

PJW4N06A

60V N-Channel Enhancement Mode MOSFET

Voltage

60 V

Current

4.0 A

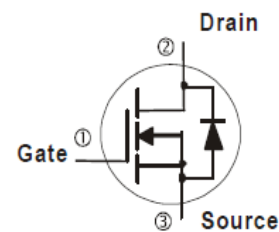
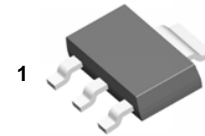
Features

- $R_{DS(ON)}$, $V_{GS}@10V, I_D@3.0A < 100m\Omega$
- $R_{DS(ON)}$, $V_{GS}@4.5V, I_D@2.0A < 110m\Omega$
- Advanced Trench Process Technology
- High density cell design for ultra low on-resistance
- 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, 0.123 grams
- Marking: W4N06A

SOT-223



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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V _{DS}	60	V
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current	T _A =25°C	I _D	4	A
	T _A =70°C		3.2	
Pulsed Drain Current (Note 1)		I _{DM}	8	A
Power Dissipation	T _A =25°C	P _D	3.1	W
	T _A =70°C		2	
Operating Junction and Storage Temperature Range		T _J ,T _{STG}	-55~150	°C
Typical Thermal resistance - Junction to Ambient (Note 5)		R _{θJA}	40.3	°C/W

- Limited only By Maximum Junction Temperature



PJW4N06A

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

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	60	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	1.0	1.86	2.5	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =3.0A	-	85	100	mΩ
		V _{GS} =4.5V, I _D =2.0A	-	95	110	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =48V, V _{GS} =0V	-	-	1.0	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} = <u>±</u> 20V, V _{DS} =0V	-	-	<u>±</u> 100	nA
Dynamic (Note 6)						
Total Gate Charge	Q _g	V _{DS} =48V, I _D =3A, V _{GS} =4.5V (Note 2,3)	-	5.1	-	nC
Gate-Source Charge	Q _{gs}		-	1.2	-	
Gate-Drain Charge	Q _{gd}		-	1.9	-	
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f=1.0MHZ	-	509	-	pF
Output Capacitance	C _{oss}		-	39	-	
Reverse Transfer Capacitance	C _{rss}		-	26	-	
Turn-On Delay Time	td(on)	V _{DD} =30V, I _D =3A, V _{GS} =10V, R _G =3.3Ω (Note 2,3)	-	1.6	-	ns
Turn-On Rise Time	t _r		-	7.3	-	
Turn-Off Delay Time	td(off)		-	25	-	
Turn-Off Fall Time	t _f		-	14	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	4	A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V	-	0.8	1.2	V

NOTES :

1. Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$
2. Essentially independent of operating temperature typical characteristics
3. Repetitive rating, pulse width limited by junction temperature $T_J(\text{MAX})=150^\circ\text{C}$. Ratings are based on low frequency and duty cycles to keep initial $T_J=25^\circ\text{C}$.
4. The maximum current rating is package limited
5. $R_{\theta JA}$ 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 inch² with 2oz.square pad of copper.
6. Guaranteed by design, not subject to production testing

