



# PJM3407PSA

## P Enhancement Field Effect Transistor

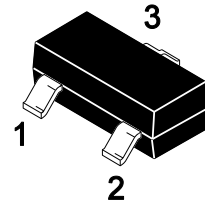
### Features

- $V_{DS}=-30V$ ,  $I_D=-4.1A$   
 $R_{DS(on)}=50m\Omega$  (Typ.)@ $V_{GS}=-10V$
- High density cell design for ultra low  $R_{DS(ON)}$
- Low gate charge

### Applications

- Load Switch and in PWM Applications

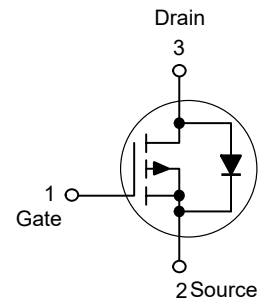
SOT-23



1. Gate 2.Source 3.Drain

Marking: R7

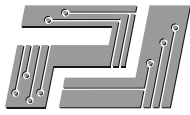
### Schematic Diagram



### Absolute Maximum Ratings

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

Parameter	Symbol	Value	Units
Drain-Source Voltage	$-V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$-I_D$	4.1	A
Power Dissipation	$P_D$	1.4	W
Junction and Storage Temperature Range	$T_J, T_{STG}$	150, -55 to 150	$^\circ C$
Thermal Characteristics			
Parameter	Symbol	Typ.	Units
Maximum Junction-to-Ambient <sup>Note1</sup>	$R_{\theta JA}$	89	$^\circ C/W$

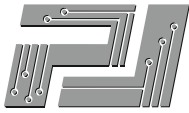


### Electrical Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
<b>Static Characteristics</b>						
Drain-source breakdown voltage	$-V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	30			V
Zero gate voltage drain current	$-I_{DSS}$	$V_{DS} = -24V, V_{GS} = 0V$			1	$\mu A$
Gate-source leakage current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 100$	nA
Drain-source on-resistance <sup>Note2</sup>	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -4.1A$		50	60	m $\Omega$
		$V_{GS} = -4.5V, I_D = -3A$		68	87	m $\Omega$
Gate threshold voltage <sup>Note2</sup>	$-V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	1	1.4	3	V
Forward transconductance <sup>Note2</sup>	$g_{FS}$	$V_{DS} = -5V, I_D = -4A$	5.5			S
<b>Dynamic Characteristics</b>						
Input capacitance	$C_{iss}$	$V_{DS} = -15V, V_{GS} = 0V, f = 1MHz$		700		pF
Output capacitance	$C_{oss}$			120		pF
Reverse transfer capacitance	$C_{rss}$			75		pF
<b>Switching Characteristics</b>						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = -10V, V_{DS} = -15V,$ $R_L = 3.6\Omega, R_{GEN} = 3\Omega$		8.6		ns
Turn-on rise time	$t_r$			5.0		ns
Turn-off delay time	$t_{d(off)}$			28.2		ns
Turn-off fall time	$t_f$			13.5		ns
<b>Source-Drain Diode Characteristics</b>						
Diode forward voltage	$V_{SD}$	$I_S = -1A, V_{GS} = 0V$			-1	V

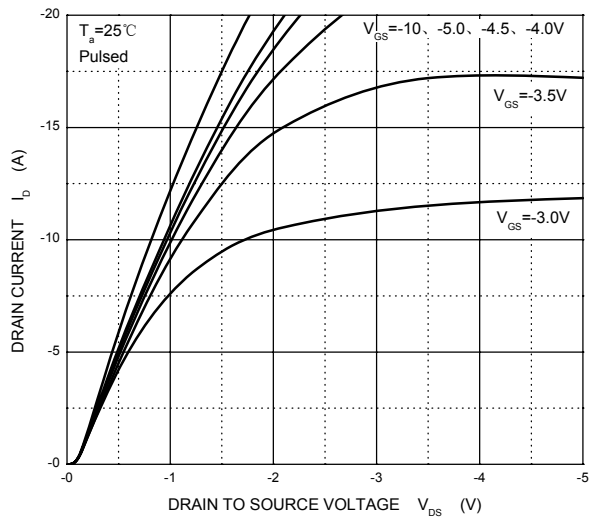
#### Notes:

- The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with  $T_A = 25^\circ\text{C}$ . The value in any given application depends on the user's specific board design.
- Pulse test: Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .

