



# PJW7N06A

## 60V N-Channel Enhancement Mode MOSFET

**Voltage**

60 V

**Current**

6.6 A

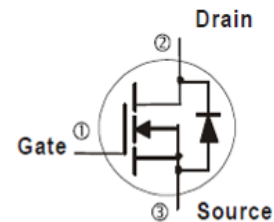
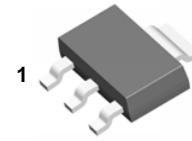
### Features

- $R_{DS(ON)}$ ,  $V_{GS}@10V$ ,  $I_D@6A < 34m\Omega$
- $R_{DS(ON)}$ ,  $V_{GS}@4.5V$ ,  $I_D@3A < 40m\Omega$
- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### Mechanical Data

- Case: SOT-223 Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.043 ounces, 0.123grams

SOT-223



### Maximum Ratings and Thermal Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		$V_{DS}$	60	V
Gate-Source Voltage		$V_{GS}$	$\pm 20$	
Continuous Drain Current	$T_C=25^\circ\text{C}$	$I_D$	6.6	A
	$T_C=70^\circ\text{C}$		5.3	
Pulsed Drain Current <sup>(Note 1)</sup>		$I_{DM}$	26.4	
Power Dissipation	$T_C=25^\circ\text{C}$	$P_D$	3.1	W
	$T_C=70^\circ\text{C}$		2	
Operating Junction and Storage Temperature Range		$T_J, T_{STG}$	-55~150	$^\circ\text{C}$
Typical Thermal Resistance - Junction to Ambient <sup>(Note 3)</sup>		$R_{\theta JA}$	40.3	$^\circ\text{C/W}$

- Limited only By Maximum Junction Temperature



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

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
<b>Static</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	60	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.83	2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=6A$	-	28	34	m $\Omega$
		$V_{GS}=4.5V, I_D=3A$	-	33	40	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0V$	-	-	1.0	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
<b>Dynamic</b> (Note 5)						
Total Gate Charge	$Q_g$	$V_{DS}=30V, I_D=6A,$ $V_{GS}=10V$ (Note 1,2)	-	20	-	nC
Gate-Source Charge	$Q_{gs}$		-	3.8	-	
Gate-Drain Charge	$Q_{gd}$		-	3.9	-	
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V,$ $f=1.0\text{MHz}$	-	1173	-	pF
Output Capacitance	$C_{oss}$		-	63	-	
Reverse Transfer Capacitance	$C_{rss}$		-	44	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=15V, I_D=1A,$ $V_{GS}=10V, R_G=6\Omega$ (Note 1,2)	-	7.1	-	ns
Turn-On Rise Time	$t_r$		-	25	-	
Turn-Off Delay Time	$t_{d(off)}$		-	31	-	
Turn-Off Fall Time	$t_f$		-	20	-	
<b>Drain-Source Diode</b>						
Maximum Continuous Drain-Source Diode Forward Current	$I_S$	---	-	-	6.6	A
Diode Forward Voltage	$V_{SD}$	$I_S=1A, V_{GS}=0V$	-	0.72	1.2	V

NOTES :

1. Pulse width  $\leq 300\mu s$ , Duty cycle  $\leq 2\%$ .
2. Essentially independent of operating temperature typical characteristics.
3.  $R_{\theta JA}$  is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins mounted on a 1 inch FR-4 with 2oz. square pad of copper.
4. The maximum current rating is package limited.
5. Guaranteed by design, not subject to production testing.



