



PJM2301PSA-S

P- Enhancement Mode Field Effect Transistor

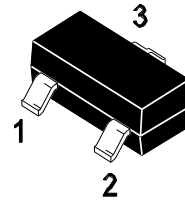
Features

- $V_{DS} = -20V$ $I_D = -2A$
- $R_{DS(ON)} = 120m\Omega$ (typ) @ $V_{GS} = -2.5V$
 $R_{DS(ON)} = 88m\Omega$ (typ) @ $V_{GS} = -4.5V$
- High power and current handing capability
- Halogen and Antimony Free
- Surface mount package

Applications

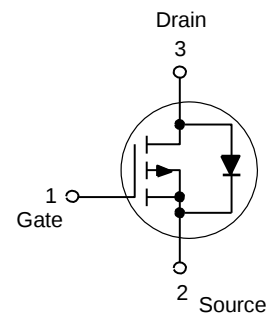
- Battery protection
- Load switch
- Power management

SOT-23



1. Gate 2. Source 3. Drain

Marking : S01



Absolute Maximum Ratings

$T_C = 25^\circ C$ unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	- 20	V
Gate-Source Voltage	V_{GS}	± 12	
Continuous Drain Current	I_D	-2	A
Pulsed Drain Current ^{Note1}	I_{DM}	- 10	
Maximum Power Dissipation	P_D	0.7	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	- 55 to 150	$^\circ C$

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Ambient ^{Note2}	$R_{\theta JA}$	178	$^\circ C/W$



PJM2301PSA-S

P- Enhancement Mode Field Effect Transistor

Electrical Characteristics

$T_C = 25^\circ\text{C}$ unless otherwise noted

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Parameters						
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} = ± 12V			± 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 A		88	120	mΩ
		V _{GS} = - 2.5 V, I _D = - 1 A		120	180	
Dynamic Parameters						
Forward Transconductance ^{Note3}	g _{fs}	V _{DS} = - 5 V, I _D = - 2 A	4			S
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 Parameters						
Total Gate Charge	Q _g	V _{DS} = - 10 V, V _{GS} = - 4.5 V, I _D = - 2A		2.9		nC
Gate-Source Charge	Q _{gs}			0.45		
Gate-Drain Charge	Q _{gd}			0.75		
Turn-On Delay Time	td(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	td(off)			30	50	
Fall Time	t _f			10	20	
Drain-Source Body Diode Characteristics						
Continuous Source-Drain Diode Current ^{Note2}	I _S				- 2	A
Body Diode Voltage ^{Note3}	V _{SD}	I _S = - 2A			- 1.2	V

