PJP840 / PJF840

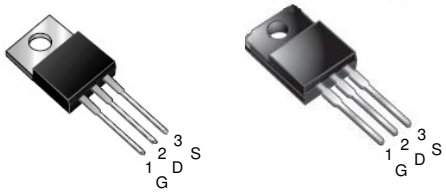
500V N-Channel Enhancement Mode MOSFET

TO-220AB / ITO-220AB

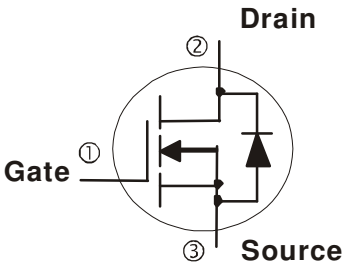
FEATURES

- 8A , 500V, $R_{DS(ON)}$=0.9Ω@V_{GS}=10V, I_D=4A
- Low ON Resistance
- Fast Switching
- Low Gate Charge
- Fully Characterized Avalanche Voltage and Current
- Specially Desigened for AC Adapter, Battery Charge and SMPS
- In compliance with EU RoHs 2002/95/EC Directives

TO-220AB ITO-220AB



INTERNAL SCHEMATIC DIAGRAM



MECHANICAL DATA

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

ORDERING INFORMATION

TYPE	MARKING	PACKAGE	PACKING
PJP840	P840	TO-220AB	50PCS/TUBE
PJF840	F840	ITO-220AB	50PCS/TUBE

Maximum RATINGS and Thermal Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	Symbol	PJP840	PJF840	Units
Drain-Source Voltage	V_{DS}	500		V
Gate-Source Voltage	V_{GS}	±30		V
Continuous Drain Current	I_D	8	8	A
Pulsed Drain Current [1)]	I_{DM}	32	32	A
Maximum Power Dissipation T_A=25°C Derating Factor	P_D	125 1.0	45 0.36	W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 to +150		°C
Avalanche Energy with Single Pulse I_{AS}=8.0A, VDD=72V, L=14mH	E_{AS}	514		mJ
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	1.0	2.78	°C/W
Junction-to Ambient Thermal Resistance	$R_{\theta JA}$	62.5	100	°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	500	-	-	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= 4A	-	0.62	0.9	Ω
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=500V, 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}=400V, I_D=8A V_{GS}=10V	-	31.5	-	nC
Gate-Source Charge	Q_{gs}		-	5.9	-	
Gate-Drain Charge	Q_{gd}		-	13.4	-	
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=250V , I_D=8A V_{GS}=10V , R_G=25Ω	-	18.8	26	ns
Turn-On Rise Time	t_r		-	32.6	42	
Turn-Off Delay Time	$t_{d(off)}$		-	84.8	110	
Turn-Off Fall Time	t_f		-	45.2	60	
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V f=1.0MH_Z	-	1100	1360	pF
Output Capacitance	C_{oss}		-	115	150	
Reverse Transfer Capacitance	C_{rss}		-	7.8	10	
Source-Drain Diode						
Max. Diode Forward Current	I_S	-	-	-	8.0	A
Max.Pulsed Source Current	I_{SM}	-	-	-	32	A
Diode Forward Voltage	V_{SD}	I_S=8A , V_{GS}=0V	-	-	1.5	V
Reverse Recovery Time	t_{rr}	V_{GS}=0V, I_F=8A di/dt=100A/us	-	270	-	ns
Reverse Recovery Charge	Q_{rr}		-	1.89	-	uC

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

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Typical Characteristics Curves (Ta=25℃, unless otherwise noted)

