

PJD100P03

30V P-Channel Enhancement Mode MOSFET

Voltage	-30 V	Current	-100 A
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Features

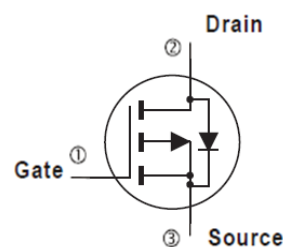
- $R_{DS(ON)}$, $V_{GS}@-10V, I_D@-20A < 4.5m\Omega$
- $R_{DS(ON)}$, $V_{GS}@-4.5V, I_D@-15A < 7m\Omega$
- High switching speed
- Improved dv/dt capability
- Low Gate Charge
- Low reverse transfer capacitance
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case : TO-252AA Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- 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}	-30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C=25^{\circ}C$	I_D	-100	A
	$T_C=100^{\circ}C$		-63	
Pulsed Drain Current (Note 1)	$T_C=25^{\circ}C$	I_{DM}	-400	
Power Dissipation	$T_C=25^{\circ}C$	P_D	104	W
	$T_C=100^{\circ}C$		42	
Continuous Drain Current	$T_A=25^{\circ}C$	I_D	-15.8	A
	$T_A=70^{\circ}C$		-12.6	
Power Dissipation	$T_A=25^{\circ}C$	P_D	2.0	W
Power Dissipation	$T_A=70^{\circ}C$		1.3	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	$^{\circ}C$
Typical Thermal Resistance (Note 4,5)	Junction to Case	$R_{\theta JC}$	1.2	$^{\circ}C/W$
	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	-30	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-1	-1.6	-2.5	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-20A	-	3.9	4.5	mΩ
		V _{GS} =-4.5V, I _D =-15A	-	5.7	7	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V	-	-	-1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Dynamic (Note 6)						
Total Gate Charge	Q _g	V _{DS} =-15V, I _D =-10A, V _{GS} =-10V (Note 2,3)	-	107	-	nC
Gate-Source Charge	Q _{gs}		-	18	-	
Gate-Drain Charge	Q _{gd}		-	18	-	
Input Capacitance	C _{iss}	V _{DS} =-25V, V _{GS} =0V, f=1.0MHZ	-	6067	-	pF
Output Capacitance	C _{oss}		-	709	-	
Reverse Transfer Capacitance	C _{rss}		-	361	-	
Turn-On Delay Time	td _(on)	V _{DS} =-15V, I _D =-1A, V _{GS} =-10V, R _G =6Ω (Note 2,3)	-	22	-	ns
Turn-On Rise Time	t _r		-	48	-	
Turn-Off Delay Time	td _(off)		-	197	-	
Turn-Off Fall Time	t _f		-	90	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	-100	A
Diode Forward Voltage	V _{SD}	I _S =-1A, V _{GS} =0V	-	-0.68	-1	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. Guaranteed by design, not subject to production testing

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TYPICAL CHARACTERISTIC CURVES

