



PJD25N03

30V N-Channel Enhancement Mode MOSFET

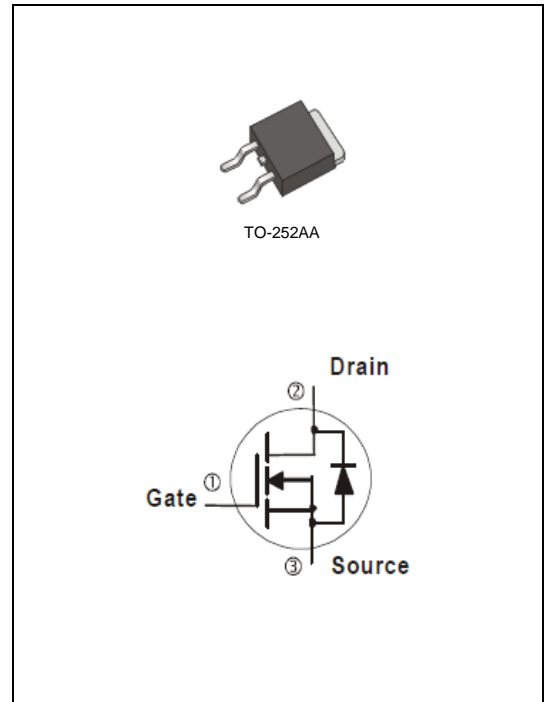
Voltage	30 V	Current	25 A
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Features

- $R_{DS(ON)}$, $V_{GS}@10V, I_D@12A < 25m\Omega$
- $R_{DS(ON)}$, $V_{GS}@4.5V, I_D@6A < 33m\Omega$
- High switching speed
- Improved dv/dt capability
- Low Gate Charge
- 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
- 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}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	$T_C=25^\circ\text{C}$	25
		$T_C=100^\circ\text{C}$	16
Pulsed Drain Current ^(Note 1)	I_{DM}	100	A
Power Dissipation	P_D	$T_C=25^\circ\text{C}$	25
		$T_C=100^\circ\text{C}$	10
Continuous Drain Current	I_D	$T_A=25^\circ\text{C}$	7.0
		$T_A=70^\circ\text{C}$	5.6
Power Dissipation	P_D	2.0	W
Power Dissipation	P_D	1.3	W
Single Pulse Avalanche Energy ^(Note 6)	E_{AS}	32	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	$R_{\theta JC}$	5.0
	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	30	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	1.2	1.7	2.5	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =12A	-	21	25	mΩ
		V _{GS} =4.5V, I _D =6A	-	26	33	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, 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} =15V, I _D =8A, V _{GS} =4.5V (Note 2,3)	-	4.3	-	nC
Gate-Source Charge	Q _{gs}		-	1.3	-	
Gate-Drain Charge	Q _{gd}		-	1.6	-	
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1.0MHZ	-	392	-	pF
Output Capacitance	C _{oss}		-	76	-	
Reverse Transfer Capacitance	C _{rss}		-	54	-	
Turn-On Delay Time	t _{d(on)}	V _{DS} =15V, I _D =1A, V _{GS} =10V, R _G =6Ω (Note 2,3)	-	5.9	-	ns
Turn-On Rise Time	t _r		-	11	-	
Turn-Off Delay Time	t _{d(off)}		-	17	-	
Turn-Off Fall Time	t _f		-	3.8	-	
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	-	0.73	1.0	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=1mH, I_{AS}=8A, V_{DD}=25V, V_{GS}=10V
7. Guaranteed by design, not subject to production testing.



