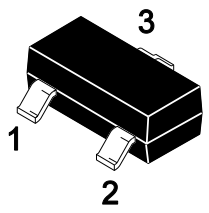
PJM2301PSA

P- Enhancement Mode Field Effect Transistor

Features

- High power and current handing capability
- Halogen free product is acquired
- Surface mount package

SOT-23



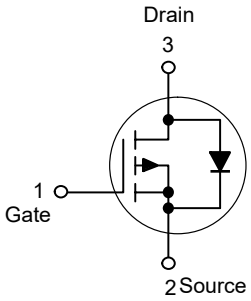
1. Gate 2.Source 3.Drain

Marking: M01

Applications

- Battery protection
- Load switch
- Power management

Schematic Diagram



Absolute Maximum Ratings

Ratings at T_A=25℃ unless otherwise specified.

Parameter	Symbol	Value	Units
Drain-Source Voltage	$-V_{DS}$	20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	$-I_D$	2.8	A
Pulsed Drain Current Note1	$-I_{DM}$	10	
Power Dissipation	P_D	1.25	W
Junction and Storage Temperature Range	T_J, T_{STG}	150, -55 to 150	°C
Thermal Characteristics			
Parameter	**Symbol**	**Typ.**	**Units**
Maximum Junction-to-Ambient Note2	$R_{\theta JA}$	100	°C/W

Electrical Characteristics

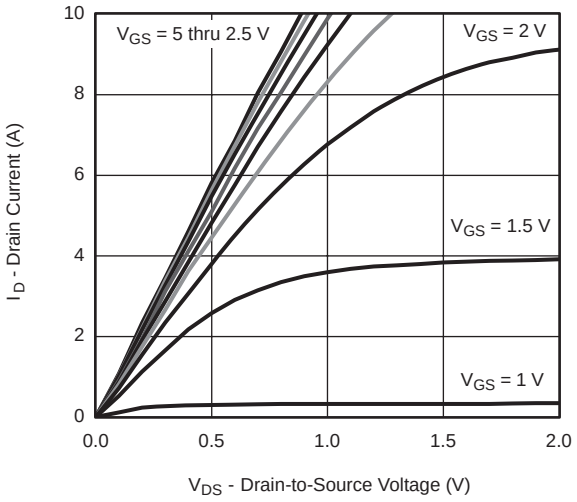
T_A=25℃ unless otherwise noted

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$-V_{(BR)DSS}$	V_{GS} = 0 V, I_D = - 250 μA	20			V
Gate-Source Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ± 8 V			±100	nA
Zero Gate Voltage Drain Current	$-I_{DSS}$	V_{DS} = - 20 V, V_{GS} = 0 V			1	μA
Gate-Source Threshold Voltage Note3	$-V_{GS(th)}$	V_{DS} = V_{GS}, I_D = - 250 μA	0.4		1	V
Drain-Source On-State Resistance Note3	$R_{DS(on)}$	V_{GS} = - 4.5 V, I_D = - 2.8 A		90	110	mΩ
		V_{GS} = - 2.5 V, I_D = - 2 A		110	140	
Forward Transconductance Note3	g_{FS}	V_{DS} = - 5 V, I_D = - 2.8 A		2		S
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} = - 10 V, V_{GS} = 0 V, f = 1 MHz		405		pF
Output Capacitance	C_{oss}			75		
Reverse Transfer Capacitance	C_{rss}			55		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = -10V, V_{GS}= -4.5V, I_D= -2.8A		5.5	10	nC
		V_{DS} = - 10 V, V_{GS} = - 2.5 V, I_D = - 2.8 A		3.3	6	
Gate-Source Charge	Q_{gs}			0.7		
Gate-Drain Charge	Q_{gd}			1.3		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = - 10 V, R_L = 10 Ω I_D = - 1 A, V_{GEN} = - 4.5 V, R_G = 1 Ω		11	20	ns
Rise Time	t_r			35	60	
Turn-Off Delay Time	$t_{d(off)}$			30	50	
Fall Time	t_f			10	20	
Source-Drain Diode characteristics						
Continuous Source-Drain Diode Current	$-I_S$				1.3	A
Pulse Diode Forward Current Note1	$-I_{SM}$				10	
Body Diode Voltage	$-V_{SD}$	I_S = - 1 A	0.5		1.2	V

