

PJD9N10A

100V N-Channel MOSFET

Voltage

100 V

Current

9 A

Features

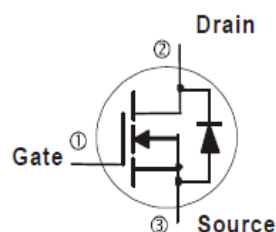
- $R_{DS(ON)}$, $V_{GS}@10V, I_D@4.5A < 152m\Omega$
- $R_{DS(ON)}$, $V_{GS}@4.5V, I_D@3.0A < 158m\Omega$
- High switching speed
- Improved dv/dt capability
- Low Gate Charge
- Low reverse transfer capacitance
- Lead free in compliance with EU RoHS 2011/65/EU directive.
- Green molding compound as per IEC61249 Std. (Halogen Free)

Mechanical Data

- Case : TO-252 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0104 ounces, 0.297grams



TO-252



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	9	A
	$T_C=100^{\circ}C$		6	
Pulsed Drain Current (Note 1)	$T_C=25^{\circ}C$	I_{DM}	18	
Power Dissipation	$T_C=25^{\circ}C$	P_D	31	W
	$T_C=100^{\circ}C$		12	
Continuous Drain Current	$T_A=25^{\circ}C$	I_D	2.4	A
	$T_A=70^{\circ}C$		1.9	A
Power Dissipation	$T_A=25^{\circ}C$	P_D	2.0	W
Power Dissipation	$T_A=70^{\circ}C$		1.3	
Single Pulse Avalanche Energy (Note 6)		E_{AS}	1.8	mJ
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	$^{\circ}C$
Typical Thermal resistance (Note 4,5)	Junction to Case	$R_{\theta JC}$	4.0	$^{\circ}C/W$
	Junction to Ambient	$R_{\theta JA}$	62.5	

- Limited only By Maximum Junction Temperature



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Electrical Characteristics (T_A=25°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	1.72	2.5	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =4.5A	-	130	152	mΩ
		V _{GS} =4.5V, I _D =3A	-	135	158	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =80V, V _{GS} =0V	-	-	1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Dynamic (Note 4)						
Total Gate Charge	Q _g	V _{DS} =60V, I _D =9A, V _{GS} =10V (Note 2,3)	-	19	-	nC
Gate-Source Charge	Q _{gs}		-	2.9	-	
Gate-Drain Charge	Q _{gd}		-	3.2	-	
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1.0MHZ	-	1021	-	pF
Output Capacitance	C _{oss}		-	38	-	
Reverse Transfer Capacitance	C _{rss}		-	17	-	
Turn-On Delay Time	t _{d(on)}	V _{DS} =50V, R _L =5.6Ω, V _{GS} =10V, R _G =6Ω (Note 2,3)	-	6.1	-	ns
Turn-On Rise Time	t _r		-	27	-	
Turn-Off Delay Time	t _{d(off)}		-	28	-	
Turn-Off Fall Time	t _f		-	11	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	9	A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V	-	0.74	1.2	V

NOTES :

1. Pulse width ≤ 300us, Duty cycle ≤ 2%
2. Essentially independent of operating temperature typical characteristics
3. Repetitive rating, pulse width limited by junction temperature T_J(MAX)=150°C. Ratings are based on low frequency and duty cycles to keep initial T_J = 25°C.
4. The maximum current rating is package limited
5. R_{θJA} 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. The test condition is L=0.1mH, I_{AS}=6A, V_{DD}=25V, V_{GS}=10V
7. Guaranteed by design, not subject to production testing

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TYPICAL CHARACTERISTIC CURVES

