



PJD40N15

150V N-Channel Enhancement Mode MOSFET

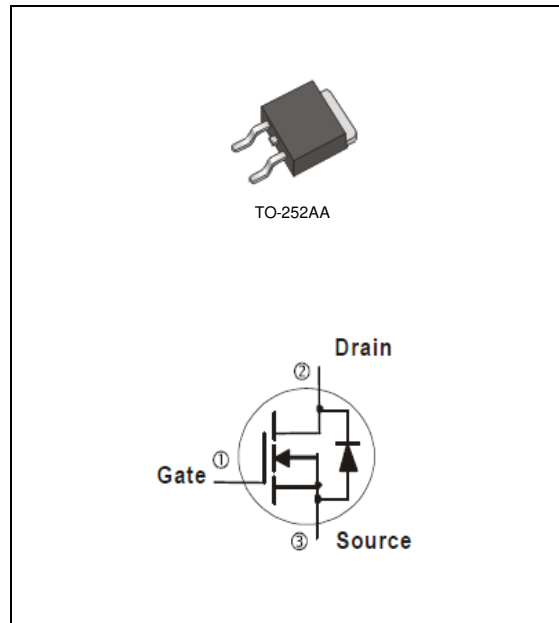
Voltage 150 V **Current** 40 A

Features

- $R_{DS(ON)}, V_{GS}@10V, I_D@20A < 35m\Omega$
- High switching speed
- Improved dv/dt capability
- Low reverse transfer capacitance
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

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



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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current	$T_C=25^\circ\text{C}$	I_D	40	A
	$T_C=100^\circ\text{C}$		25	
Pulsed Drain Current (Note 1)	$T_C=25^\circ\text{C}$	I_{DM}	120	
Power Dissipation	$T_C=25^\circ\text{C}$	P_D	131	W
	$T_C=100^\circ\text{C}$		52	
Continuous Drain Current	$T_A=25^\circ\text{C}$	I_D	5.0	A
	$T_A=70^\circ\text{C}$		4.0	
Power Dissipation	$T_A=25^\circ\text{C}$	P_D	2.0	W
Power Dissipation	$T_A=70^\circ\text{C}$		1.3	
Single Pulse Avalanche Energy (Note 6)		E_{AS}	31.5	mJ
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	$^\circ\text{C}$
Typical Thermal Resistance (Note 4,5)	Junction to Case	$R_{\theta JC}$	0.95	$^\circ\text{C/W}$
	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	150	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	2.0	3.0	4.0	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A	-	30	35	mΩ
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =120V, V _{GS} =0V	-	-	1.0	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Dynamic (Note 7)						
Total Gate Charge	Q _g	V _{DS} =120V, I _D =30A, V _{GS} =10V (Note 1,2)	-	52	-	nC
Gate-Source Charge	Q _{gs}		-	10	-	
Gate-Drain Charge	Q _{gd}		-	19	-	
Input Capacitance	C _{iss}	V _{DS} =75V, V _{GS} =0V, f=1.0MHZ	-	2207	-	pF
Output Capacitance	C _{oss}		-	136	-	
Reverse Transfer Capacitance	C _{rss}		-	58	-	
Turn-On Delay Time	td _(on)	V _{DS} =75V, RL=1.7Ω, V _{GS} =10V, R _G =25Ω (Note 1,2)	-	17	-	ns
Turn-On Rise Time	t _r		-	100	-	
Turn-Off Delay Time	td _(off)		-	35	-	
Turn-Off Fall Time	t _f		-	106	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	40	A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V	-	0.7	1.3	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=0.3mH, I_{AS}=14.5A, V_{DD}=25V, V_{GS}=10V
7. Guaranteed by design, not subject to production testing.



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TYPICAL CHARACTERISTIC CURVES

