

PJD40N15

150V N-Channel Enhancement Mode MOSFET

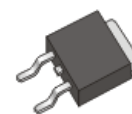
Voltage	150 V	Current	40 A
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Features

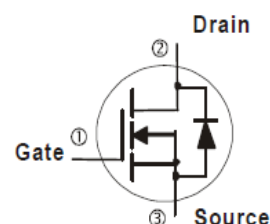
- $R_{DS(ON)}$, $V_{GS}@10V, I_D@20A < 35m\Omega$
- High switching speed
- Improved dv/dt capability
- Low reverse transfer capacitance
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

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



TO-252AA



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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current	$T_C=25^{\circ}C$	I_D	40	A
	$T_C=100^{\circ}C$		25	
Pulsed Drain Current (Note 1)	$T_C=25^{\circ}C$	I_{DM}	120	
Power Dissipation	$T_C=25^{\circ}C$	P_D	131	W
	$T_C=100^{\circ}C$		52	
Continuous Drain Current	$T_A=25^{\circ}C$	I_D	5.0	A
	$T_A=70^{\circ}C$		4.0	
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}	31.5	mJ
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	$^{\circ}C$
Typical Thermal Resistance (Note 4,5)	Junction to Case	$R_{\theta JC}$	0.95	$^{\circ}C/W$
	Junction to Ambient	$R_{\theta JA}$	62.5	

- Limited only By Maximum Junction Temperature



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

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	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 $\leq 300\mu s$, 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. The test condition is $L=0.3\text{mH}$, $I_{AS}=14.5A$, $V_{DD}=25V$, $V_{GS}=10V$
7. Guaranteed by design, not subject to production testing.

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TYPICAL CHARACTERISTIC CURVES

