



PJF4NA65A

650V N-Channel MOSFET

Voltage

650 V

Current

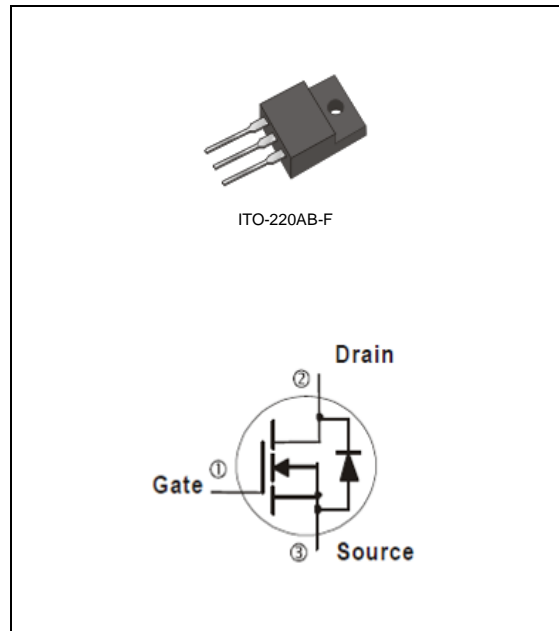
4 A

Features

- $R_{DS(ON)}, V_{GS}@10V, I_D@2A < 2.7\Omega$
- High switching speed
- Improved dv/dt capability
- Low Gate Charge
- Low reverse transfer capacitance
- Lead free in compliance with EU RoHS 2011/65/EU directive.
- Green molding compound as per IEC61249 Std. (Halogen Free)

Mechanical Data

- Case : ITO-220AB-F Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.068 ounces, 2 grams



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

PARAMETER	SYMBOL	ITO-220AB-F	UNITS
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	± 30	V
Continuous Drain Current	I_D	4	A
Pulsed Drain Current	I_{DM}	16	A
Single Pulse Avalanche Energy ^(Note 1)	E_{AS}	202	mJ
Power Dissipation	$T_C=25^\circ\text{C}$	33	W
	Derate above 25°C	0.26	W/ $^\circ\text{C}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~150	$^\circ\text{C}$
Typical Thermal resistance			$^\circ\text{C/W}$
- Junction to Case	$R_{\theta JC}$	3.79	
- Junction to Ambient	$R_{\theta JA}$	120	

- 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}	$V_{GS}=0V, I_D=250\mu A$	650	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2	3	4	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=2A$	-	2.5	2.7	Ω
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=650V, V_{GS}=0V$	-	-	1.0	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 30V, V_{DS}=0V$	-	-	± 100	nA
Diode Forward Voltage	V_{SD}	$I_S=4A, V_{GS}=0V$	-	0.76	1.4	V
Dynamic (Note 4)						
Total Gate Charge	Q_g	$V_{DS}=520V, I_D=4A,$ $V_{GS}=10V$ (Note 2,3)	-	18	-	nC
Gate-Source Charge	Q_{gs}		-	3.3	-	
Gate-Drain Charge	Q_{gd}		-	8.3	-	
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V,$ $f=1.0\text{MHz}$	-	555	-	pF
Output Capacitance	C_{oss}		-	55.4	-	
Reverse Transfer Capacitance	C_{rss}		-	2.41	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=325V, I_D=4A,$ $R_G=25\Omega$ (Note 2,3)	-	11	-	ns
Turn-On Rise Time	t_r		-	25	-	
Turn-Off Delay Time	$t_{d(off)}$		-	52	-	
Turn-Off Fall Time	t_f		-	29	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	4	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}	---	-	-	16	A
Reverse Recovery Time	t_{rr}	$V_{GS}=0V, I_S=4A$	-	266	-	ns
Reverse Recovery Charge	Q_{rr}	$di_F/dt=100A/\mu s$ (Note 2)	-	2.24	-	μC

NOTES :

1. $L=30\text{mH}, I_{AS}=3.6A, V_{DD}=50V, R_G=25\text{ohm},$ Starting $T_J=25^\circ\text{C}$
2. Pulse width $\leq 300\mu s,$ Duty cycle $\leq 2\%$
3. Essentially independent of operating temperature typical characteristics.
4. Guaranteed by design, not subject to production testing



