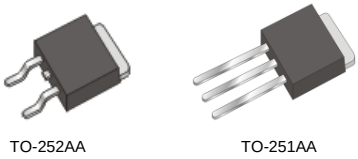
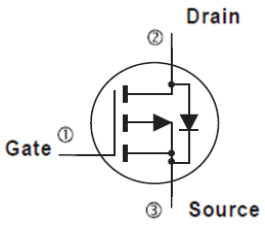
PJU12P06 / PJD12P06

60V P-Channel Enhancement Mode MOSFET

Voltage	-60 V	Current	-12 A





Features

- $R_{DS(ON)}$, V_{GS}@-10V, I_D@-6A<155mΩ
- 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-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°C unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	T_C=25°C	I_D	-12	A
	T_C=100°C		-7.7	
Pulsed Drain Current (Note 1)	T_C=25°C	I_{DM}	-48	
Power Dissipation	T_C=25°C	P_D	50	W
	T_C=100°C		20	
Continuous Drain Current	T_A=25°C	I_D	-2.6	A
	T_A=70°C		-2.0	
Power Dissipation	T_A=25°C	P_D	2.0	W
Power Dissipation	T_A=70°C		1.3	
Single Pulse Avalanche Energy (Note 6)		E_{AS}	337	mJ
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150	°C
Typical Thermal Resistance(Note 4,5)	Junction to Case	$R_{\theta JC}$	2.5	°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°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	-2.0	-2.86	-4.0	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=-10V, I_D=-6A	-	132	155	mΩ
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}=-48V, I_D=-12A, V_{GS}=-10V (Note 2,3)	-	10.9	-	nC
Gate-Source Charge	Q_{gs}		-	2.7	-	
Gate-Drain Charge	Q_{gd}		-	4.0	-	
Input Capacitance	Ciss	V_{DS}=-25V, V_{GS}=0V, f=1.0MHZ	-	385	-	pF
Output Capacitance	Coss		-	158	-	
Reverse Transfer Capacitance	Crss		-	31	-	
Turn-On Delay Time	$td_{(on)}$	V_{DS}=-30V, I_D=-12A, V_{GS}=-10V, R_G=6Ω (Note 2,3)	-	4.4	-	ns
Turn-On Rise Time	t_r		-	59	-	
Turn-Off Delay Time	$td_{(off)}$		-	20	-	
Turn-Off Fall Time	t_f		-	36	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	-12	A
Diode Forward Voltage	V_{SD}	I_S=-1A, V_{GS}=0V	-	-0.75	-1	V
Reverse Recovery Time	trr	V_{GS}=0V, I_S=-12A dI$_F$/ dt=100A/us (Note 2)	-	37	-	ns
Reverse Recovery Charge	Qrr		-	67	-	nC

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. $R_{\Theta JA}$ 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 inch^2 with 2oz.square pad of copper
6. L=3mH, I_{AS}=-15A, V_{GS}=-10V, V_{DS}=-25V, R_G=25 ohm, Starting T_J=25°C
7. Guaranteed by design, not subject to production testing.

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TYPICAL CHARACTERISTIC CURVES

