

PJP10N60 / PJF10N60

600V N-Channel Enhancement Mode MOSFET

FEATURES

- 10A , 600V, $R_{DS(ON)}=1.0\Omega@V_{GS}=10V, I_D=5.0A$
- 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

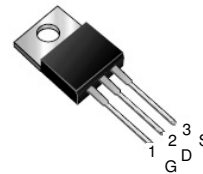
- Case: TO-220AB / ITO-220AB Molded Plastic
- Terminals : Solderable per MIL-STD-750,Method 2026

ORDERING INFORMATION

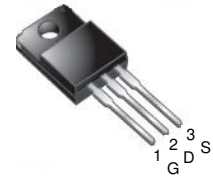
TYPE	MARKING	PACKAGE	PACKING
PJP10N60	P10N60	TO-220AB	50PCS/TUBE
PJF10N60	F10N60	ITO-220AB	50PCS/TUBE

TO-220AB / ITO-220AB

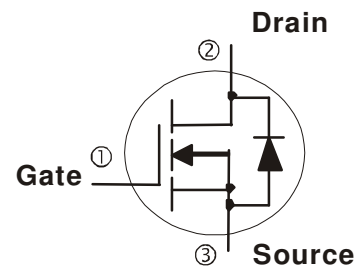
TO-220AB



ITO-220AB



INTERNAL SCHEMATIC DIAGRAM



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

PARAMETER	Symbol	PJP10N60	PJF10N60	Units
Drain-Source Voltage	V_{DS}	600		V
Gate-Source Voltage	V_{GS}	± 30		V
Continuous Drain Current	I_D	10	10	A
Pulsed Drain Current ¹⁾	I_{DM}	40	40	A
Maximum Power Dissipation Derating Factor	P_D	156 1.25	50 0.4	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150		$^\circ\text{C}$
Avalanche Energy with Single Pulse $I_{AS}=10A, V_{DD}=50V, L=10mH$	E_{AS}	500		mJ
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	0.8	2.5	$^\circ\text{C/W}$
Junction-to Ambient Thermal Resistance	$R_{\theta JA}$	62.5	100	$^\circ\text{C/W}$

