



PJD30N15

150V N-Channel Enhancement Mode MOSFET

Voltage

150 V

Current

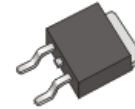
25 A

Features

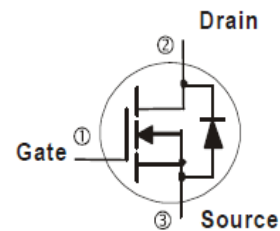
- $R_{DS(ON)}$, $V_{GS}@10V, I_D@5A < 65m\Omega$
- $R_{DS(ON)}$, $V_{GS}@6V, I_D@3A < 90m\Omega$
- High switching speed
- Improved dv/dt capability
- Low reverse transfer capacitance
- Lead free in compliance with EU RoHS2.0 (2011/65/EU & 2015/865/EU directive)
- Green molding compound as per IEC61249 Std. (Halogen Free)

Mechanical Data

- Case : TO-252AA Package
- Terminals : Solderable per MIL-STD-750, Method 2026



TO-252AA



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}	± 25	V
Continuous Drain Current	I_D	$T_C=25^\circ\text{C}$	A
		$T_C=100^\circ\text{C}$	
Pulsed Drain Current ^(Note 1)	I_{DM}	$T_C=25^\circ\text{C}$	16
			100
Power Dissipation	P_D	$T_C=25^\circ\text{C}$	W
		$T_C=100^\circ\text{C}$	
Continuous Drain Current	I_D	$T_A=25^\circ\text{C}$	A
		$T_A=70^\circ\text{C}$	
Power Dissipation	P_D	$T_A=25^\circ\text{C}$	W
		$T_A=70^\circ\text{C}$	
Power Dissipation	P_D	$T_A=25^\circ\text{C}$	W
		$T_A=70^\circ\text{C}$	
Single Pulse Avalanche Energy ^(Note 6)	E_{AS}	242	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	$R_{\theta JC}$	$^\circ\text{C/W}$
	Junction to Ambient	$R_{\theta JA}$	
			62.5

- Limited only By Maximum Junction Temperature



PJD30N15

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}	$V_{GS}=0V, I_D=250\mu A$	150	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	2.7	4.0	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=5A$	-	50	65	m Ω
		$V_{GS}=6V, I_D=3A$	-	60	90	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=150V, V_{GS}=0V$	-	-	1.0	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 25V, V_{DS}=0V$	-	-	± 100	nA
Dynamic (Note 7)						
Total Gate Charge	Q_g	$V_{DS}=75V, I_D=4A,$ $V_{GS}=10V$ (Note 1,2)	-	29.5	-	nC
Gate-Source Charge	Q_{gs}		-	9.2	-	
Gate-Drain Charge	Q_{gd}		-	8.0	-	
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V,$ $f=1.0\text{MHz}$	-	1764	-	pF
Output Capacitance	C_{oss}		-	148	-	
Reverse Transfer Capacitance	C_{rss}		-	62	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=30V, I_D=1A,$ $V_{GS}=10V, R_G=6\Omega$ (Note 1,2)	-	14	-	ns
Turn-On Rise Time	t_r		-	21	-	
Turn-Off Delay Time	$t_{d(off)}$		-	32	-	
Turn-Off Fall Time	t_f		-	23	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	25	A
Diode Forward Voltage	V_{SD}	$I_S=1A, V_{GS}=0V$	-	0.7	1.0	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 $T_J(\text{MAX})=150^\circ\text{C}$. 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 $L=0.1\text{mH}$, $I_{AS}=22A$, $V_{DD}=50V$, $V_{GS}=10V$
7. Guaranteed by design, not subject to production testing.



