

PJW4N10

100V N-Channel Enhancement Mode MOSFET

Voltage

100 V

Current

4 A

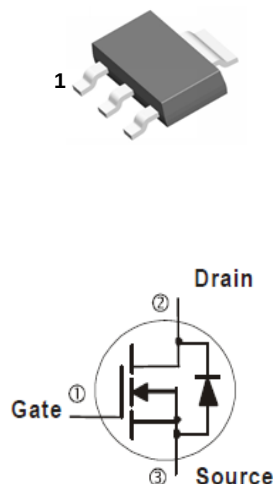
Features

- $R_{DS(ON)}, V_{GS}@10V, I_D@2A < 258m\Omega$
- $R_{DS(ON)}, V_{GS}@6V, I_D@1A < 268m\Omega$
- Low On-Resistance
- Low input capacitance
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Green molding compound as per IEC61249 Std. (Halogen Free)

Mechanical Data

- Case : SOT-223 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.043 ounces, 0.123 grams
- Marking: W4N10

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}	100	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C=25^\circ\text{C}$	I_D	4	A
	$T_C=100^\circ\text{C}$		2.5	
Pulsed Drain Current ^(Note 1)	$T_C=25^\circ\text{C}$	I_{DM}	8	
Power Dissipation	$T_C=25^\circ\text{C}$	P_D	8	W
	$T_C=100^\circ\text{C}$		3.2	
Continuous Drain Current	$T_A=25^\circ\text{C}$	I_D	2.5	A
	$T_A=70^\circ\text{C}$		2	A
Power Dissipation	$T_A=25^\circ\text{C}$	P_D	3.1	W
Power Dissipation	$T_A=70^\circ\text{C}$		2	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	$^\circ\text{C}$
Typical Thermal resistance ^(Note 4,5)	Junction to Case	$R_{\theta JC}$	15.6	$^\circ\text{C/W}$
	Junction to Ambient	$R_{\theta JA}$	40.3	

- 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
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	100	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	2.0	2.85	3.5	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =2A	-	210	258	mΩ
		V _{GS} =6V, I _D =1A	-	220	268	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V	-	-	1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Dynamic (Note 6)						
Total Gate Charge	Q _g	V _{DS} =60V, I _D =4A, V _{GS} =10V (Note 2,3)	-	6.7	-	nC
Gate-Source Charge	Q _{gs}		-	2.1	-	
Gate-Drain Charge	Q _{gd}		-	1.1	-	
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1.0MHZ	-	378	-	pF
Output Capacitance	C _{oss}		-	26	-	
Reverse Transfer Capacitance	C _{rss}		-	20	-	
Turn-On Delay Time	td _(on)	V _{DS} =50V, RL=12.5Ω, V _{GS} =10V, R _G =6Ω (Note 2,3)	-	4.3	-	ns
Turn-On Rise Time	tr		-	22	-	
Turn-Off Delay Time	td _(off)		-	9.7	-	
Turn-Off Fall Time	tf		-	8.2	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	Is	---	-	-	4	A
Diode Forward Voltage	VSD	Is=1A, VGS=0V	-	0.78	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

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TYPICAL CHARACTERISTIC CURVES

