

PJU9P06A / PJD9P06A

60V P-Channel Enhancement Mode MOSFET

Voltage

-60 V

Current

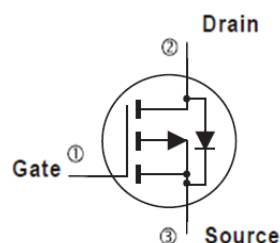
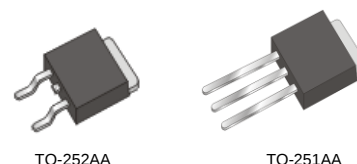
-7 A

Features

- $R_{DS(ON)}$, $V_{GS}@-10V$, $I_D@-3.5A < 190m\Omega$
- $R_{DS(ON)}$, $V_{GS}@-4.5V$, $I_D@-2A < 240m\Omega$
- 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-251AA, TO-252AA Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- TO-251AA Approx. Weight : 0.0104 ounces, 0.297grams
- TO-252AA Approx. Weight : 0.0104 ounces, 0.297grams



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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	+20	V
Continuous Drain Current	$T_C=25^{\circ}C$	I_D	-7.0	A
	$T_C=100^{\circ}C$		-4.3	
Pulsed Drain Current (Note 1)	$T_C=25^{\circ}C$	I_{DM}	-28	
Power Dissipation	$T_C=25^{\circ}C$	P_D	15.6	W
	$T_C=100^{\circ}C$		6.2	
Continuous Drain Current	$T_A=25^{\circ}C$	I_D	-2.5	A
	$T_A=70^{\circ}C$		-2.0	A
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}	32	mJ
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	$^{\circ}C$
Typical Thermal Resistance (Note 4,5)	Junction to Case	$R_{\theta JC}$	8	$^{\circ}C/W$
	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	-60	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-1.0	-1.88	-2.5	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-3.5A	-	150	190	mΩ
		V _{GS} =-4.5V, I _D =-2A	-	190	240	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-60V, 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} =-30V, I _D =-3A, V _{GS} =-10V (Note 2,3)	-	8.3	-	nC
Gate-Source Charge	Q _{gs}		-	1.8	-	
Gate-Drain Charge	Q _{gd}		-	1.6	-	
Input Capacitance	C _{iss}	V _{DS} =-30V, V _{GS} =0V, f=1.0MHZ	-	430	-	pF
Output Capacitance	C _{oss}		-	33	-	
Reverse Transfer Capacitance	C _{rss}		-	29	-	
Turn-On Delay Time	td _(on)	V _{DS} =-30V, I _D =-1.0A, V _{GS} =-10V, R _G =6Ω (Note 2,3)	-	5.1	-	ns
Turn-On Rise Time	t _r		-	20	-	
Turn-Off Delay Time	td _(off)		-	36	-	
Turn-Off Fall Time	t _f		-	11	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	-7	A
Reverse Recovery Time	V _{SD}	I _S =-1A, V _{GS} =0V	-	-0.76	-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. $L=0.1\text{mH}$, $I_{AS}=-8A$, $V_{GS}=-10V$, $V_{DS}=-25V$, $R_G=25\text{ ohm}$
7. Guaranteed by design, not subject to production testing.

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TYPICAL CHARACTERISTIC CURVES