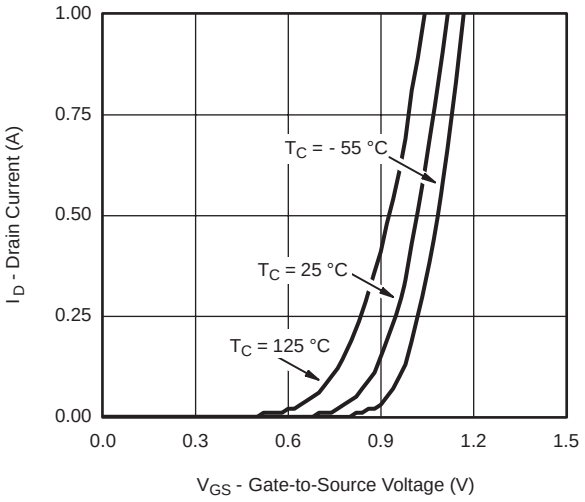
Notes:

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 ≤ 2%.

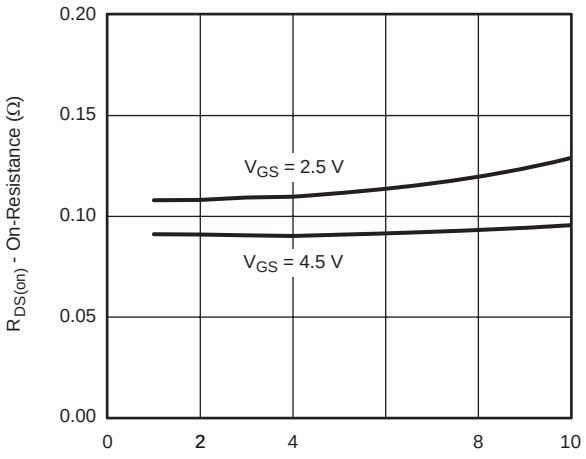
Typical Characteristics Curves



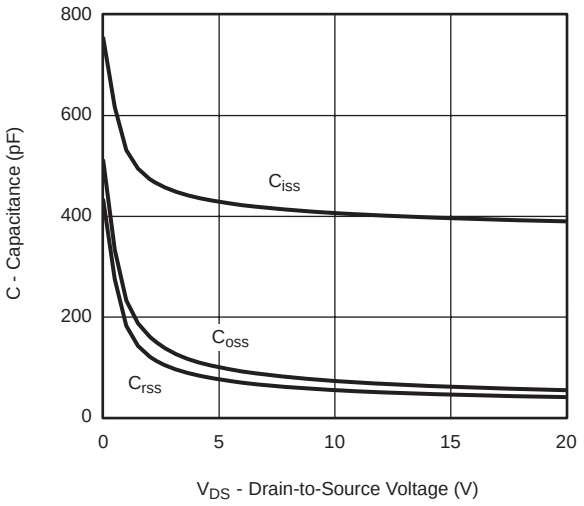
Output Characteristics



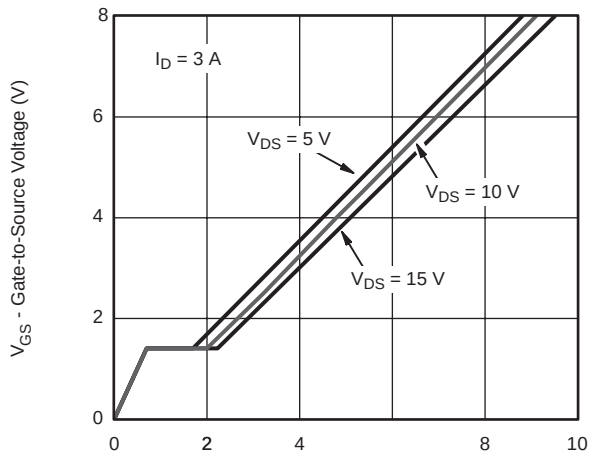
Transfer Characteristics



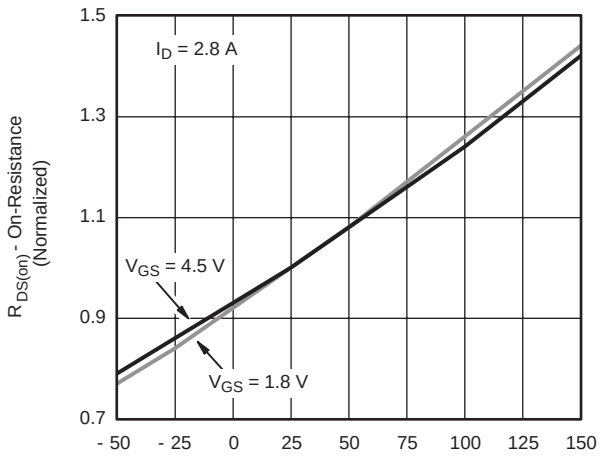
On-Resistance vs. Drain Current and Gate Voltage



