



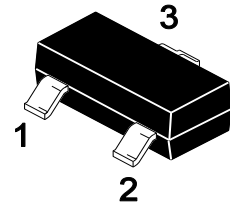
# PJM2306NSA

## N- Enhancement Mode Field Effect Transistor

### Features

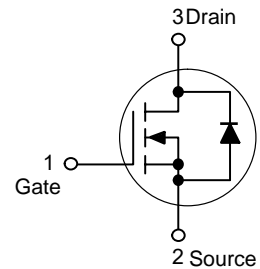
- Fast Switching
- Low  $R_{DS(ON)}$  and Gate Charge
- Low Reverse Transfer Capacitance
- Halogen and Antimony Free (HAF) Product is acquired

SOT-23



1. Gate 2. Source 3. Drain  
Marking: S6

### Schematic diagram



### Absolute Maximum Ratings

Ratings at  $T_c = 25^\circ\text{C}$  unless otherwise specified.

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current-Continuous	$I_D$	3.16	A
Drain Current-Pulsed <sup>Note 1</sup>	$I_{DM}$	20	A
Maximum Power Dissipation	$P_D$	0.75	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 To 150	$^\circ\text{C}$

### Thermal Characteristics

Parameter	Symbol	Limit	Unit
Thermal Resistance, Junction-to-Ambient <sup>Note 2</sup>	$R_{\theta JA}$	167	$^\circ\text{C/W}$

**Electrical Characteristics**T<sub>A</sub>=25°C unless otherwise noted

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	30			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0V			0.5	μA
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V			±100	nA
Gate-Threshold Voltage <sup>Note3</sup>	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	1		3	V
Drain-Source On-Resistance <sup>Note3</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 3.5A		38	47	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 2.8A		52	65	
Forward Transconductance <sup>Note3</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 4.5V, I <sub>D</sub> = 2.5A		7		S
<b>Dynamic Characteristics</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V, f = 1MHz		305		pF
Output Capacitance	C <sub>oss</sub>			65		
Reverse Transfer Capacitance	C <sub>rss</sub>			29		
<b>Switching Characteristics</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 2.5A		6	9	nC
Gate-Source Charge	Q <sub>gs</sub>			1.6		
Gate-Drain Charge	Q <sub>gd</sub>			0.6		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 15V, R <sub>L</sub> = 15Ω, I <sub>D</sub> ≈ 1A, V <sub>GEN</sub> = 10V, R <sub>g</sub> = 6Ω		7	11	ns
Rise Time	t <sub>r</sub>			12	18	
Turn-Off Delay Time	t <sub>d(off)</sub>			14	25	
Fall Time	t <sub>f</sub>			6	10	
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> = 1.25A, V <sub>GS</sub> = 0V		0.8	1.2	V