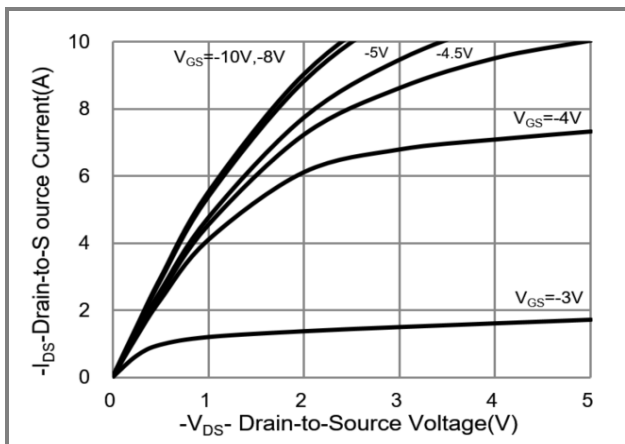


Fig.1 On-Region Characteristics

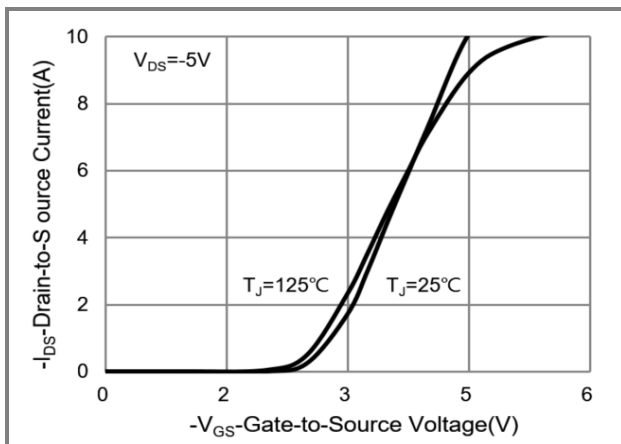


Fig.2 Transfer Characteristics

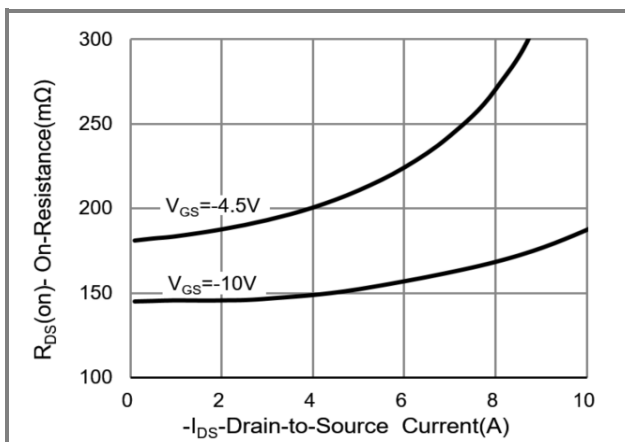


Fig.3 On-Resistance vs. Drain Current

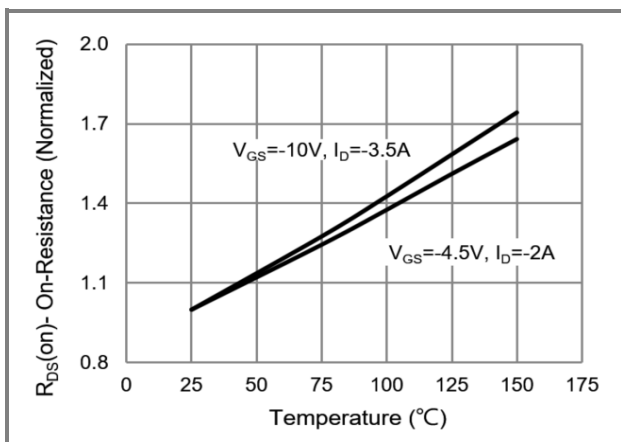


Fig.4 On-Resistance vs. Junction temperature

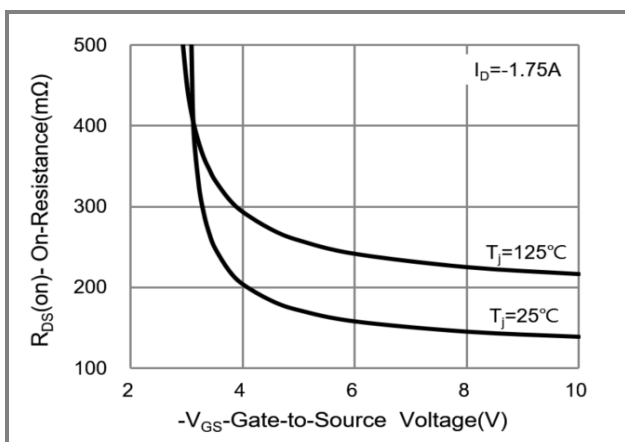


Fig.5 On-Resistance Variation with V_GS.

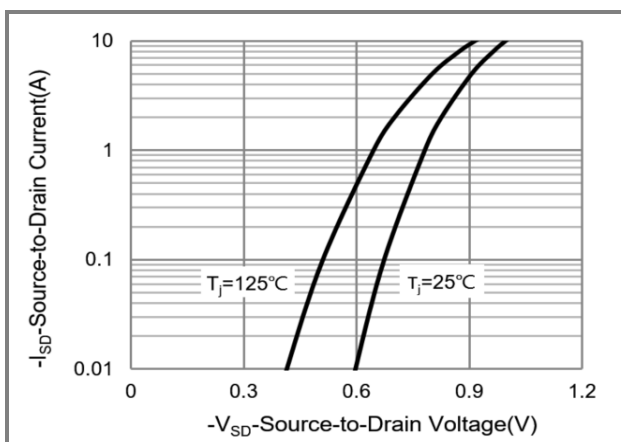


Fig.6 Body Diode Characteristics

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TYPICAL CHARACTERISTIC CURVES