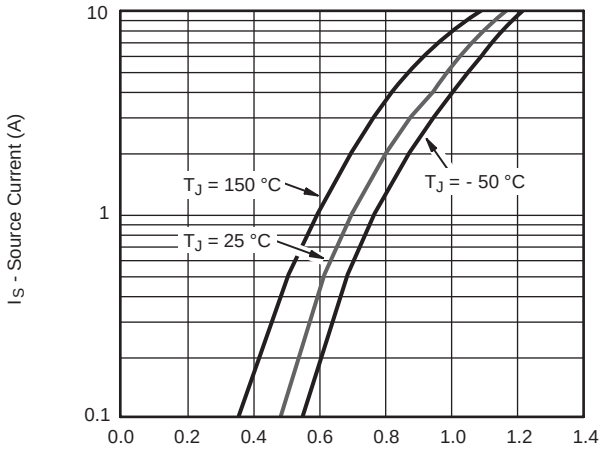
Capacitance



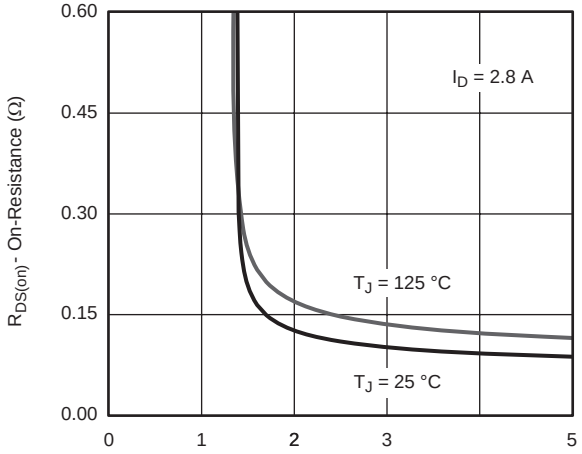
Gate Charge



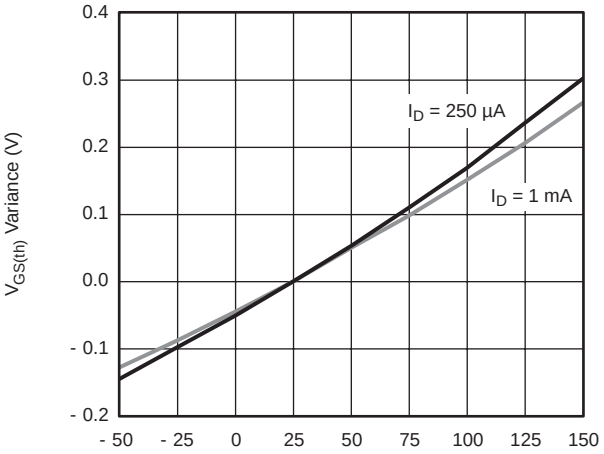
On-Resistance vs. Junction Temperature



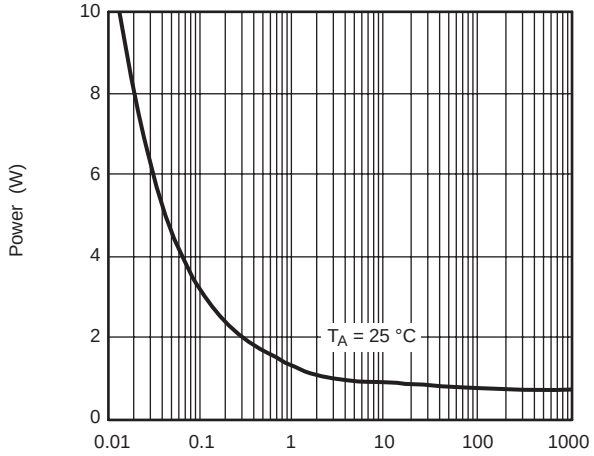
Source-Drain Diode Forward Voltage



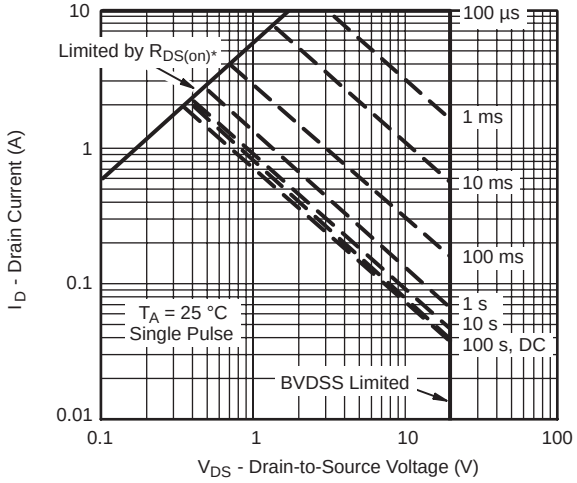
On-Resistance vs. Gate-to-Source Voltage