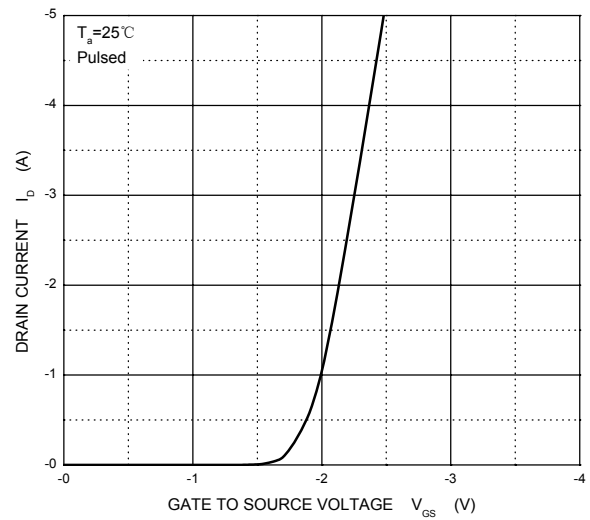


### Typical Curves

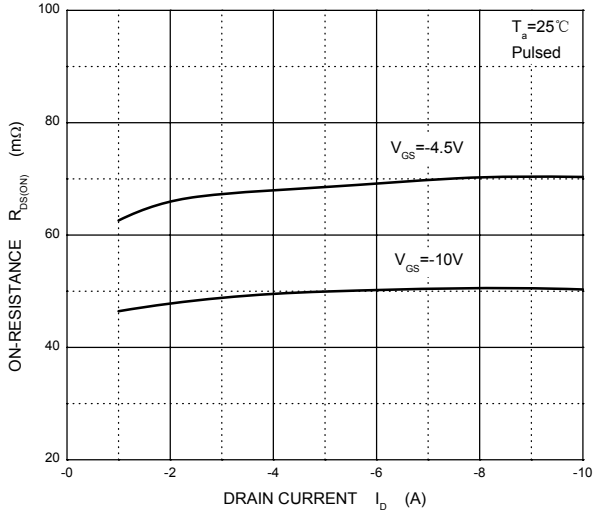
#### Output Characteristics



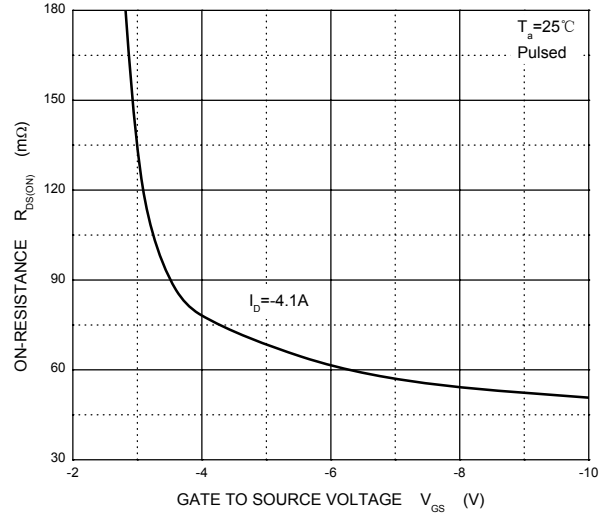
#### Transfer Characteristics



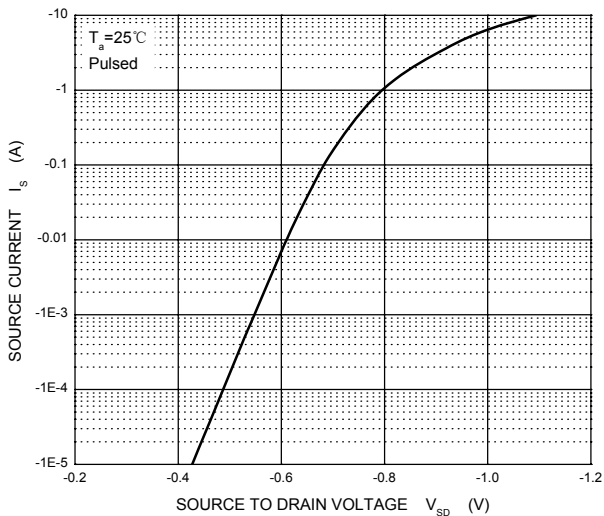