PJW4N06A

TYPICAL CHARACTERISTIC CURVES

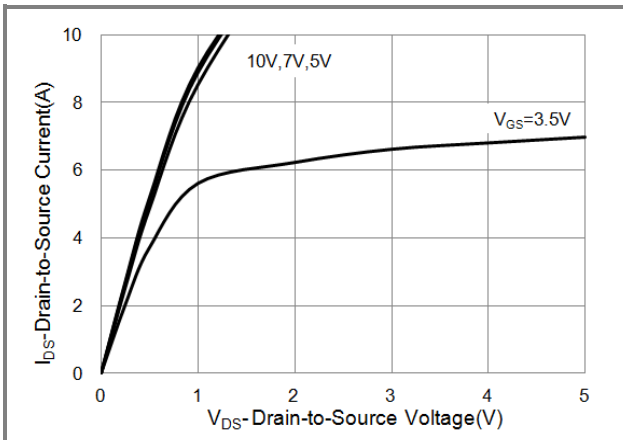


Fig.1 Output Characteristics

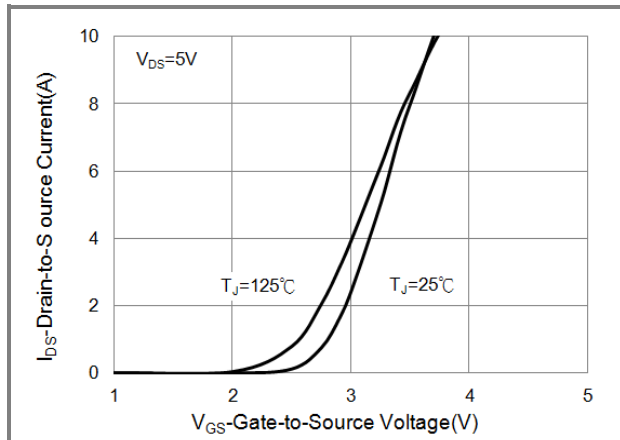


Fig.2 Transfer Characteristics

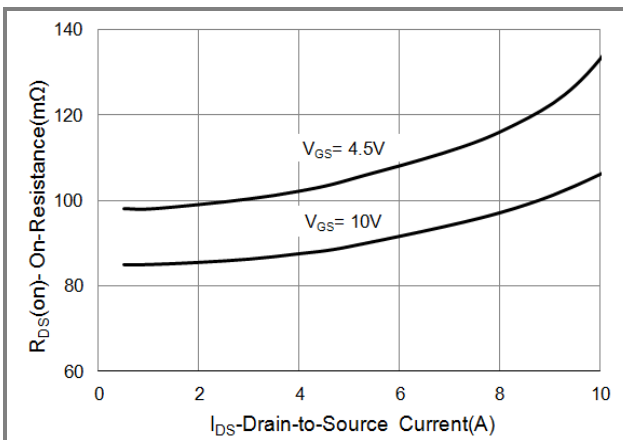


Fig.3 On-Resistance vs. Drain Current

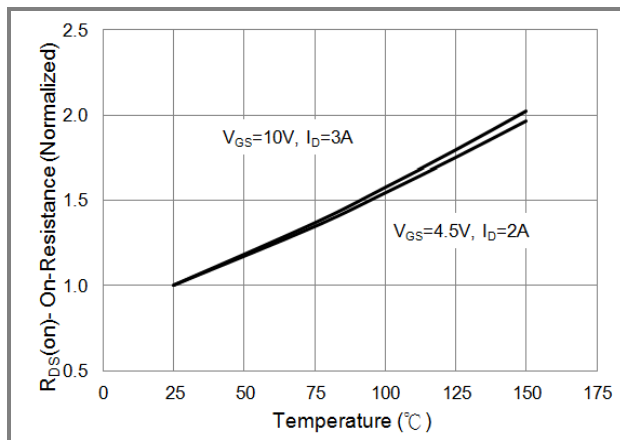


Fig.4 On-Resistance vs. Junction temperature

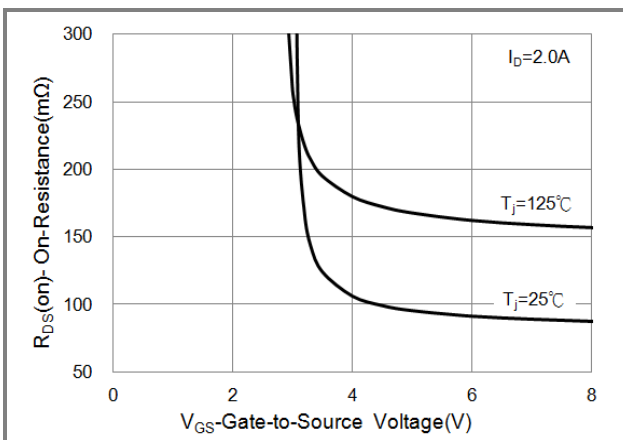


Fig.5 On-Resistance Variation with V_{GS} .

