

PJW5N10

100V N-Channel Enhancement Mode MOSFET

Voltage

100 V

Current

5 A

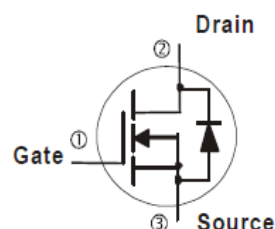
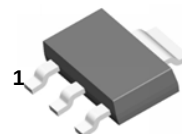
Features

- $R_{DS(ON)}$, $V_{GS}@10V, I_D@2.5A < 130m\Omega$
- $R_{DS(ON)}$, $V_{GS}@6V, I_D@1A < 135m\Omega$
- 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, 0.123grams
- Marking : W5N10

SOT-223



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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	+20	V
Continuous Drain Current	$T_C=25^{\circ}C$	I_D	5	A
	$T_C=100^{\circ}C$		3.1	
Pulsed Drain Current ^(Note 1)	$T_C=25^{\circ}C$	I_{DM}	10	
Power Dissipation	$T_C=25^{\circ}C$	P_D	8	W
	$T_C=100^{\circ}C$		3.2	
Continuous Drain Current	$T_A=25^{\circ}C$	I_D	3.1	A
	$T_A=70^{\circ}C$		2.5	A
Power Dissipation	$T_A=25^{\circ}C$	P_D	3.1	W
Power Dissipation	$T_A=70^{\circ}C$		2	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	$^{\circ}C$
Typical Thermal resistance ^(Note 4,5)	Junction to Case	$R_{\theta JC}$	15.6	$^{\circ}C/W$
	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)