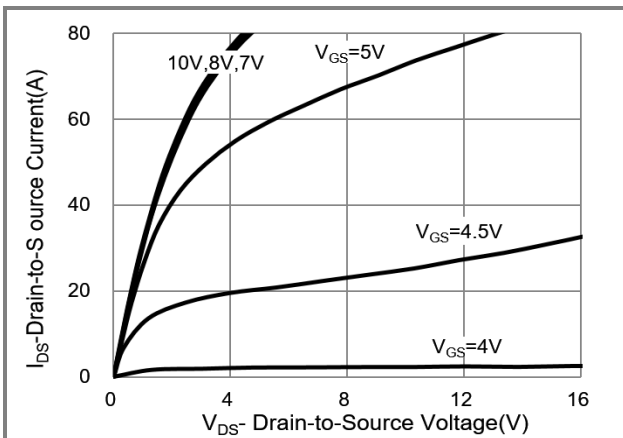


Fig.1 Output Characteristics

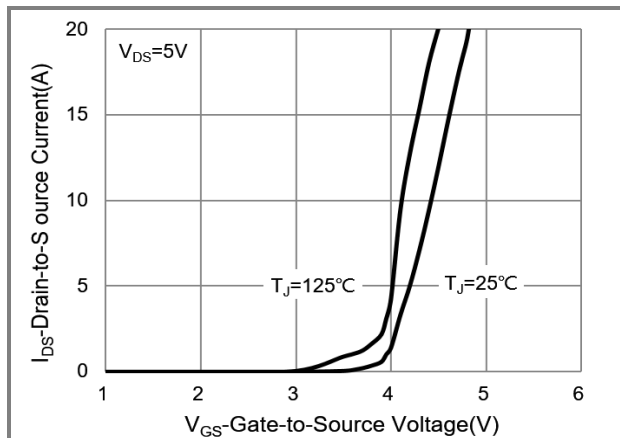


Fig.2 Transfer Characteristics

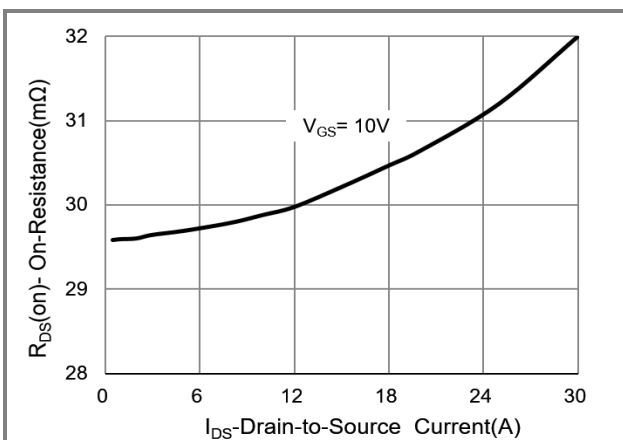


Fig.3 On-Resistance vs. Drain Current

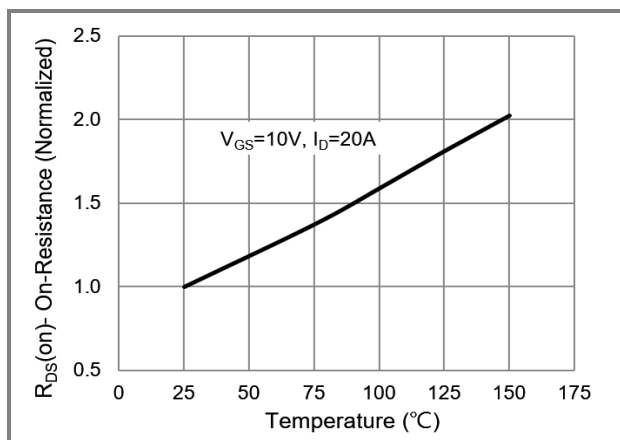


Fig.4 On-Resistance vs. Junction temperature

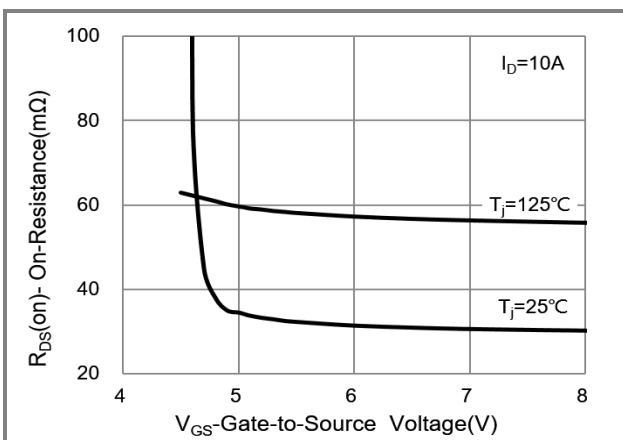