#### $R_{DS(ON)}$ — $I_D$



#### $R_{DS(ON)}$ — $V_{GS}$



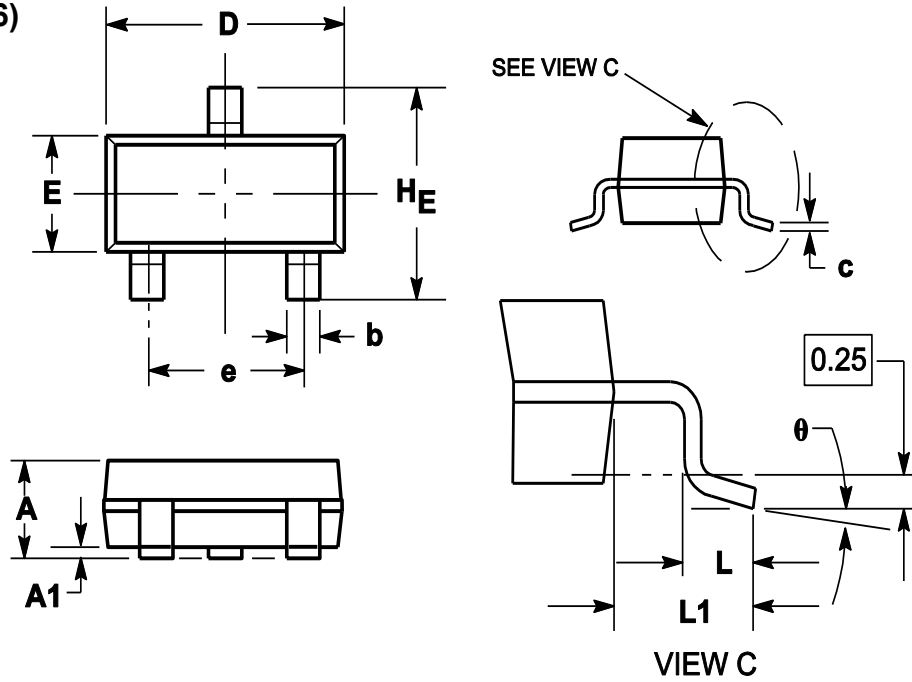
#### $I_S$ — $V_{SD}$



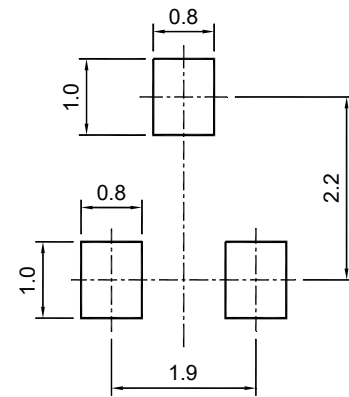


### Package Outline

#### 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°

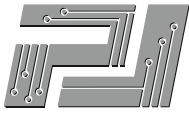


SOT-23 (TO-236)