PJD30N15

TYPICAL CHARACTERISTIC CURVES

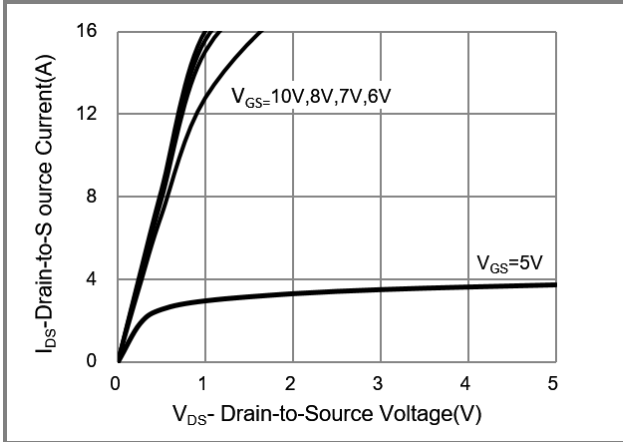


Fig.1 Output Characteristics

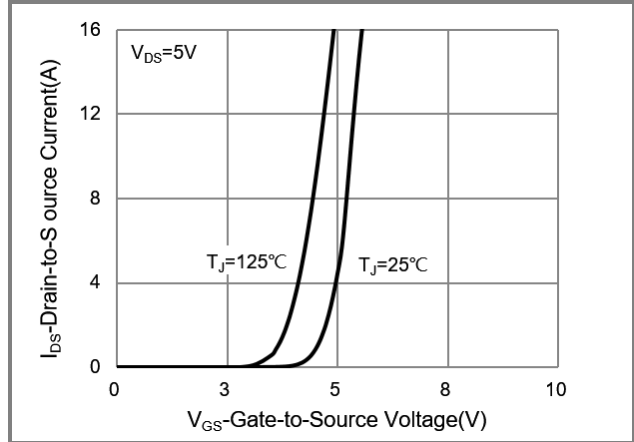


Fig.2 Transfer Characteristics

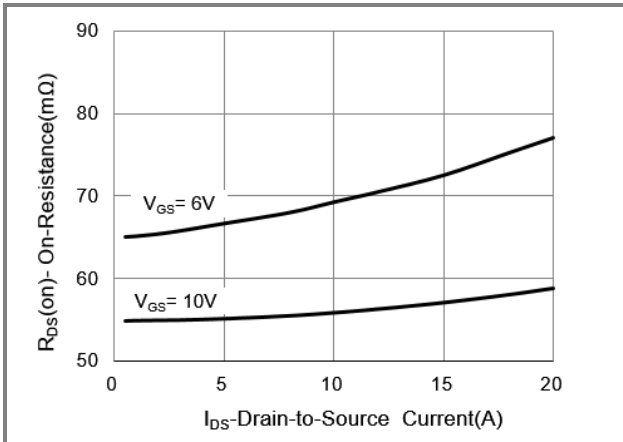


Fig.3 On-Resistance vs. Drain Current

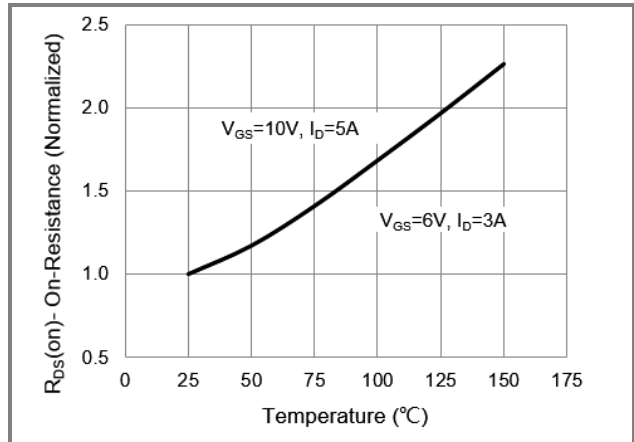


Fig.4 On-Resistance vs. Junction temperature

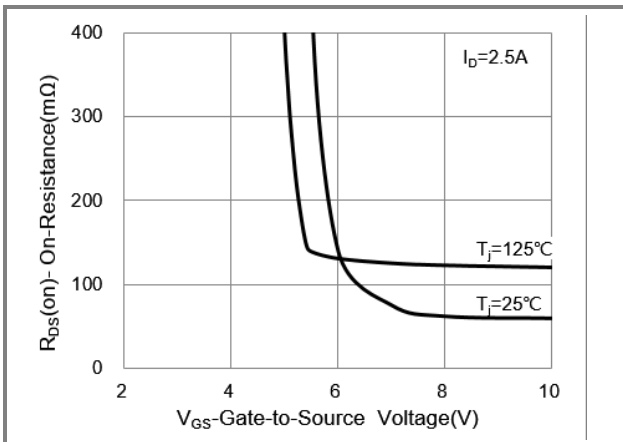


Fig.5 On-Resistance Variation with V_GS.