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TYPICAL CHARACTERISTIC CURVES

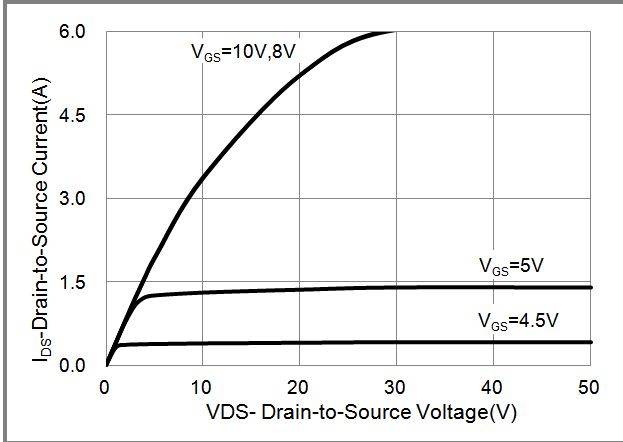


Fig.1 Output Characteristics

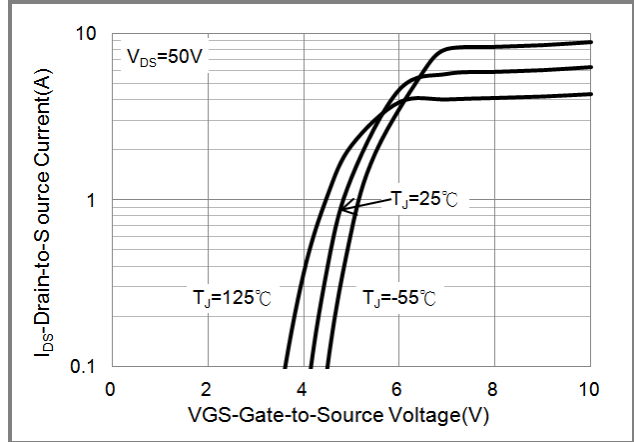


Fig.2 Transfer Characteristics

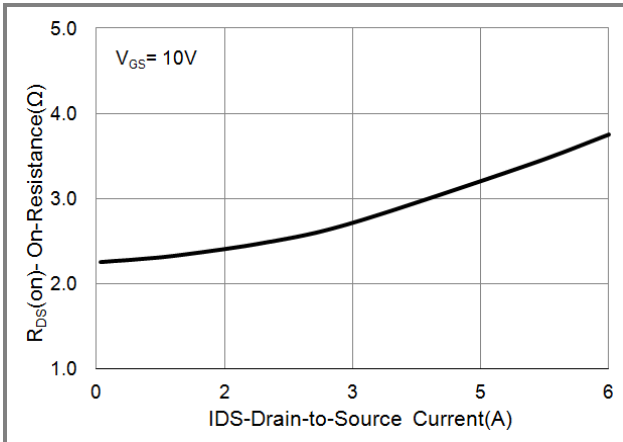


Fig.3 On-Resistance vs. Drain Current

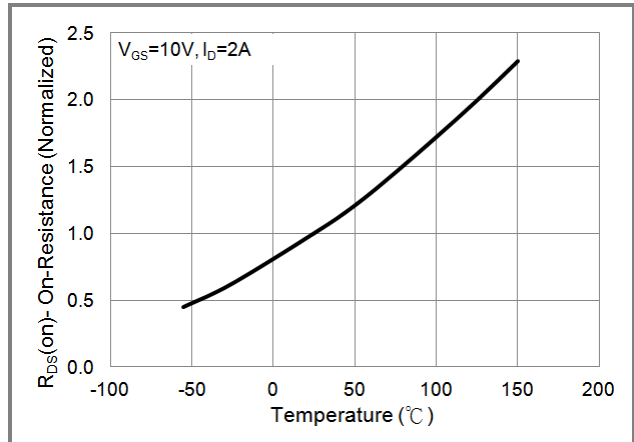


Fig.4 On-Resistance vs. Junction Temperature

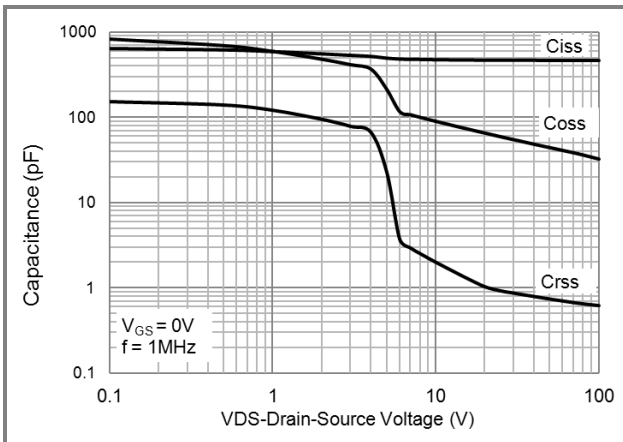


Fig.5 Capacitance vs. Drain-Source Voltage

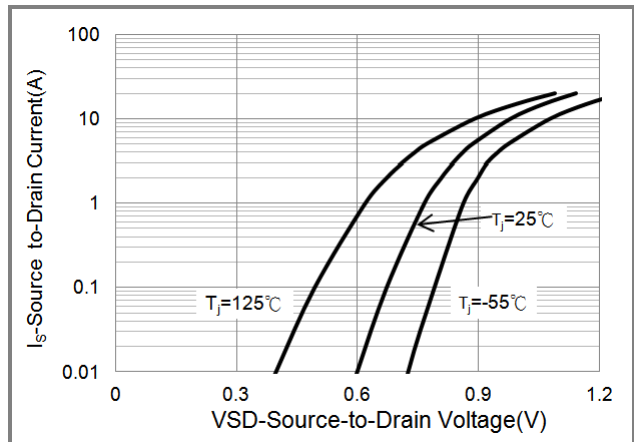


Fig.6 Source-Drain Diode Forward Voltage



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TYPICAL CHARACTERISTIC CURVES

