

PJZ18NA50

500V N-Channel MOSFET

Voltage

500 V

Current

18 A

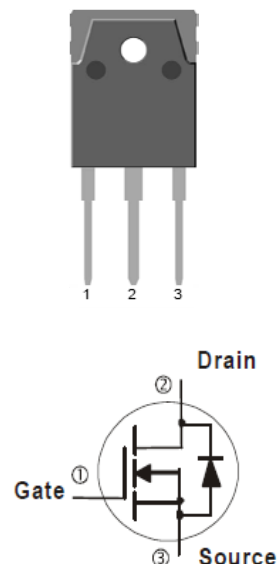
Features

- $R_{DS(ON)}, V_{GS}@10V, I_D@9A} < 0.35\Omega$
- 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.

Mechanical Data

- Case: TO-3PL Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- TO-3PL Approx. Weight : 0.182 ounces, 5.174grams

TO-3PL



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

PARAMETER		SYMBOL	TO-3PL	UNITS
Drain-Source Voltage		V _{DS}	500	V
Gate-Source Voltage		V _{GS}	±30	V
Continuous Drain Current		I _D	18	A
Pulsed Drain Current		I _{DM}	72	A
Single Pulse Avalanche Energy ^(Note 1)		E _{AS}	1502	mJ
Power Dissipation	T _C =25°C	P _D	240	W
	Derate above 25°C		1.92	W/°C
Operating Junction and Storage Temperature Range		T _J , T _{STG}	-55~150	°C
Typical Thermal resistance		R _{θJC} R _{θJA}	0.52 50	°C/W
- Junction to Case				
- Junction to Ambient				

- 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 =250uA	500	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	2	3.1	4	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =9A	-	0.27	0.35	Ω
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =500V, V _{GS} =0V	-	0.02	1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =+30V, V _{DS} =0V	-	+10	+100	nA
Diode Forward Voltage	V _{SD}	I _S =18A, V _{GS} =0V	-	0.85	1.4	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =400V, I _D =18A, V _{GS} =10V (Note 2,3)	-	38	-	nC
Gate-Source Charge	Q _{gs}		-	13	-	
Gate-Drain Charge	Q _{gd}		-	12	-	
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1.0MHZ	-	2407	-	pF
Output Capacitance	C _{oss}		-	360	-	
Reverse Transfer Capacitance	C _{rss}		-	7.2	-	
Switching						
Turn-On Delay Time	td _(on)	V _{DD} =250V, I _D =18A, R _G =25Ω (Note 2,3)	-	60	-	ns
Turn-On Rise Time	t _r		-	132	-	
Turn-Off Delay Time	td _(off)		-	116	-	
Turn-Off Fall Time	t _f		-	76	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	18	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}	---	-	-	72	A
Reverse Recovery Time	trr	V _{GS} =0V, I _S =18A	-	583	-	ns
Reverse Recovery Charge	Qrr	dl _F / dt=100A/us (Note 2)	-	7.2	-	uC

NOTES :

1. $L=30\text{mH}, I_{AS}=9.65A, V_{DD}=50V, R_G=25\Omega$, 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.

