



PJN1N60D

600V N-Channel Enhancement Mode MOSFET

TO-92

FEATURES

- 0.5A, 600V, $R_{DS(ON)}=15\Omega@V_{GS}=10V, I_D=0.5A$
- Low ON Resistance
- Fast Switching
- Low Gate Charge
- Fully Characterized Avalanche Voltage and Current
- Specially Designed for AC Adapter, Battery Charge and SMPS
- In compliance with EU RoHs 2002/95/EC Directives

MECHANICAL DATA

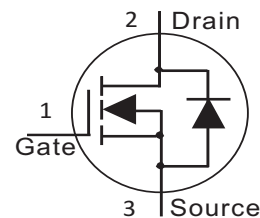
- Case: TO-92 Molded Plastic
- Terminals : Solderable per MIL-STD-750, Method 2026

ORDERING INFORMATION

TYPE	MARKING	PACKAGE	PACKING
PJN1N60D	1N60D	TO-92	2KPCS/AMMOPAK



INTERNAL SCHEMATIC DIAGRAM



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

PARAMETER	Symbol	PJN1N60D	Units
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	± 30	V
Continuous Drain Current	I_D	0.5	A
Pulsed Drain Current ¹⁾	I_{DM}	2.0	A
Maximum Power Dissipation $T_A=25^\circ\text{C}$	P_D	0.9	W
Maximum Power Dissipation $T_L=25^\circ\text{C}$		3.1	
Derating factor		0.02	
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$
Avalanche Energy with Single Pulse $I_{AS}=1.6A, V_{DD}=50V, L=77mH$	E_{AS}	106	mJ
Junction-to-Lead Thermal Resistance ²⁾	$R_{\theta JL}$	40	$^\circ\text{C/W}$
Junction-to Ambient Thermal Resistance	$R_{\theta JA}$	140	$^\circ\text{C/W}$

- Note :**
1. Maximum DC current limited by the package
 2. Reference point of the $R_{\theta JL}$ is the drain lead

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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	600	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	2.0	-	4.0	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =0.5A	-	10.5	15	Ω
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =600V, V _{GS} =0V	-	-	10	uA
Gate Body Leakage	I _{GSS}	V _{GS} =±30V, V _{DS} =0V	-	-	±100	nA
Dynamic						
Total Gate Charge	Q _g	V _{DS} =480V, I _D =0.5A V _{GS} =10V	-	5.6	9.2	nC
Gate-Source Charge	Q _{gs}		-	1.32	-	
Gate-Drain Charge	Q _{gd}		-	2.8	-	
Turn-On Delay Time	t _{d(on)}	V _{DD} =300V, I _D =0.5A V _{GS} =10V, R _G =5Ω	-	8.8	16	ns
Turn-On Rise Time	t _r		-	6.2	8.6	
Turn-Off Delay Time	t _{d(off)}		-	15.2	26	
Turn-Off Fall Time	t _f		-	11.2	21	
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V f=1.0MHz	-	150	180	pF
Output Capacitance	C _{oss}		-	14	22	
Reverse Transfer Capacitance	C _{rss}		-	1.4	4.0	
Source-Drain Diode						
Max. Diode Forward Current	I _S	-	-	-	0.5	A
Max.Pulsed Source Current	I _{SM}	-	-	-	2.0	A
Diode Forward Voltage	V _{SD}	I _S =0.5A, V _{GS} =0V	-	-	1.6	V
Reverse Recovery Time	t _{rr}	V _{GS} =0V, I _F =0.5A di/dt=100A/us	-	190	-	ns
Reverse Recovery Charge	Q _{rr}		-	0.5	-	uC

NOTE : Plus Test: Pluse Width ≤ 300us, Duty Cycle ≤ 2%.



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Typical Characteristics Curves ($T_a=25^\circ\text{C}$, unless otherwise noted)