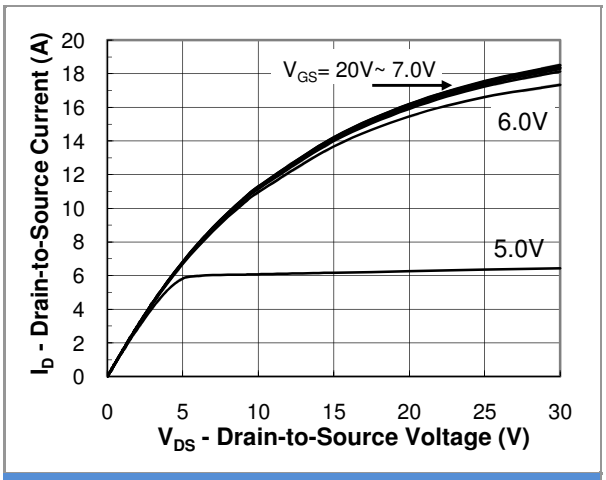

Fig.1 Output Characteristic

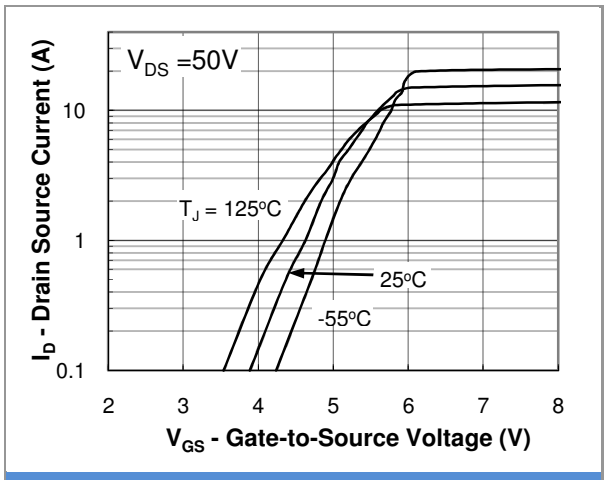

Fig.2 Transfer Characteristic

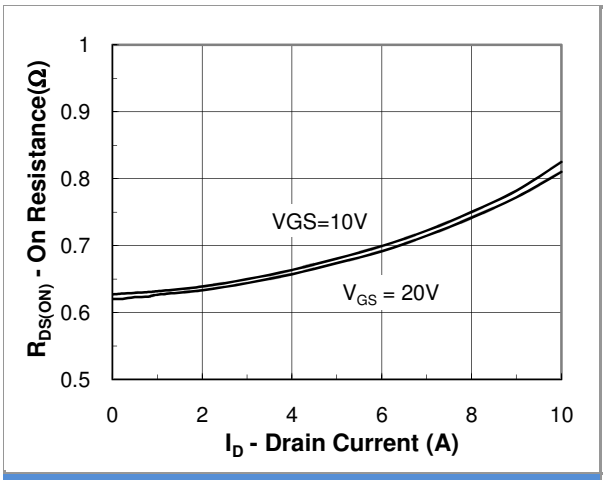

Fig.3 On Resistance vs Drain Current

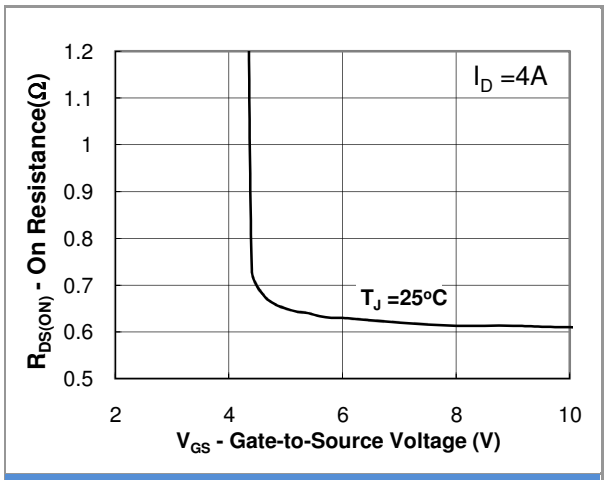

Fig.4 On Resistance vs Gate to Source Voltage

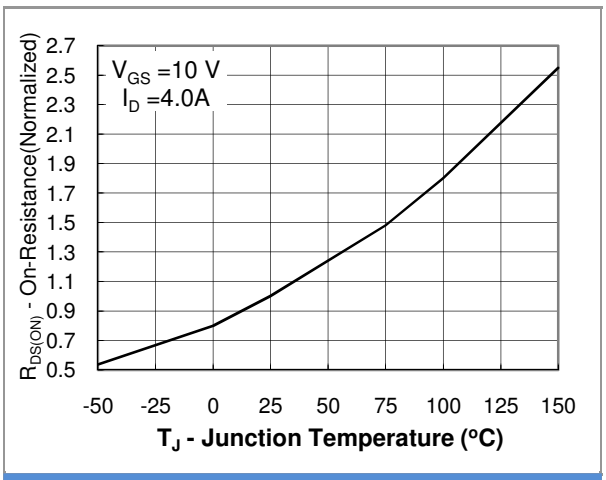

Fig.5 On Resistance vs Junction Temperature

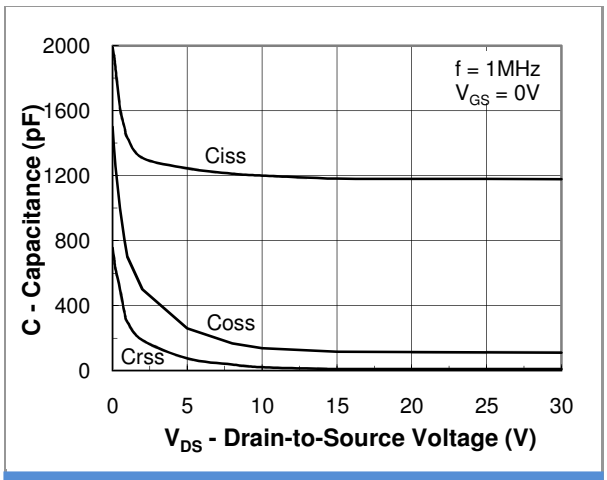