**Recommended soldering pad**

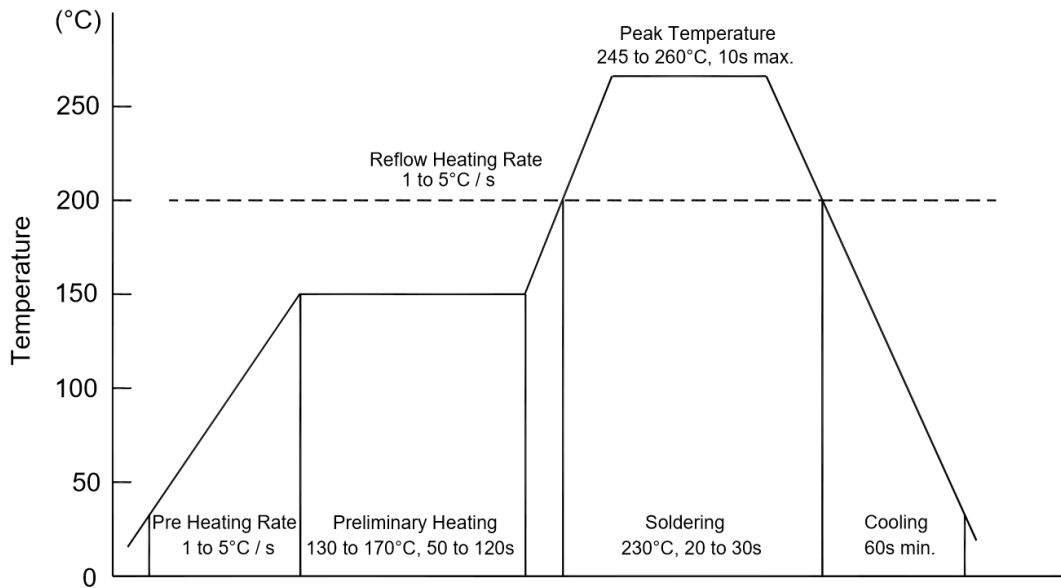
### Ordering Information

Device	Package	Shipping
PJM3407PSA	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:

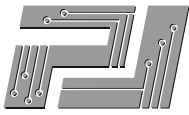
- Time length of peak temperature (longer)
- Time length of soldering (longer)
- Thickness of solder paste (thicker)

#### ◆ 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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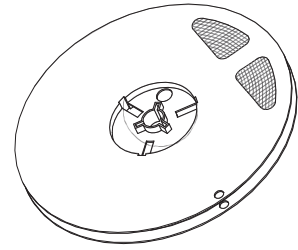
### Package Specifications

#### ◆ The method of packaging

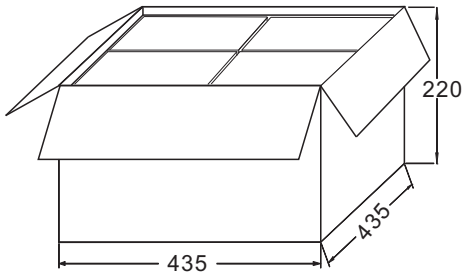
SOT-23 (TO-236)



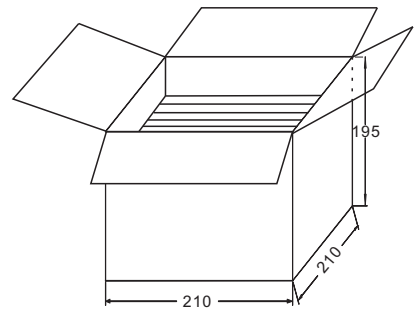
3,000 pcs per reel



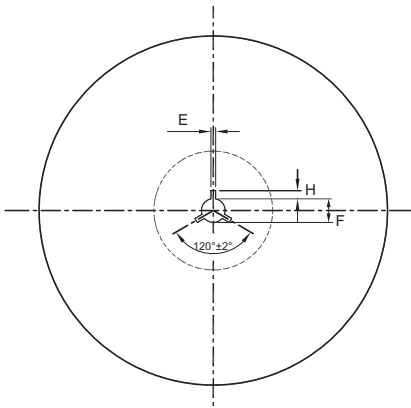
30,000 pcs per box  
10 reels per box



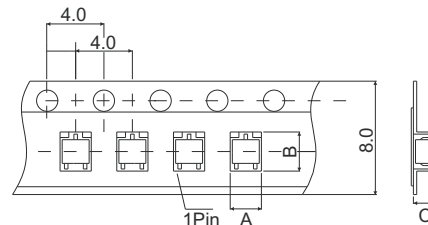
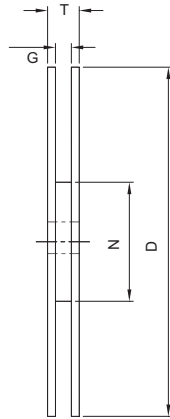
120,000 pcs per carton  
4 boxes per carton



#### ◆ 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

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