



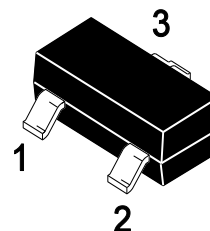
# PJM2312NSA

## N- Enhancement Mode Field Effect Transistor

### FEATURES

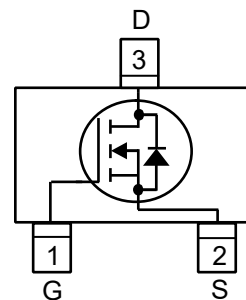
- ◆ Small Package: SOT-23
- ◆  $V_{DS}=20V, I_D=5A$   
 $R_{DS(ON)} \leq 31.8m\Omega @ V_{GS}=4.5V$   
 $R_{DS(ON)} \leq 35.6m\Omega @ V_{GS}=2.5V$
- ◆ Advanced Trench Technology

SOT-23



### APPLICATIONS

- ◆ Load Switching for portable Application
- ◆ DC/DC Converter



Schematic diagram

### ABSOLUTE MAXIMUM RATINGS

( $T_A=25^\circ C$ , unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 8.0$	V
Continuous Drain Current	$I_D$	5	A
Pulsed Drain Current	$I_{DM}$	20	
Continuous Source-Drain Diode Current	$I_S$	1.04	
Maximum Power Dissipation	$P_D$	0.35	W
Junction-to-Ambient Thermal Resistance	$R_{\theta JA}$	357	$^\circ C/W$
Junction Temperature	$T_J$	150	$^\circ C$
Storage Temperature Range	$T_{STG}$	-55 to 150	$^\circ C$

**ELECTRICAL CHARACTERISTICS**(T<sub>A</sub>=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	20	-	-	V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	0.45	0.7	1.0	V
Gate Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±8V	-	-	±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V	-	-	1	μA
Drain-Source On-Resistance <sup>Note1</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 5.0A	-	18	31.8	mΩ
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 4.7A	-	23	35.6	
		V <sub>GS</sub> = 1.8V, I <sub>D</sub> = 4.3A	-	30	41.4	
Forward transconductance	g <sub>fs</sub>	V <sub>DS</sub> = 10V, I <sub>D</sub> = 5.0A	-	6	-	S
<b>Dynamic</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0V, f = 1MHz	-	865	-	pF
Output Capacitance	C <sub>oss</sub>		-	105	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	55	-	
Gate Resistance	R <sub>g</sub>	f=1MHz	0.5	-	4.8	Ω
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 10V, R <sub>L</sub> = 2.2Ω R <sub>G</sub> = 1Ω, V <sub>GEN</sub> = 5V I <sub>D</sub> = 4A	-	-	10	ns
Turn-On Rise Time	t <sub>r</sub>		-	-	20	
Turn-Off Delay Time	t <sub>d(off)</sub>		-	-	32	
Turn-Off Fall Time	t <sub>f</sub>		-	-	12	
<b>Drain-source Body Diode</b>						
Forward Diode Voltage	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = 4A	-	0.75	1.2	V

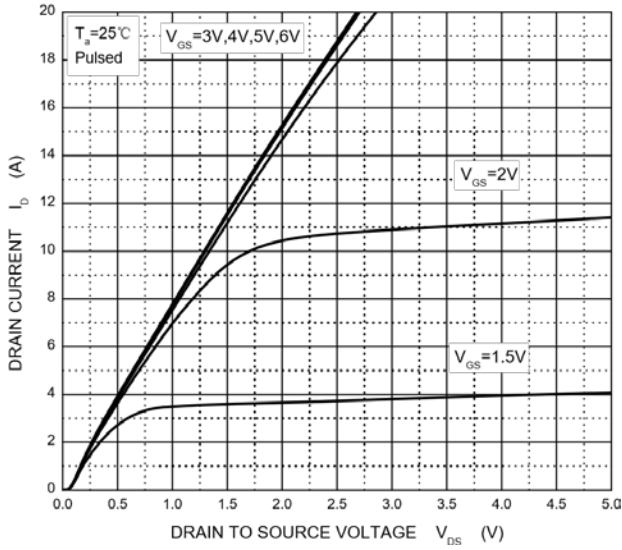
Notes:1. Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%.