PJZ18NA50

TYPICAL CHARACTERISTIC CURVES

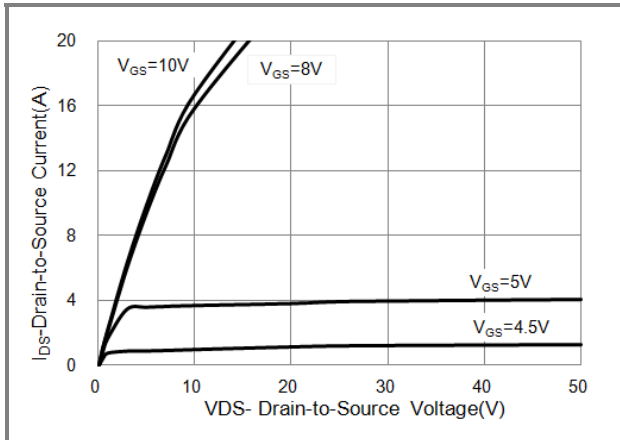


Fig.1 Output Characteristics

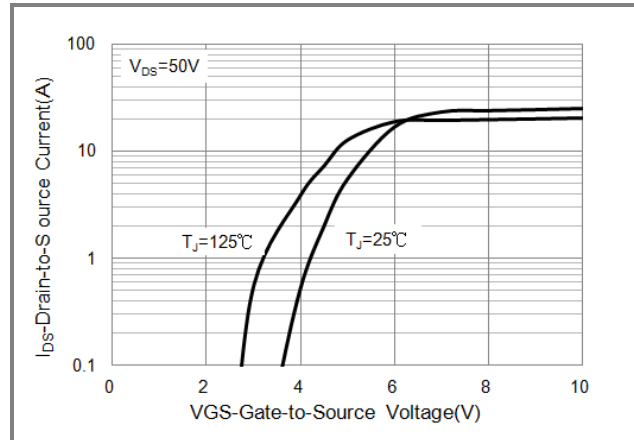


Fig.2 Transfer Characteristics

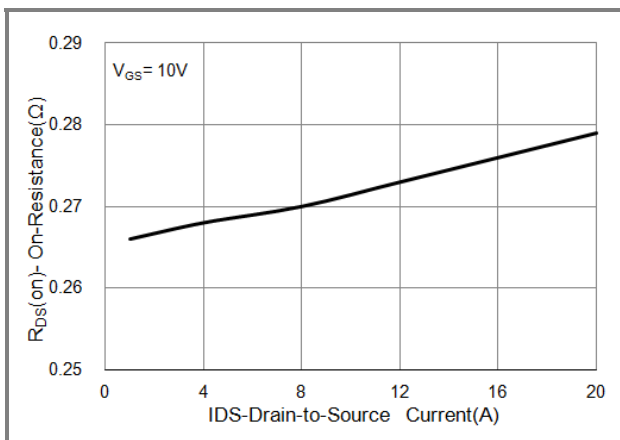


Fig.3 On-Resistance vs. Drain Current

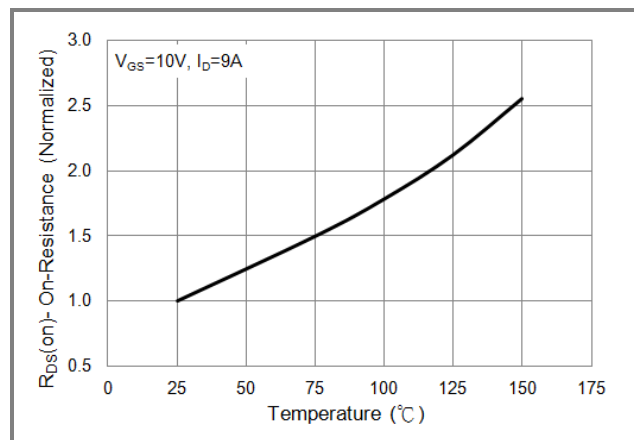


Fig.4 On-Resistance vs. Junction temperature

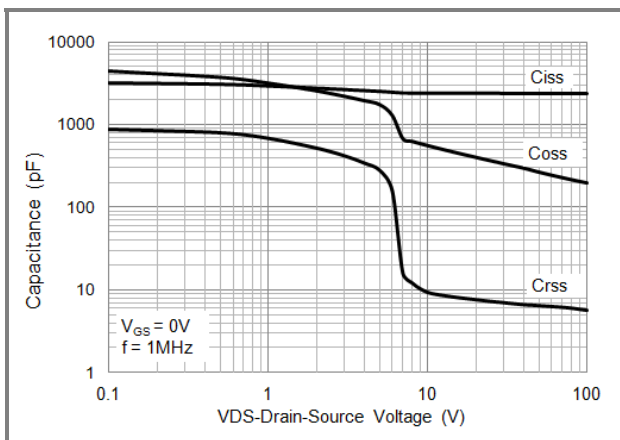


Fig.5 Capacitance vs. Drain-Source Voltage

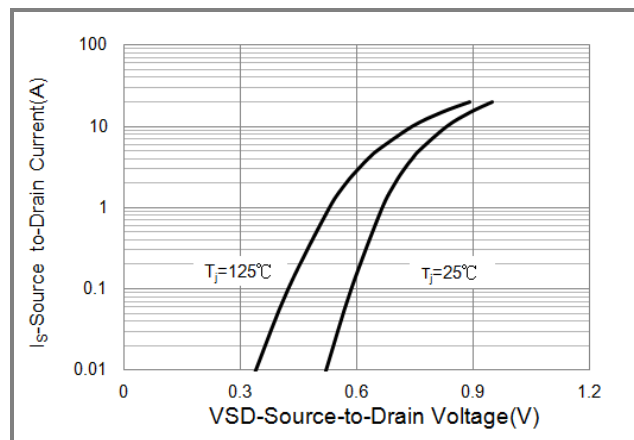


Fig.6 Body Diode Characteristics

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TYPICAL CHARACTERISTIC CURVES