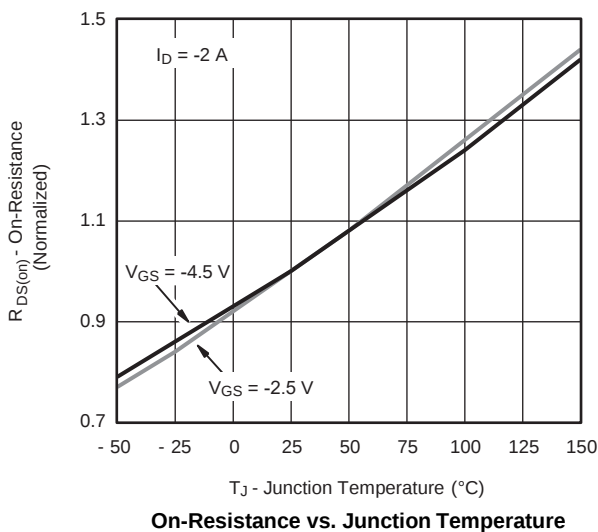
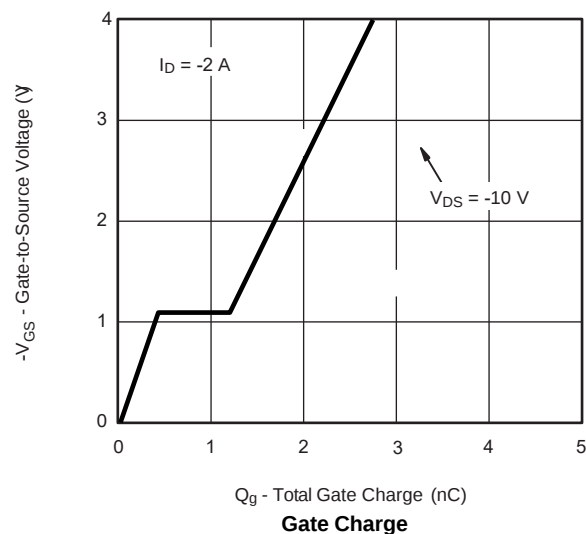
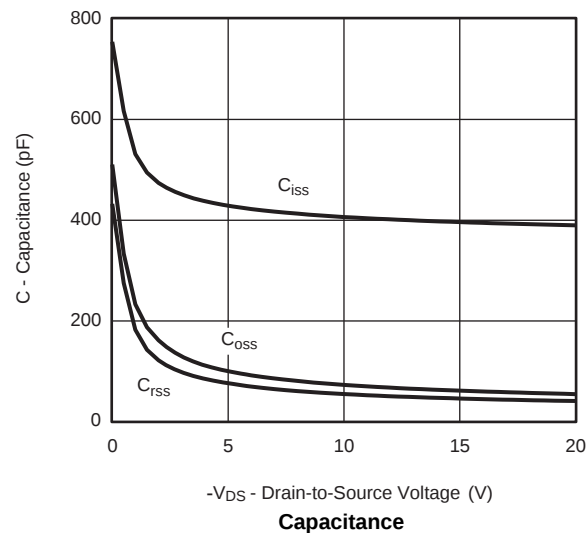
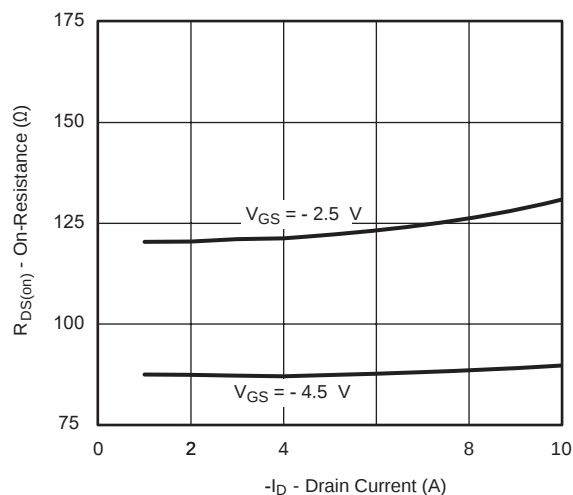
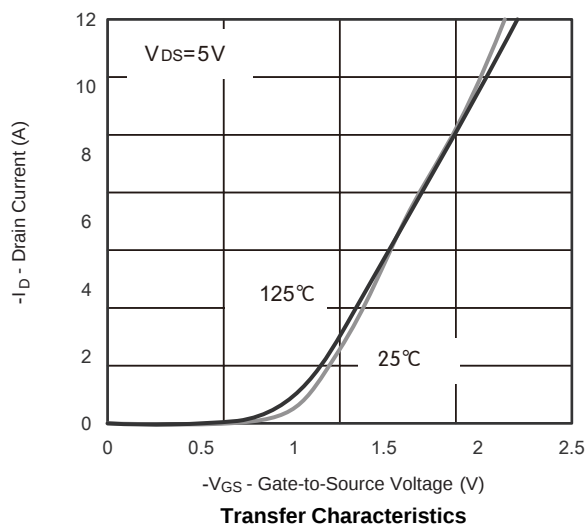
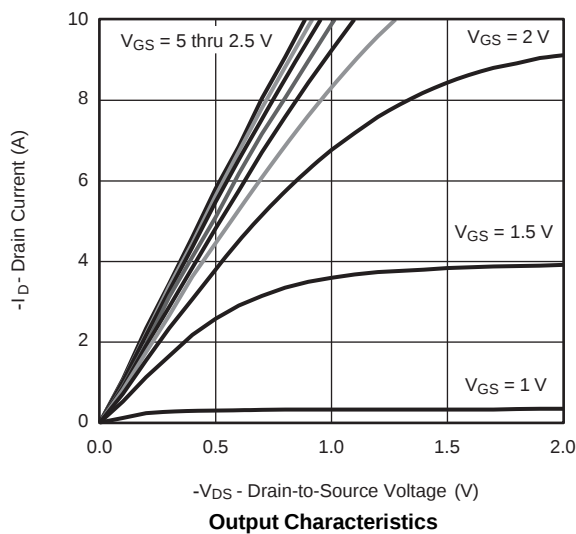
Notes: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10\text{ sec}$.
3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.