Note: 1. Maximum DC current limited by the package

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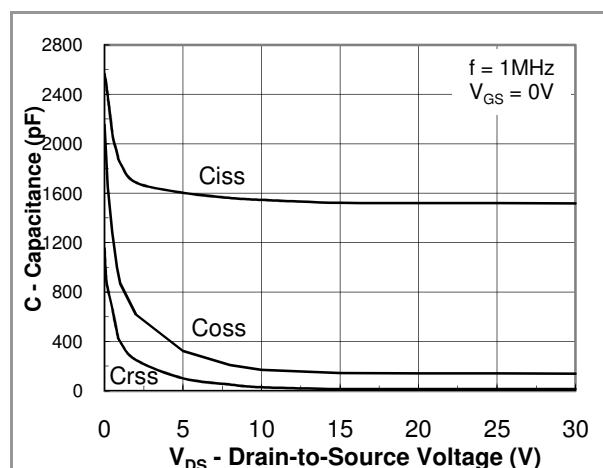
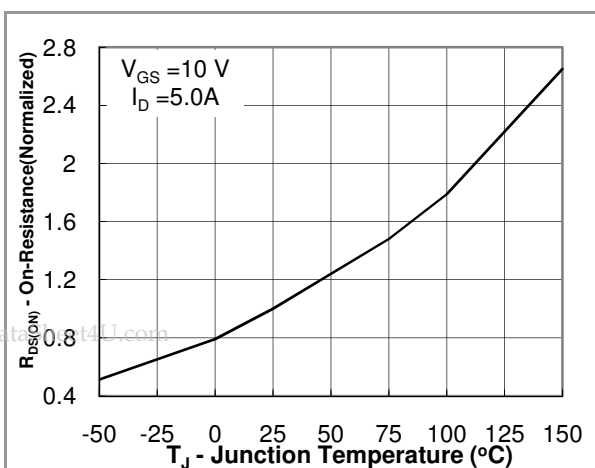
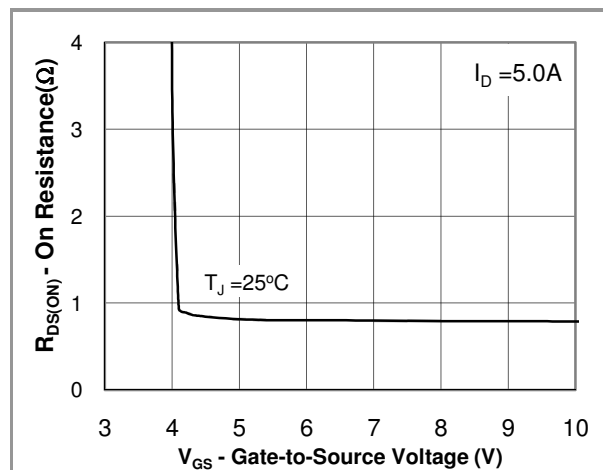
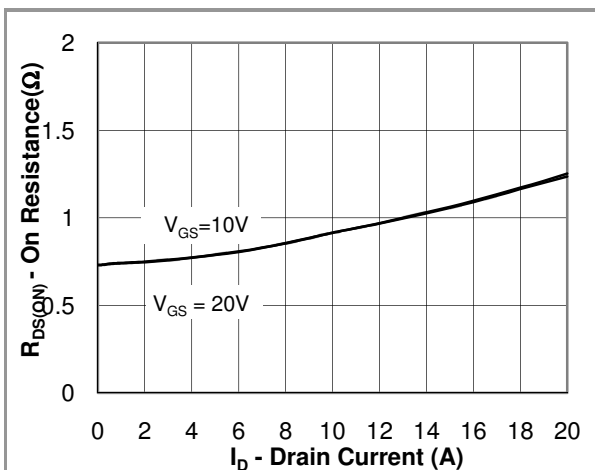
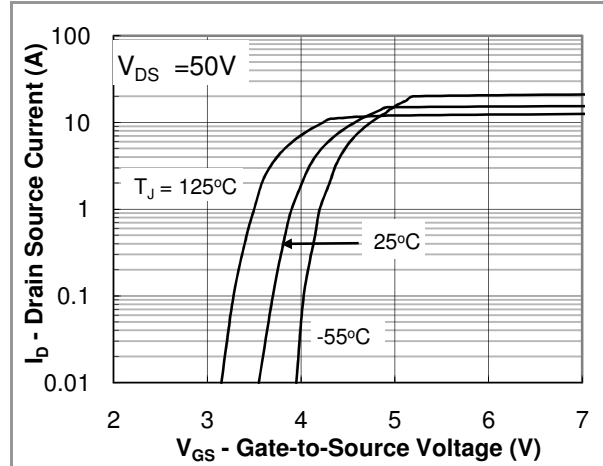
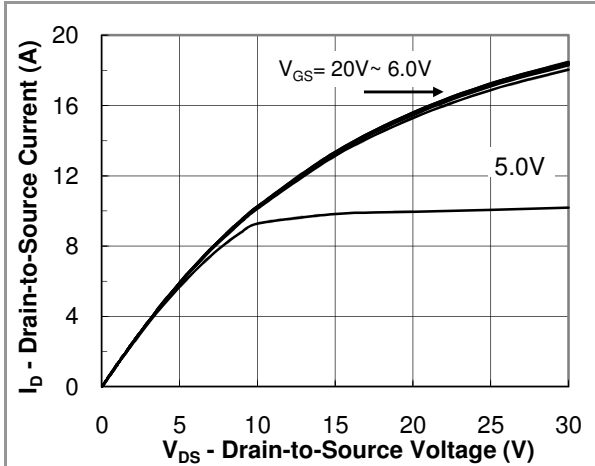
ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