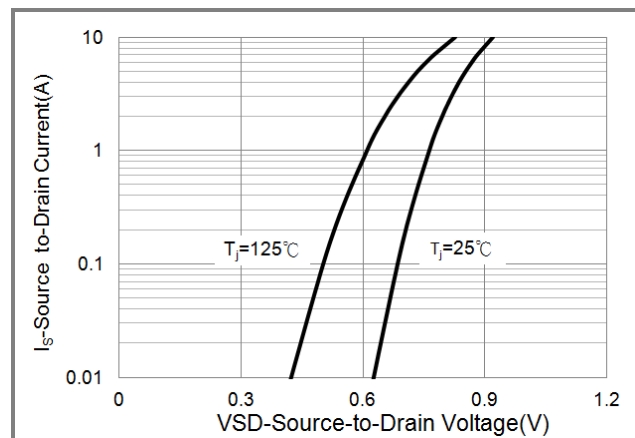
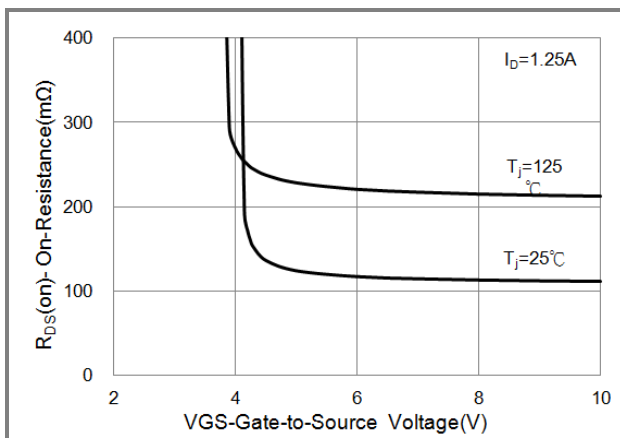
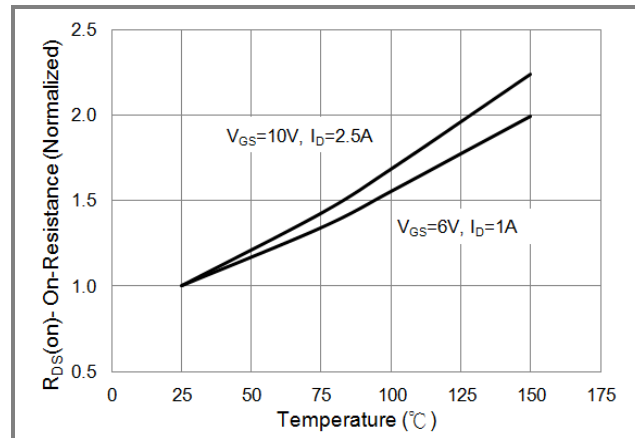
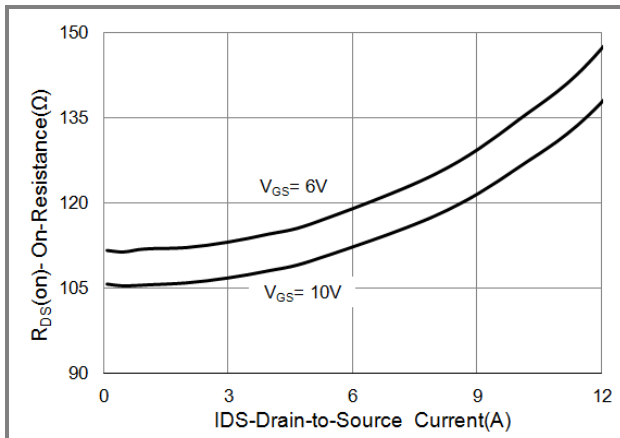
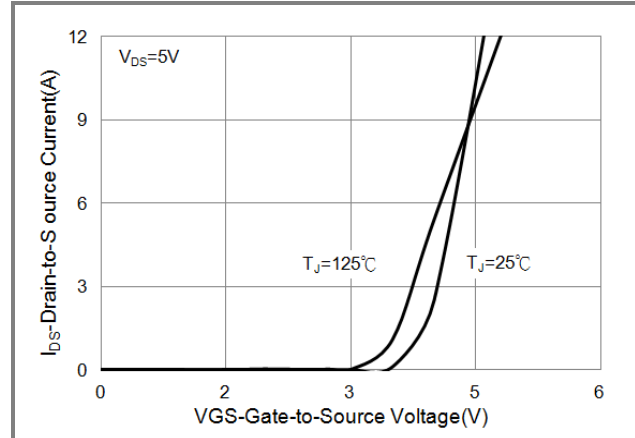
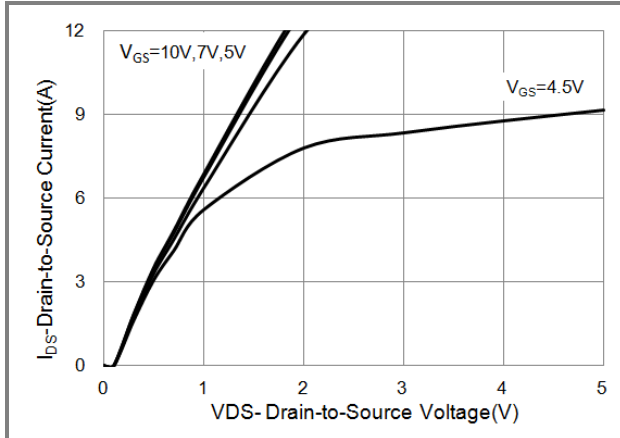
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V,I _D =250uA	100	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =250uA	2.0	2.76	3.5	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V,I _D =2.5A	-	110	130	mΩ
		V _{GS} =6V,I _D =1A	-	120	135	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V,V _{GS} =0V	-	0.01	1.0	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} = <u>±</u> 20V,V _{DS} =0V	-	<u>±</u> 20	<u>±</u> 100	nA
Dynamic ^(Note 6)						
Total Gate Charge	Q _g	V _{DS} =37.5V, I _D =5A, V _{GS} =10V ^(Note 2,3)	-	12	-	nC
Gate-Source Charge	Q _{gs}		-	3.1	-	
Gate-Drain Charge	Q _{gd}		-	2.2	-	
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f=1.0MHZ	-	707	-	pF
Output Capacitance	C _{oss}		-	40	-	
Reverse Transfer Capacitance	C _{rss}		-	16	-	
Turn-On Delay Time	td _(on)	V _{DS} =37.5V,RL=7.5Ω, V _{GS} =10V, R _G =3Ω ^(Note 2,3)	-	6	-	ns
Turn-On Rise Time	t _r		-	27	-	
Turn-Off Delay Time	td _(off)		-	15	-	
Turn-Off Fall Time	t _f		-	7	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	5	A
Diode Forward Voltage	V _{SD}	I _S =1A,V _{GS} =0V	-	0.78	1	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 $T_J(MAX)=150^{\circ}\text{C}$. 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