PJM2301PSA-S

P- Enhancement Mode Field Effect Transistor

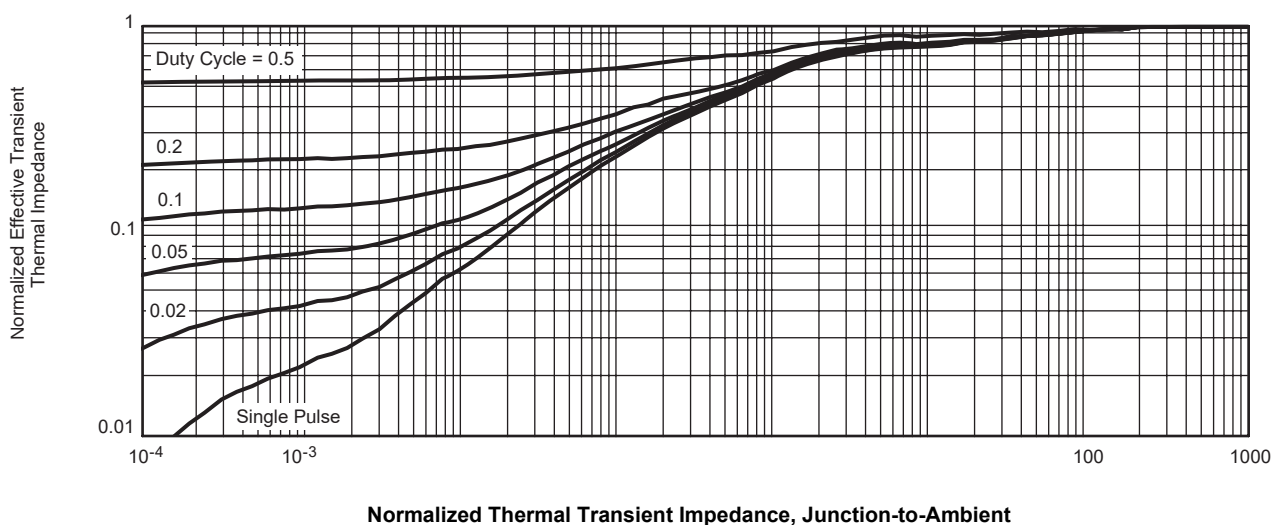
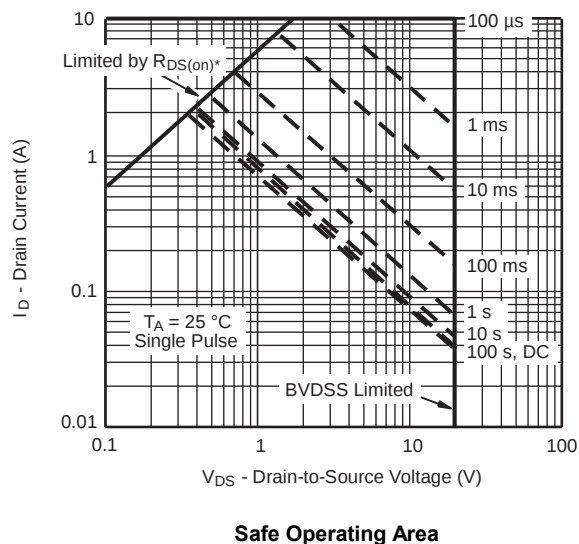
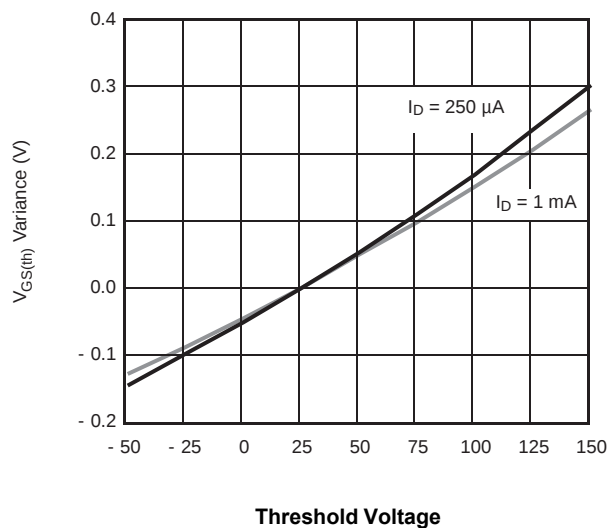
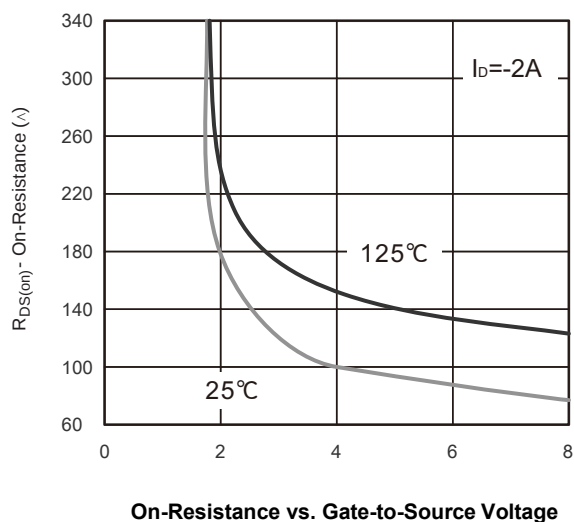
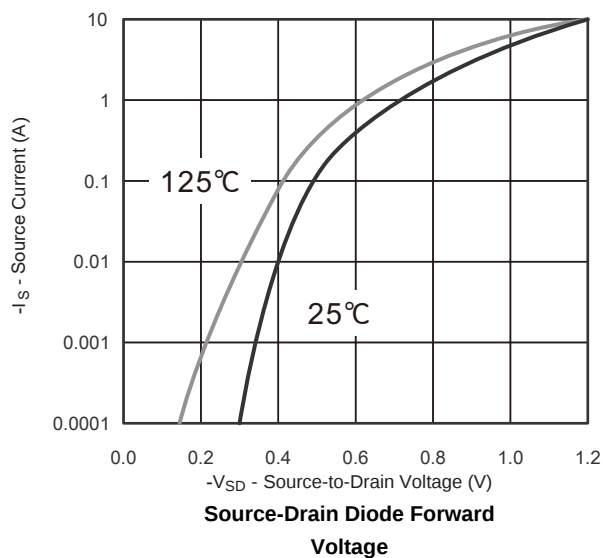
Typical Characteristics Curves