Fig.6 Capacitance

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Typical Characteristics Curves (Ta=25℃, unless otherwise noted)

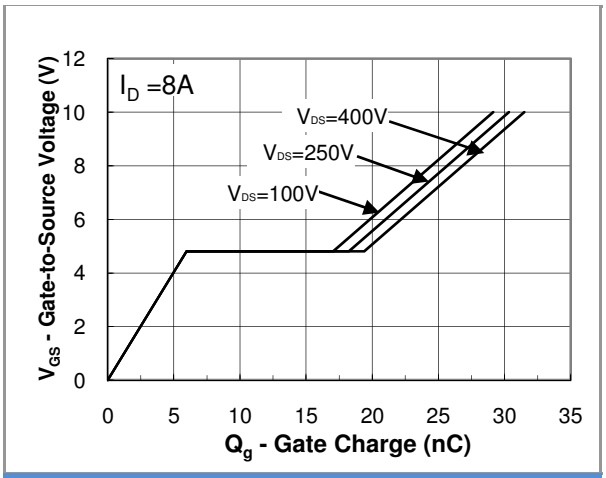

Fig. 7 Gate Charge Waveform

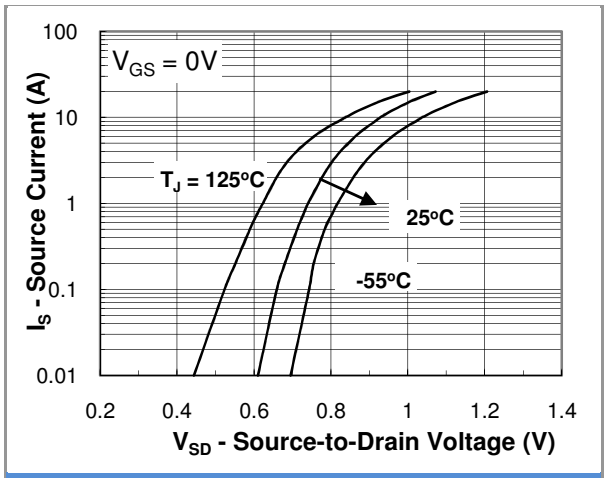

Fig.8 Source-Drain Diode Forward Voltage

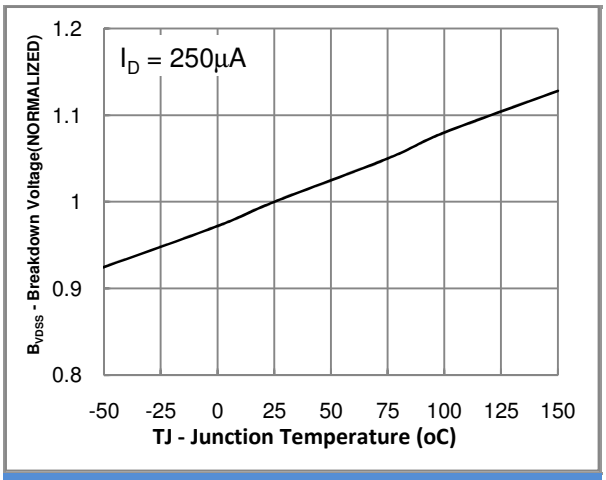

Fig.9 Breakdown Voltage vs Junction Temperature

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