

PJW3N10A

100V N-Channel Enhancement Mode MOSFET

Voltage

100 V

Current

2.2 A

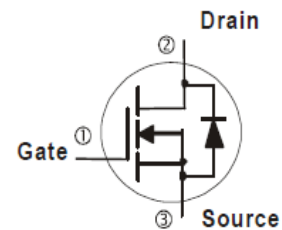
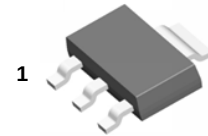
Features

- $R_{DS(ON)}$, $V_{GS}@10V, I_D@2.2A < 310m\Omega$
- $R_{DS(ON)}$, $V_{GS}@4.5V, I_D@1A < 320m\Omega$
- 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: W3N10A

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 _A =25°C	I _D	2.2	A
	T _A =70°C		1.7	
Pulsed Drain Current ^(Note 1)		I _{DM}	4.4	A
Power Dissipation	T _A =25°C	P _D	3.1	W
	T _A =70°C		2.0	
Operating Junction and Storage Temperature Range		T _J , T _{STG}	-55~150	°C
Typical Thermal resistance		R _{θJA}	40.3	°C/W
- Junction to Ambient, t≤10s ^(Note 5)				

- Limited only By Maximum Junction Temperature



PJW3N10A

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

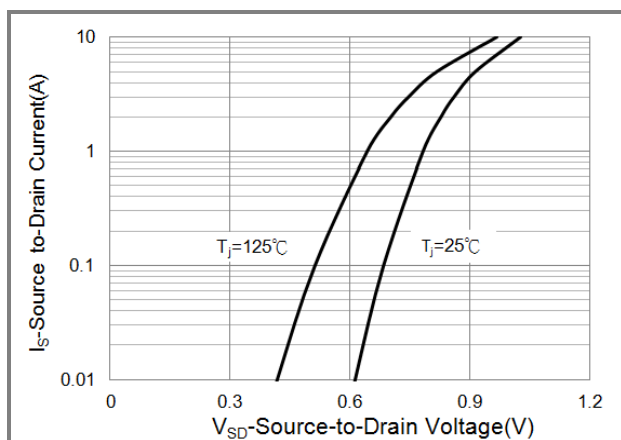
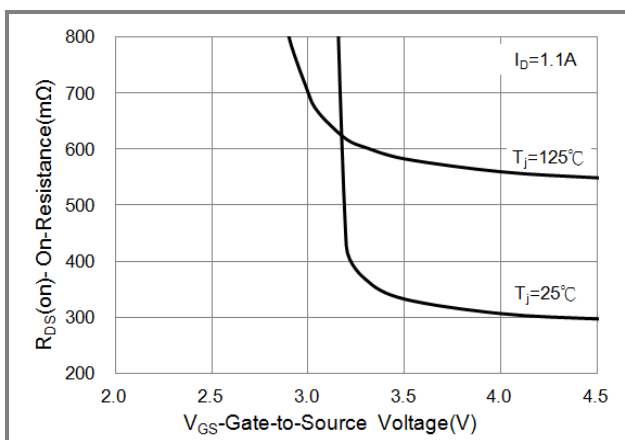
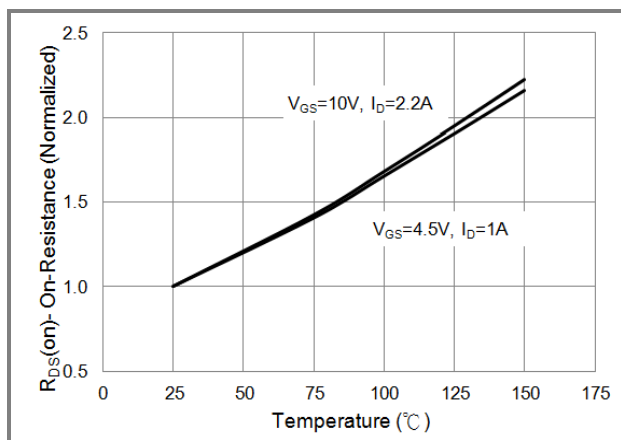
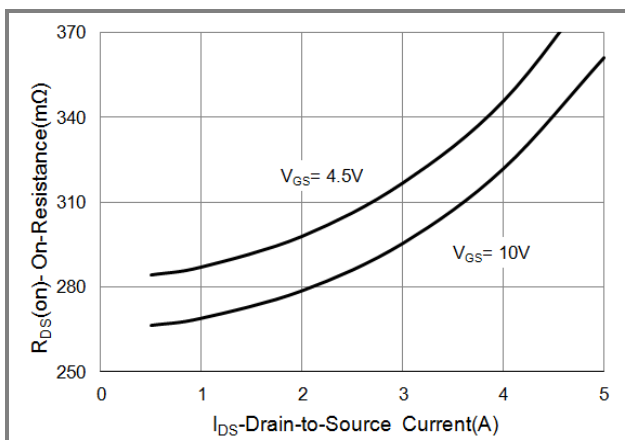
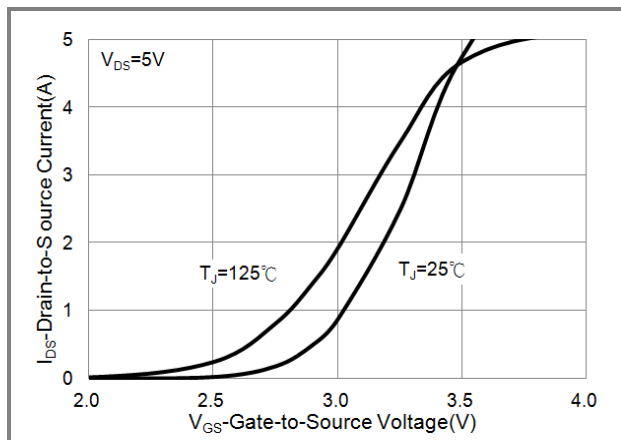
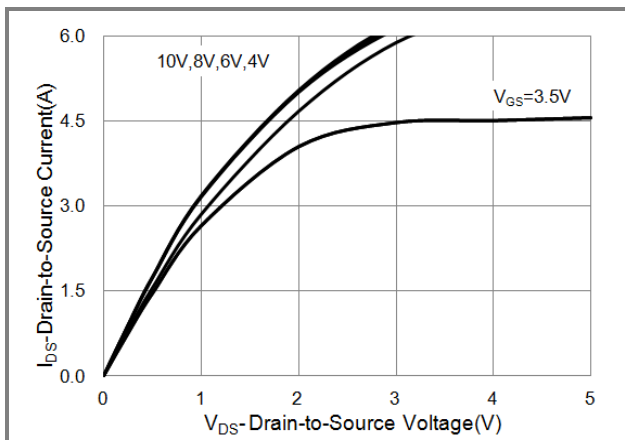
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	100	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	1.0	2.06	2.5	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =2.2A	-	284	310	mΩ
		V _{GS} =4.5V, I _D =1.0A	-	287	320	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =80V, V _{GS} =0V	-	-	1.0	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} =50V, I _D =2.2A, V _{GS} =10V (Note 1,2)	-	9.1	-	nC
Gate-Source Charge	Q _{gs}		-	2.1	-	
Gate-Drain Charge	Q _{gd}		-	1.4	-	
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f=1.0MHZ	-	508	-	pF
Output Capacitance	C _{oss}		-	29	-	
Reverse Transfer Capacitance	C _{rss}		-	18	-	
Turn-On Delay Time	td(on)	V _{DD} =50V, I _D =2.2A, V _{GS} =10V, R _G =6Ω (Note 1,2)	-	2	-	ns
Turn-On Rise Time	t _r		-	21	-	
Turn-Off Delay Time	td(off)		-	12	-	
Turn-Off Fall Time	t _f		-	19	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	2.2	A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =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. The maximum current rating is package limited.
4. 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 $T_J=25^{\circ}\text{C}$.
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.