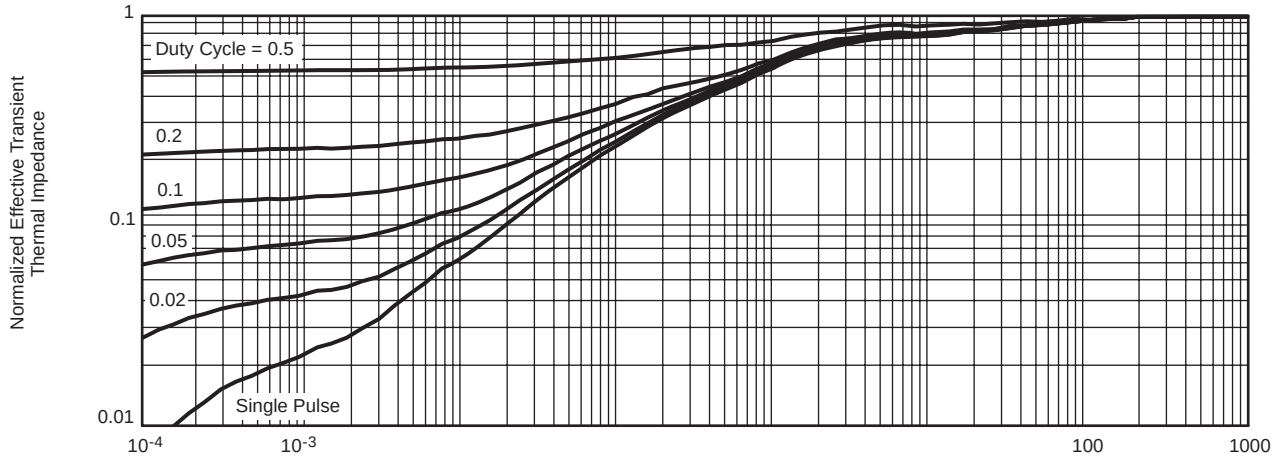
Threshold Voltage



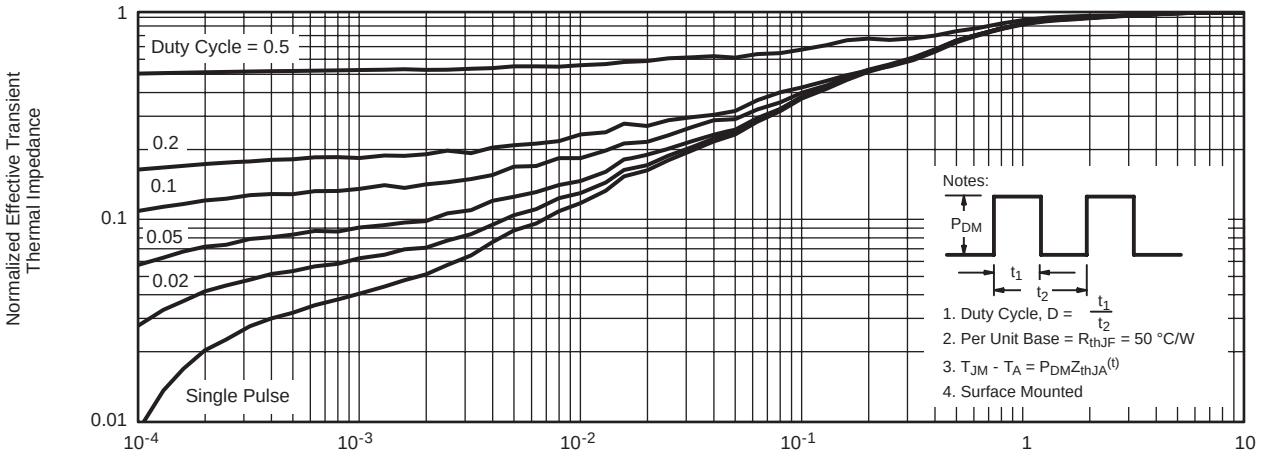
Single Pulse Power