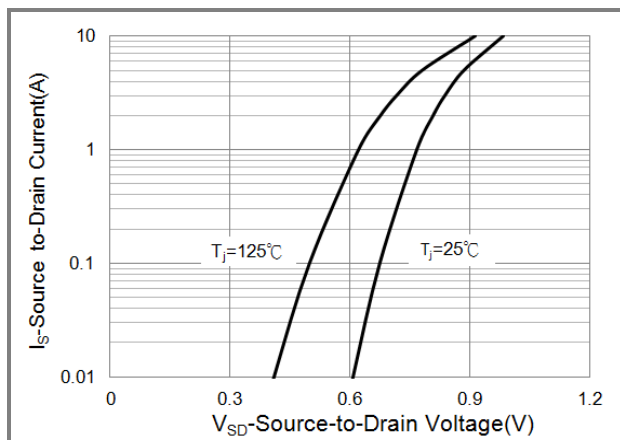


Fig.6 Source-Drain Diode Forward Voltage

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TYPICAL CHARACTERISTIC CURVES

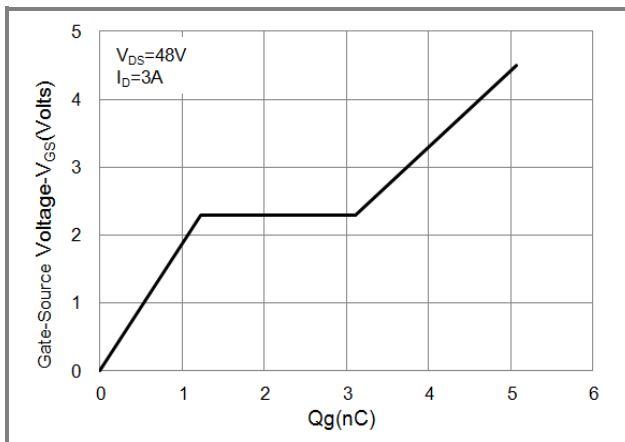


Fig.7 Gate-Charge Characteristics

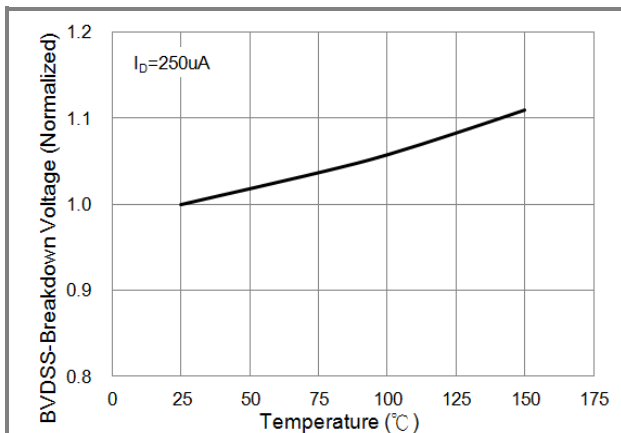


Fig.8 Breakdown Voltage Variation vs. Temperature