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TYPICAL CHARACTERISTIC CURVES

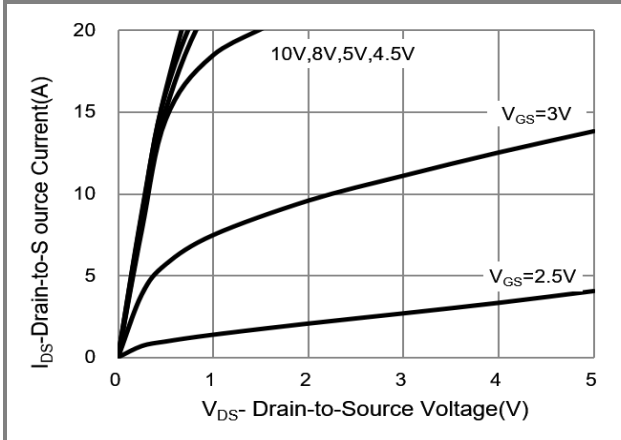


Fig.1 Output Characteristics

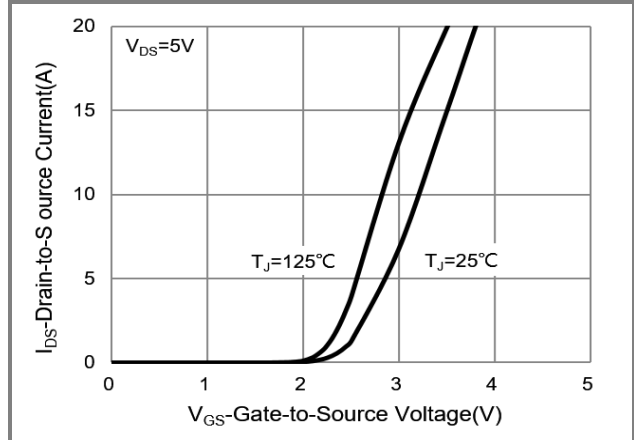


Fig.2 Transfer Characteristics

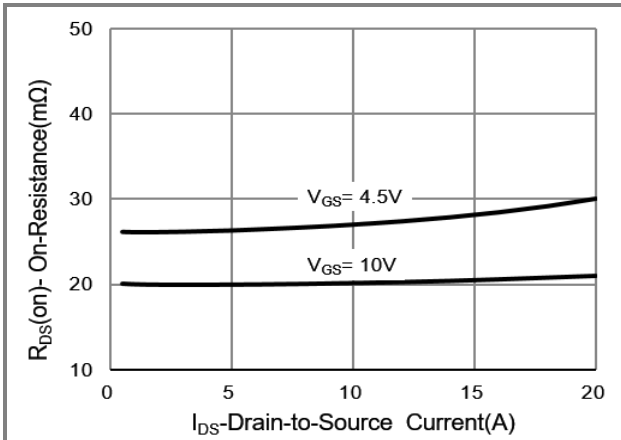


Fig.3 On-Resistance vs. Drain Current

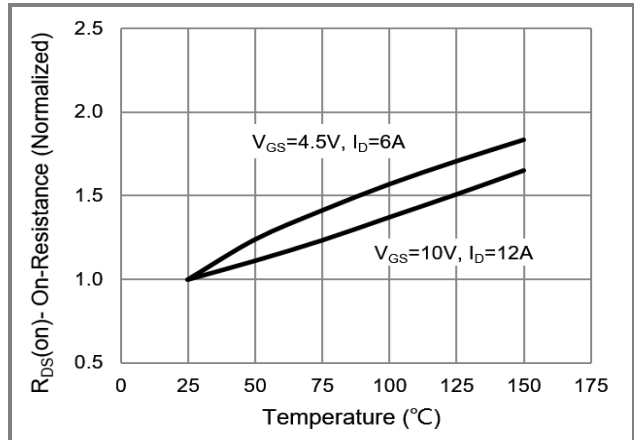


Fig.4 On-Resistance vs. Junction temperature

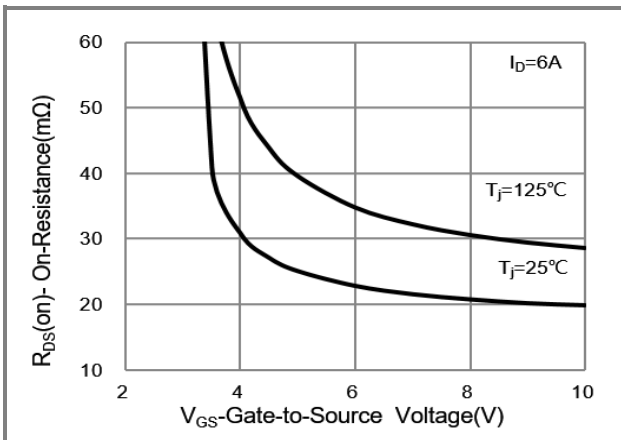


Fig.5 On-Resistance Variation with VGS.

