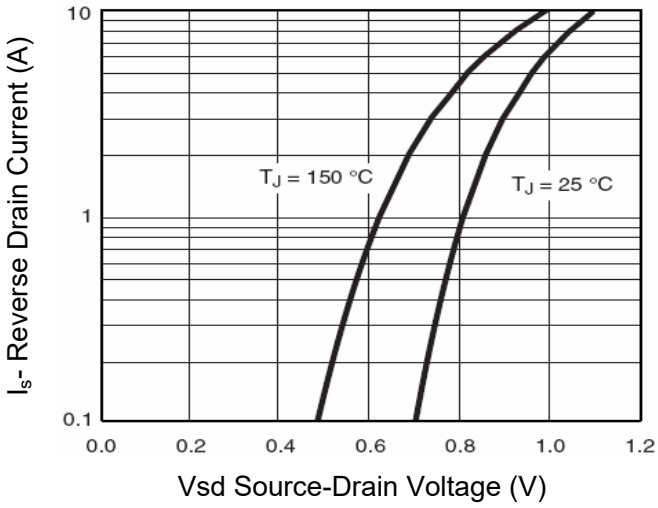


Figure 9 Source- Drain Diode Forward

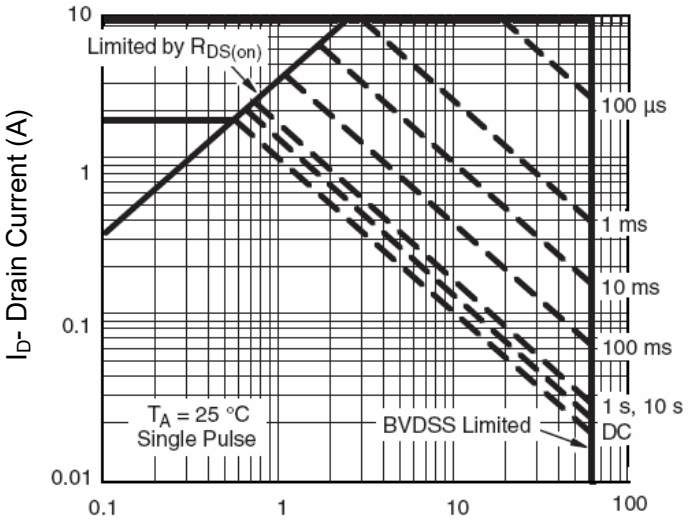


Figure 10 Safe Operation Area

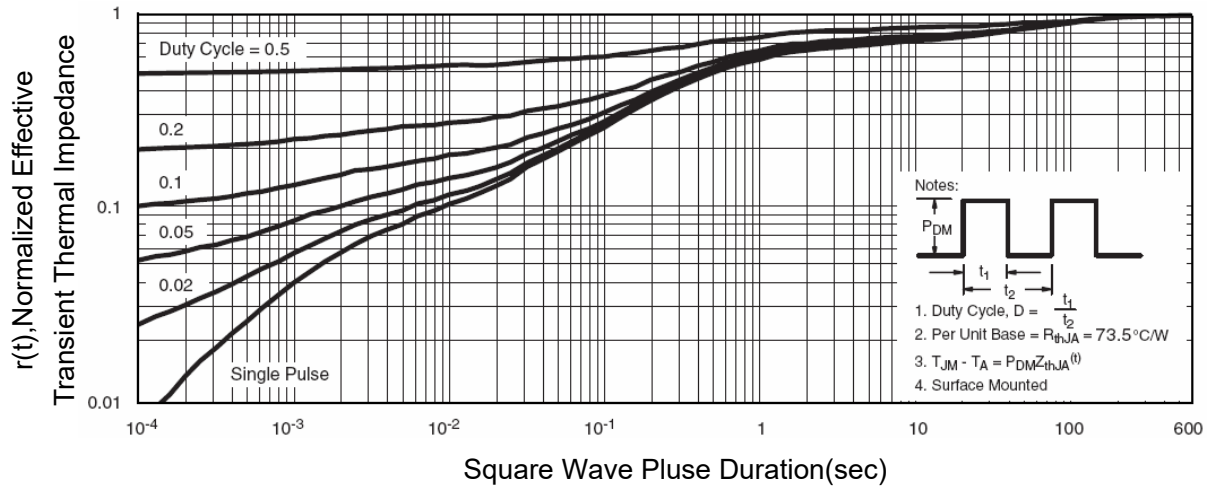
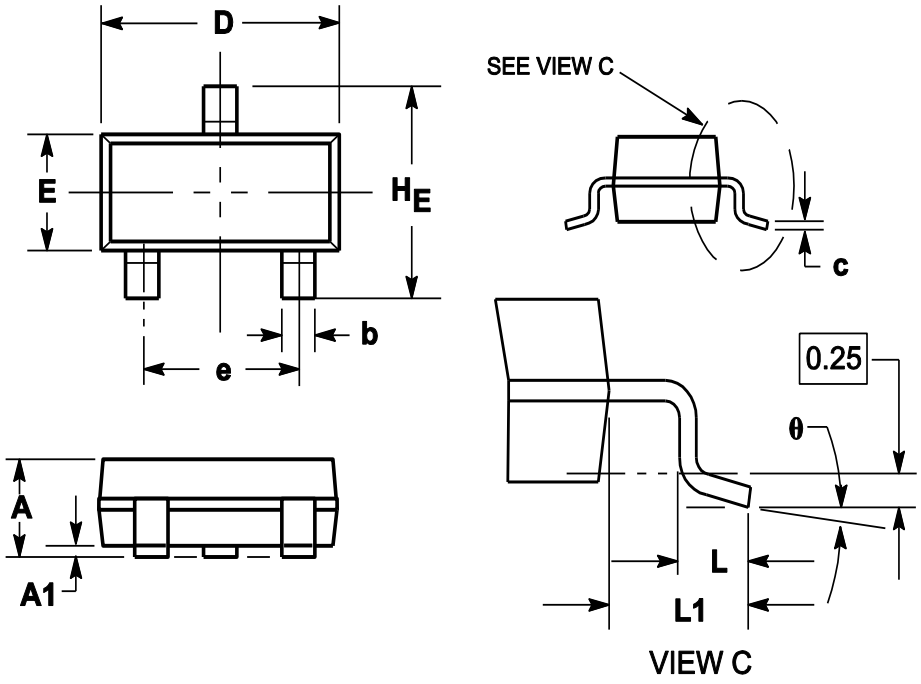