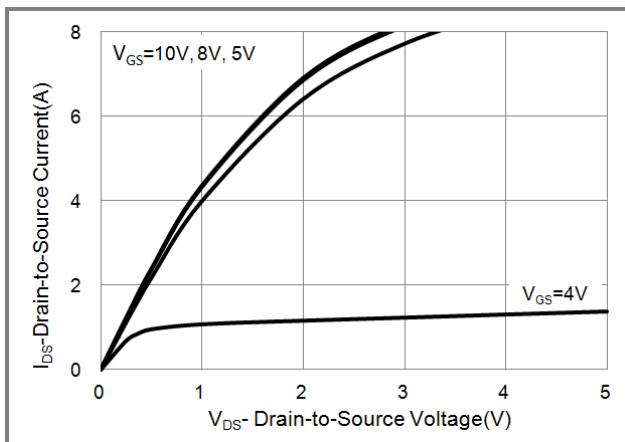


Fig.1 Output Characteristics

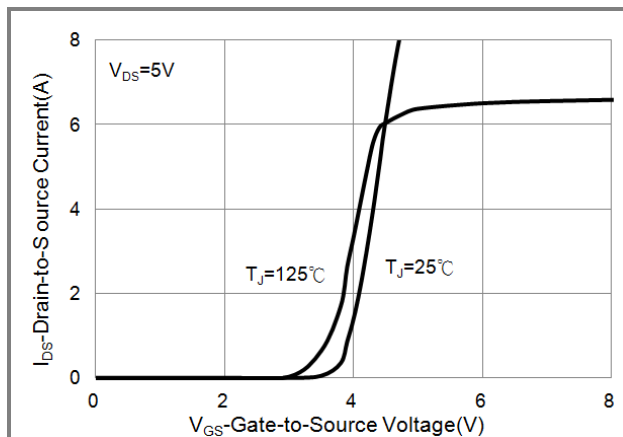


Fig.2 Transfer Characteristics

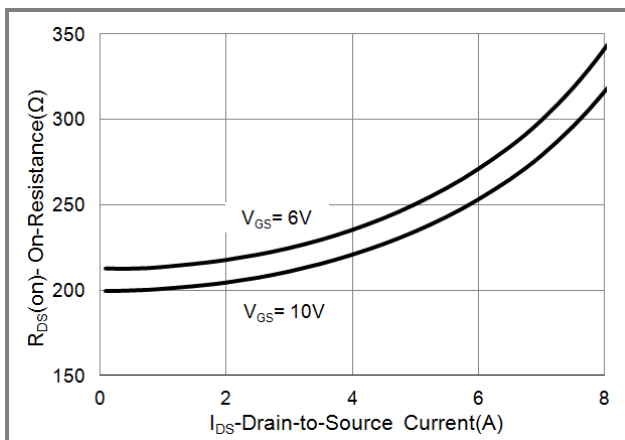


Fig.3 On-Resistance vs. Drain Current

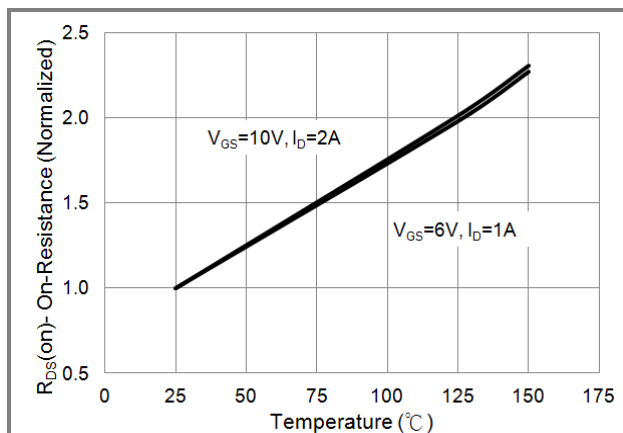


Fig.4 On-Resistance vs. Junction temperature

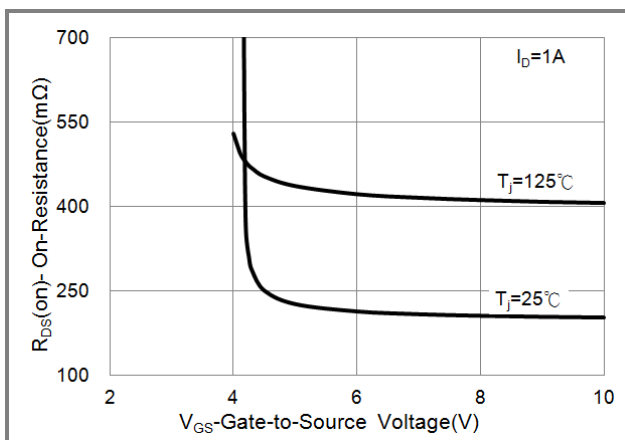


Fig.5 On-Resistance Variation with V_{GS} .

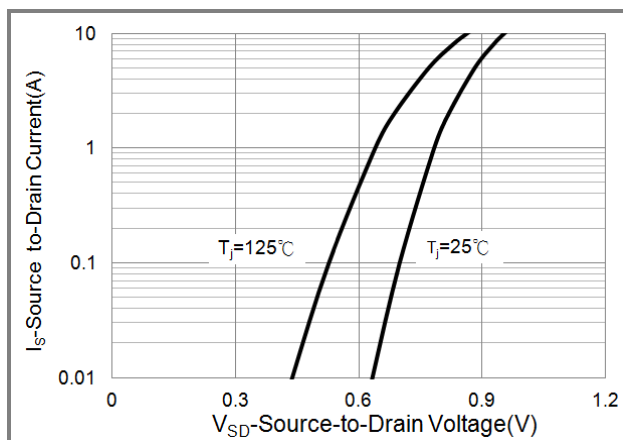


Fig.6 Source-Drain Diode Forward Voltage

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TYPICAL CHARACTERISTIC CURVES