Safe Operating Area



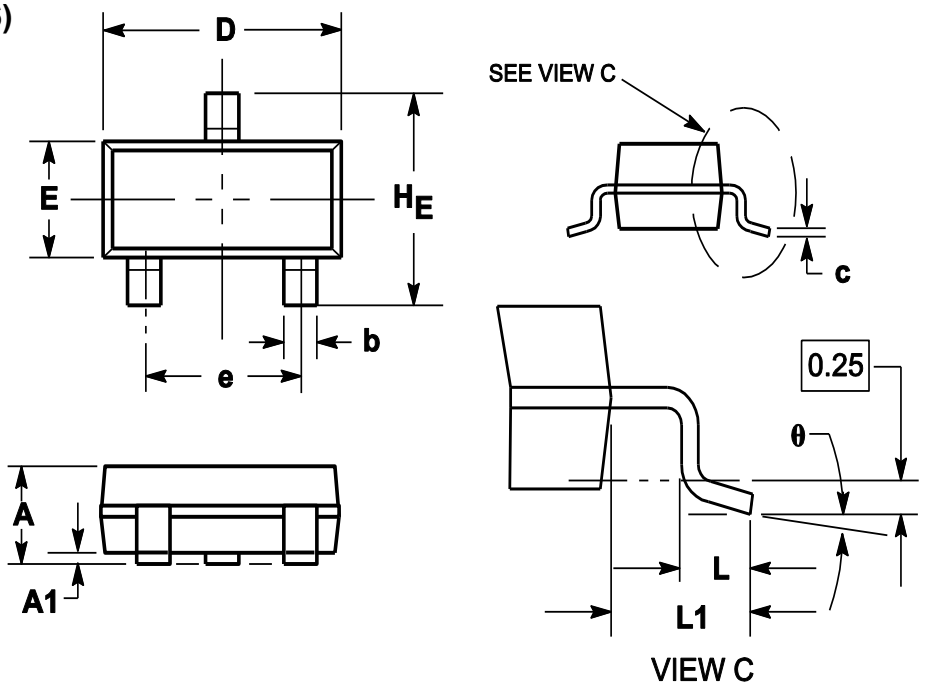
Normalized Thermal Transient Impedance, Junction-to-Ambient