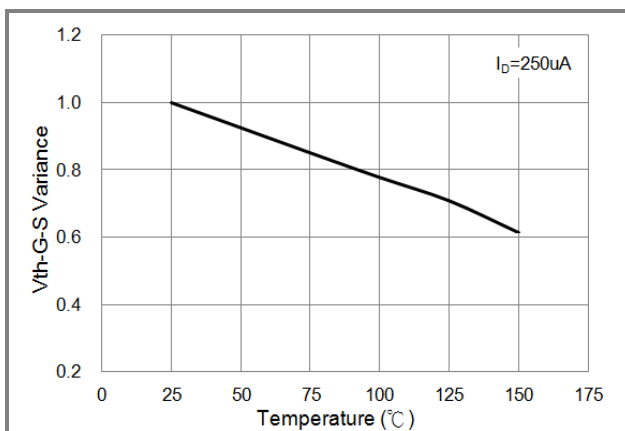


Fig.9 Threshold Voltage Variation with Temperature

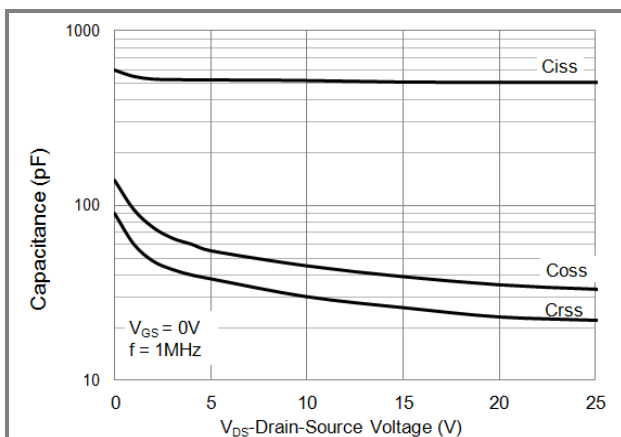


Fig.10 Capacitance vs. Drain-Source Voltage

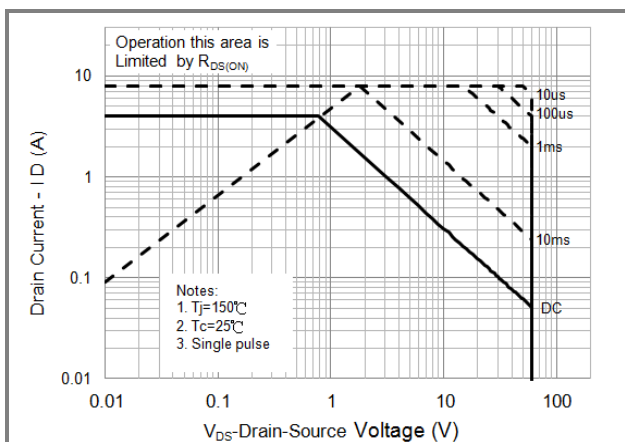


Fig.11 Maximum Safe Operating Area



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TYPICAL CHARACTERISTIC CURVES