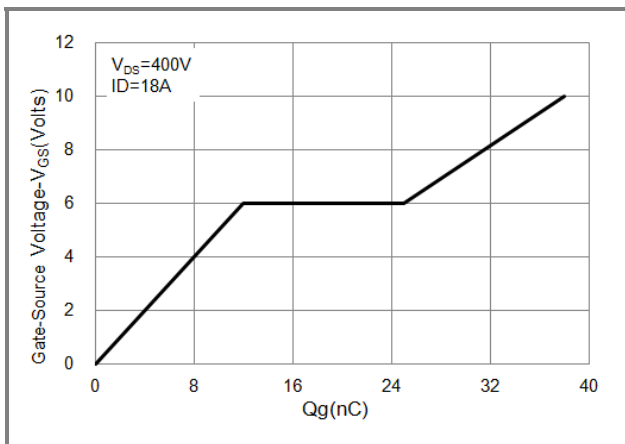


Fig.7 Gate-Charge Characteristics

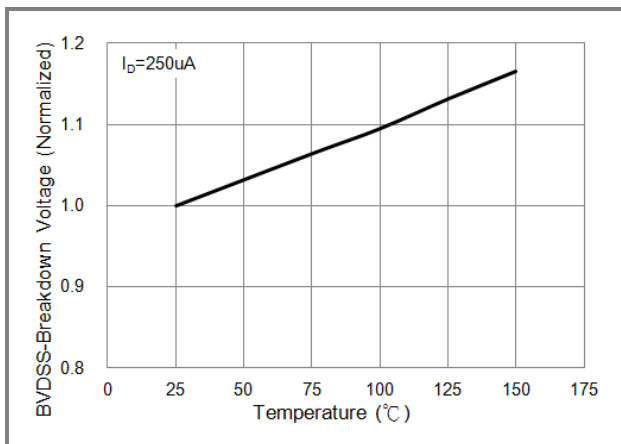


Fig.8 Breakdown Voltage Variation vs. Temperature

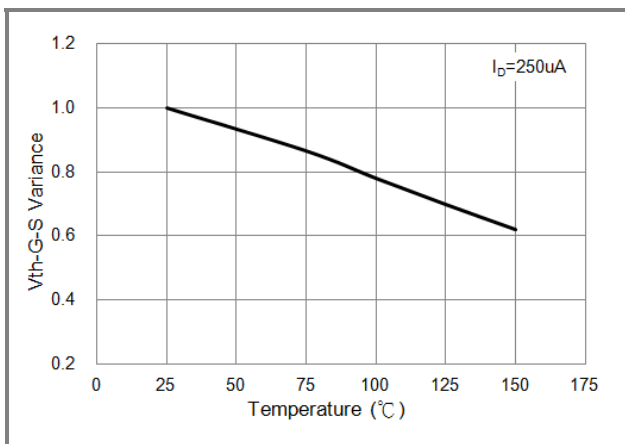


Fig.9 Threshold Voltage Variation with Temperature

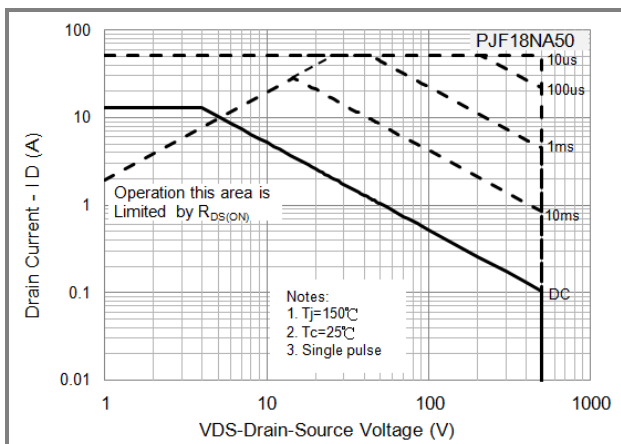


Fig.10 Maximum Safe Operating Area