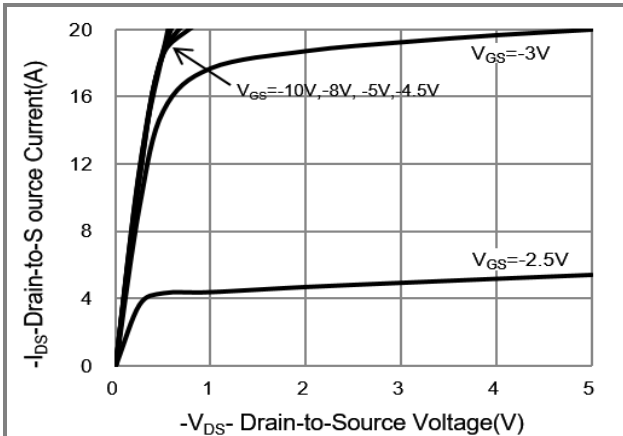


Fig.1 Output Characteristics

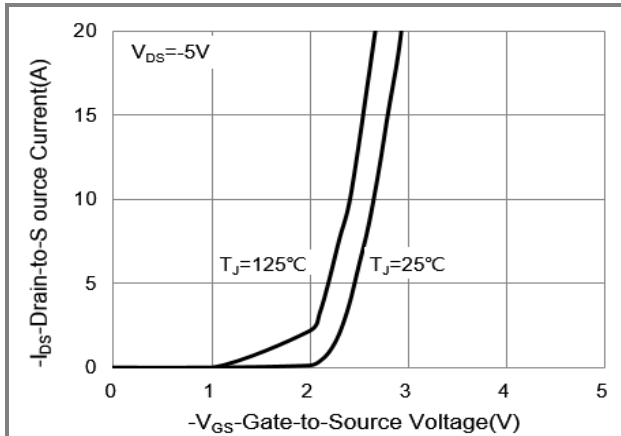


Fig.2 Transfer Characteristics

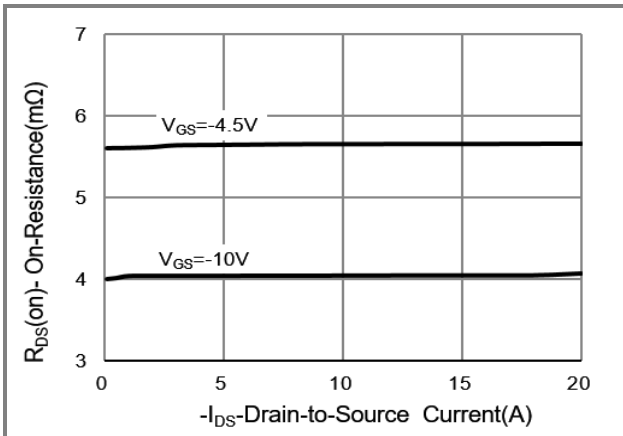


Fig.3 On-Resistance vs. Drain Current

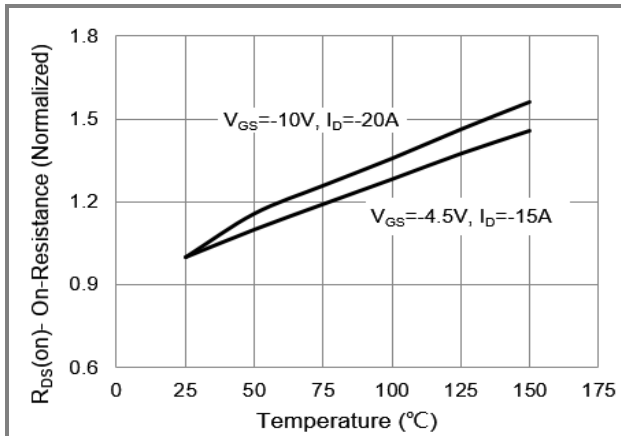


Fig.4 On-Resistance vs. Junction Temperature

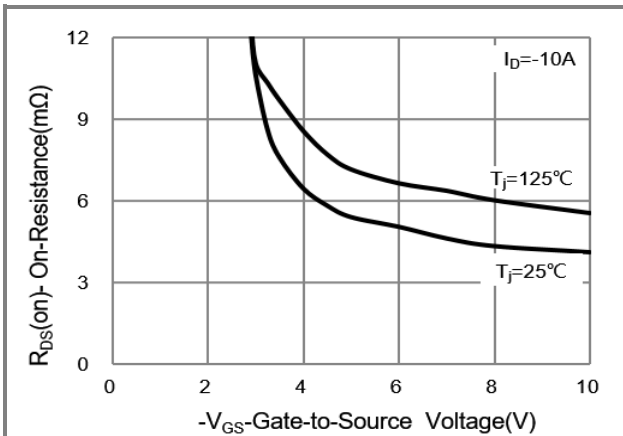


Fig.5 On-Resistance Variation with V_GS.