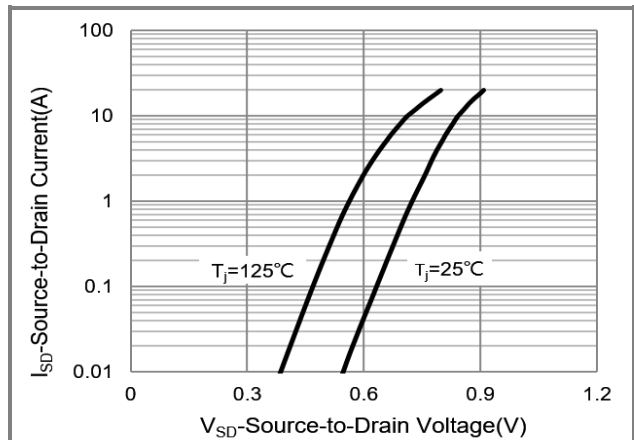


Fig.6 Source-Drain Diode Forward Voltage



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TYPICAL CHARACTERISTIC CURVES

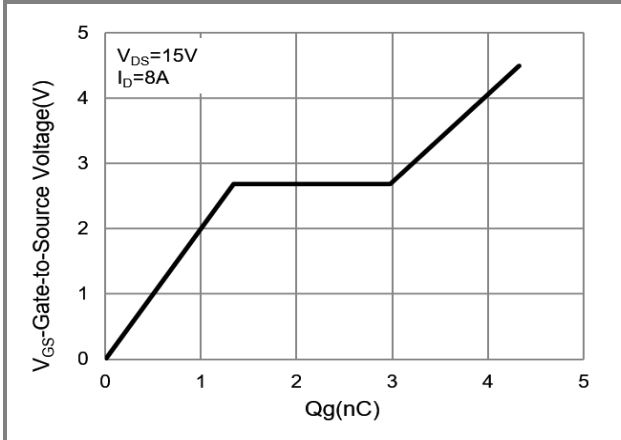


Fig.7 Gate-Charge Characteristics

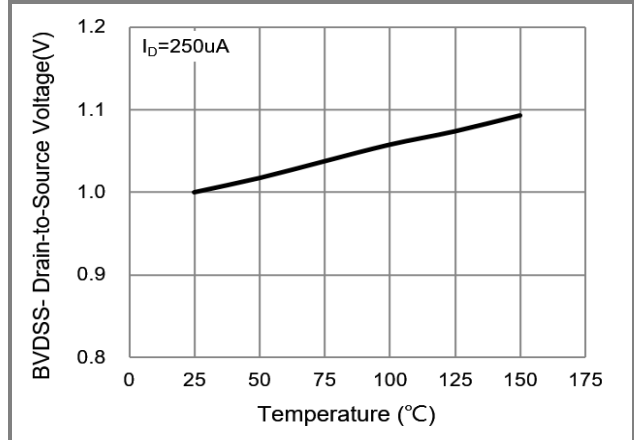


Fig.8 Breakdown Voltage Variation vs. Temperature