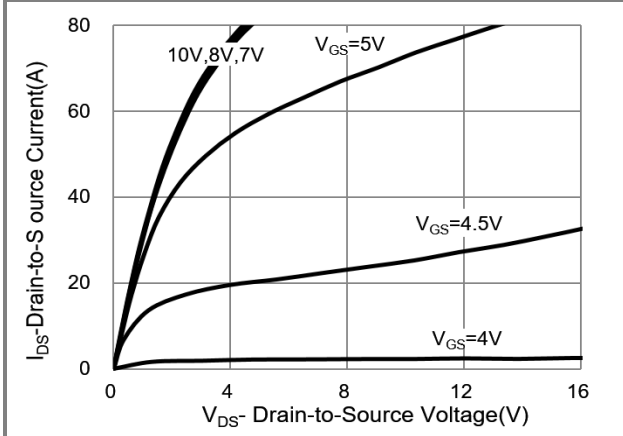


Fig.1 Output Characteristics

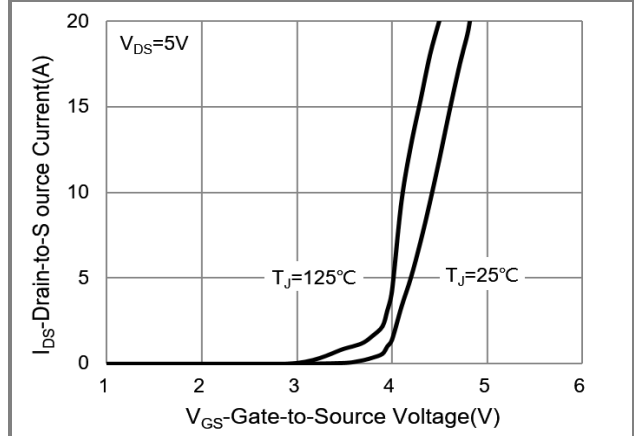


Fig.2 Transfer Characteristics

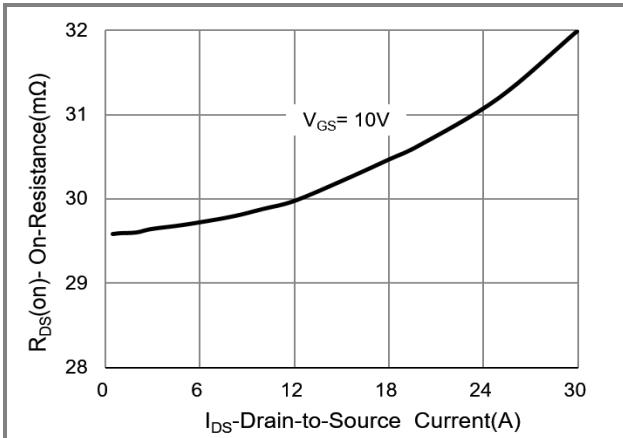


Fig.3 On-Resistance vs. Drain Current

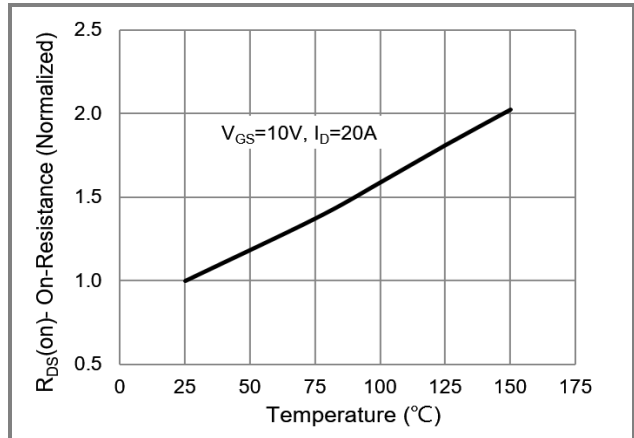


Fig.4 On-Resistance vs. Junction temperature

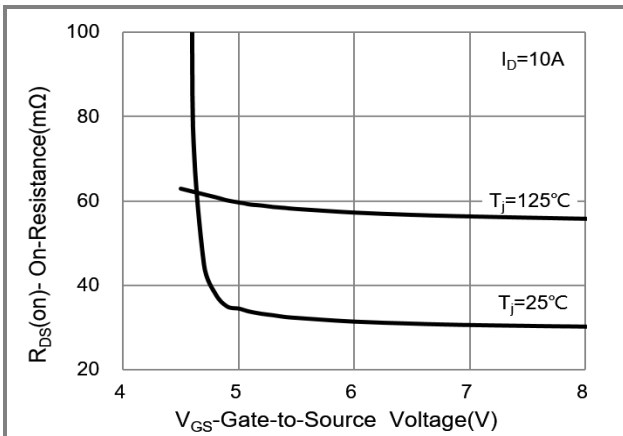


Fig.5 On-Resistance Variation with V_{GS}

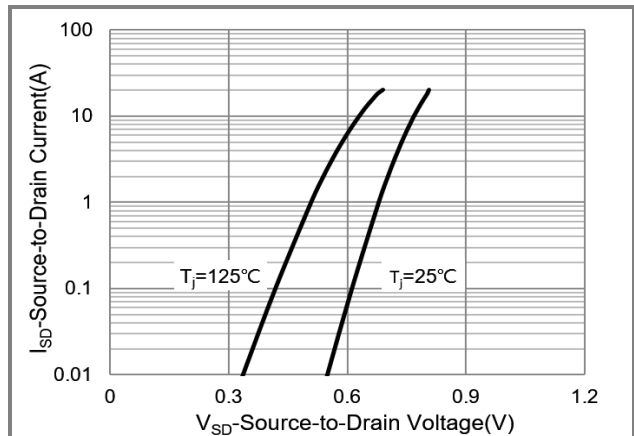


Fig.6 Source-Drain Diode Forward Voltage



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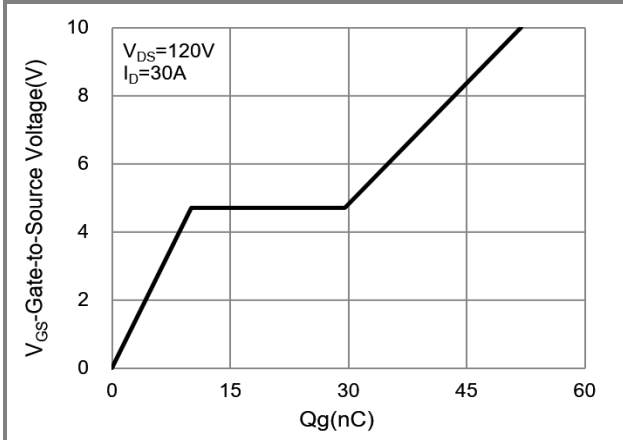