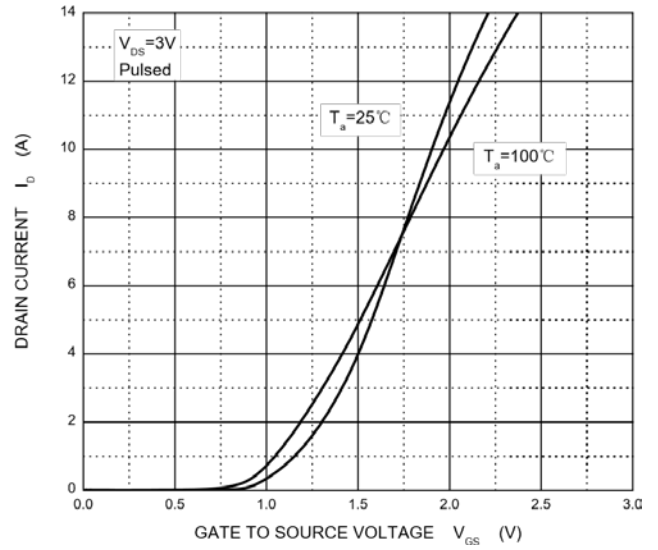
### RATINGS AND CHARACTERISTIC CURVES

( $T_a=25^\circ\text{C}$ , unless otherwise noted)