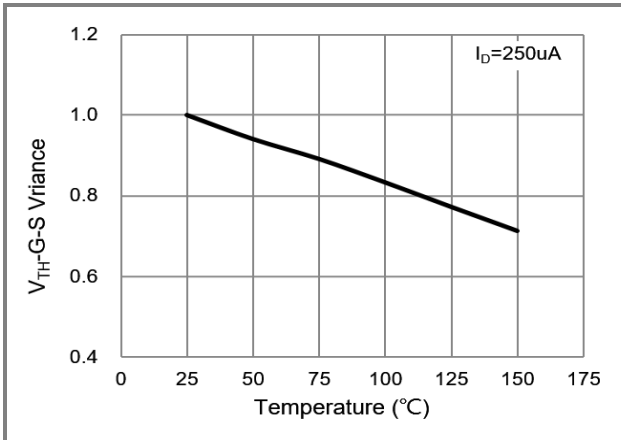


Fig.9 Threshold Voltage Variation with Temperature

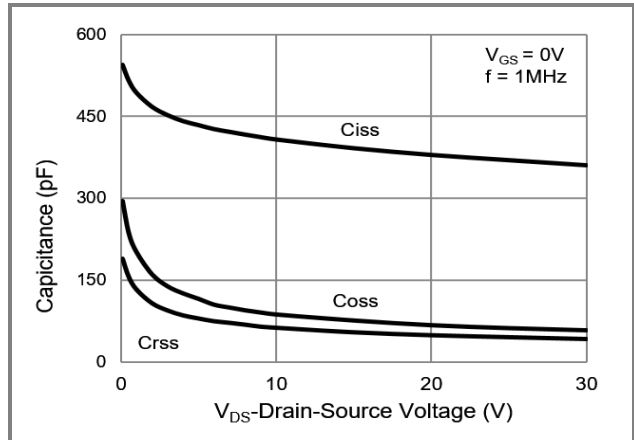


Fig.10 Capacitance vs. Drain-Source Voltage

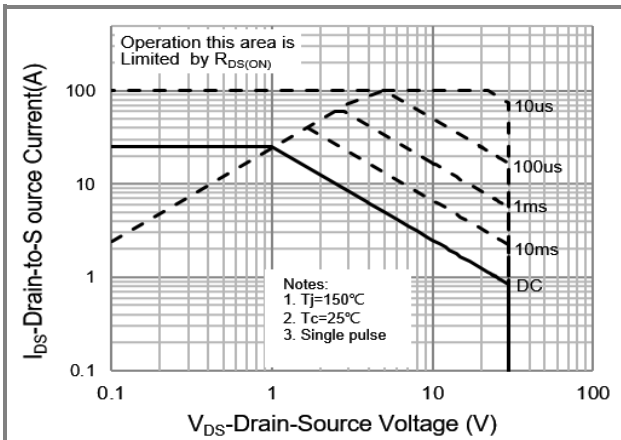


Fig.11 Maximum Safe Operating Area



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TYPICAL CHARACTERISTIC CURVES