Fig.7 Gate-Charge Characteristics

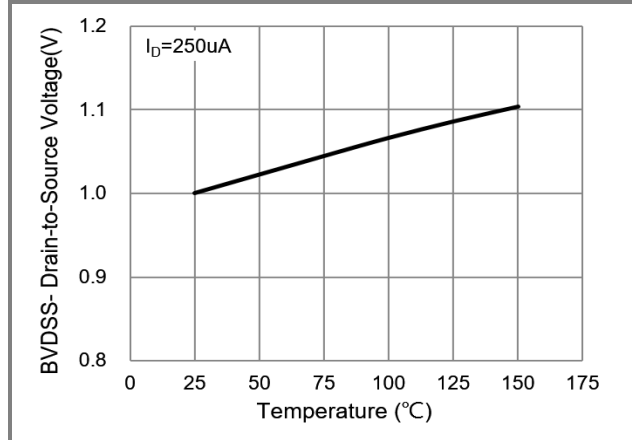


Fig.8 Breakdown Voltage Variation vs. Temperature

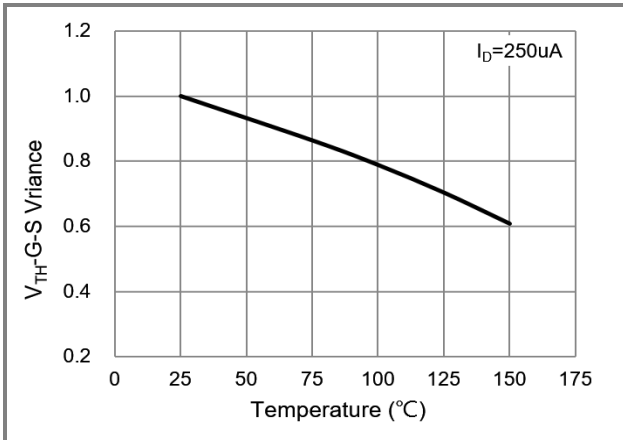


Fig.9 Threshold Voltage Variation with Temperature

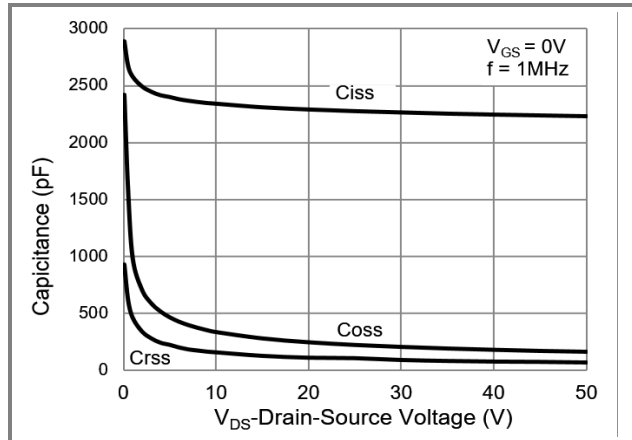


Fig.10 Capacitance vs. Drain-Source Voltage

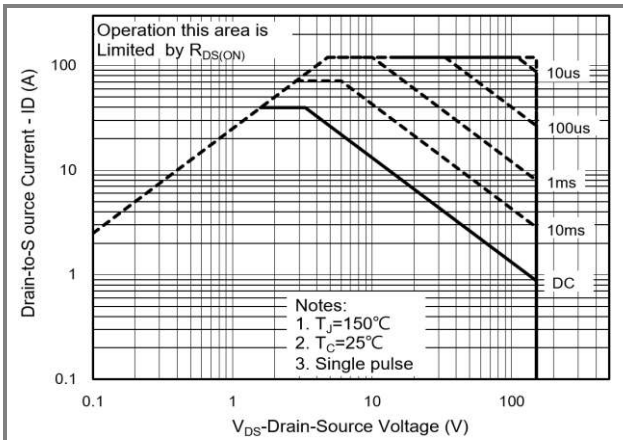


Fig.11 Maximum Safe Operating Area

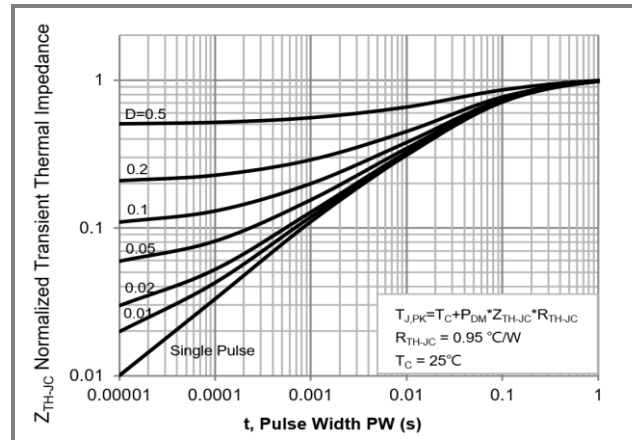