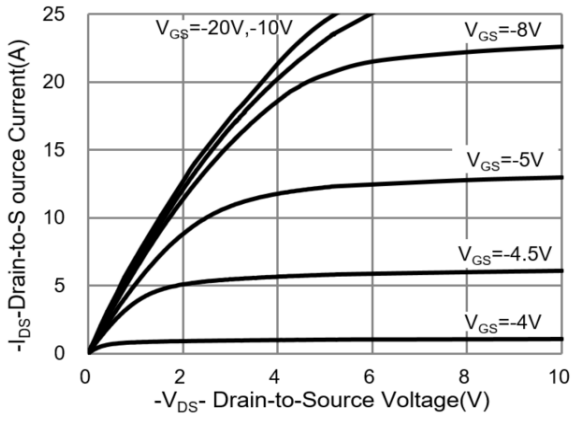


Fig.1 On-Region Characteristics

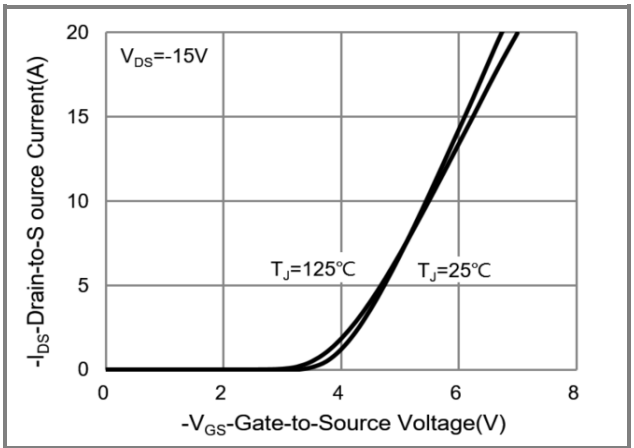


Fig.2 Transfer Characteristics

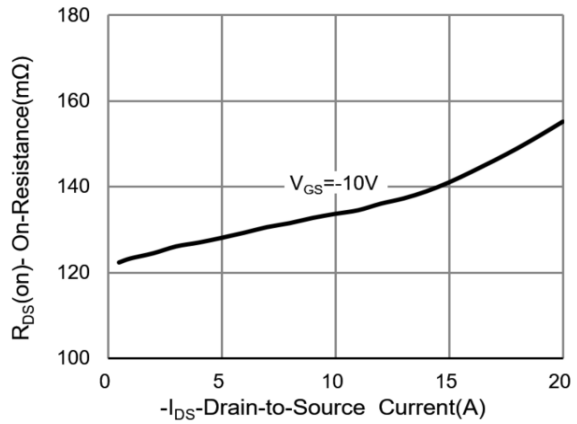


Fig.3 On-Resistance vs. Drain Current

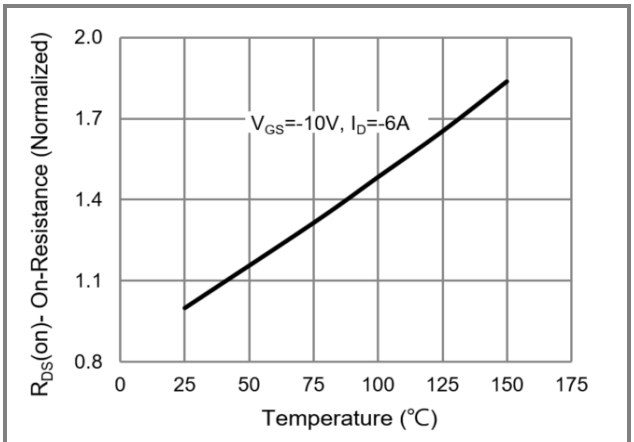


Fig.4 On-Resistance vs. Junction temperature

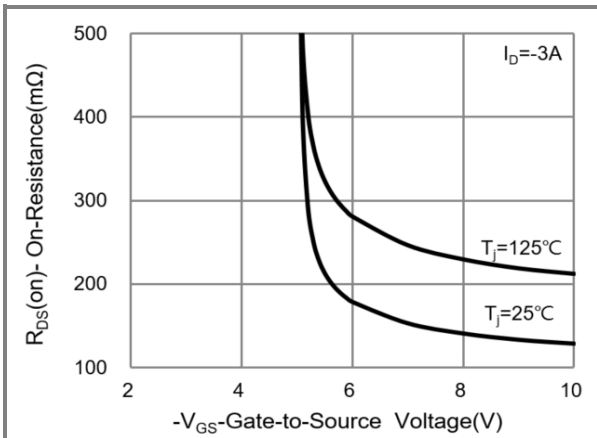


Fig.5 On-Resistance Variation with V_{GS}

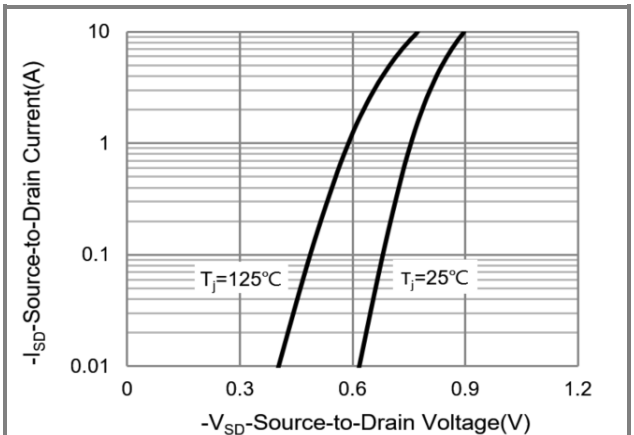


Fig.6 Body Diode Characteristics

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TYPICAL CHARACTERISTIC CURVES