**Notes:**

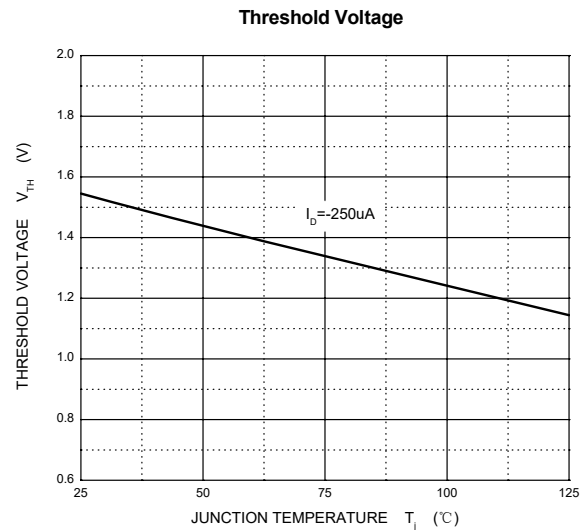
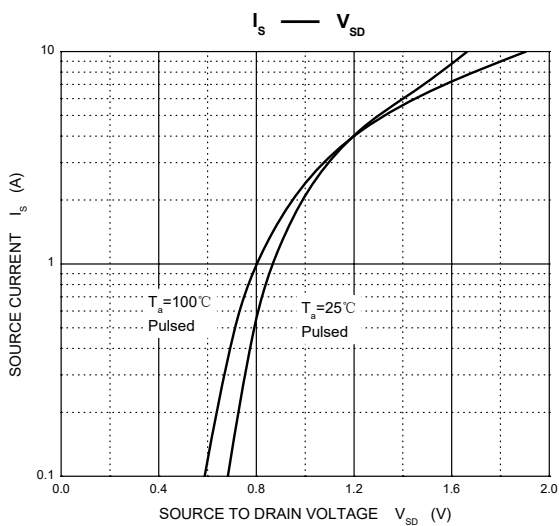
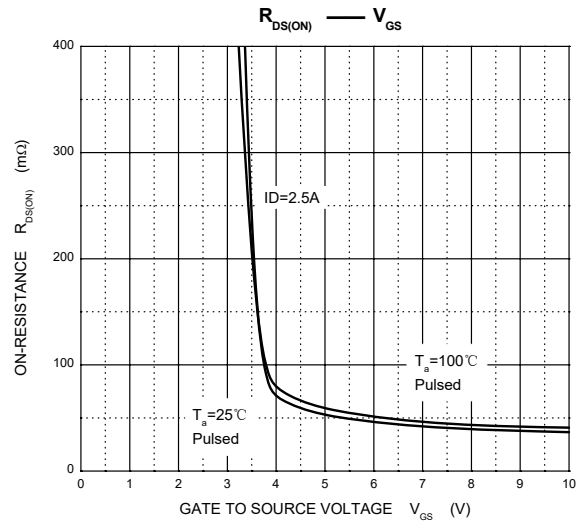
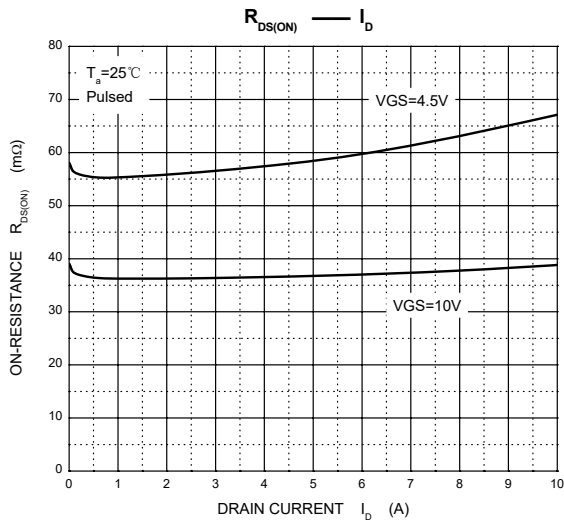
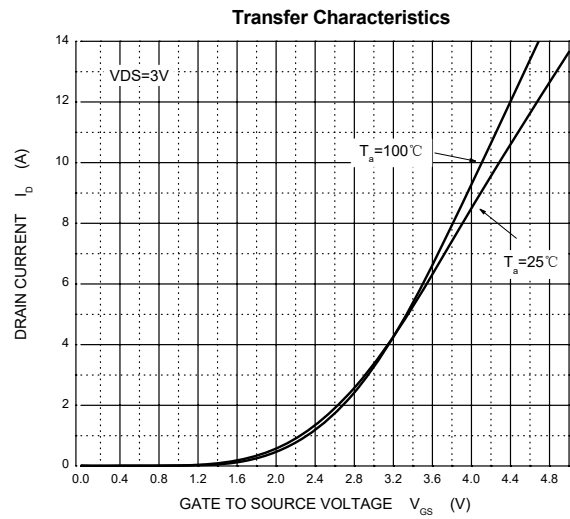
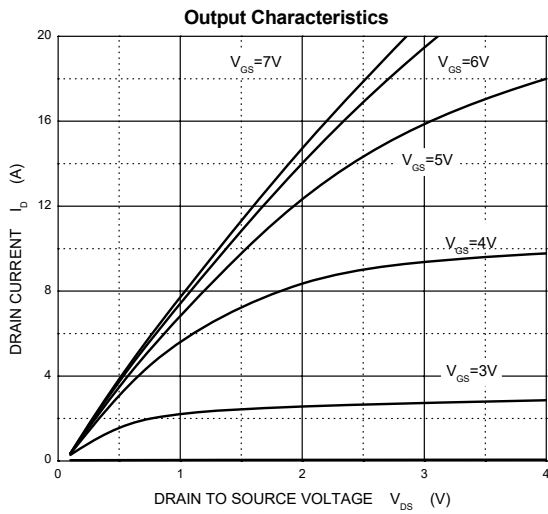
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.