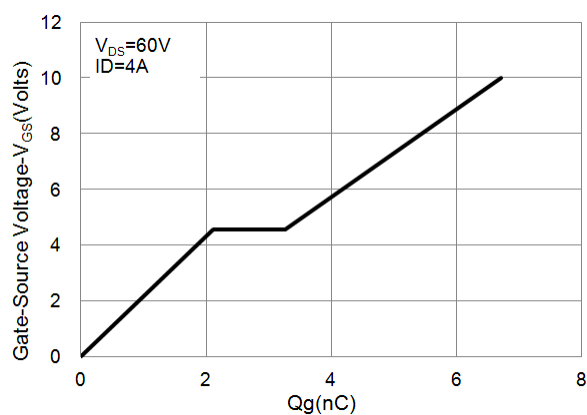


Fig.7 Gate-Charge Characteristics

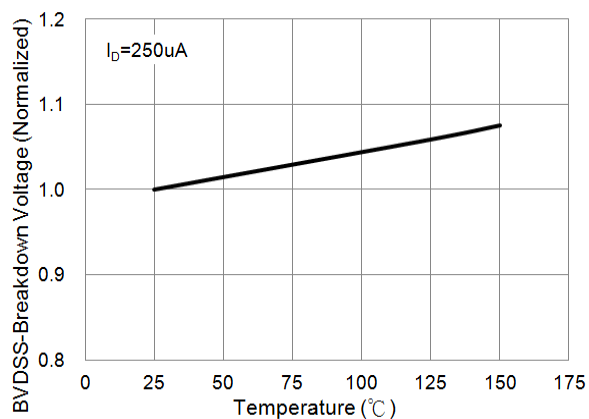


Fig.8 Breakdown Voltage Variation vs. Temperature

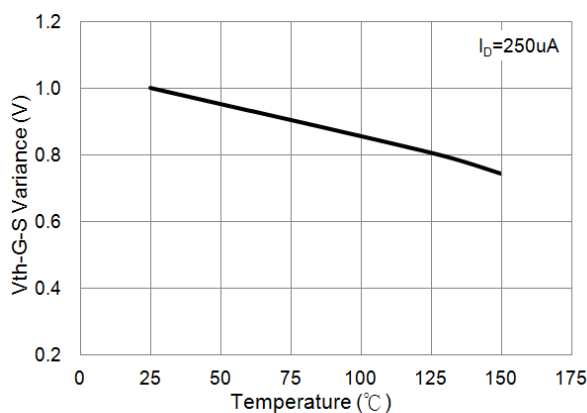


Fig.9 Threshold Voltage Variation with Temperature

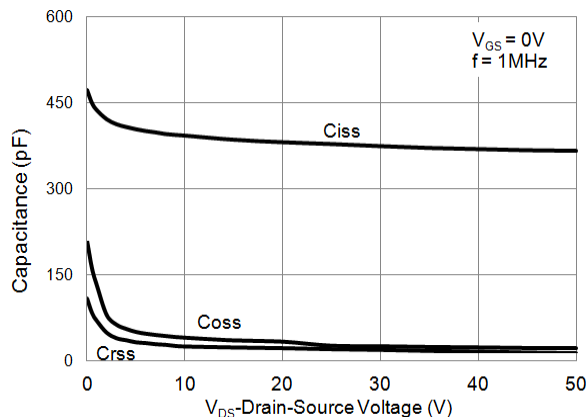


Fig.10 Capacitance vs. Drain-Source Voltage

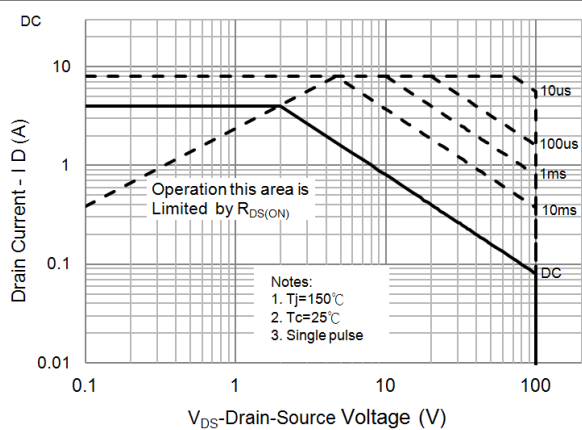


Fig.11 Maximum Safe Operating Area



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TYPICAL CHARACTERISTIC CURVES