Fig.5 On-Resistance Variation with V_{GS}

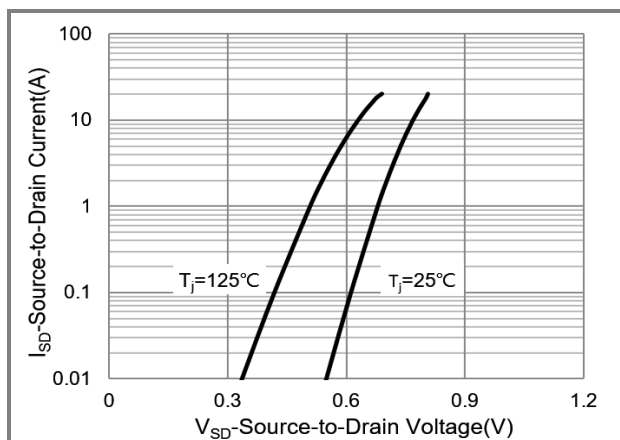
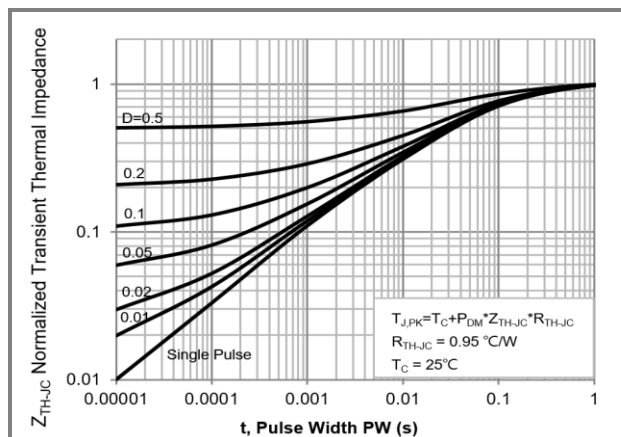
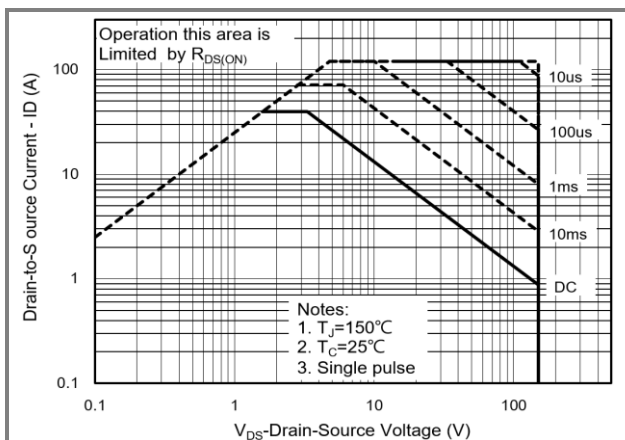
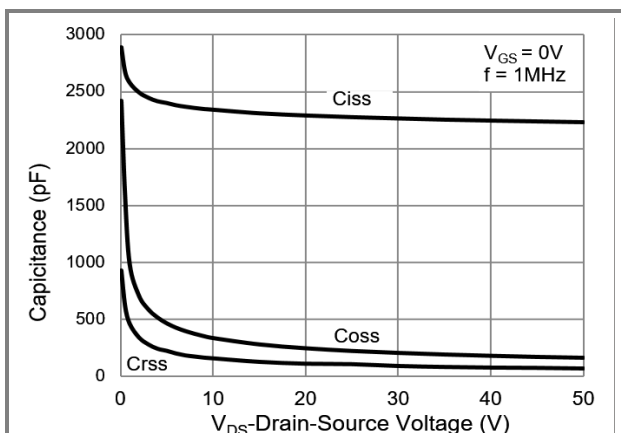
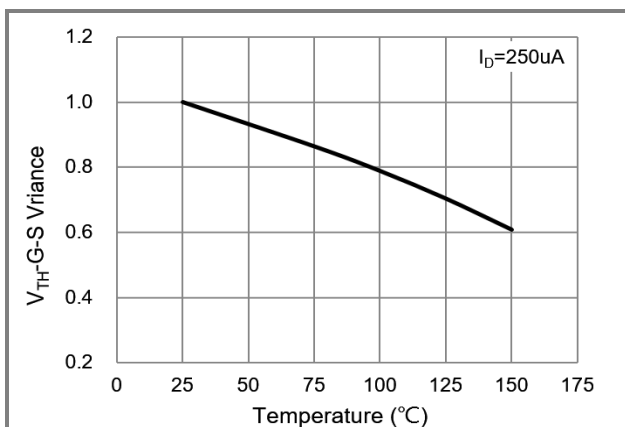
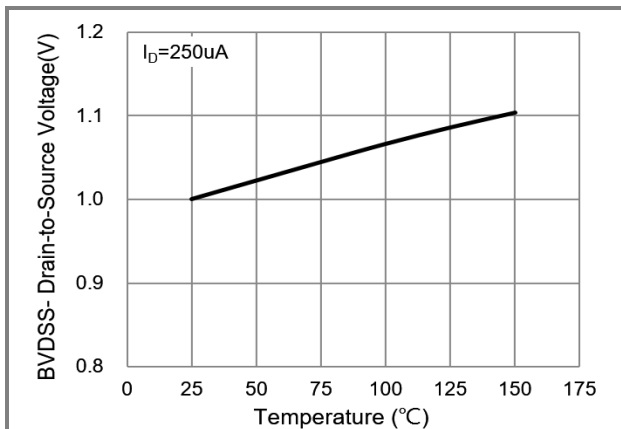
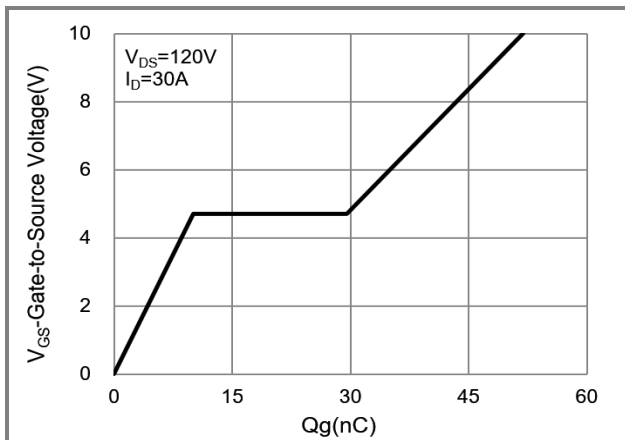