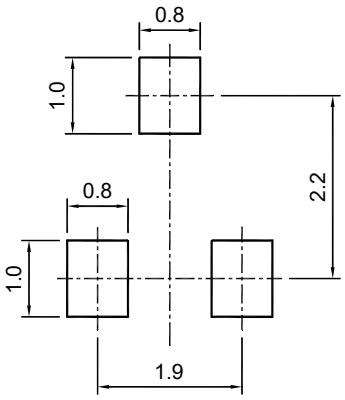
Normalized Thermal Transient Impedance, Junction-to-Foot

Package Outline

SOT-23（TO-236)



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 (TO-236)

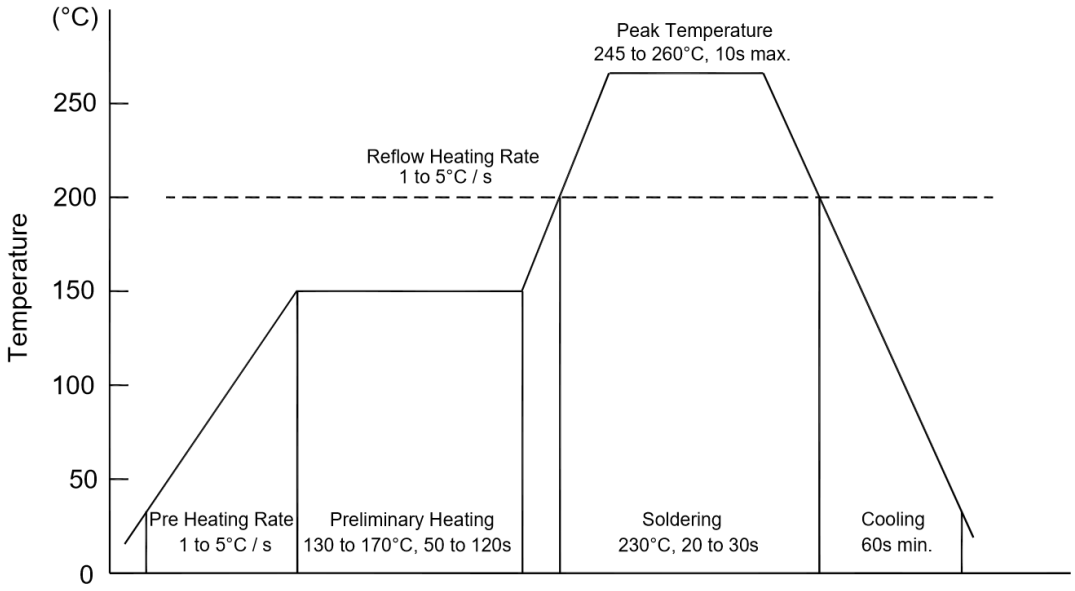
Recommended soldering pad

Ordering Information

Device	Package	Shipping
PJM2301PSA	SOT-23	3000/Reel&Tape(7inch)