PJW3N10A

TYPICAL CHARACTERISTIC CURVES



PJW3N10A

TYPICAL CHARACTERISTIC CURVES

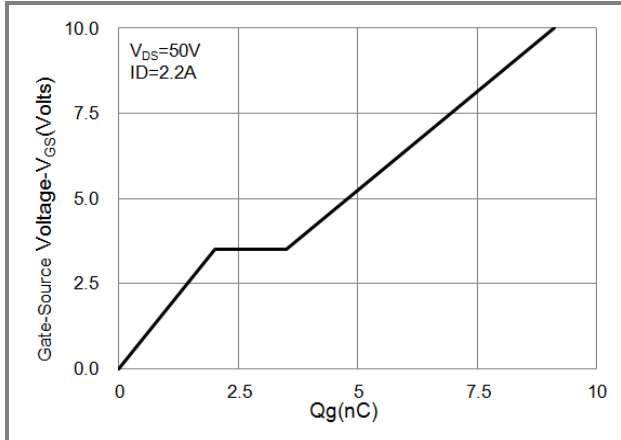


Fig.7 Gate-Charge Characteristics

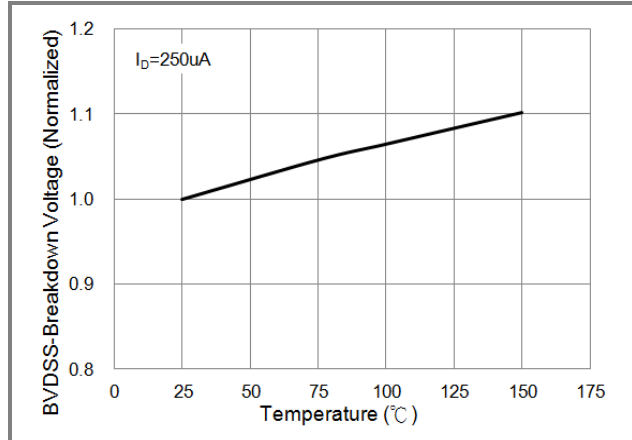


Fig.8 Breakdown Voltage Variation vs. Temperature

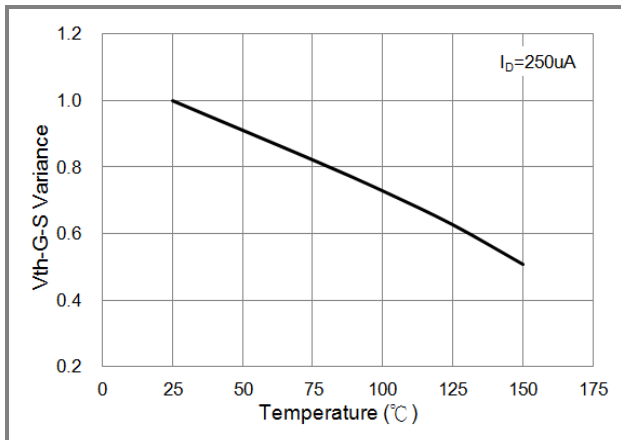


Fig.9 Threshold Voltage Variation with Temperature

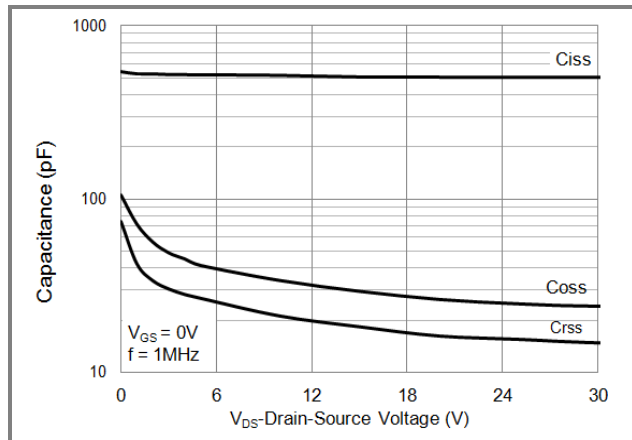


Fig.10 Capacitance vs. Drain-Source Voltage

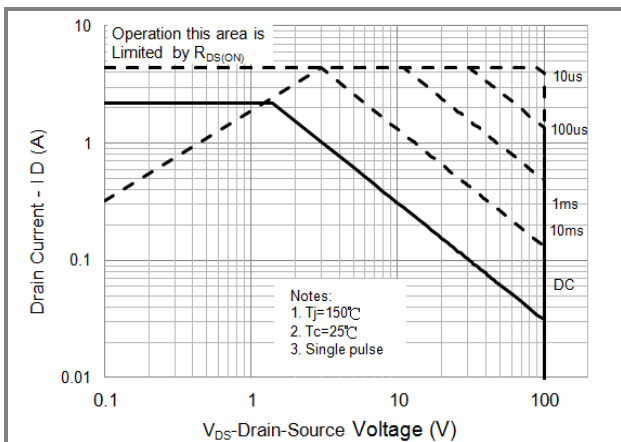
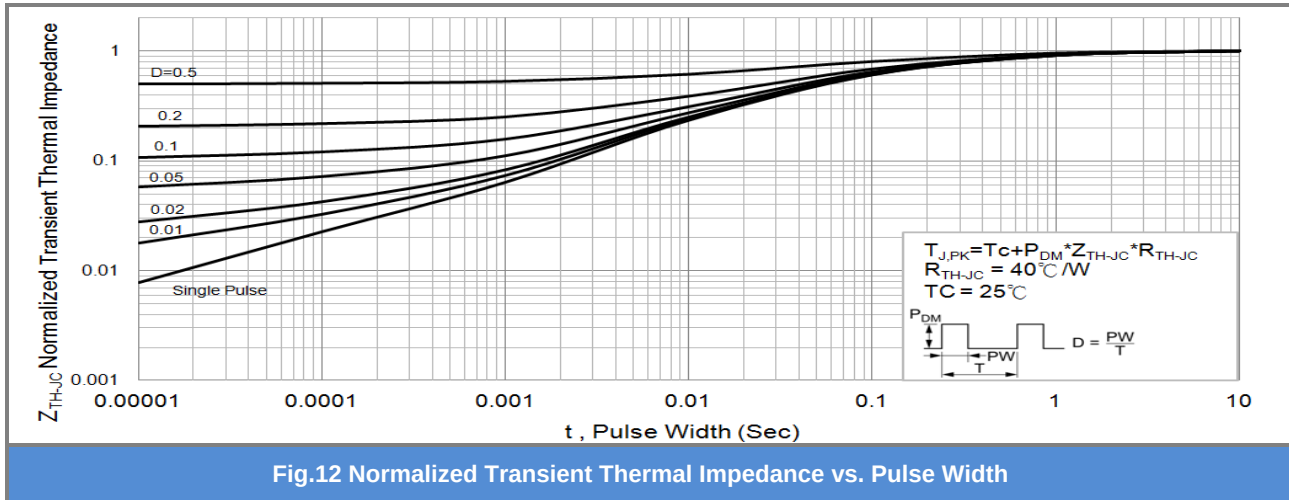