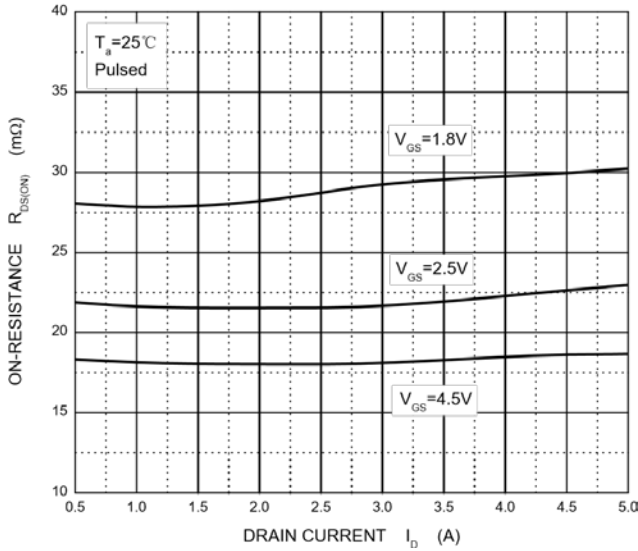
#### Output Characteristics



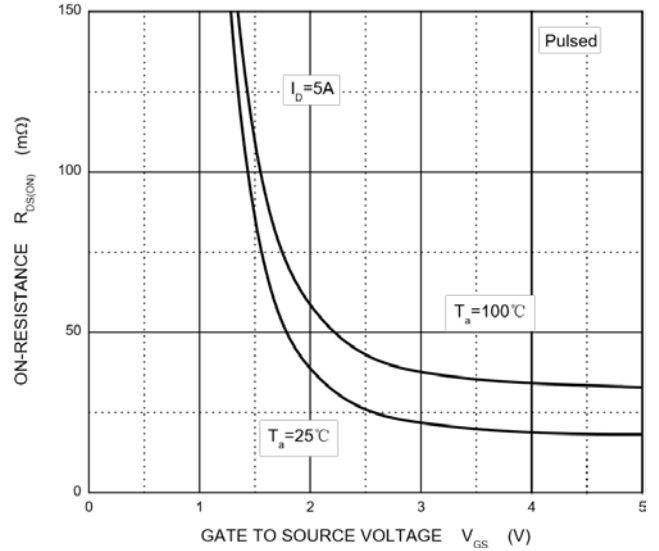
#### Transfer Characteristics



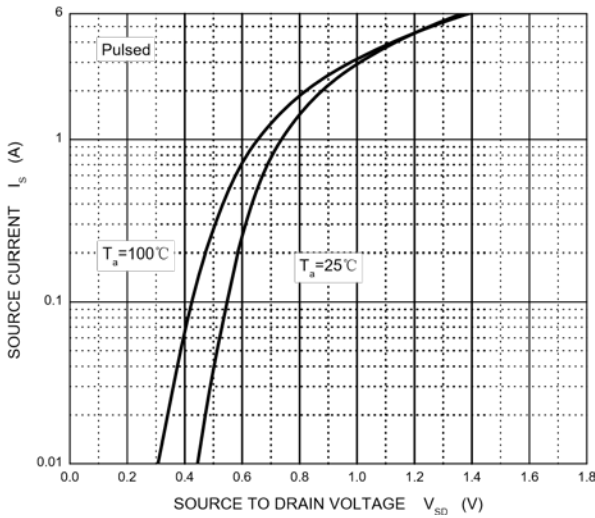
#### $R_{DS(ON)}$ — $I_D$



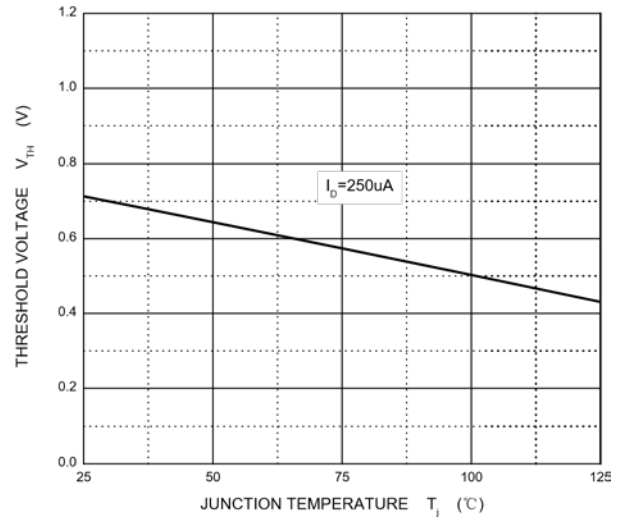
#### $R_{DS(ON)}$ — $V_{GS}$



#### $I_S$ — $V_{SD}$



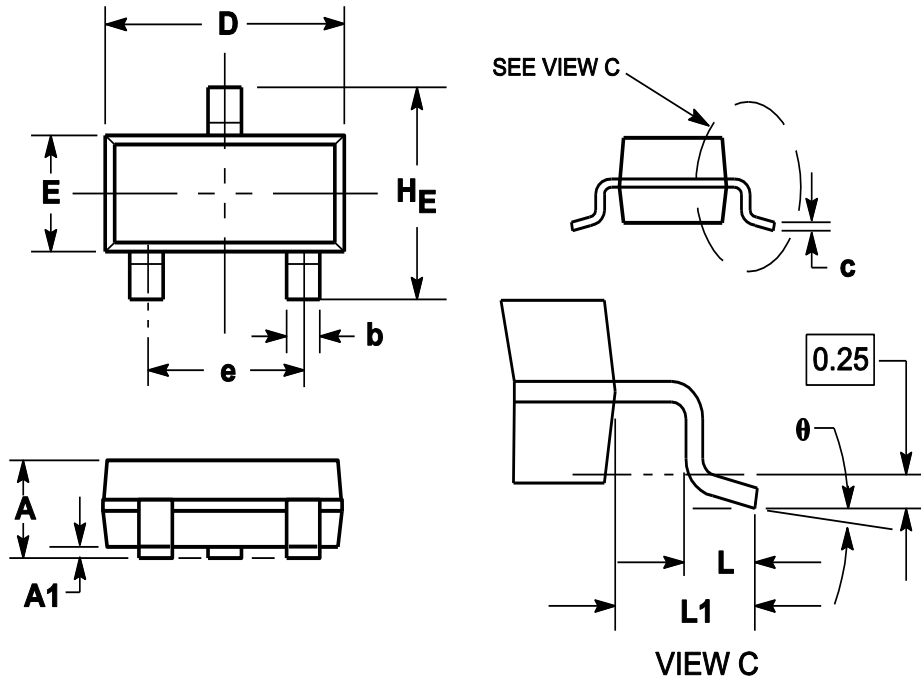