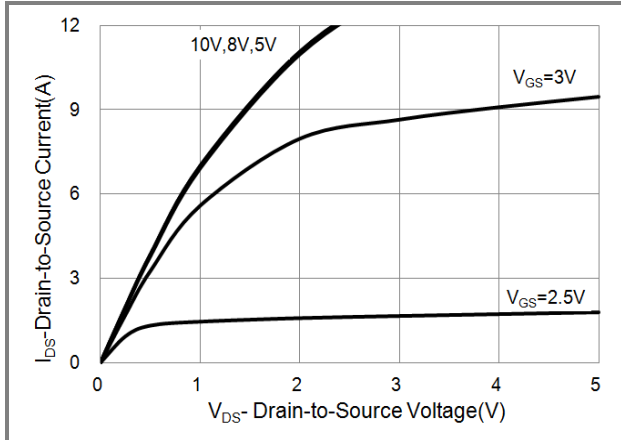


Fig.1 On-Region Characteristics

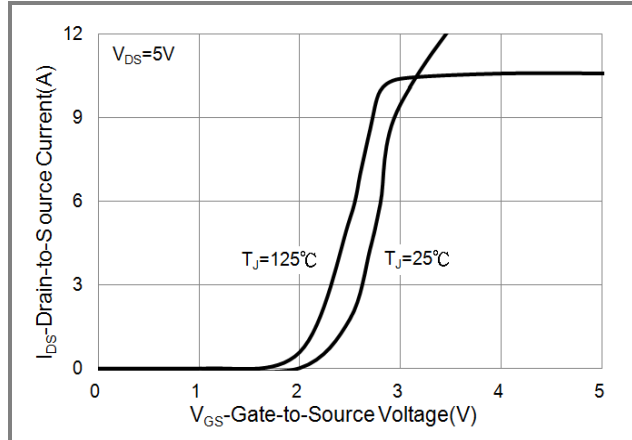


Fig.2 Transfer Characteristics

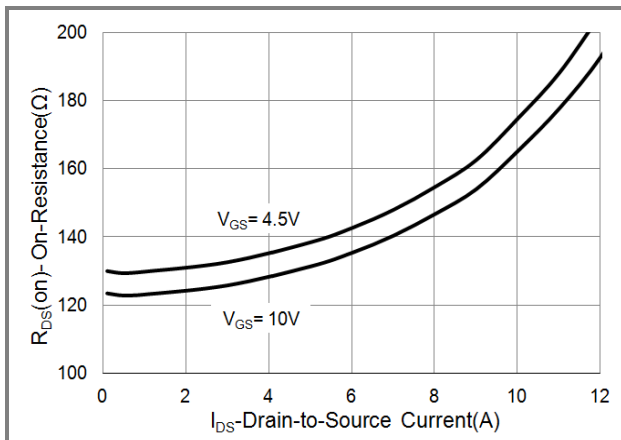


Fig.3 On-Resistance vs. Drain Current

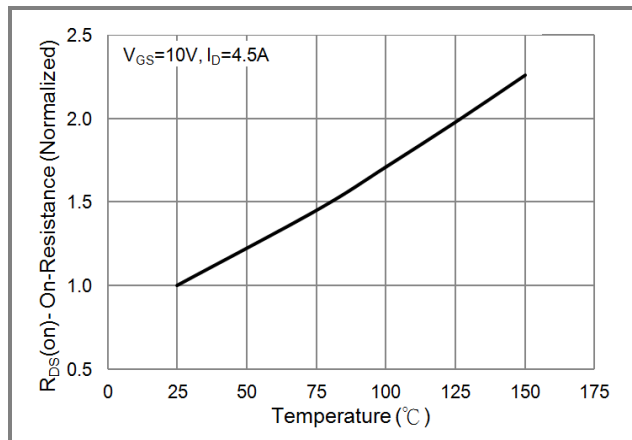


Fig.4 On-Resistance vs. Junction temperature

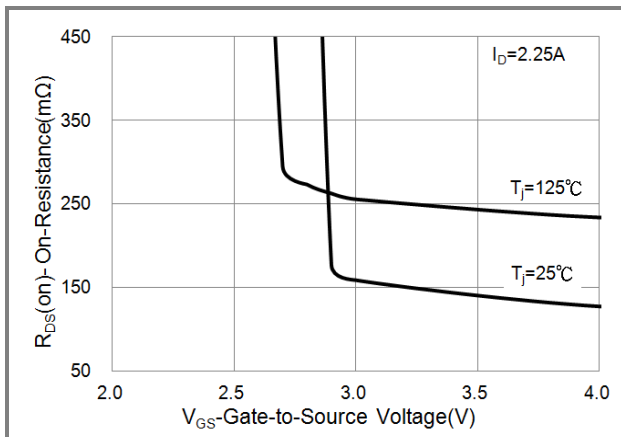


Fig.5 On-Resistance Variation with VGS.

