



# PJM3420NSA

## N- Enhancement Mode Field Effect Transistor

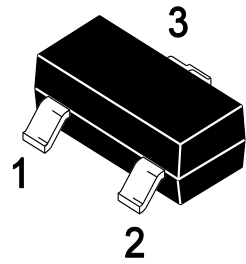
### Feature

- TrenchFET Power MOSFET
- Excellent  $R_{DS(on)}$  and Low Gate Charge

### Applications

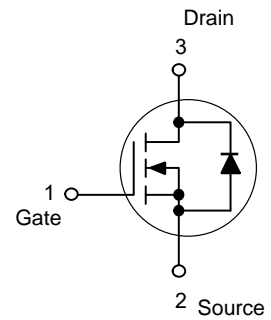
- Load Switch for Portable Devices

SOT-23



1.Gate 2.Source 3.Drain  
Marking: R20

### Schematic diagram



### Absolute Maximum Ratings

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

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current	$I_D$	6	A
Pulsed Drain Current	$I_{DM}$	25	
Power Dissipation	$P_D$	0.9	W
Junction and Storage Temperature Range	$T_J, T_{STG}$	150, -55 to 150	$^{\circ}\text{C}$

### Thermal Characteristics

Parameter	Symbol	Typ.	Units
Maximum Junction-to-Ambient	$R_{\theta JA}$	139	$^{\circ}\text{C/W}$