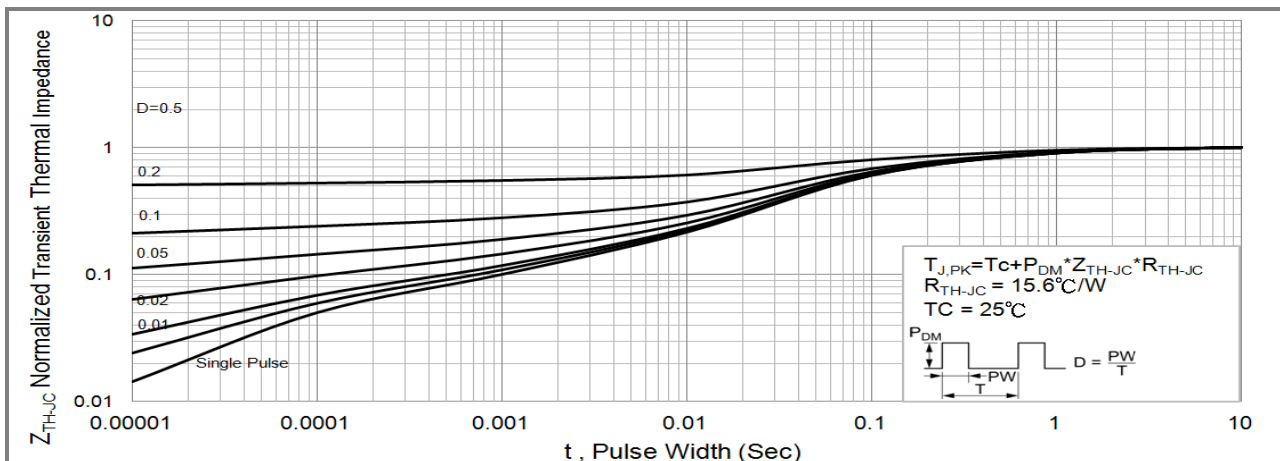
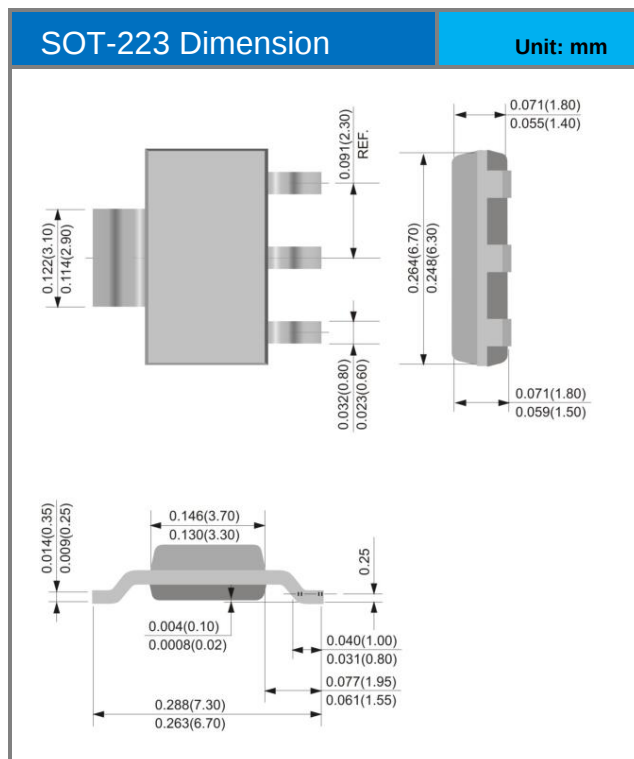


Fig.12 Normalized Transient Thermal Impedance vs. Pulse Width



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Packaging Information

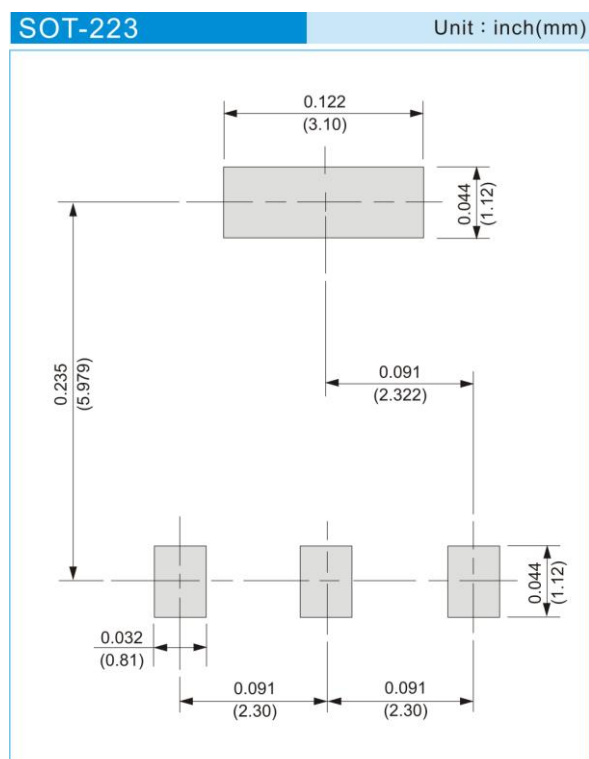


PJW4N10

PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type	Marking	Version
PJW4N10_R2_00001	SOT-223	2,500pcs / 13" reel	W4N10	Halogen free

MOUNTING PAD LAYOUT





PJW4N10

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