PJW5N10

TYPICAL CHARACTERISTIC CURVES



PJW5N10

TYPICAL CHARACTERISTIC CURVES

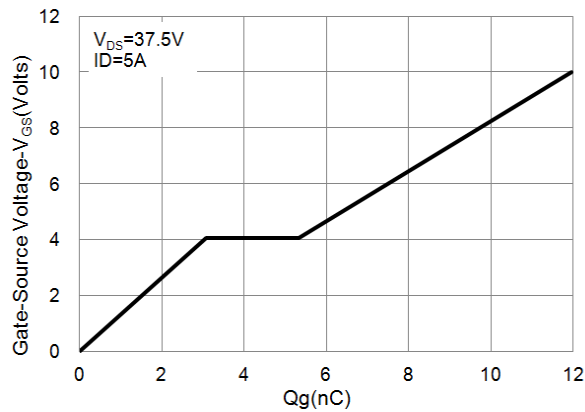


Fig.7 Gate-Charge Characteristics

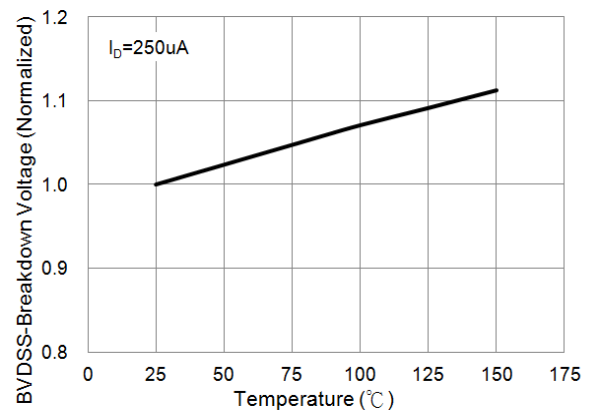


Fig.8 Breakdown Voltage Variation vs. Temperature

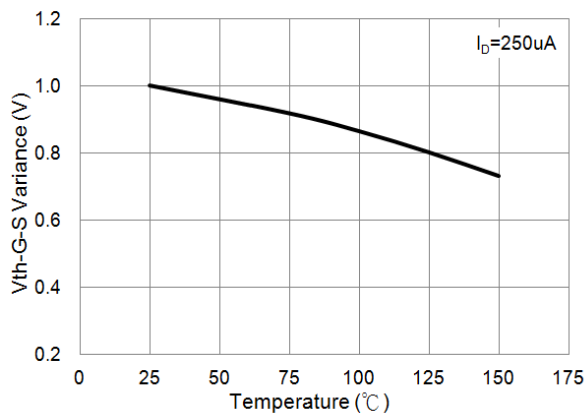


Fig.9 Threshold Voltage Variation with Temperature

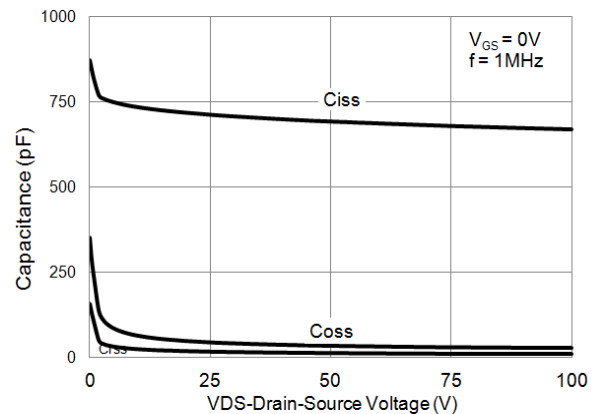


Fig.10 Capacitance vs. Drain-Source Voltage

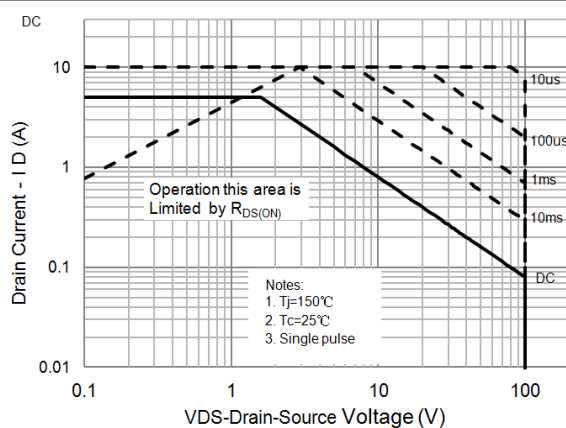
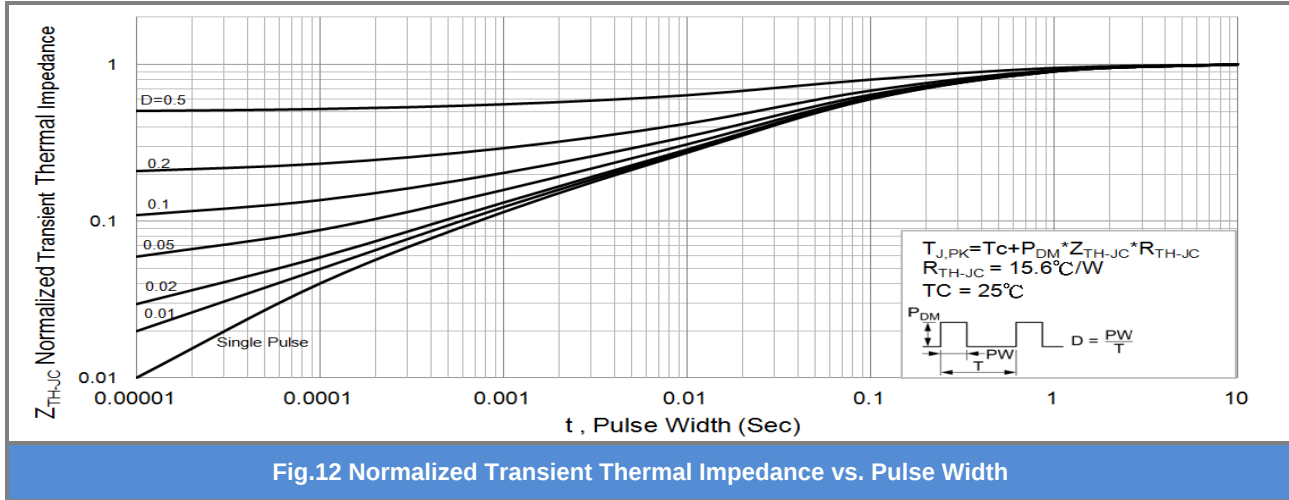