**Electrical Characteristics (T<sub>a</sub> = 25°C)**

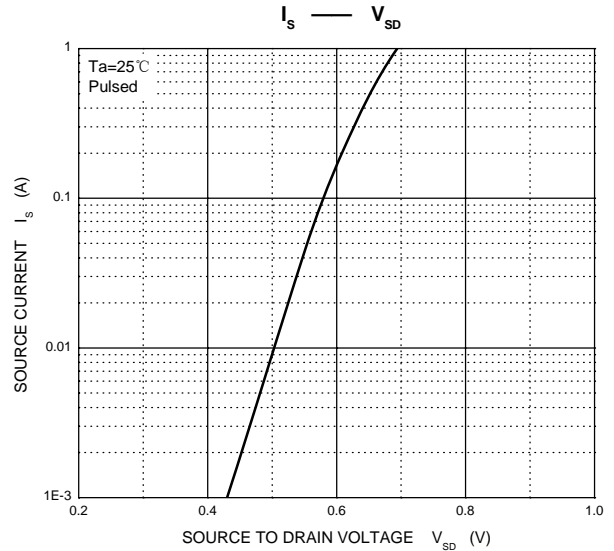
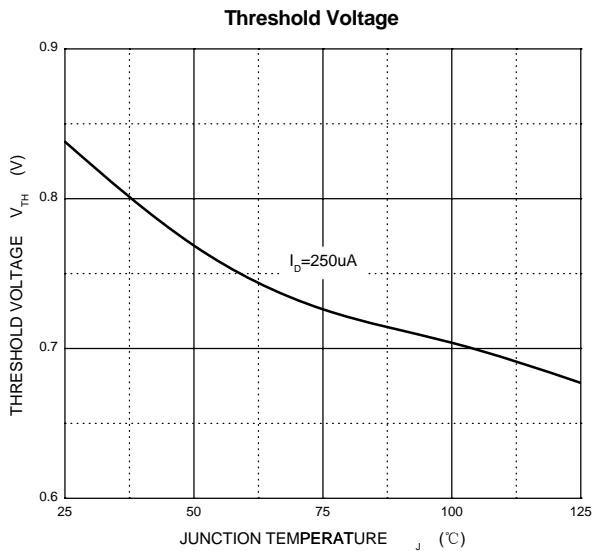
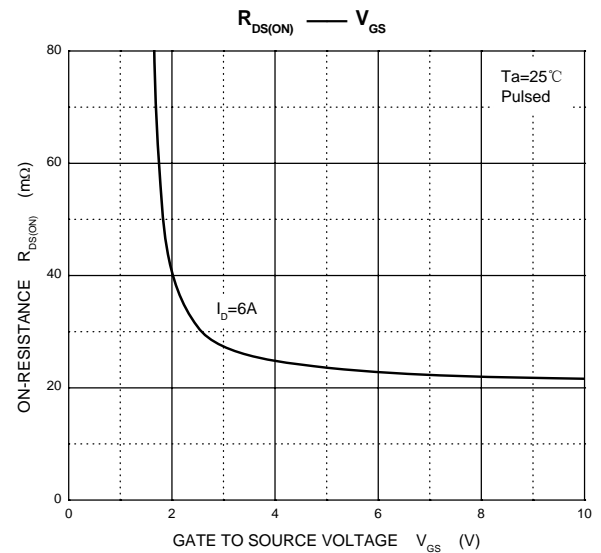
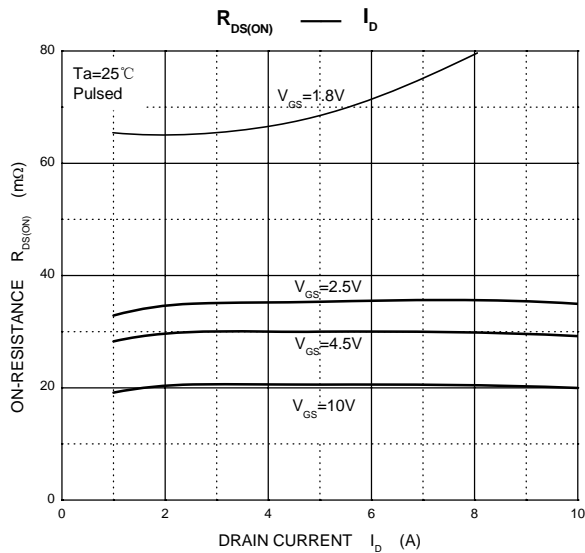
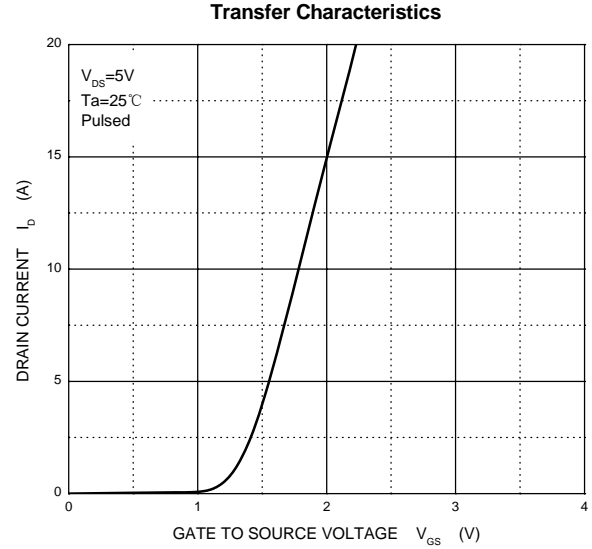
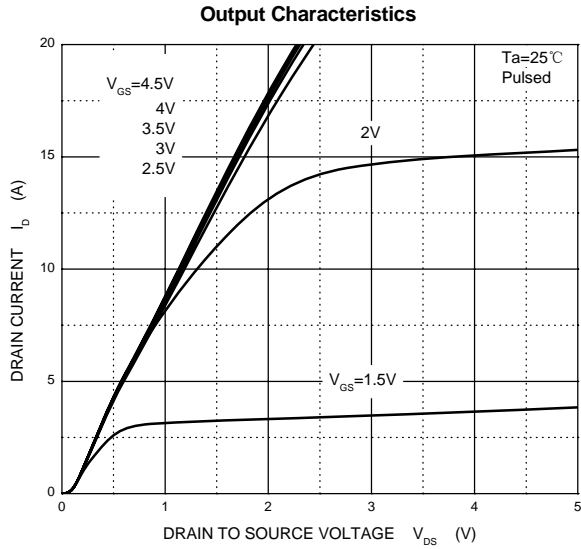
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
<b>Static Parameters</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	I <sub>D</sub> =250μA, V <sub>GS</sub> =0V	20	--	--	V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V	--	--	1	μA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V	--	--	±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.5	--	1	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =6A	--	--	29	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =5A	--	--	35	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =4A	--	--	48	mΩ
		V <sub>GS</sub> =1.8V, I <sub>D</sub> =2A	--	--	91	mΩ
Body Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1A, V <sub>GS</sub> =0V	--	--	1	V
<b>Dynamic Parameters</b>						
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =3.8A	4	--	--	S
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =10V, f=1MHz	--	630	--	pF
Output Capacitance	C <sub>oss</sub>		--	164	--	pF
Reverse Transfer Capacitance	C <sub>rss</sub>		--	137	--	pF
<b>Switching Parameters</b>						
Total Gate Charge (10V)	Q <sub>g</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =10V, I <sub>D</sub> =6A	--	12.5	--	nC
Total Gate Charge (4.5V)			--	6	--	nC
Gate Source Charge	Q <sub>gs</sub>		--	1	--	nC
Gate Drain Charge	Q <sub>gd</sub>		--	2	--	nC
Turn-On DelayTime	t <sub>D(on)</sub>	V <sub>GS</sub> =5V, V <sub>DS</sub> =10V, R <sub>GEN</sub> =6 Ω, R <sub>L</sub> =1.7 Ω	--	5.5	--	ns
Turn-On Rise Time	t <sub>r</sub>		--	14	--	ns
Turn-Off DelayTime	t <sub>D(off)</sub>		--	29	--	ns
Turn-Off Fall Time	t <sub>f</sub>		--	10.2	--	ns