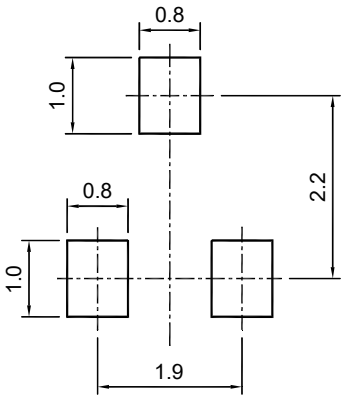
Figure 11 Normalized Maximum Transient Thermal Impedance

Package Outline

SOT-23



Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	0.900	1.025	1.150
A1	0.000	0.050	0.100
b	0.300	0.400	0.500
c	0.080	0.115	0.150
D	2.800	2.900	3.000
E	1.200	1.300	1.400
H_E	2.250	2.400	2.550
e	1.800	1.900	2.000
L1	0.550REF		
L	0.300		0.500
θ	0^o		8^o



SOT-23

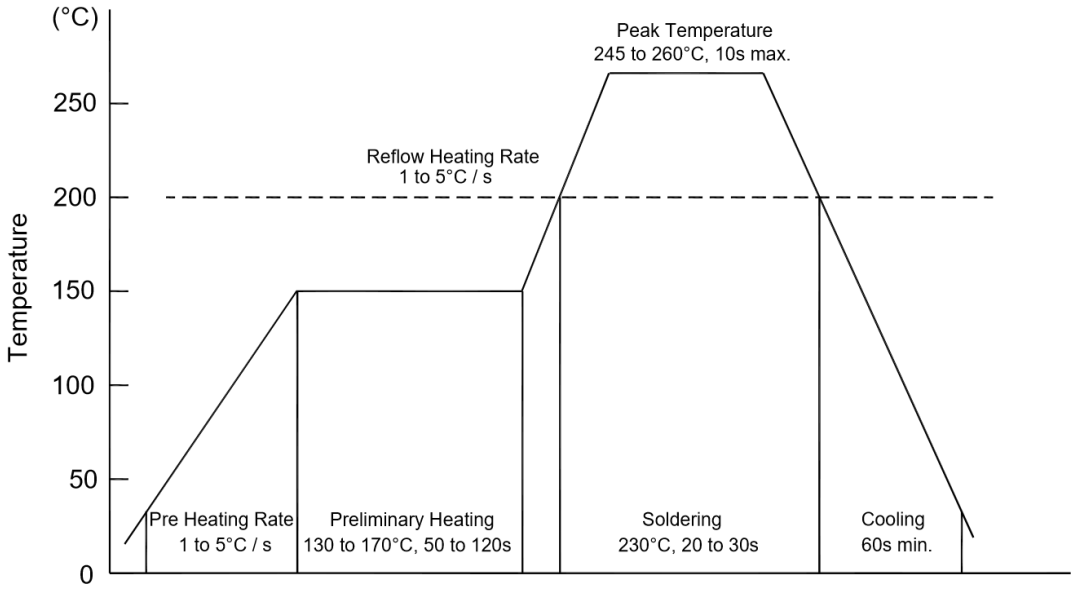
Recommended soldering pad

Ordering Information

Device	Package	Shipping
PJM02N60SA	SOT-23	3000/Reel&Tape(7inch)