PJM2301PSA-S

P- Enhancement Mode Field Effect Transistor



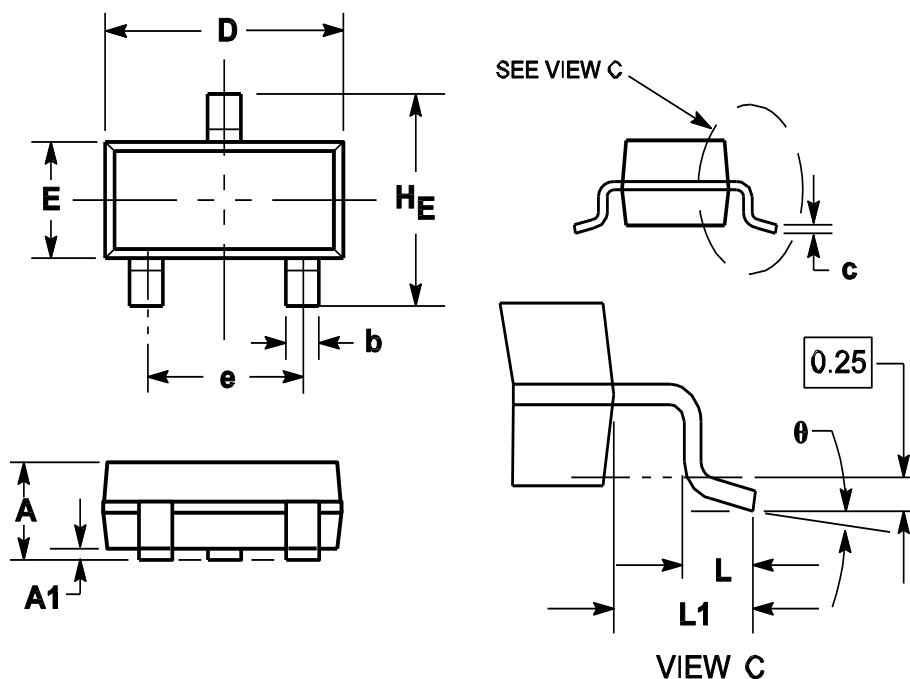


PJM2301PSA-S

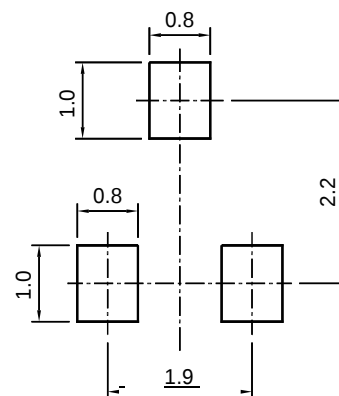
P- Enhancement Mode Field Effect Transistor

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
HE	2.250	2.400	2.550
e	1.800	1.900	2.000
L1	0.550REF		
L	0.300		0.500
θ	0°		8°