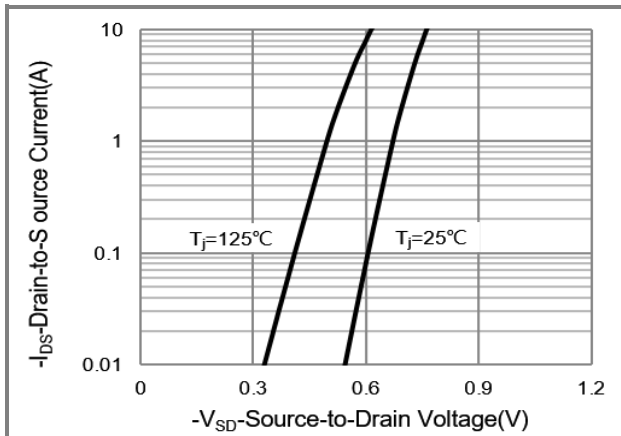
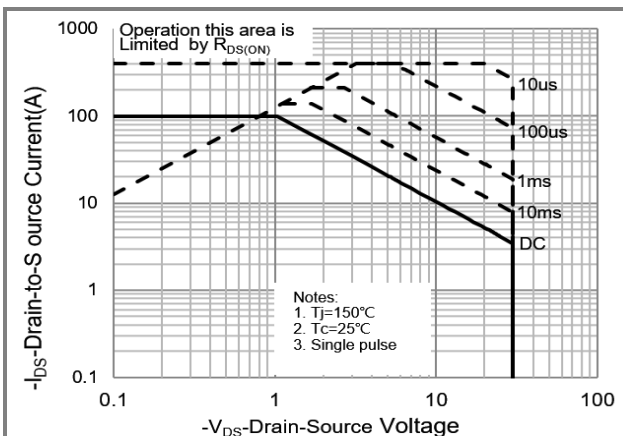
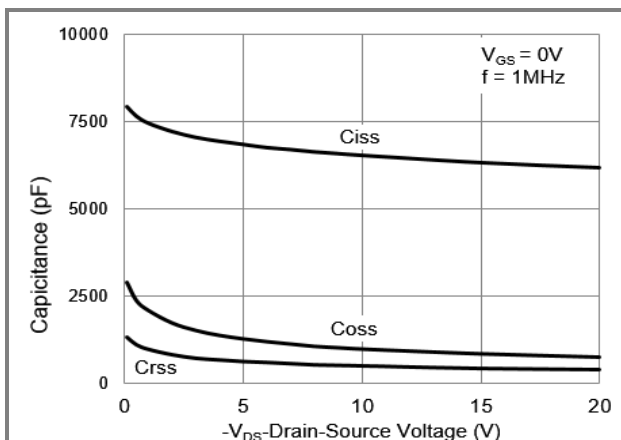
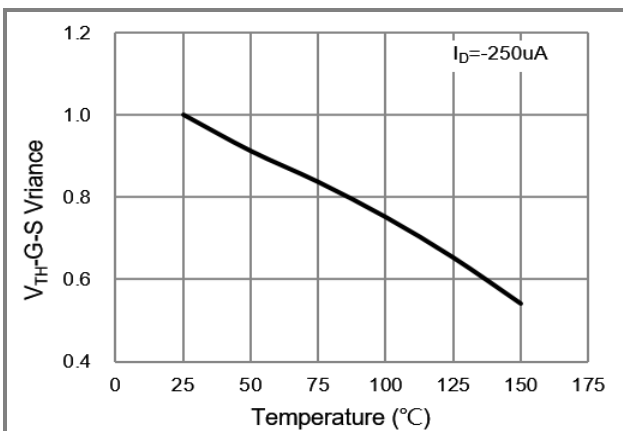
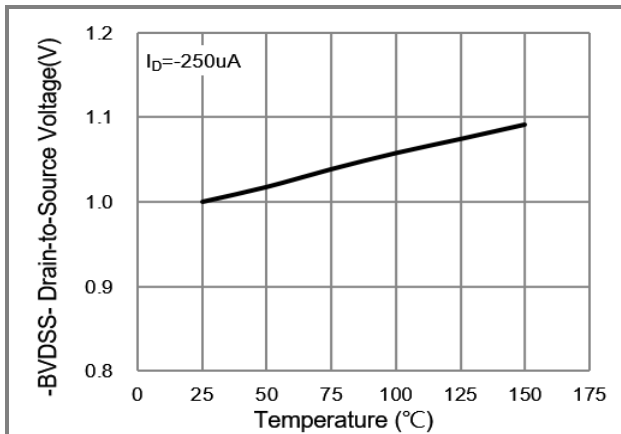
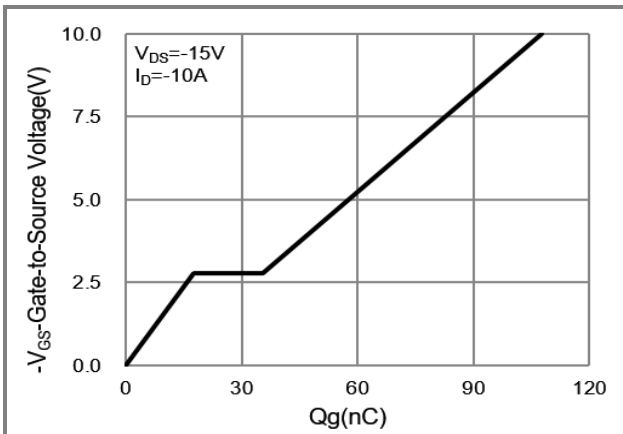