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## TYPICAL CHARACTERISTIC CURVES

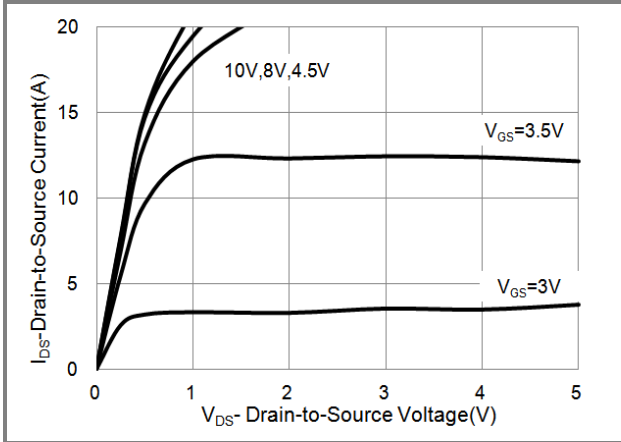


Fig.1 On-Region Characteristics

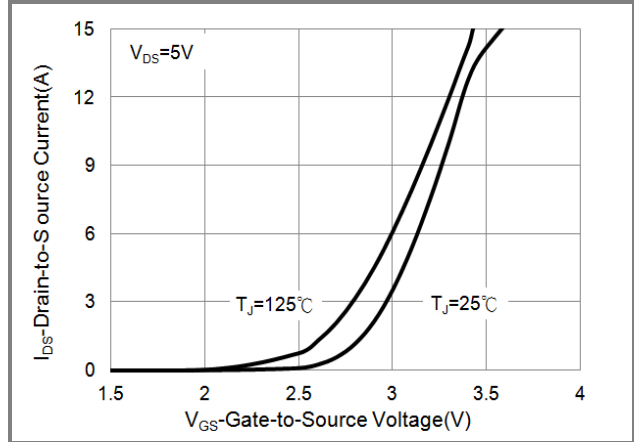


Fig.2 Transfer Characteristics

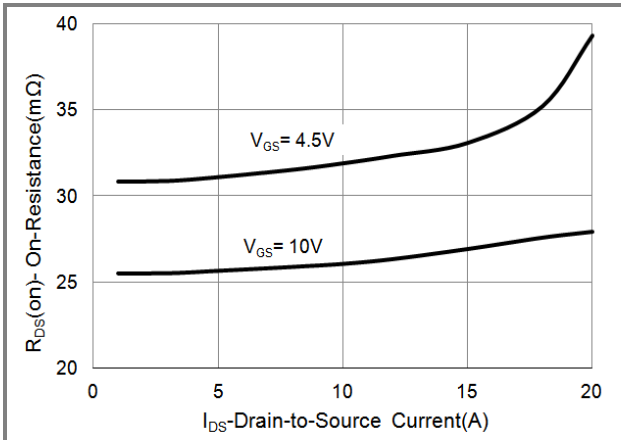


Fig.3 On-Resistance vs. Drain Current

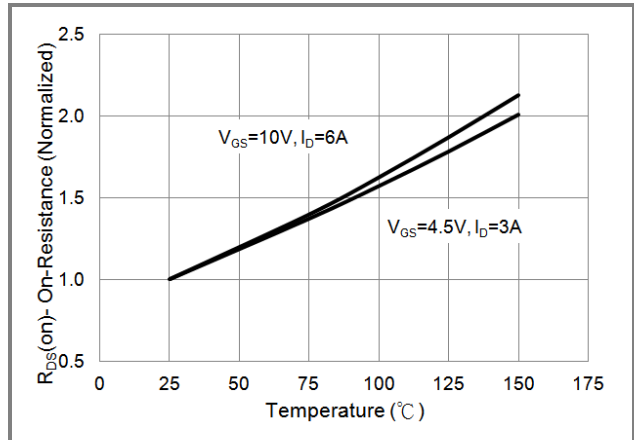


Fig.4 On-Resistance vs. Junction Temperature

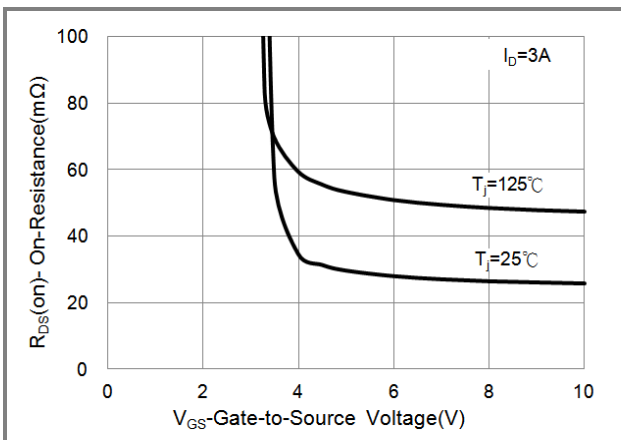


Fig.5 On-Resistance Variation with VGS.