Fig.6 Source-Drain Diode Forward Voltage

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TYPICAL CHARACTERISTIC CURVES

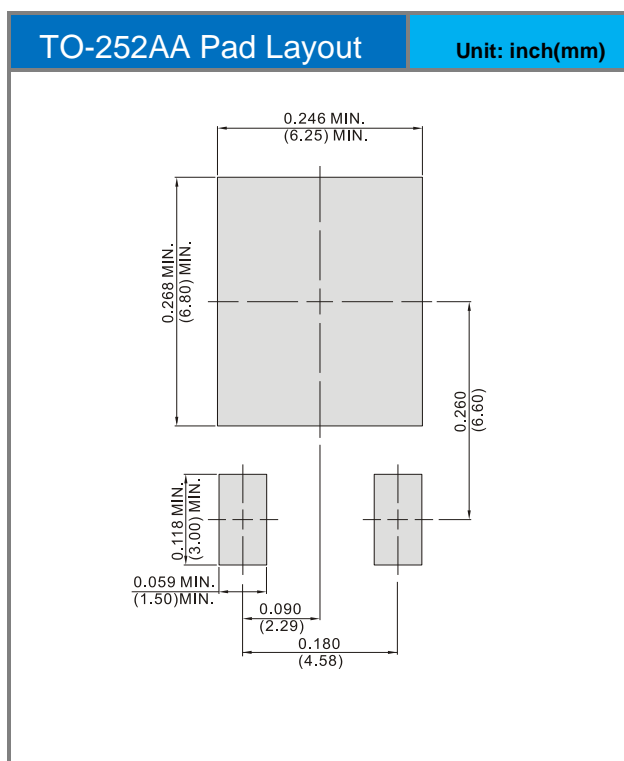
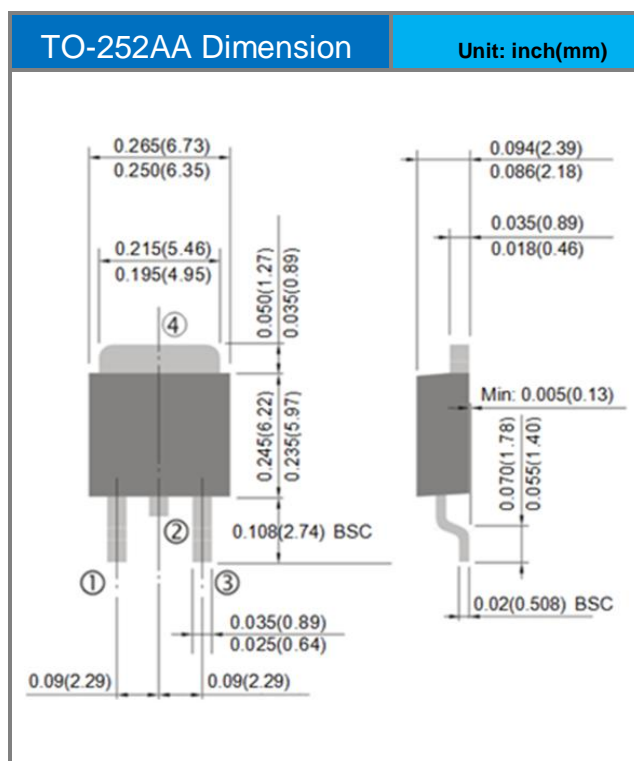


PJD40N15

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





PJD40N15

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