Fig.11 Maximum Safe Operating Area



PJW5N10

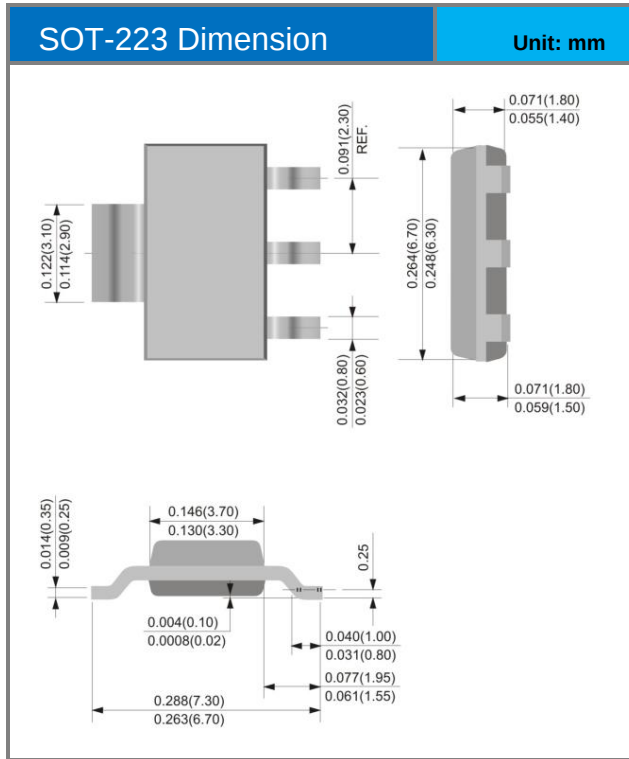
TYPICAL CHARACTERISTIC CURVES





PJW5N10

Packaging Information



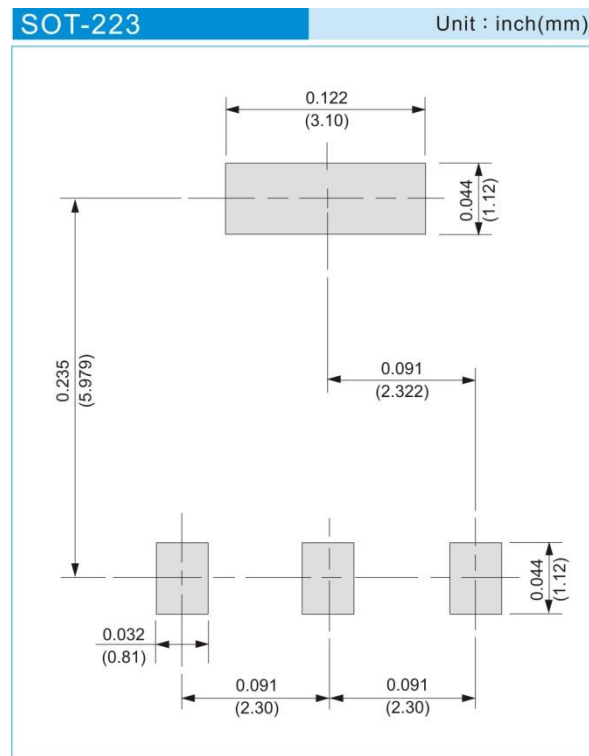


PJW5N10

PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type	Marking	Version
PJW5N10_R2_00001	SOT-223	2,500pcs / 13" reel	W5N10	Halogen free

MOUNTING PAD LAYOUT





PJW5N10

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