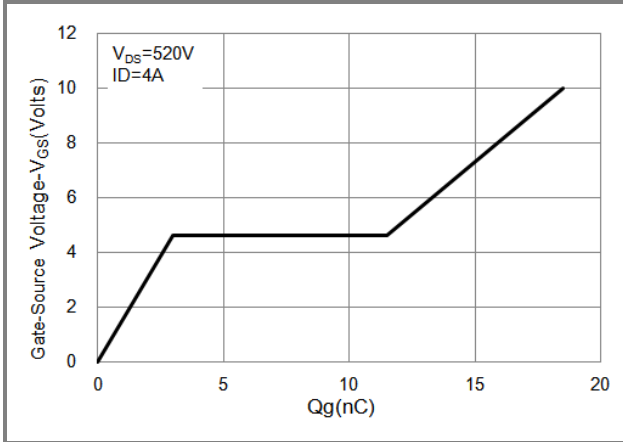


Fig.7 Gate Charge

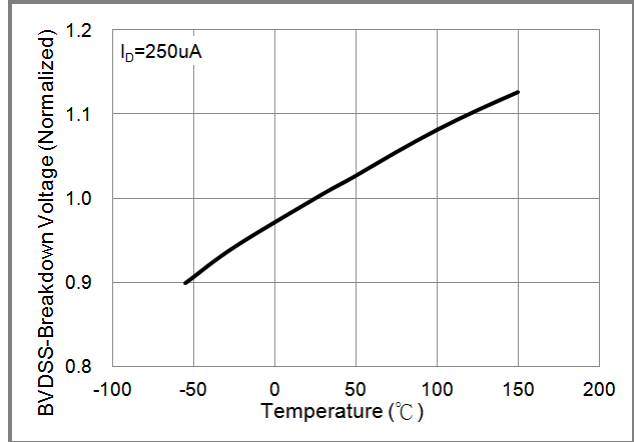


Fig.8 BV_{DSS} vs. Junction Temperature

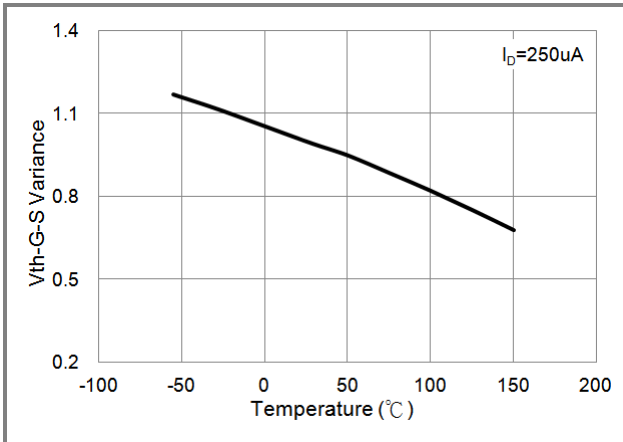


Fig.9 Threshold Voltage Variation with Temperature

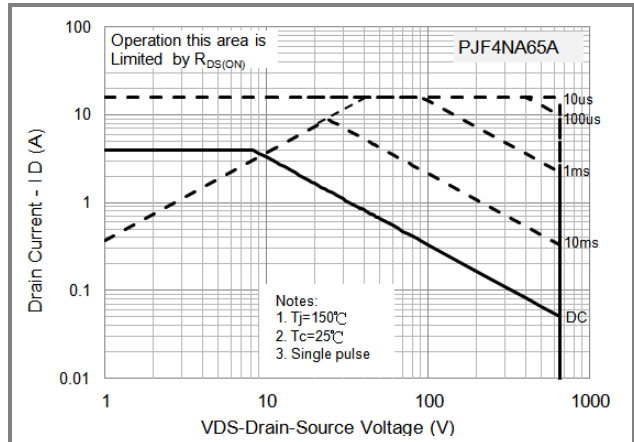


Fig.10 Maximum Safe Operating Area