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

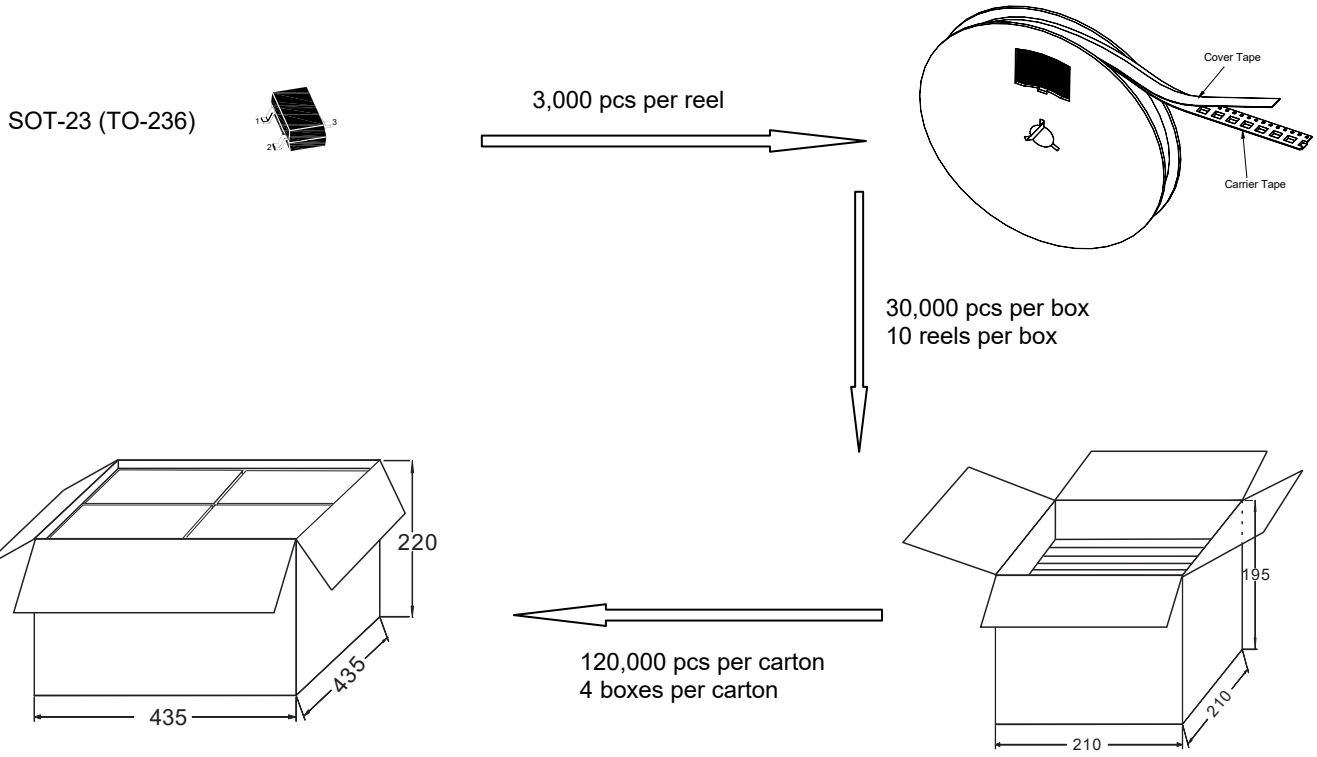
- Temperature: 370 ℃
- Time: 3s max.
- Times: one time

◆ Storage conditions

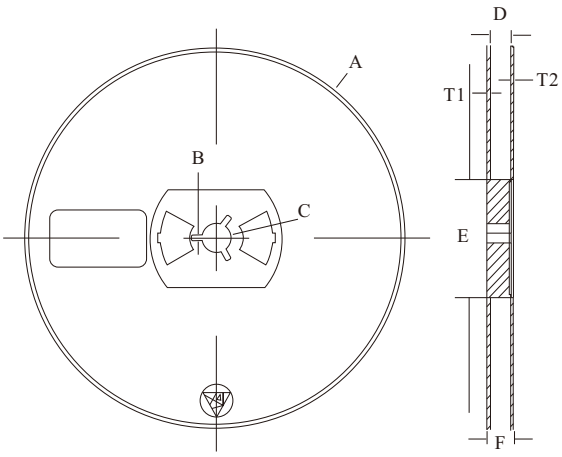
- **Temperature**
  5 to 40 ℃
- **Humidity**
  30 to 80% RH
- **Recommended period**
  One year after manufacturing

Package Specifications

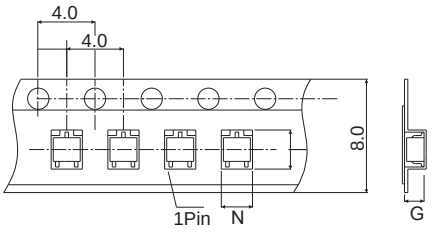
◆ The method of packaging



◆ Embossed tape and reel data



Reel (7")



Tape (8mm)

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
N	3.15±0.1
G	1.25±0.1

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