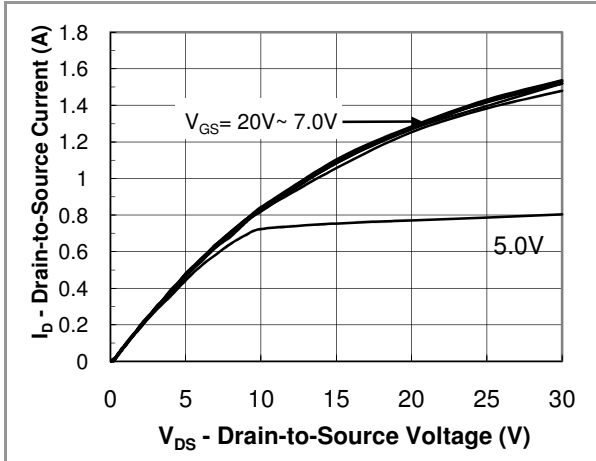


Fig.1 Output Characteristic

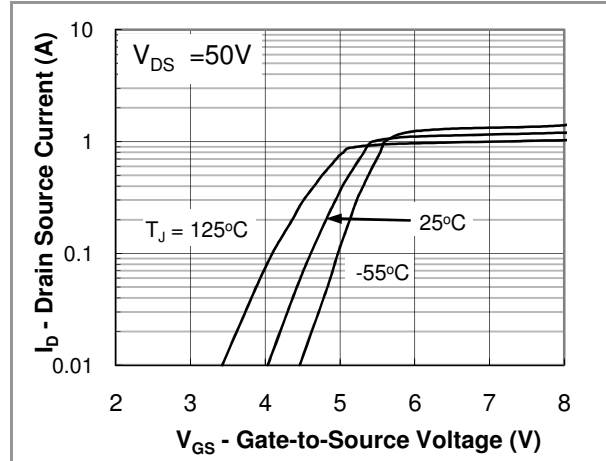


Fig.2 Transfer Characteristic

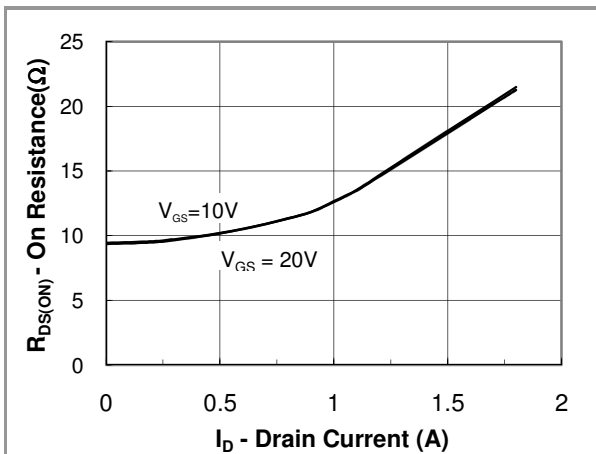


Fig.3 On Resistance vs Drain Current

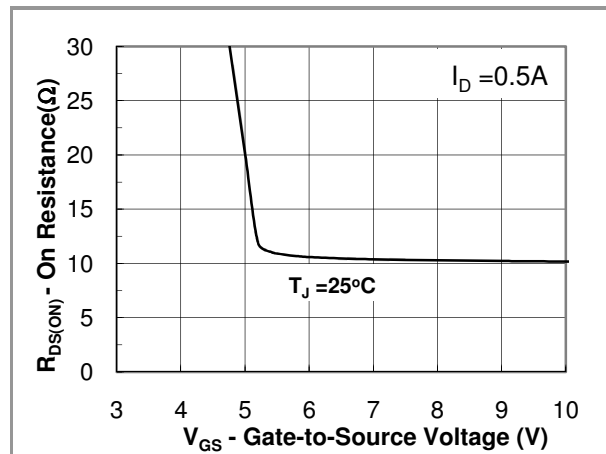


Fig.4 On Resistance vs Gate to Source Voltage

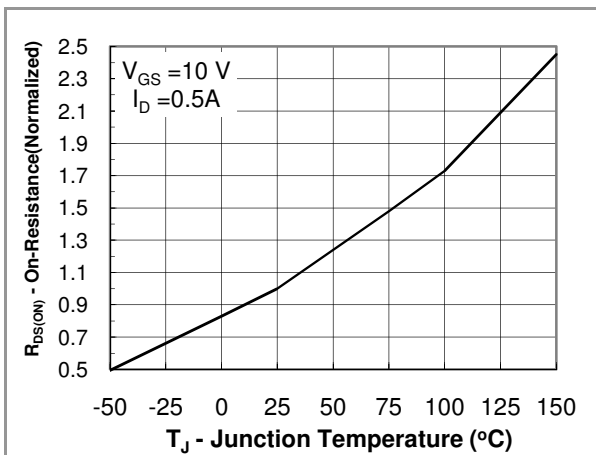


Fig.5 On Resistance vs Junction Temperature

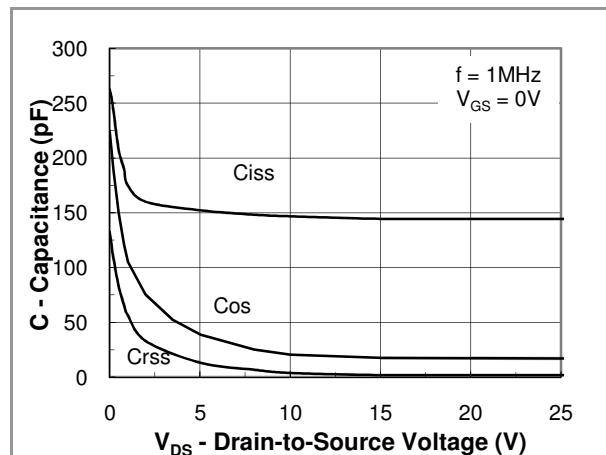


Fig.6 Capacitance



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Typical Characteristics Curves ($T_a=25^\circ\text{C}$, unless otherwise noted)

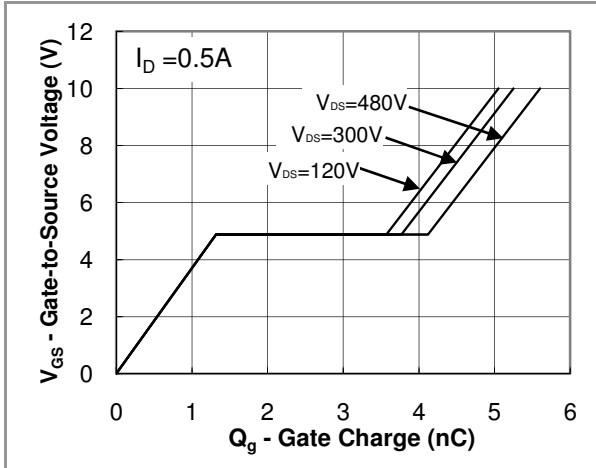