# PJM3420NSA

## N- Enhancement Mode Field Effect Transistor

### Electrical Characteristics Curves



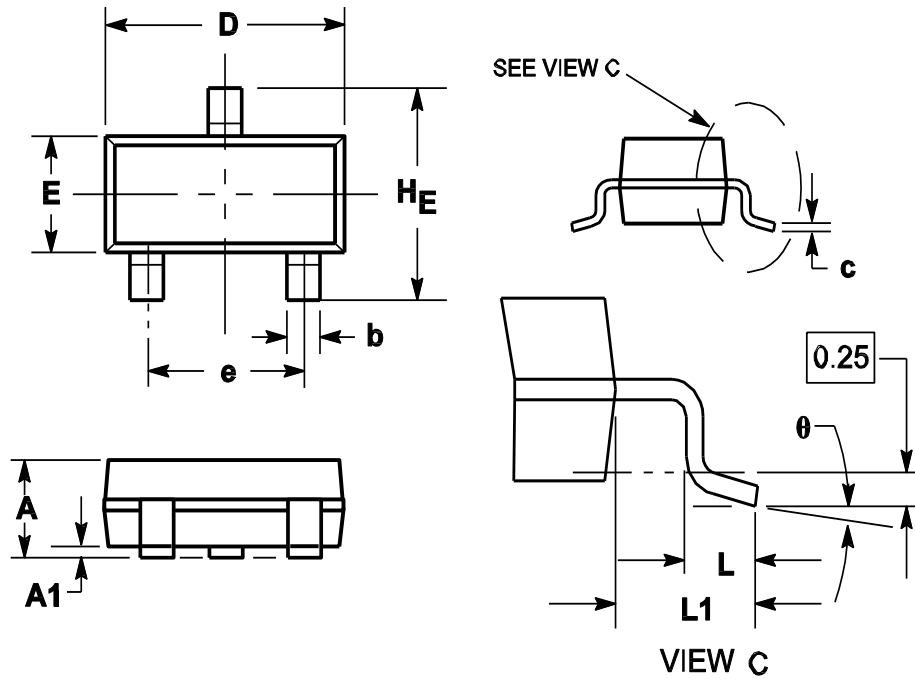


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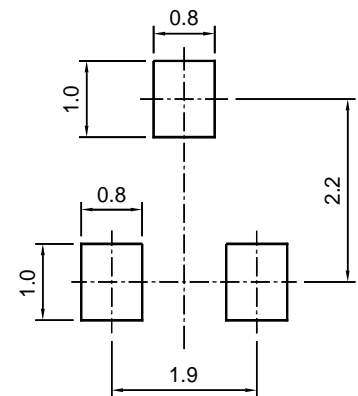
## N- Enhancement Mode Field Effect Transistor