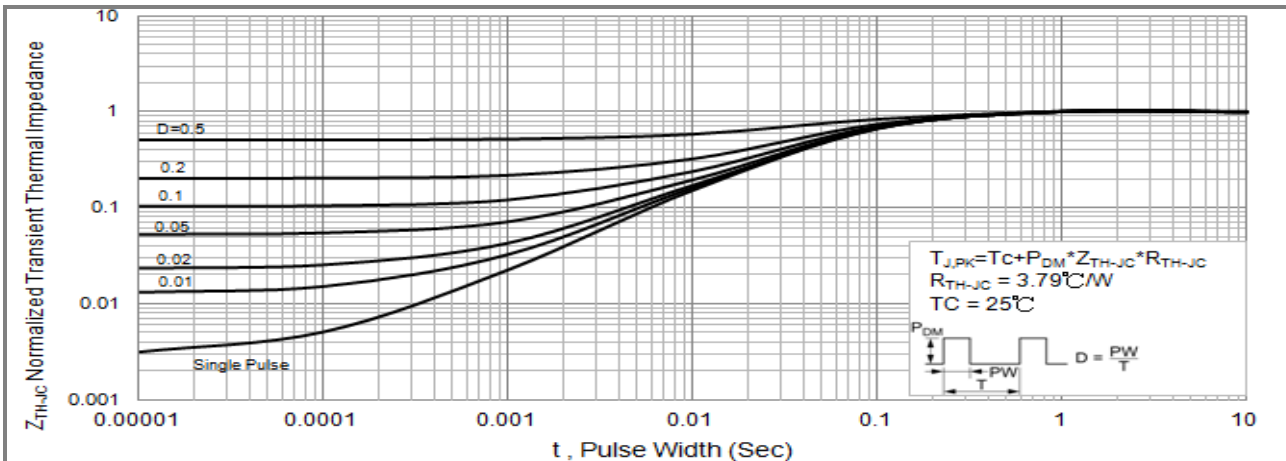


Fig.11 PJF4NA65A Normalized Transient Thermal Impedance vs. Pulse Width



PJF4NA65A

PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type	Marking	Version
PJF4NA65A _T0_00001	ITO-220AB-F	50pcs / Tube	F4NA65A	Halogen free



PJF4NA65A

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