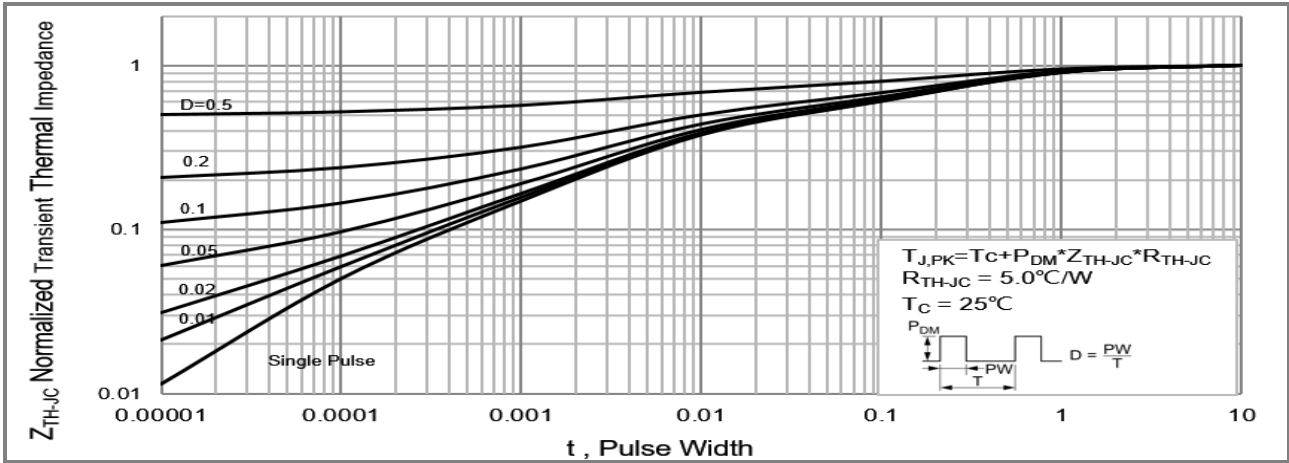
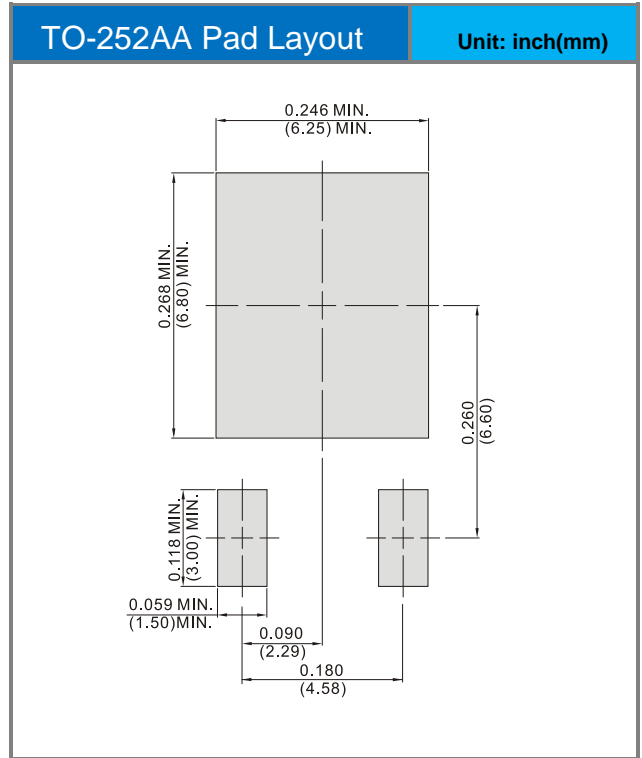
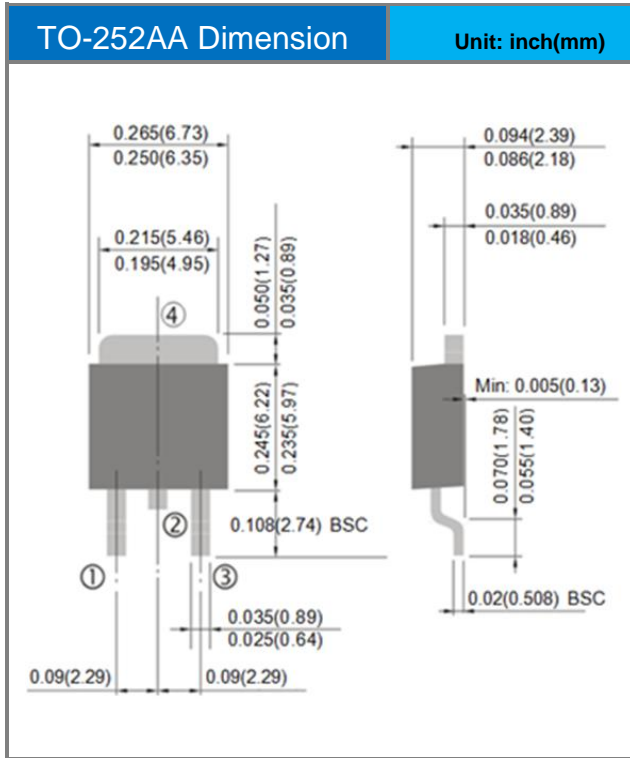


Fig.12 Normalized Transient Thermal Impedance vs. Pulse Width



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Packaging Information & Mounting Pad Layout





PJD25N03

PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing Type	Marking	Version
PJD25N03_L2_00001	TO-252AA	3,000pcs / 13" reel	D25N03	Halogen free



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