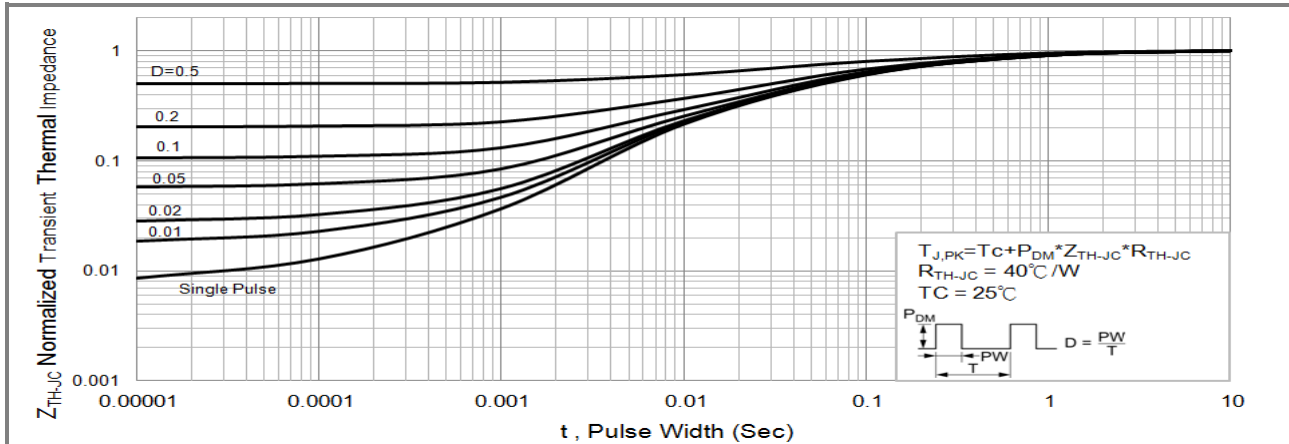
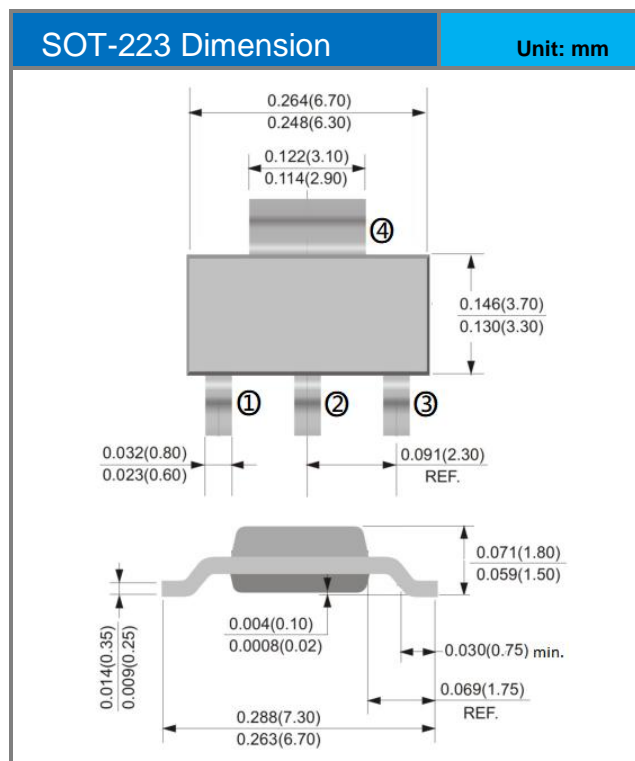


Fig.12 Normalized Transient Thermal Impedance vs. Pulse Width

PJW4N06A

Packaging Information



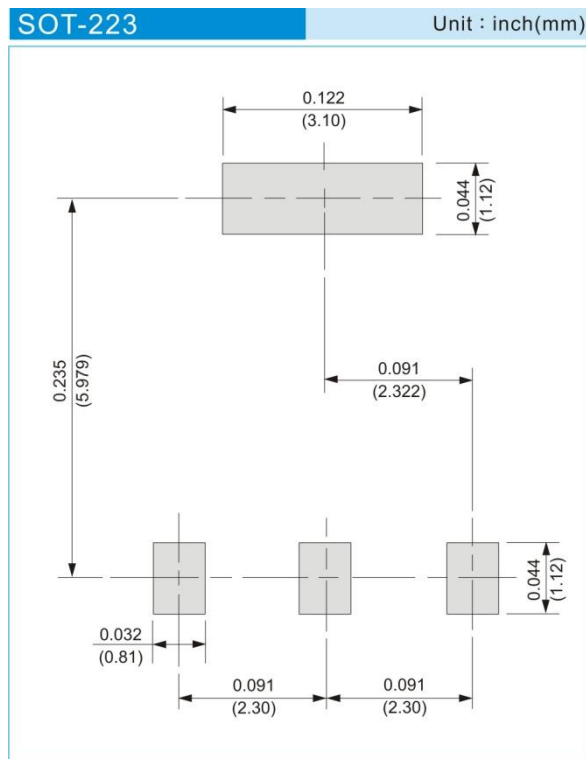


PJW4N06A

PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type	Marking	Version
PJW4N06A_R2_00001	SOT-223	2,500pcs / 13" reel	W4N06A	Halogen free

MOUNTING PAD LAYOUT





PJW4N06A

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