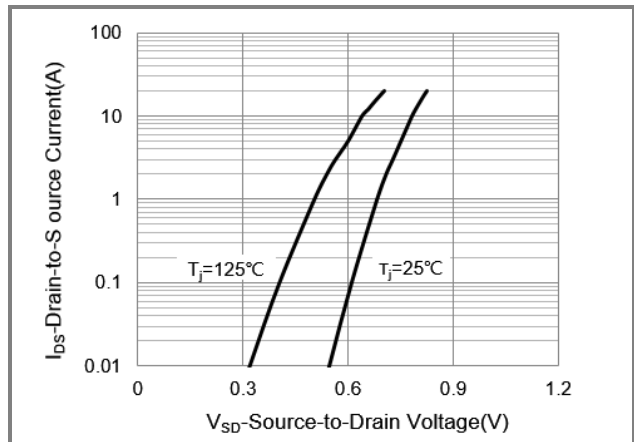


Fig.6 Source-Drain Diode Forward Voltage



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TYPICAL CHARACTERISTIC CURVES

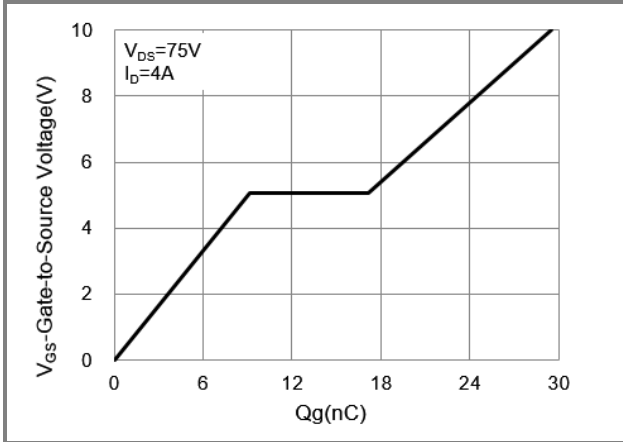


Fig.7 Gate-Charge Characteristics

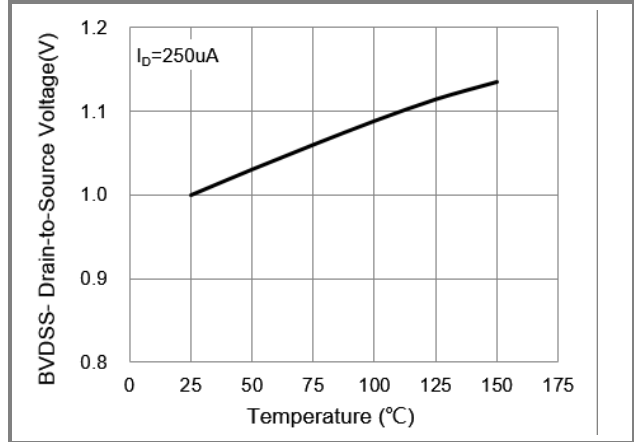


Fig.8 Breakdown Voltage Variation vs. Temperature

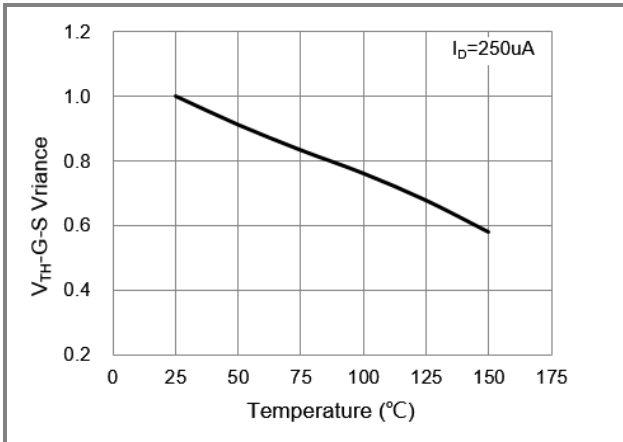