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

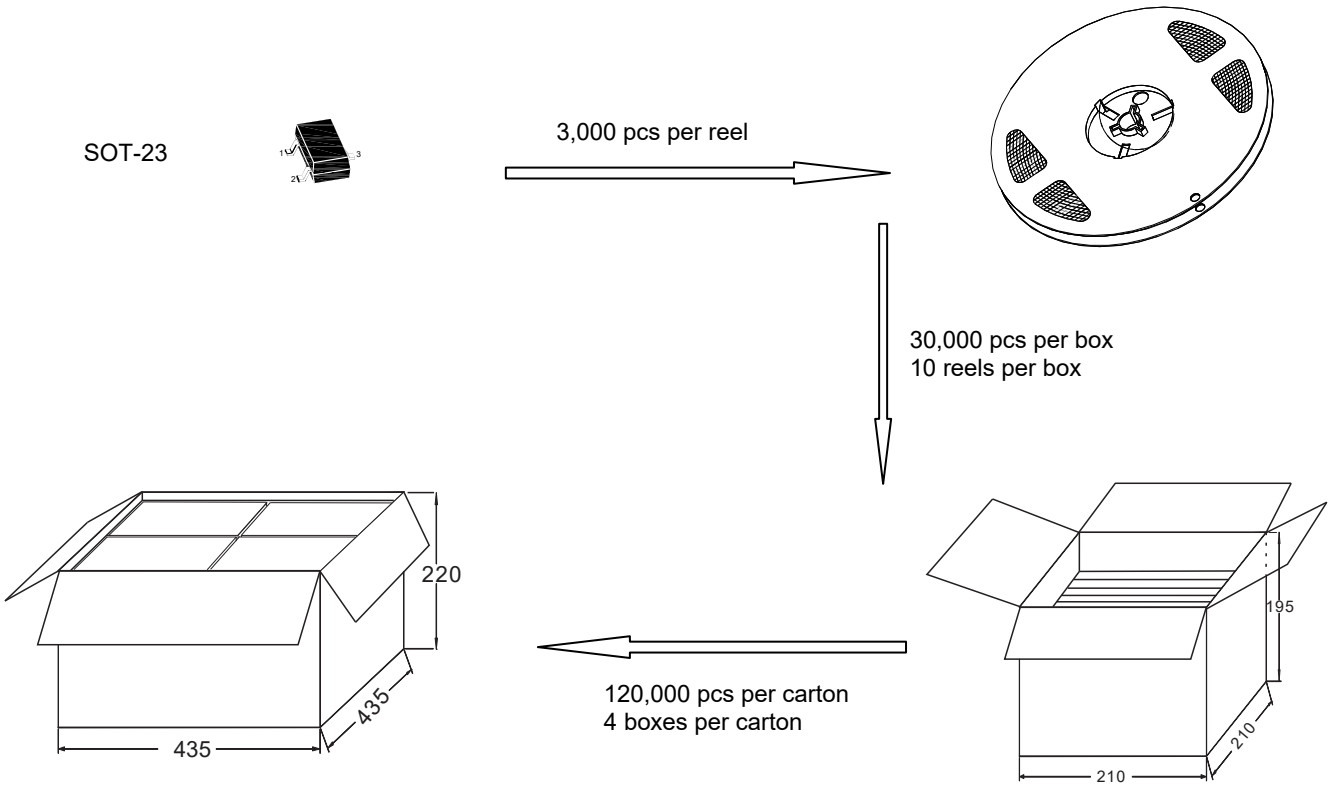
- Temperature: 370 ^{O}C
- Time: 3s max.
- Times: one time

◆ Storage conditions

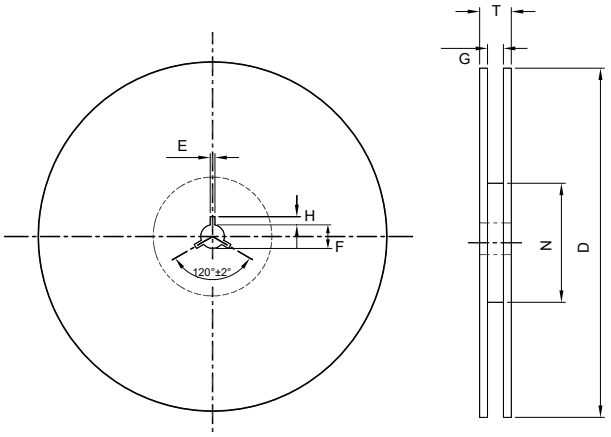
- **Temperature**
  5 to 40 ^{O}C
- **Humidity**
  30 to 80% RH
- **Recommended period**
  One year after manufacturing

Package Specifications

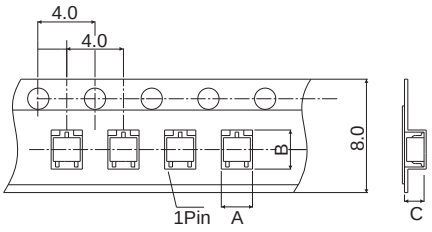
◆ The method of packaging



◆ Embossed tape and reel data



Reel (7")



Tape (8mm)

Symbol	Value (unit: mm)
A	3.15 ± 0.1
B	2.7 ± 0.1
C	1.25 ± 0.1
E	2 ± 0.5
F	13 ± 0.5
D	178 ± 2.0
G	8.4 ± 1.5
H	4 ± 0.5
N	60
T	< 14.9

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