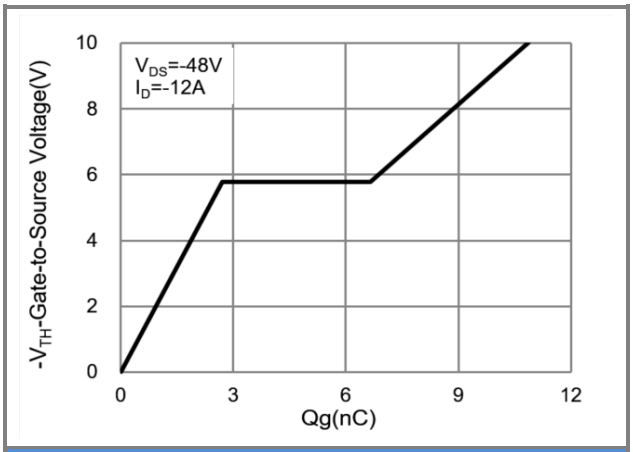


Fig.7 Gate-Charge Characteristics

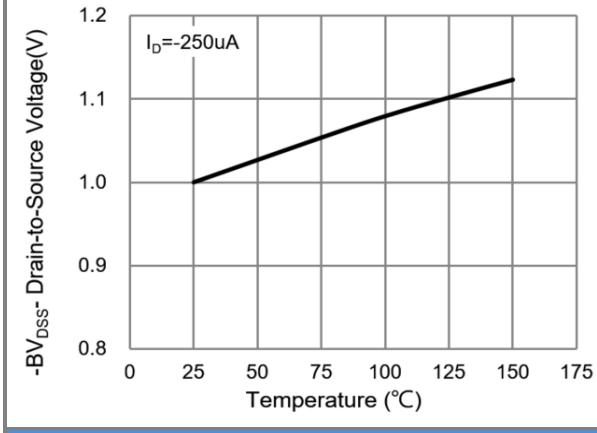


Fig.8 Breakdown Voltage Variation vs. Temperature

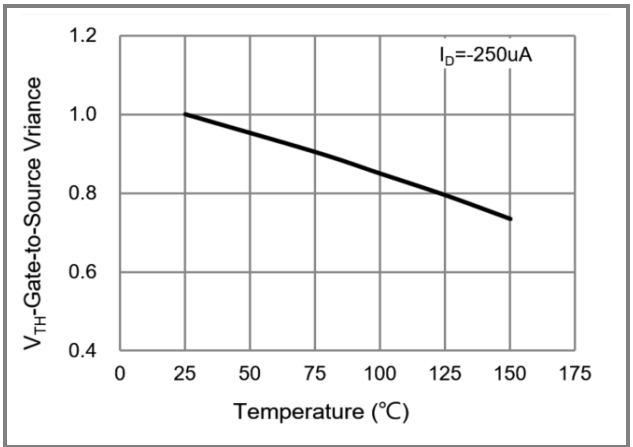


Fig.9 Threshold Voltage Variation with Temperature

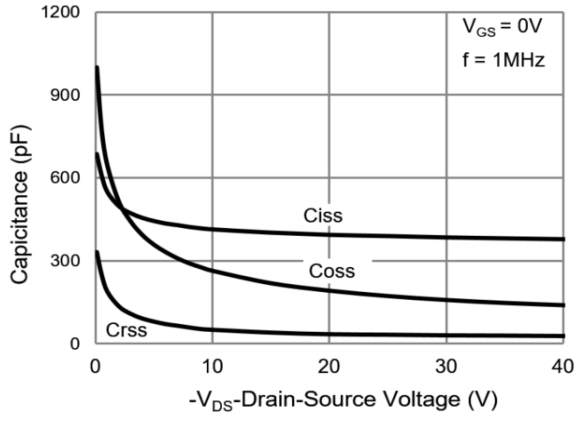


Fig.10 Capacitance vs. Drain-Source Voltage

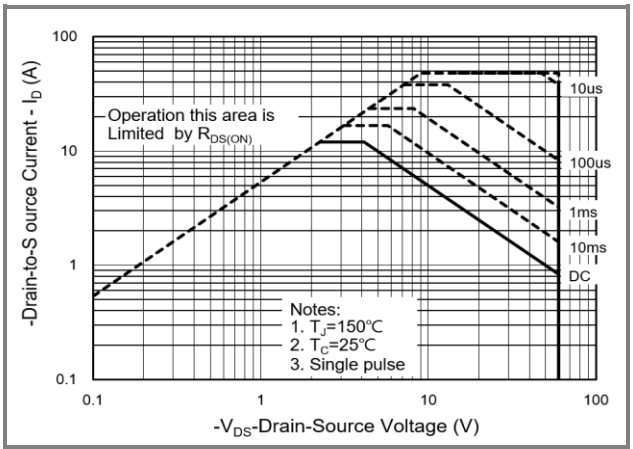


Fig.11 Maximum Safe Operating Area

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TYPICAL CHARACTERISTIC CURVES