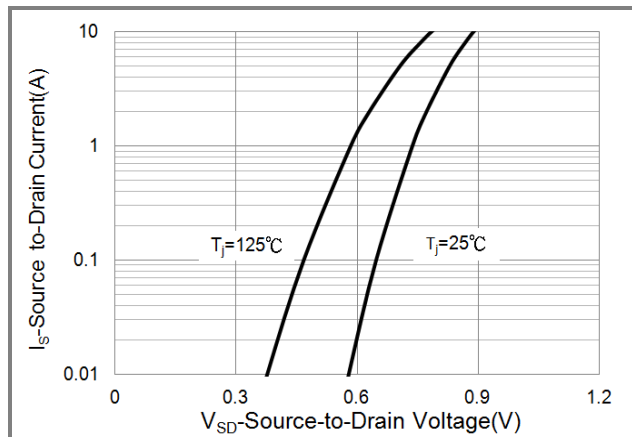


Fig.6 Body Diode Characteristics

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TYPICAL CHARACTERISTIC CURVES

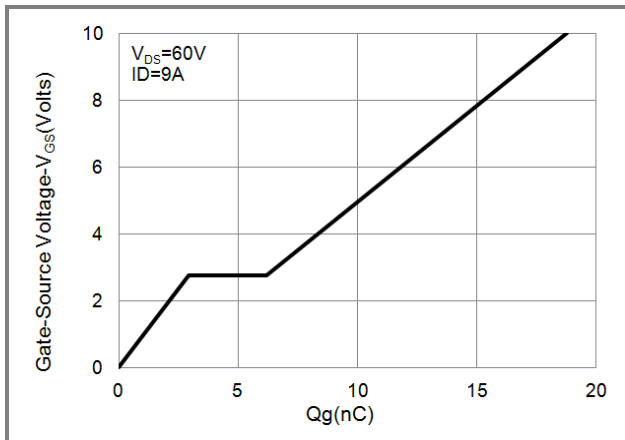


Fig.7 Gate-Charge Characteristics

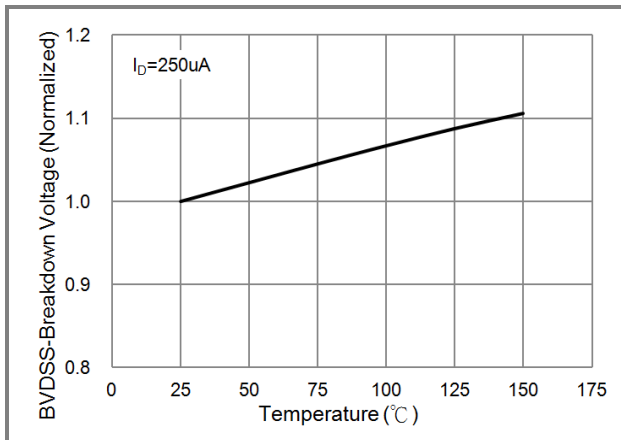


Fig.8 Breakdown Voltage Variation vs. Temperature

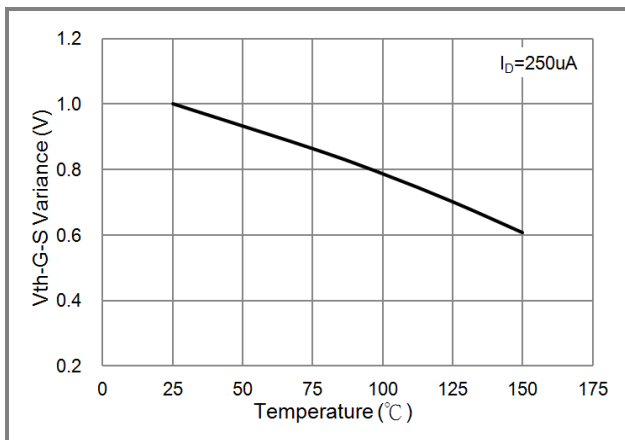


Fig.9 Threshold Voltage Variation with Temperature.

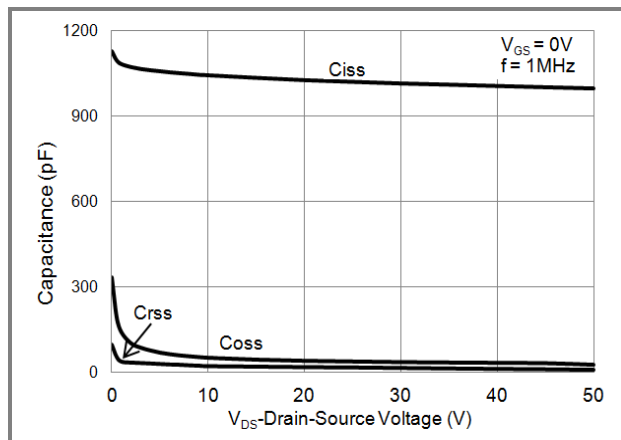


Fig.10 Capacitance vs. Drain-Source Voltage.