Fig.6 Body Diode Characteristics

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TYPICAL CHARACTERISTIC CURVES





PJD100P03

TYPICAL CHARACTERISTIC CURVES

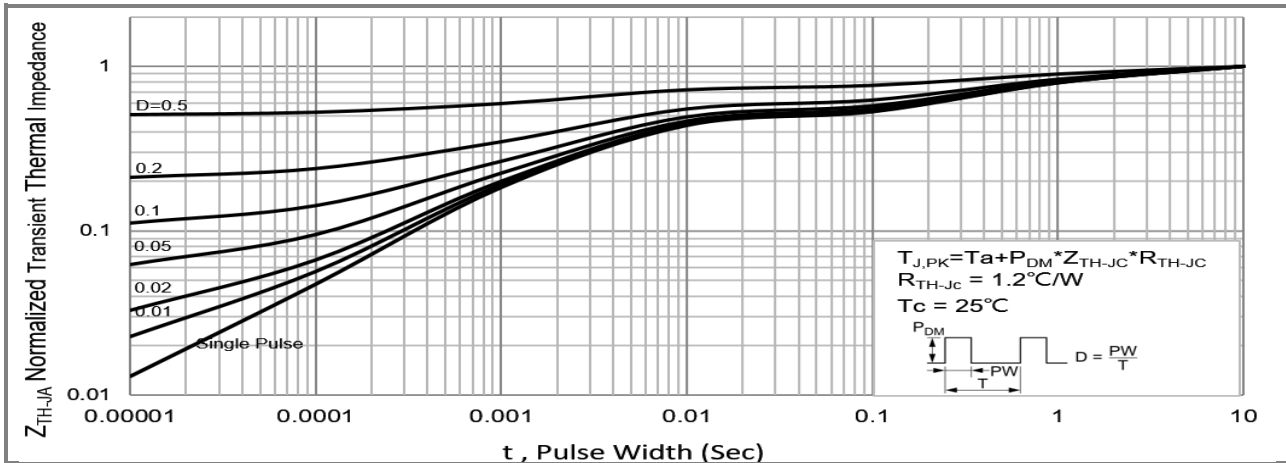


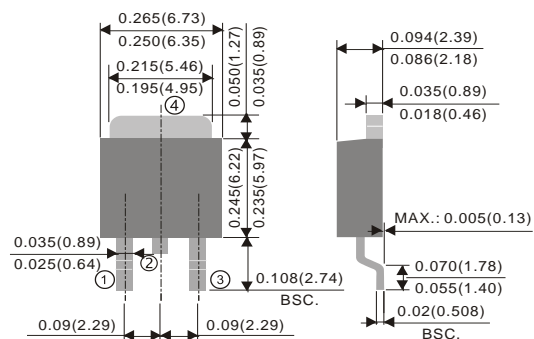
Fig.13 PJP100P03 Normalized Transient Thermal Impedance vs. Pulse Width

PJD100P03

Packaging Information

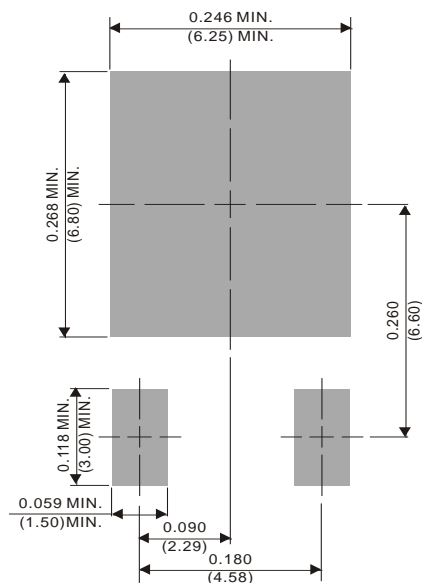
TO-252AA Dimension

Unit: inch(mm)



TO-252AA Pad Layout

Unit: inch(mm)





PJD100P03

PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing Type	Marking	Version
PJD100P03_L2_00001	TO-252AA	3,000pcs / 13" reel	D100P03	Halogen free



PJD100P03

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