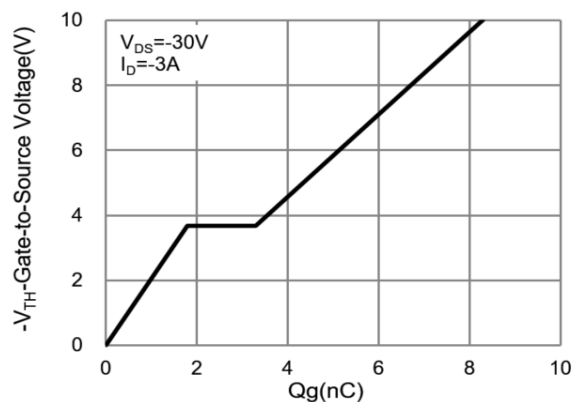


Fig.7 Gate-Charge Characteristics

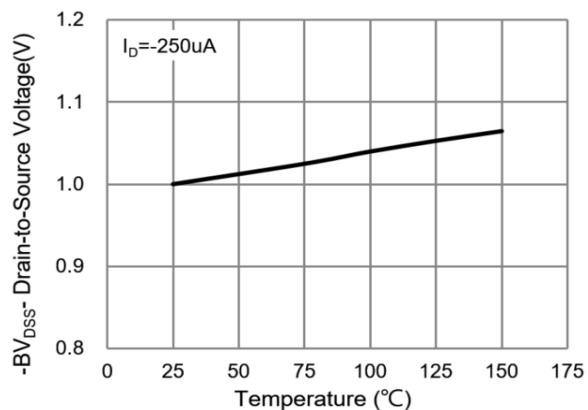


Fig.8 Breakdown Voltage Variation vs. Temperature

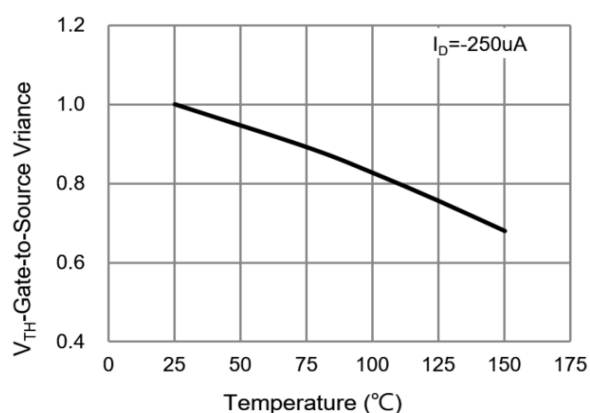


Fig.9 Threshold Voltage Variation with Temperature.

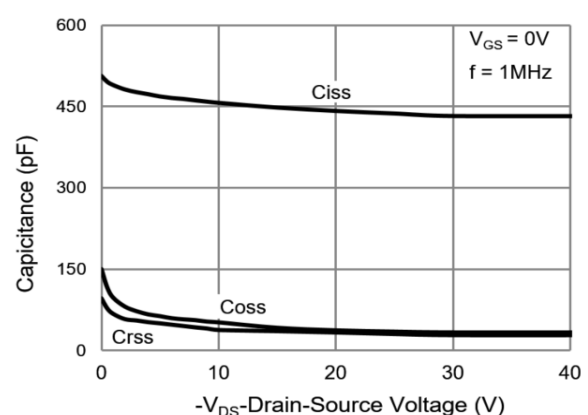


Fig.10 Capacitance vs. Drain-Source Voltage.

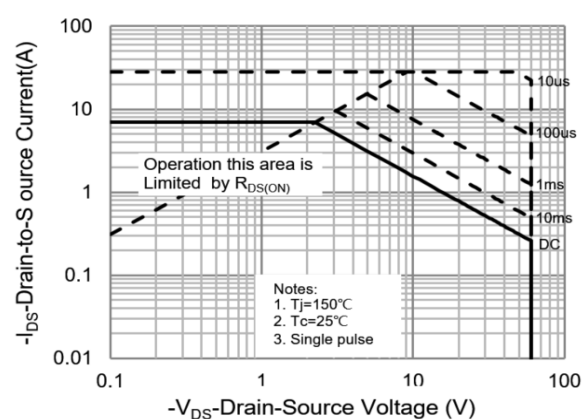


Fig.11 Maximum Safe Operating Area



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TYPICAL CHARACTERISTIC CURVES