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 = 5.0A	-	0.78	1.0	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 =10A, V _{GS} =10V	-	41.6	52	nC
Gate-Source Charge	Q _{gs}		-	8.6	-	
Gate-Drain Charge	Q _{gd}		-	14.2	-	
Turn-On Delay Time	t _{d(on)}	V _{DD} =300V, I _D =10A V _{GS} =10V, R _G =25Ω	-	16.2	22	ns
Turn-On Rise Time	t _r		-	18.6	32	
Turn-Off Delay Time	t _{d(off)}		-	40.2	86	
Turn-Off Fall Time	t _f		-	22.8	38	
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V f=1.0MH _z	-	1520	-	pF
Output Capacitance	C _{oss}		-	140	-	
Reverse Transfer Capacitance	C _{rss}		-	12.5	-	
Source-Drain Diode						
Max. Diode Forward Current	I _S	-	-	-	10	A
Max.Pulsed Source Current	I _{SM}	-	-	-	40	A
Diode Forward Voltage	V _{SD}	I _S =10A , V _{GS} =0V	-	-	1.4	V
Reverse Recovery Time	t _{rr}	V _{GS} =0V, I _F =10A di/dt=100A/us	-	420	-	ns
Reverse Recovery Charge	Q _{rr}		-	4.2	-	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)



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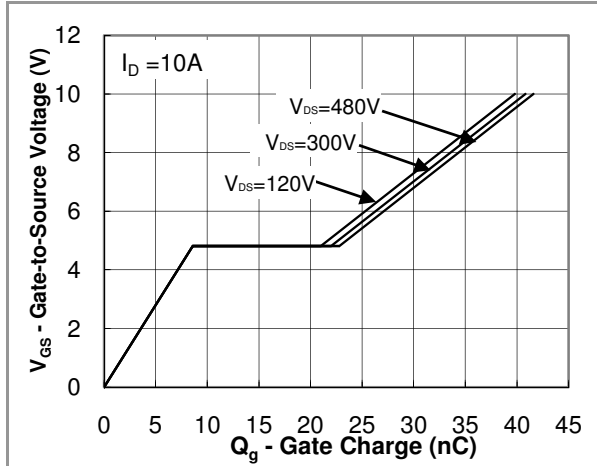


Fig. 7 Gate Charge Waveform

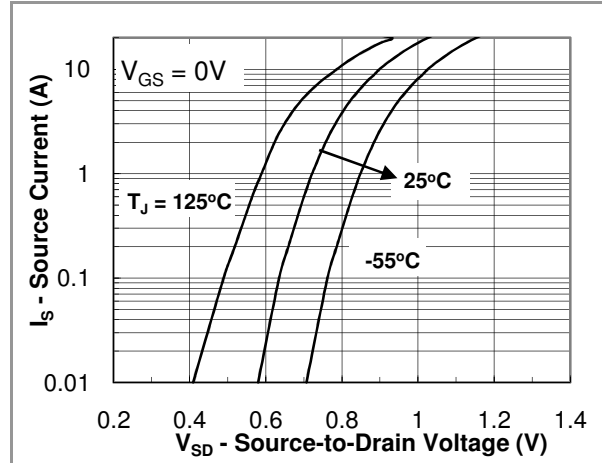


Fig. 8 Source-Drain Diode Forward Voltage

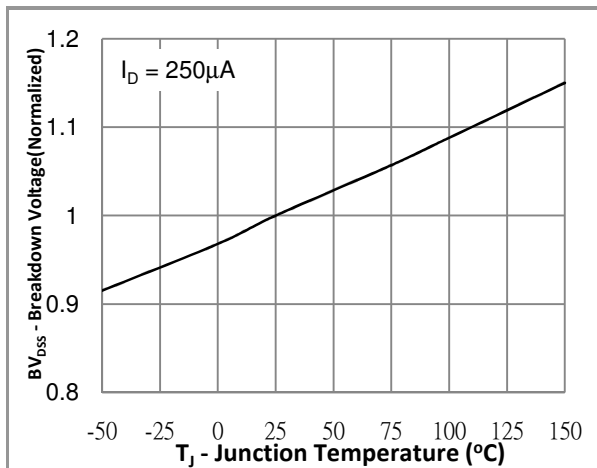


Fig. 9 Breakdown Voltage vs Junction Temperature



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