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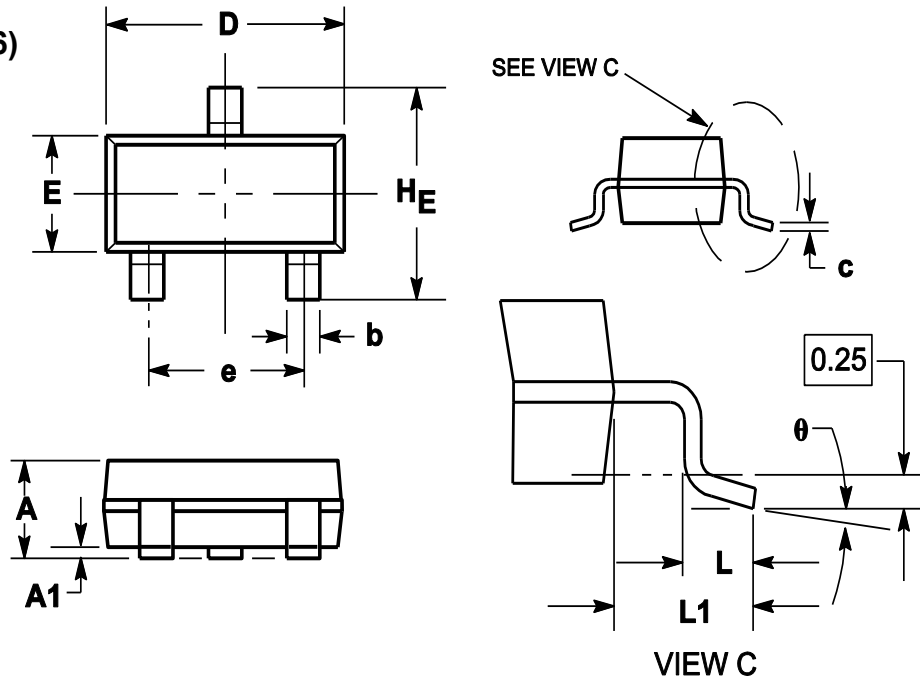
### Typical Characteristics Curves