Fig.9 Threshold Voltage Variation with Temperature

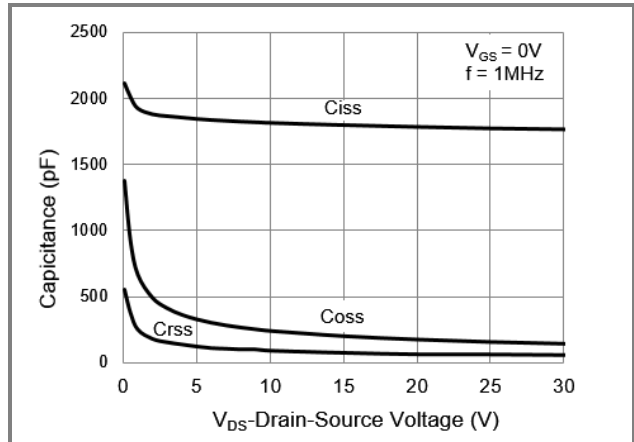


Fig.10 Capacitance vs. Drain-Source Voltage

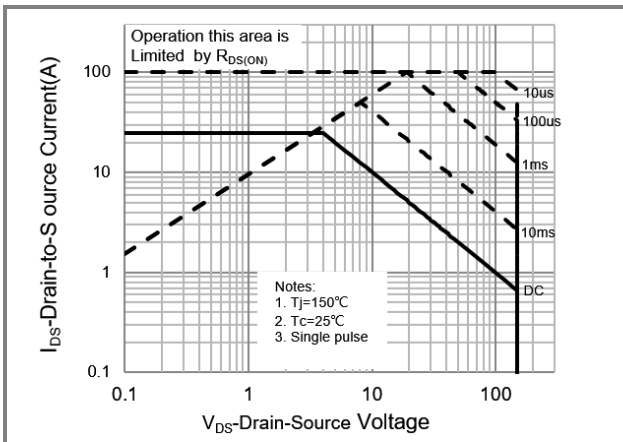


Fig.11 Maximum Safe Operating Area



PJD30N15

TYPICAL CHARACTERISTIC CURVES

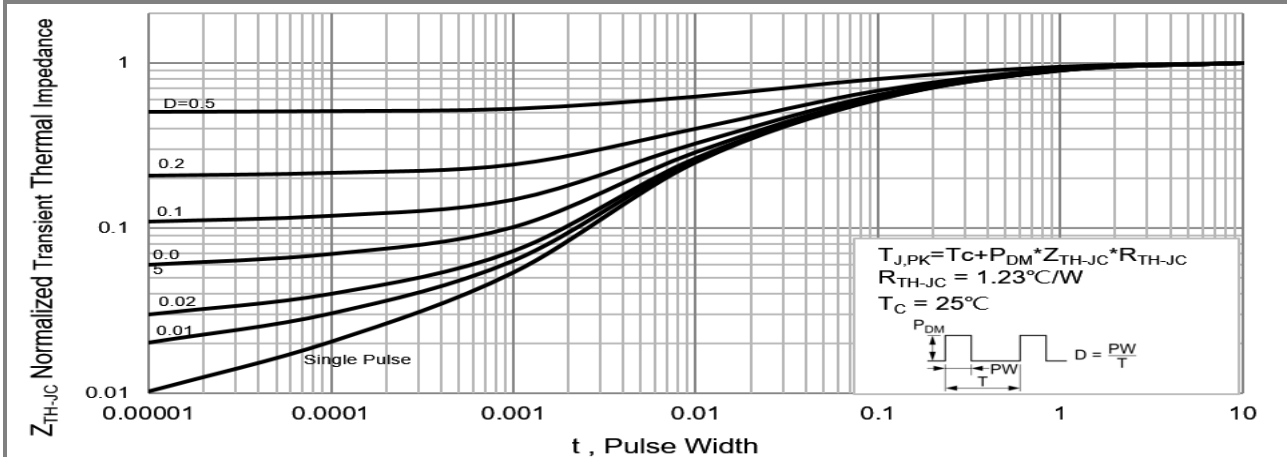
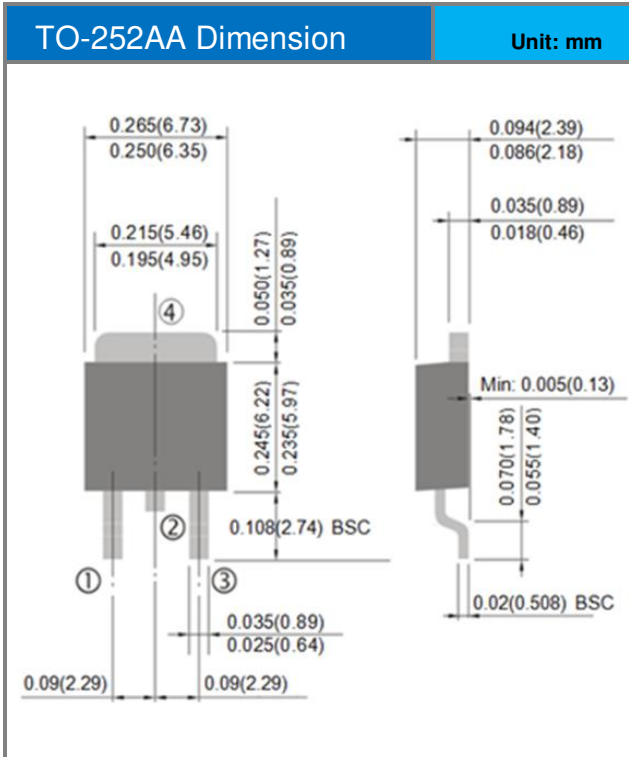