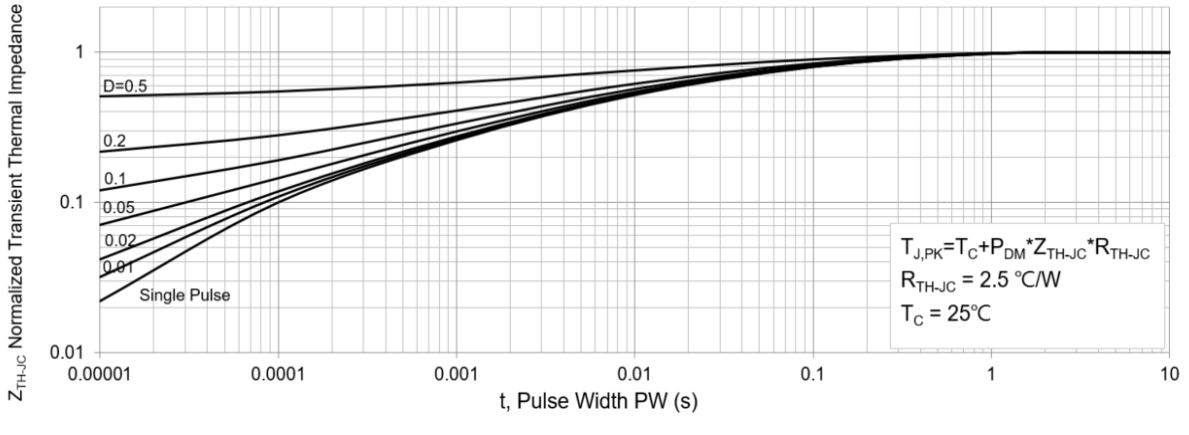


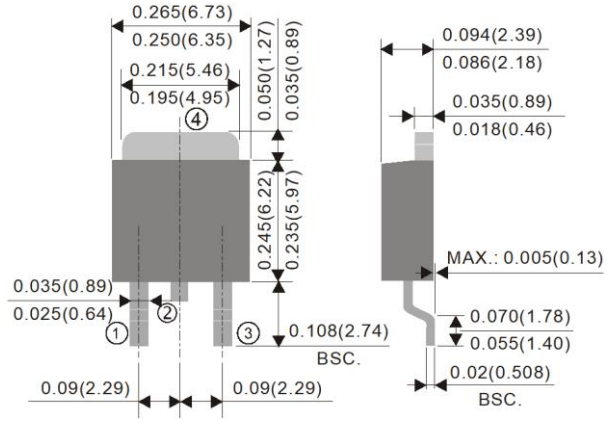
Fig.12 Normalized Thermal Transient Impedance

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Packaging Information

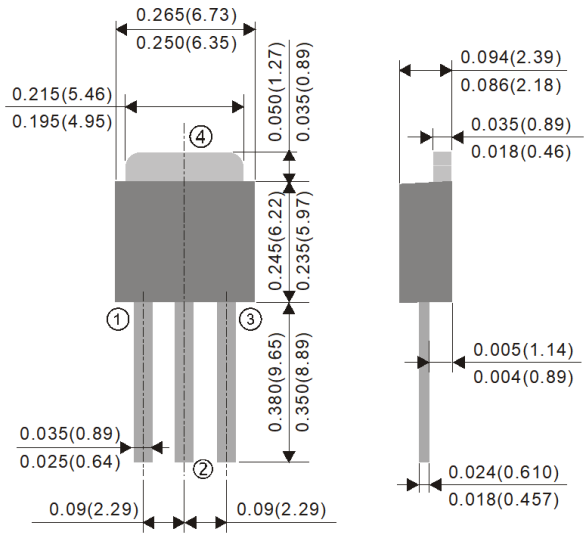
TO-252AA Dimension

Unit: inch(mm)



TO-251AA Dimension

Unit: inch(mm)



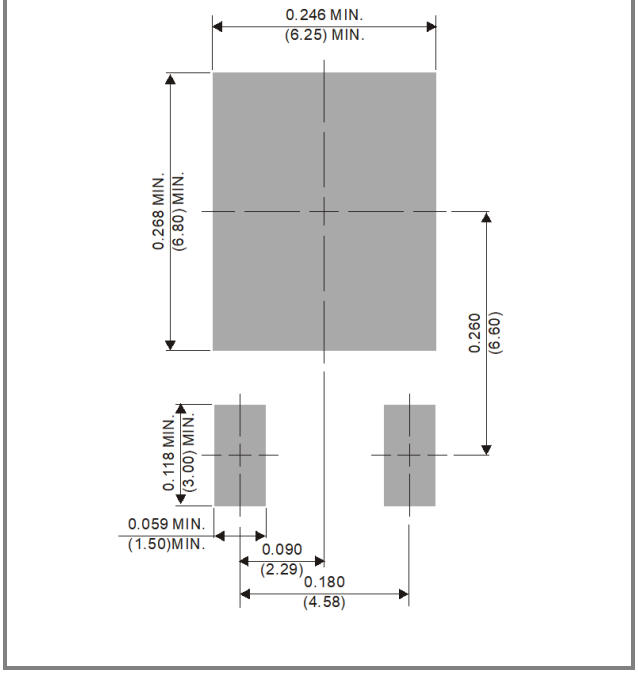
PJU12P06 / PJD12P06

Part No Packing Code Version

Part No Packing Code	Package Type	Packing Type	Marking	Version
PJU12P06_T0_00001	TO-251AA	80pcs / Tube	U12P06	Halogen free
PJD12P06_L2_00001	TO-252AA	3,000pcs / 13” reel	D12P06	Halogen free

Mounting Pad Layout

TO-252AA — Unit: inch(mm)



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