Fig.11 Maximum Safe Operating Area



PJW3N10A

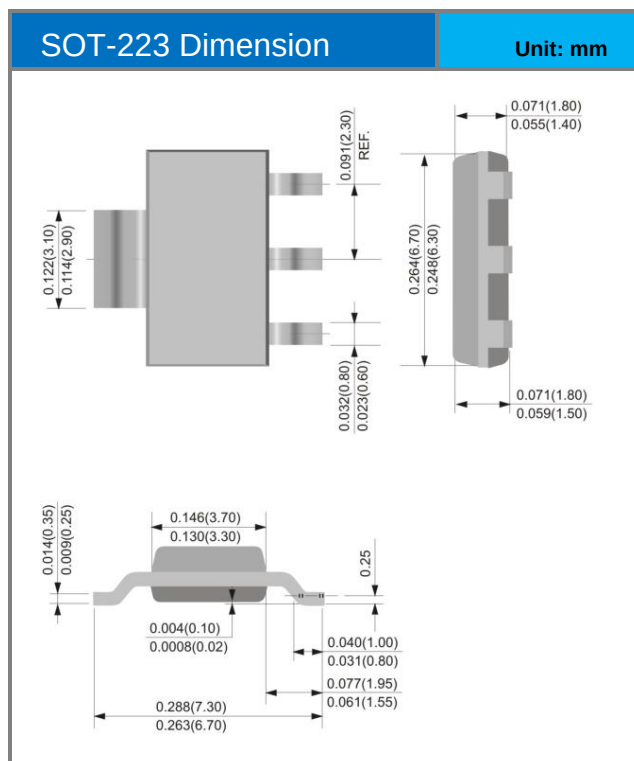
TYPICAL CHARACTERISTIC CURVES





PJW3N10A

Packaging Information

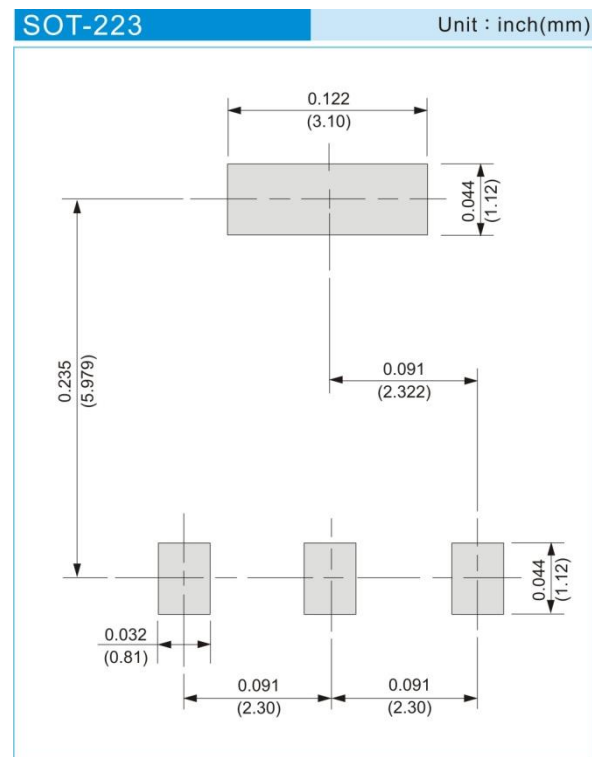


PJW3N10A

PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type	Marking	Version
PJW3N10A_R2_00001	SOT-223	2.5K pcs / 13" reel	W3N10A	Halogen free

MOUNTING PAD LAYOUT





PJW3N10A

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