Fig.12 Normalized Transient Thermal Impedance vs. Pulse Width



PJD30N15

Packaging Information



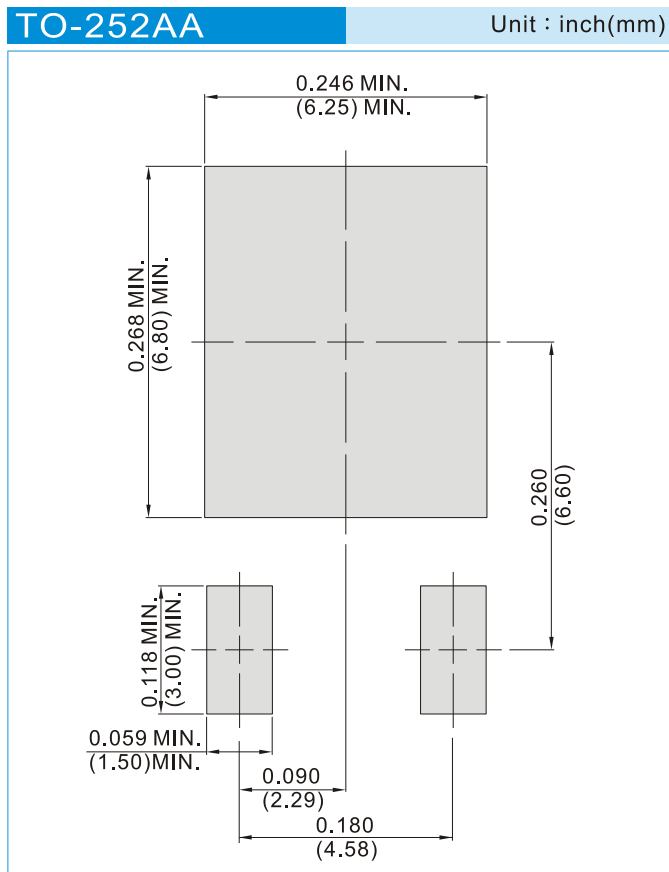


PJD30N15

PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing Type	Marking	Version
PJD30N15_L2_00001	TO-252AA	3,000pcs / 13" reel	D30N15	Halogen free

MOUNTING PAD LAYOUT





PJD30N15

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