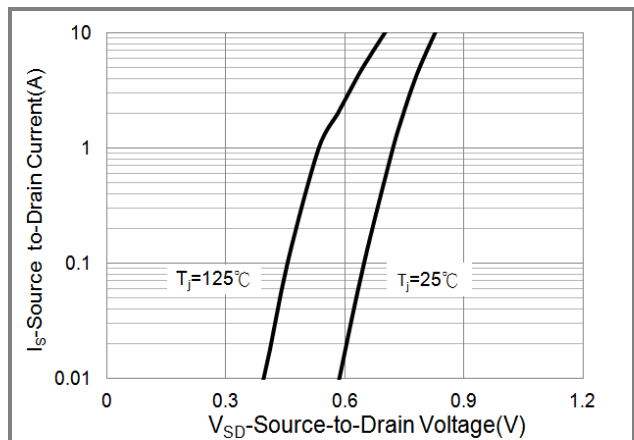


Fig.6 Body Diode Characteristics



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## TYPICAL CHARACTERISTIC CURVES

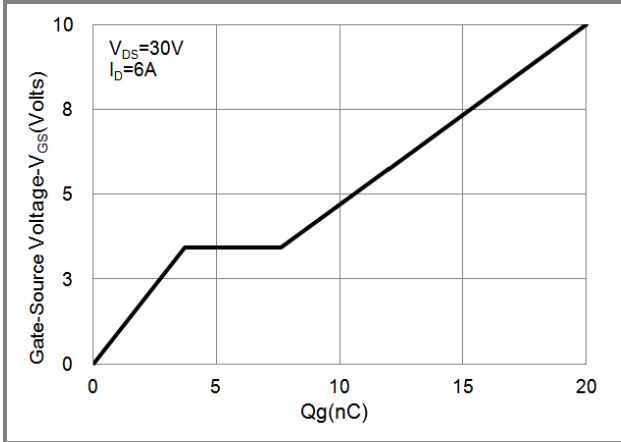


Fig.7 Gate-Charge Characteristics

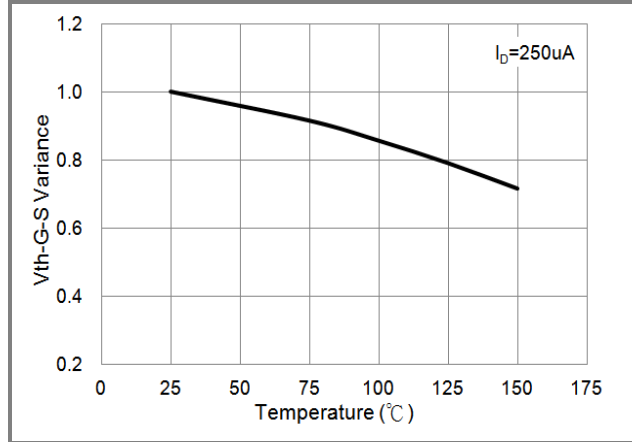


Fig.8 Threshold Voltage Variation with Temperature

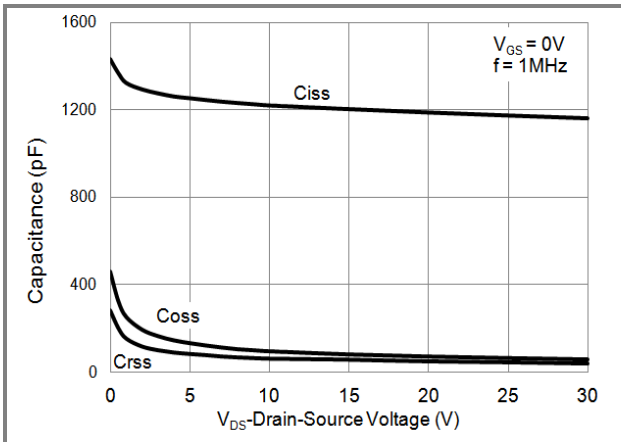
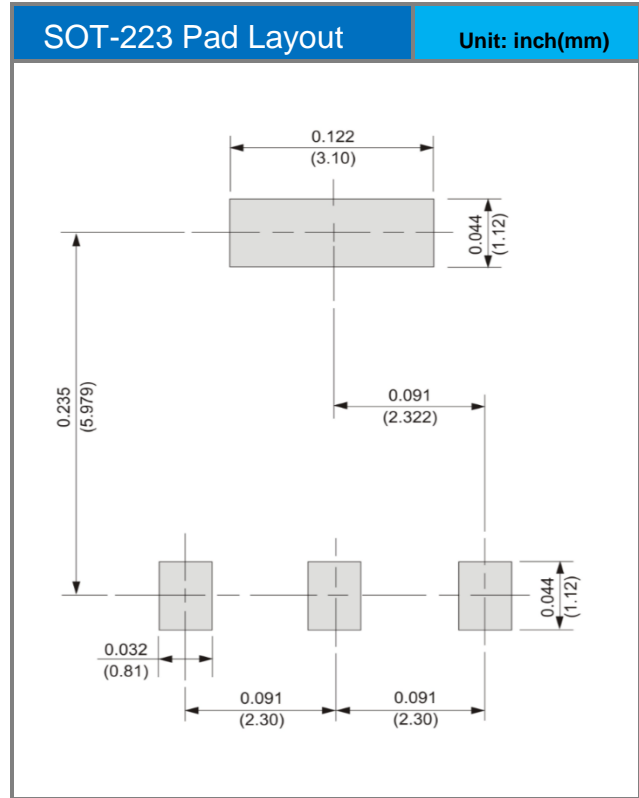