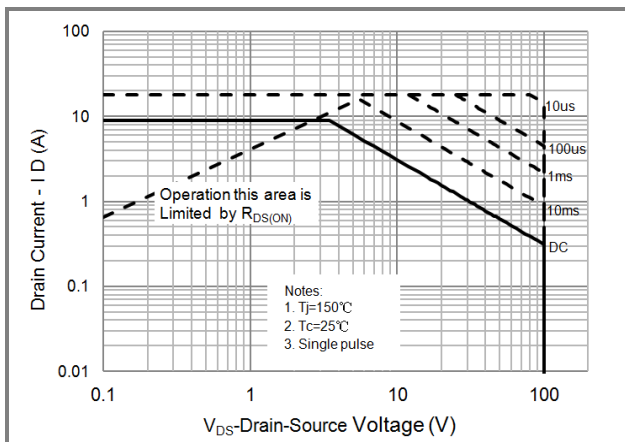


Fig.11 Maximum Safe Operating Area



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TYPICAL CHARACTERISTIC CURVES

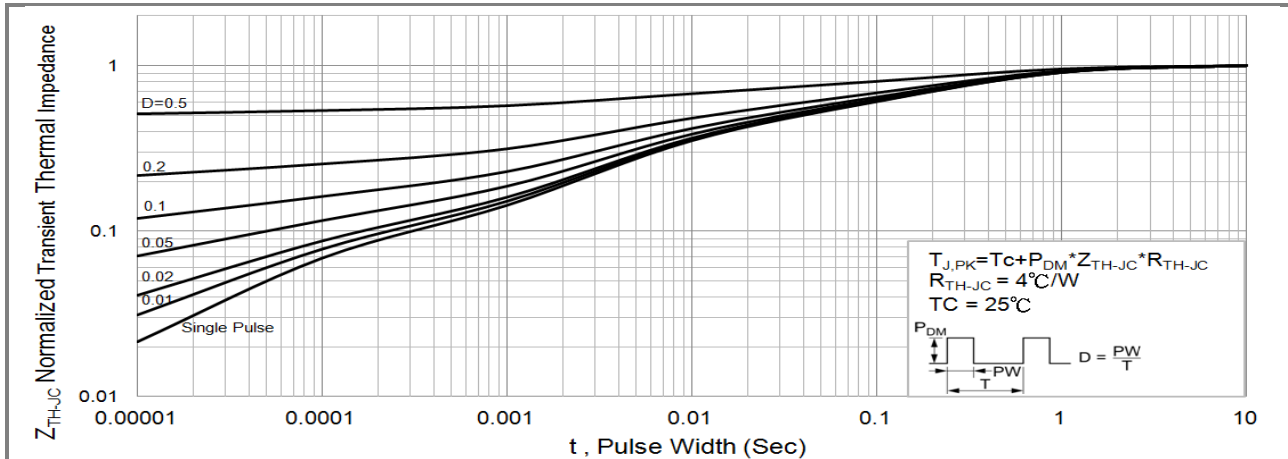


Fig.12 Normalized Thermal Transient Impedance

Packaging Information

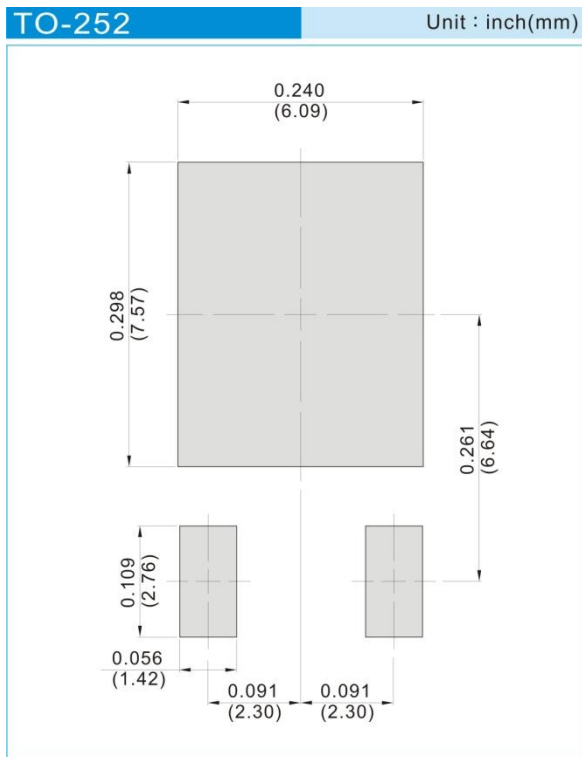


PJD9N10A

PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type	Marking	Version
PJD9N10A_L2_00001	TO-252	3,000pcs / 13" reel	D9N10A	Halogen free

MOUNTING PAD LAYOUT





PJD9N10A

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