#### Threshold Voltage



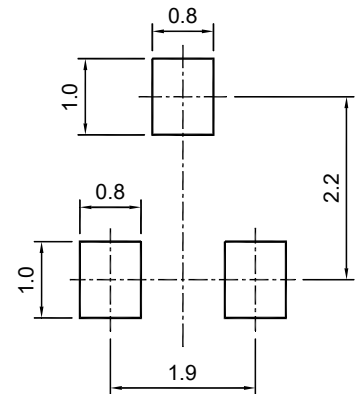


**PACKAGE OUTLINE**

**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**

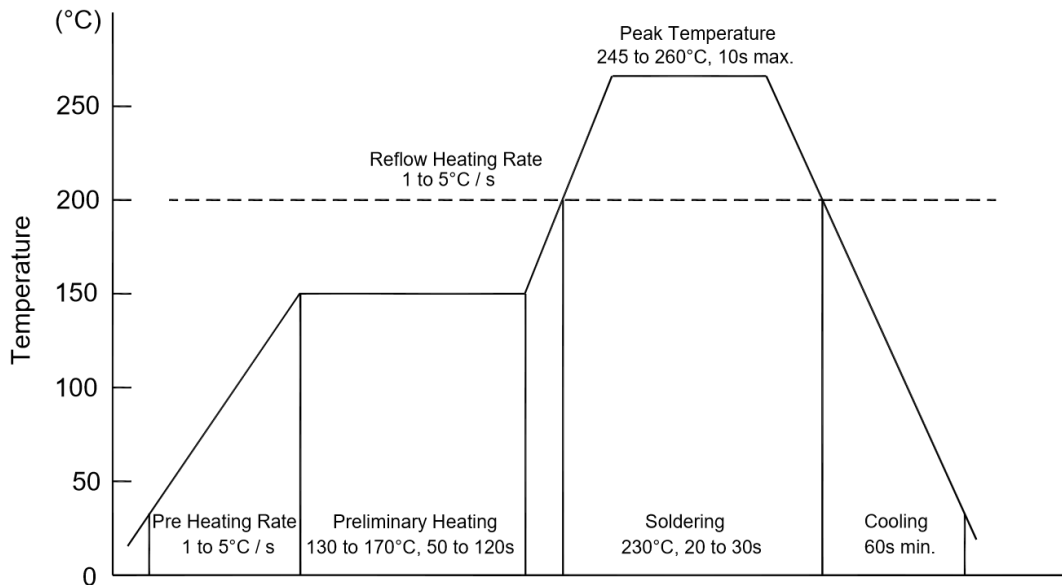
**ORDERING INFORMATION**

Device	Package	Shipping
PJM2312NSA	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