### 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
$\theta$	0°		8°



SOT-23

**Recommended soldering pad**

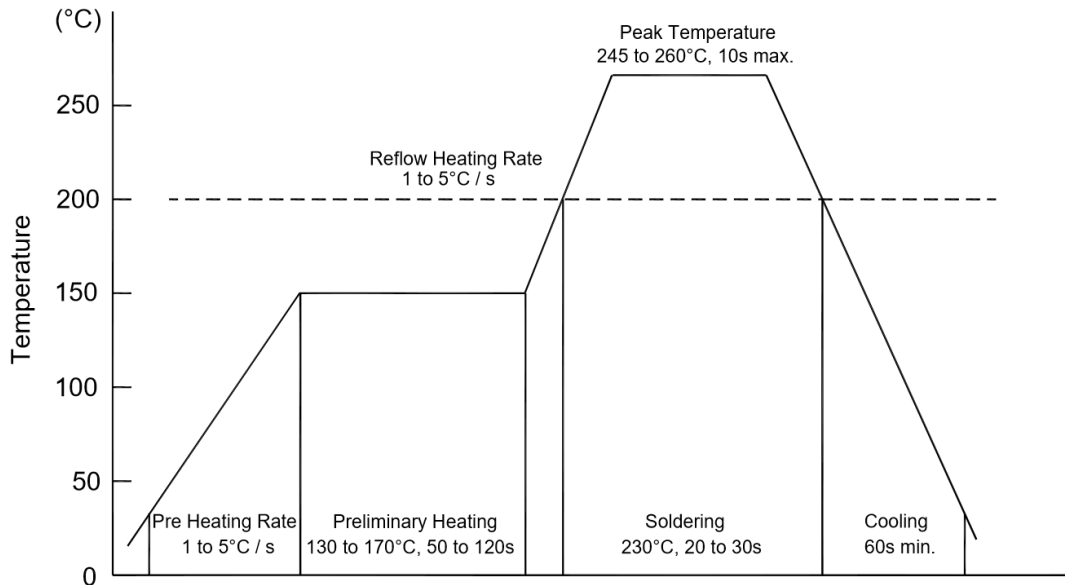
### Ordering Information

Device	Package	Shipping
PJM3420NSA	SOT-23	3,000/Tape & Reel (7 inches)



### 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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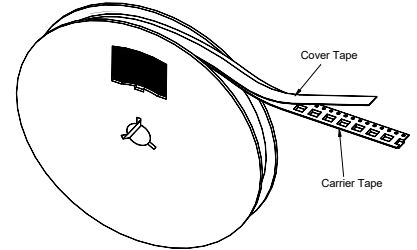
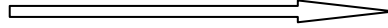
### Package Specifications

#### ◆ The method of packaging

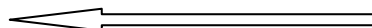
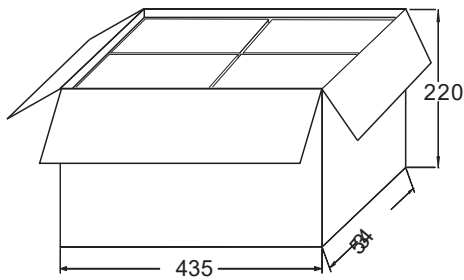
SOT-23 (TO-236)



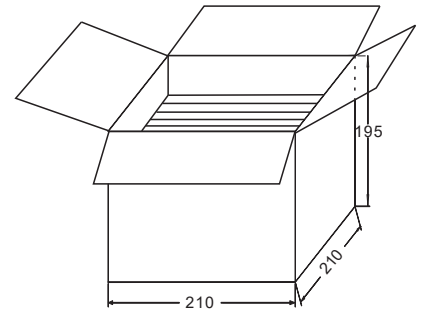
3,000 pcs per reel



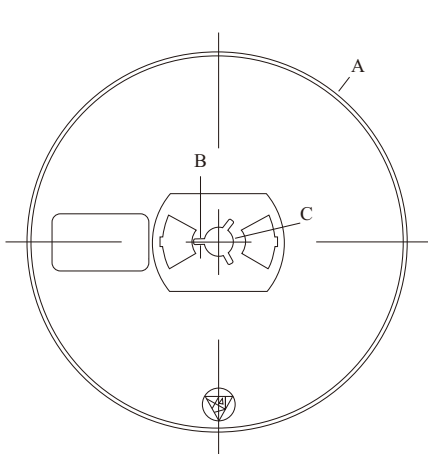
30,000 pcs per box  
10 reels per box



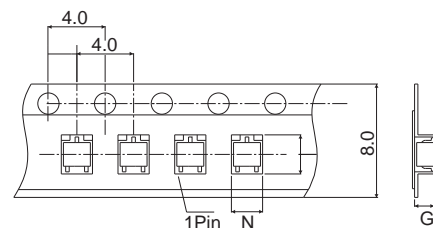
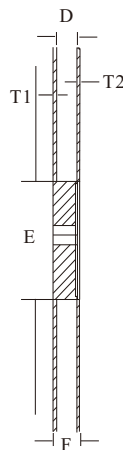
120,000 pcs per carton  
4 boxes per carton



#### ◆ Embossed tape and reel data



Reel (7")



Tape (8mm)

Symbol	Value (unit: mm)
A	$\varnothing 177.8 \pm 1$
B	$2.7 \pm 0.2$
C	$\varnothing 13.5 \pm 0.2$
E	$\varnothing 54.5 \pm 0.2$
F	$12.3 \pm 0.3$
D	$9.6 + 2 / - 0.3$
T1	$1.0 \pm 0.2$
T2	$1.2 \pm 0.2$
N	$3.15 \pm 0.1$
G	$1.25 \pm 0.1$