Fig.12 Normalized Thermal Transient Impedance

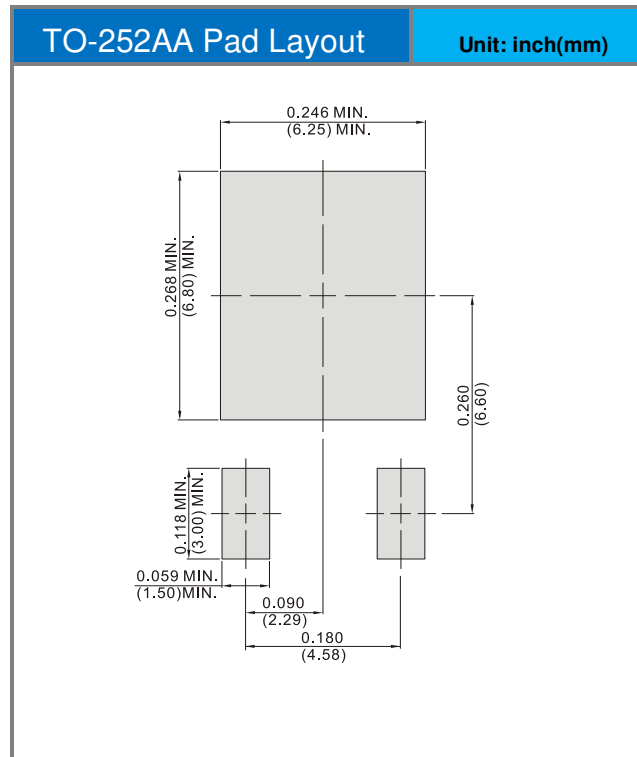
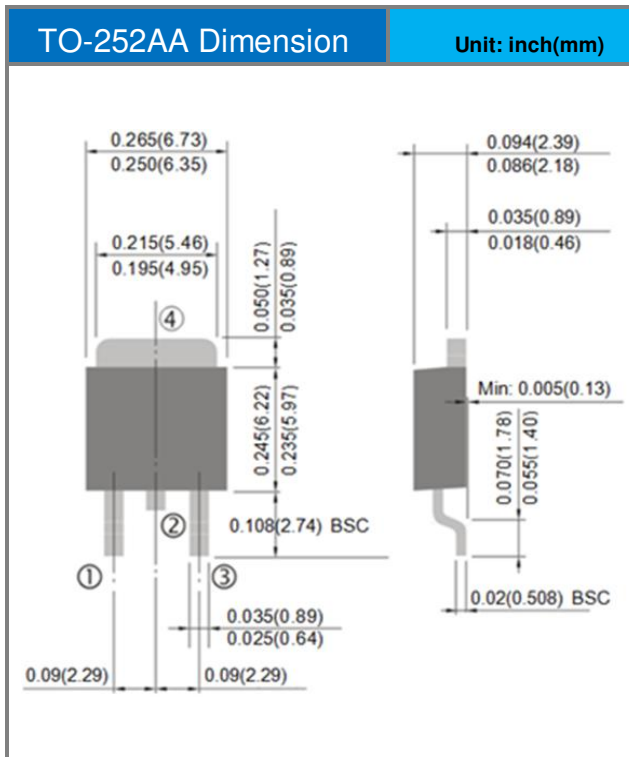


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Part No Packing Code Version

Part No Packing Code	Package Type	Packing Type	Marking	Version
PJD40N15_L2_00001	TO-252AA	3,000pcs / 13" reel	D40N15	Halogen free

Packaging Information & Mounting Pad Layout





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