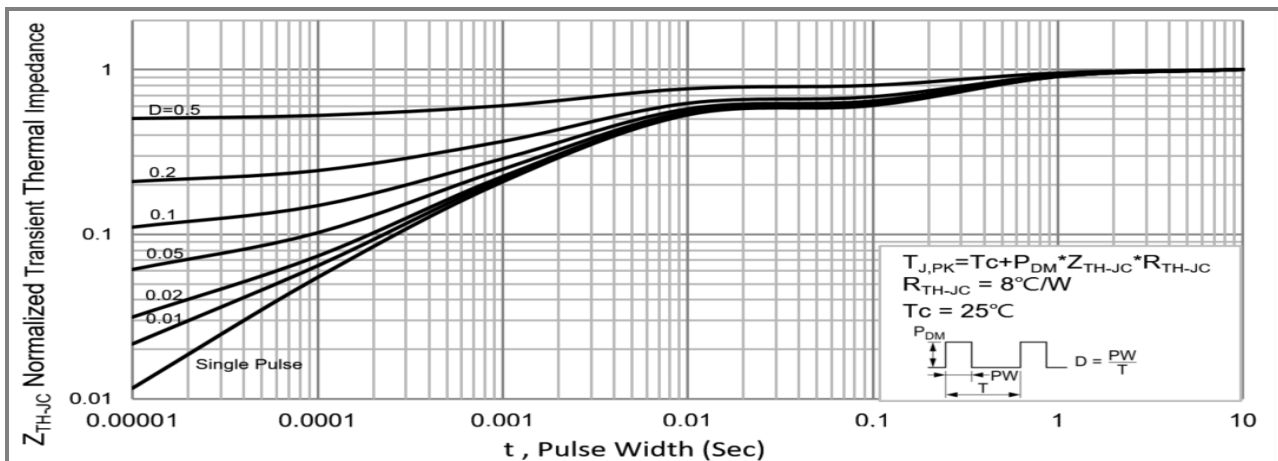
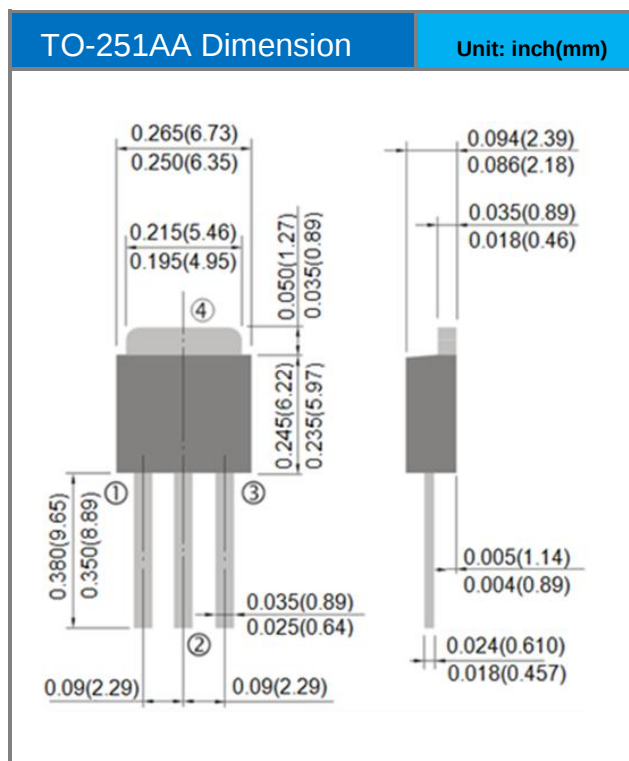
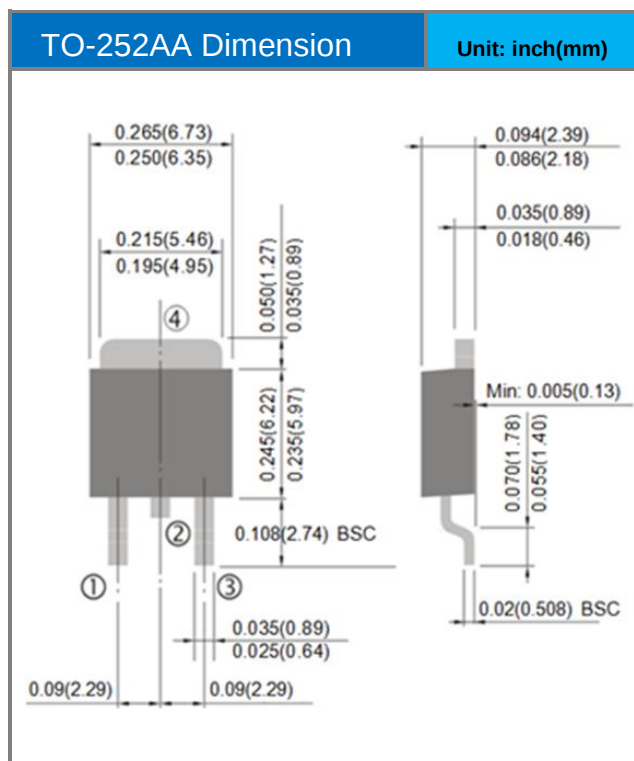


Fig.12 Normalized Thermal Transient Impedance

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Packaging Information





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PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing Type	Marking	Version
PJU9P06A_T0_00001	TO-251AA	80pcs / Tube	U9P06A	Halogen free
PJD9P06A_L2_00001	TO-252AA	3,000pcs / 13" reel	D9P06A	Halogen free



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