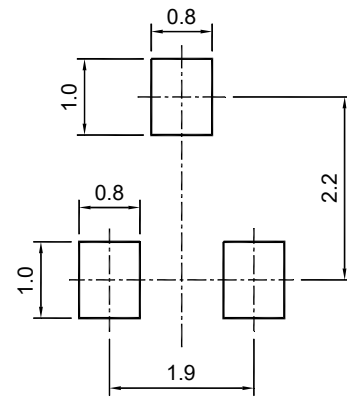


**Package Outline**

**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
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 (TO-236)

**Recommended soldering pad**

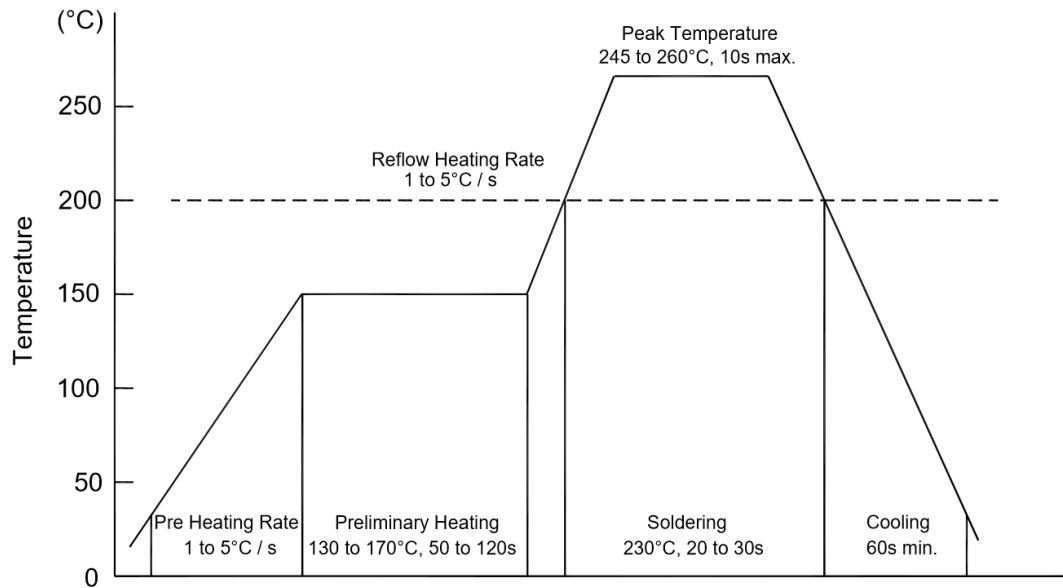
**Ordering Information**

Device	Package	Shipping
PJM2306NSA	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



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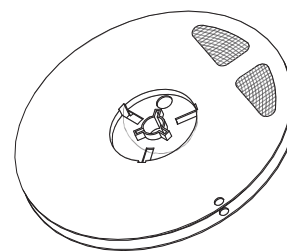
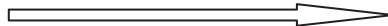
### Package Specifications

#### ◆ The method of packaging

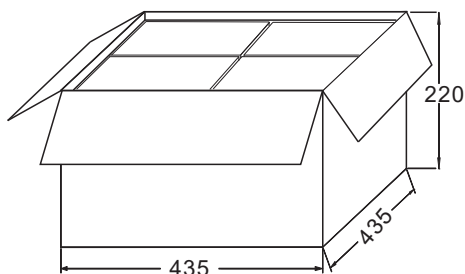
SOT-23 (TO-236)



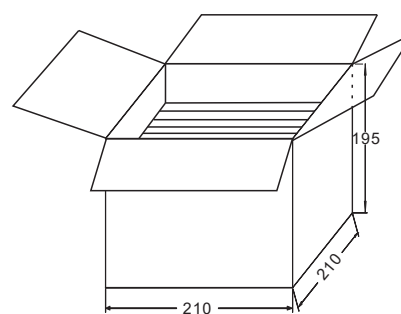
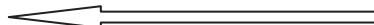
3,000 pcs per reel



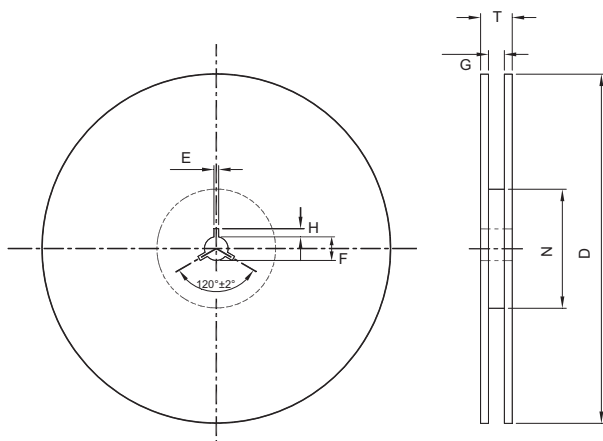
30,000 pcs per box  
10 reels per box



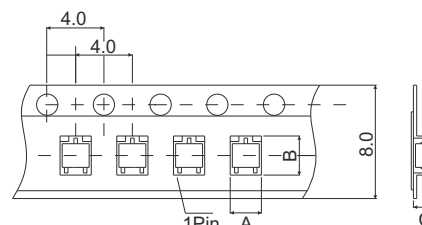
120,000 pcs per carton  
4 boxes per carton



#### ◆ 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