Fig. 7 Gate Charge Waveform

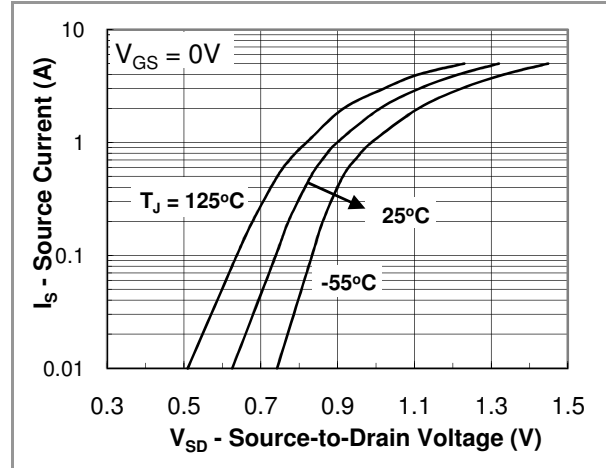


Fig.8 Source-Drain Diode Forward Voltage

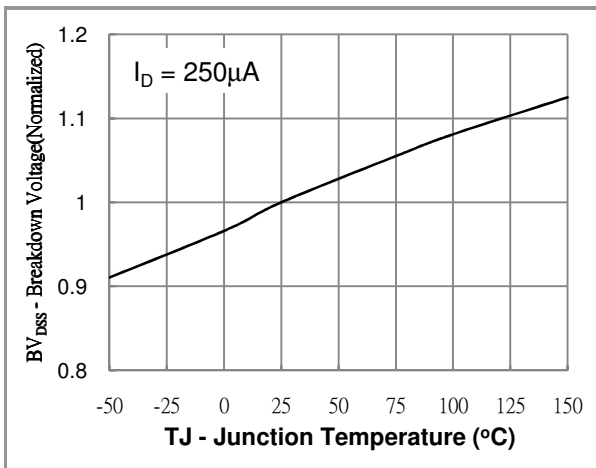


Fig.9 Breakdown Voltage vs Junction Temperature



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LEGALSTATEMENT

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(Use green molding compound:ELER-8)

1. Pan Jit can produce halogen free product use molding compound for packing from Mar.2008 that contain Br<700 ppm,Cl<700ppm, Br+Cl<1000ppm,Sb₂O₃<100ppm.
2. If your company need halogen free product shall be note requirement green compound material on order for the halogen free product request.