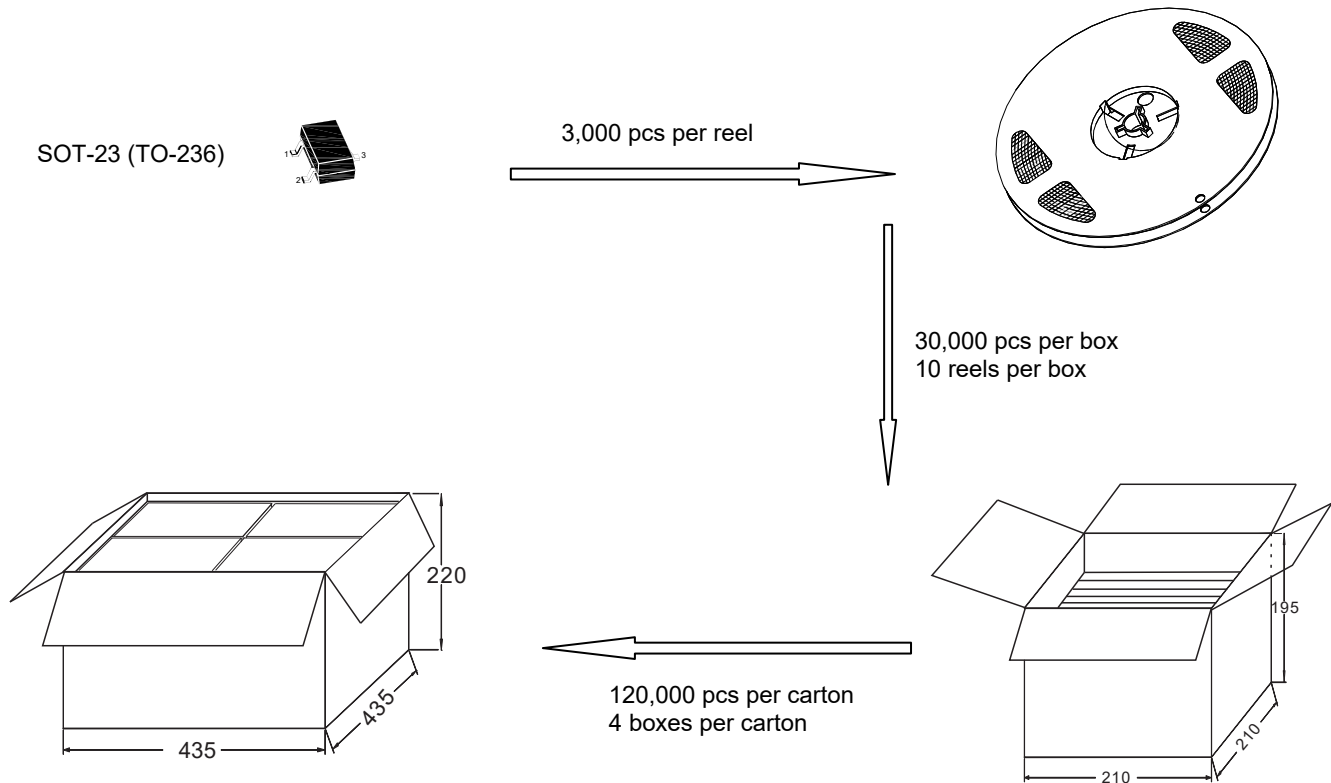


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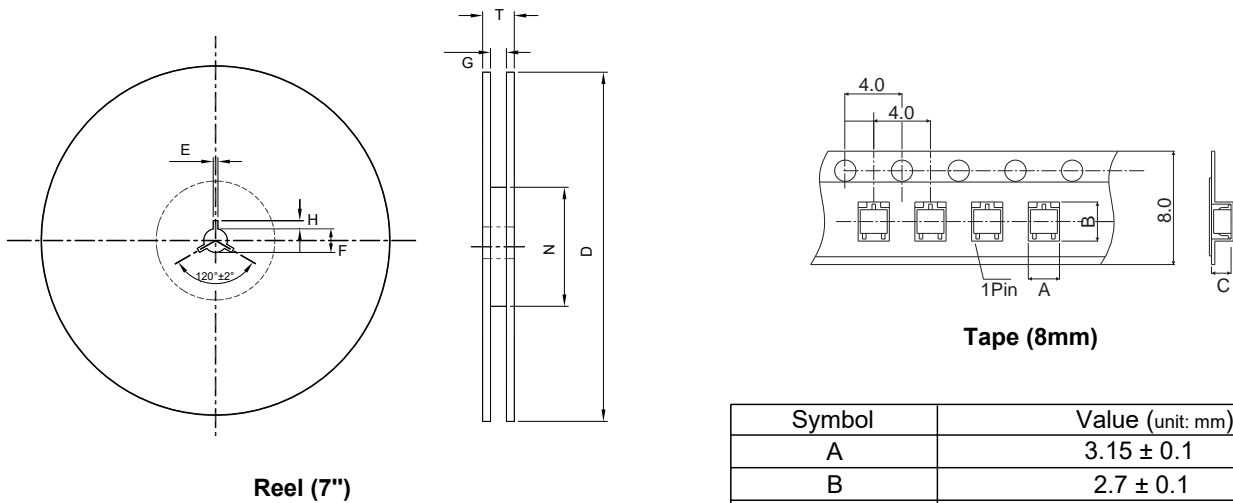
## N- Enhancement Mode Field Effect Transistor

### PACKAGE SPECIFICATIONS

#### ◆ The method of packaging



#### ◆ Embossed tape and reel data



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