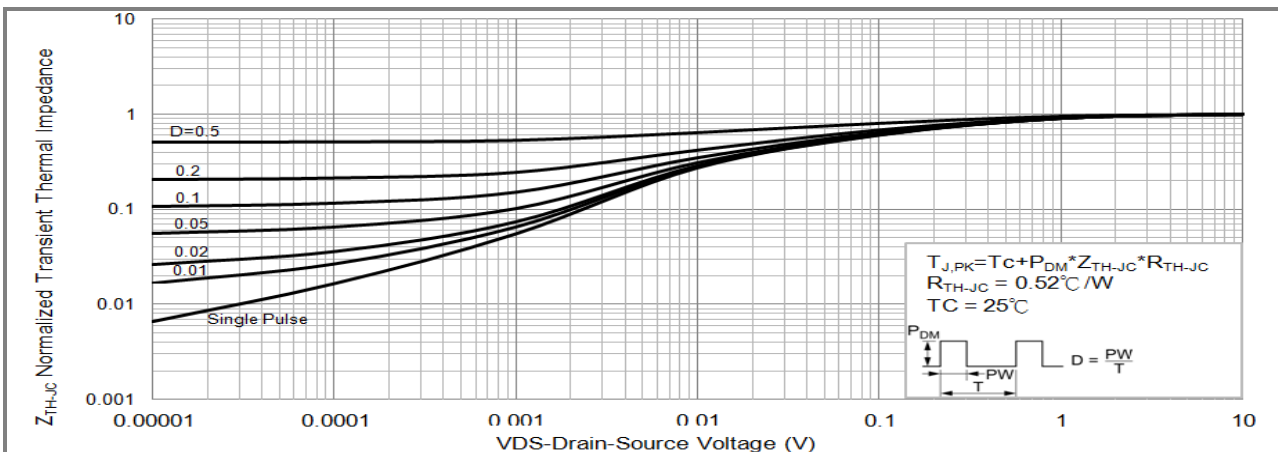
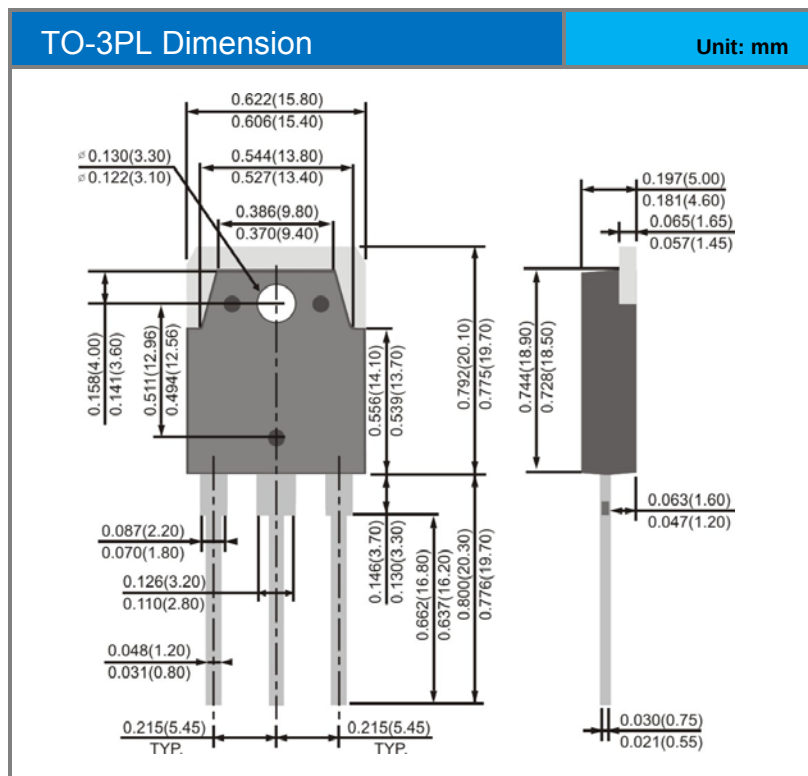


Fig.13 PJP18NA50 Normalized Transient Thermal Impedance vs. Pulse Width

PJZ18NA50

Packaging Information





PJZ18NA50

PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type	Marking	Version
PJZ18NA50_T0_10001	TO-3PL	30pcs/tube	Z18NA50	RoHS



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