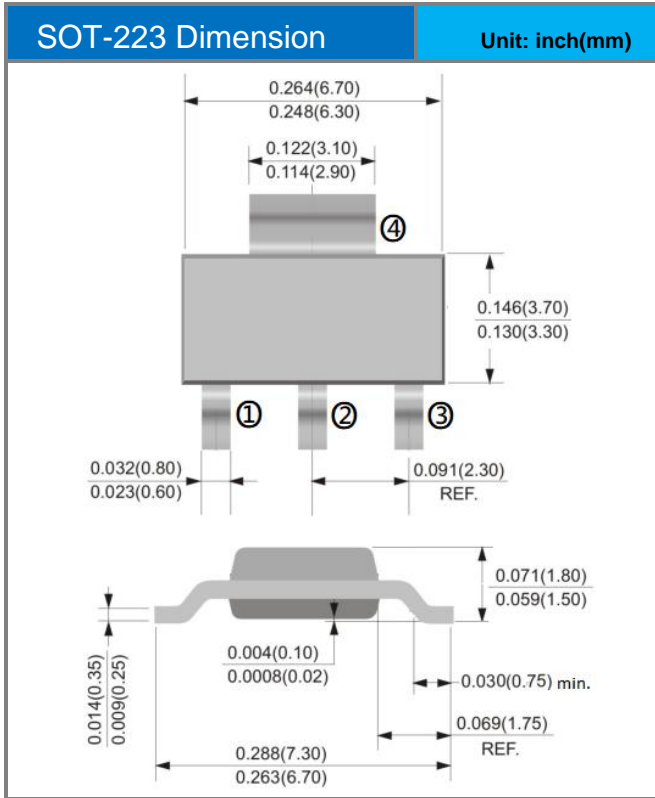


Fig.9 Capacitance vs. Drain-Source Voltage



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## Packaging Information & Mounting Pad Layout





## PJW7N06A

### Part No Packing Code Version

Part No Packing Code	Package Type	Packing Type	Marking	Version
PJW7N06A_R2_00001	SOT-223	2,500pcs / 13" reel	W7N06A	Halogen free



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