SOT-23

Recommended soldering pad

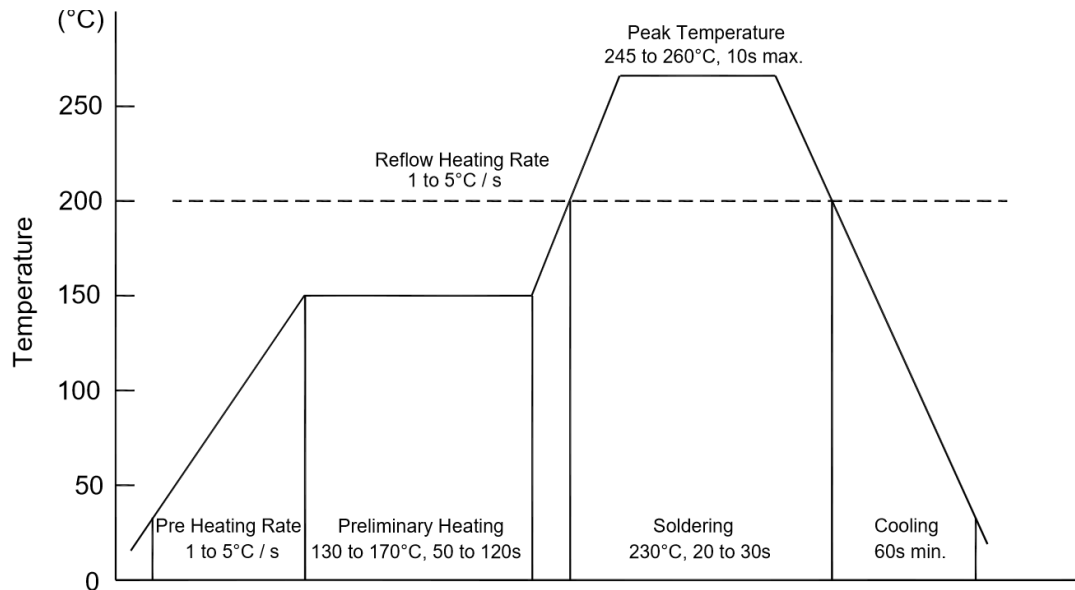
Ordering Information

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



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

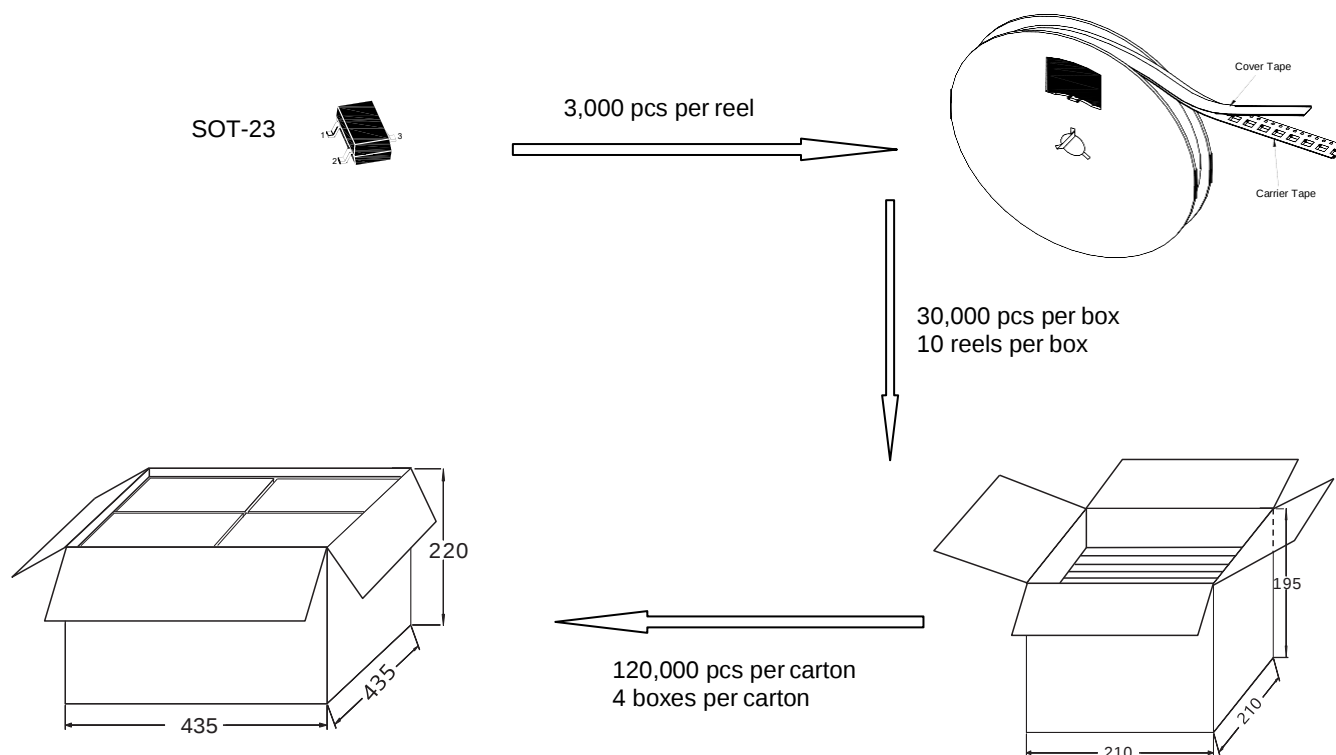


PJM2301PSA-S

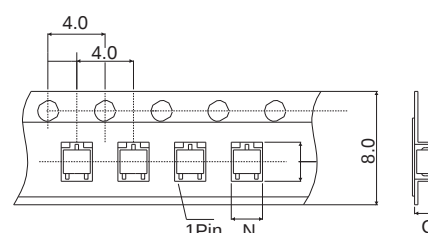
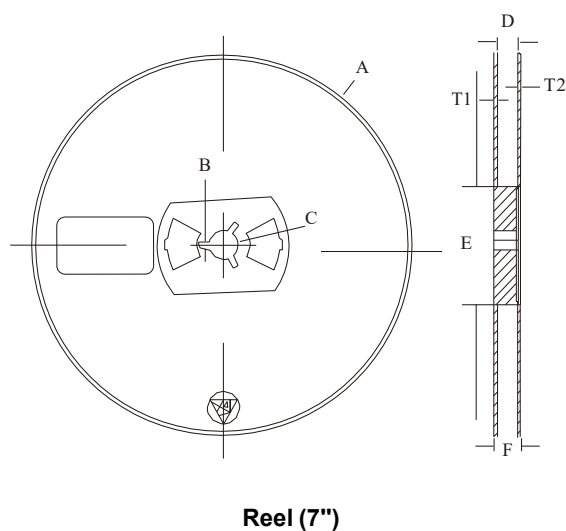
P- Enhancement Mode Field Effect Transistor

Package Specifications

◆ The method of packaging



◆ Embossed tape and reel data



Tape (8mm)

Symbol	Value (unit: mm)
A	$\varnothing 177.8 \pm 1$
B	2.7 ± 0.2
C	$\varnothing 13.5 \pm 0.2$
E	$\varnothing 54.5 \pm 0.2$
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