



PJQ2888

20V P-Channel Enhancement Mode MOSFET with TVS Diode

Voltage **-20 V** **Current** **-1.5A**

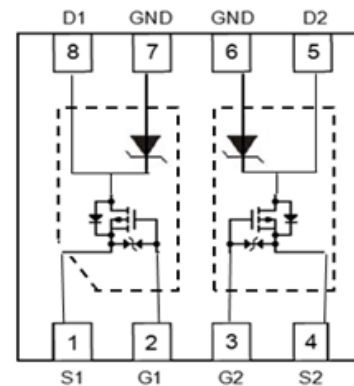
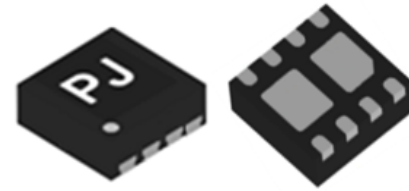
Features

- RDS(ON) , VGS@-4.5V, ID@-1.5A<325mΩ
- RDS(ON) , VGS@-2.5V, ID@-1.2A<420mΩ
- RDS(ON) , VGS@-2.5V, ID@-0.5A<600mΩ
- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc.
- ESD Protected
- Lead free in compliance with EU RoHS 2011/65/EU directive.
- Green molding compound as per IEC61249 Std.
(Halogen Free)

Mechanical Data

- Case : DFN2020-8L Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.00032 ounces, 0.0093 grams
- Marking : 888

DFN2020-8L



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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V _{DS}	-20	V
Gate-Source Voltage		V _{GS}	±8	V
Continuous Drain Current		I _D	-1.5	A
Pulsed Drain Current ^(Note 4)		I _{DM}	-6.0	A
Power Dissipation	T _a =25°C	P _D	1.25	W
	Derate above 25°C		10	mW/°C
Operating Junction and Storage Temperature Range		T _J , T _{STG}	-55~150	°C
Typical Thermal resistance		R _{θJA}	100	°C/W
- Junction to Ambient ^(Note 3)				



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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}	$V_{GS}=0V, I_D=-250\mu A$	-20	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4	-0.64	-1.0	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-1.5A$	-	240	325	m Ω
		$V_{GS}=-2.5V, I_D=-1.2A$	-	295	420	
		$V_{GS}=-1.8V, I_D=-0.5A$	-	405	600	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$	-	-0.02	-1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0V$	-	± 3.5	± 10	μA
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=-10V, I_D=-1.5A,$ $V_{GS}=-4.5V$ (Note 1,2)	-	2.2	-	nC
Gate-Source Charge	Q_{gs}		-	0.4	-	
Gate-Drain Charge	Q_{gd}		-	0.5	-	
Input Capacitance	C_{iss}	$V_{DS}=-10V, V_{GS}=0V,$ $f=1.0MHz$	-	150	-	pF
Output Capacitance	C_{oss}		-	27	-	
Reverse Transfer Capacitance	C_{rss}		-	9	-	
Switching						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-10V, I_D=-1.5A,$ $V_{GS}=-4.5V,$ $R_G=6\Omega$ (Note 1,2)	-	11	-	ns
Turn-On Rise Time	t_r		-	38	-	
Turn-Off Delay Time	$t_{d(off)}$		-	130	-	
Turn-Off Fall Time	t_f		-	75	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	-1.0	A
Diode Forward Voltage	V_{SD}	$I_S=-1A, V_{GS}=0V$		-0.93	-1.2	V

NOTES :

1. Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$
2. Essentially independent of operating temperature typical characteristics.
3. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins mounted on a 1 inch FR-4 with 2oz. square pad of copper.
4. The maximum current rating is package limited.



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Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
TVS Diode						
Working Peak Reverse Voltage	V_{RWM}	---	-	-	15	V
Maximum Reverse Leakage Current	I_R	$V_{RWM}=15\text{V}$	-	-	1	μA
Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	17	-	-	V
Max. Capacitance	C_J	$f=1\text{MHz}, V_R=0\text{V}$	-	-	15	pF
Clamping Voltage	V_C	Max Per 8x20us	-	-	30	V
Maximum Reverse Peak Pulse Current	I_{PP}	---	-	-	2	A
Test Current	I_T	---	-	-	1.0	mA



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TYPICAL CHARACTERISTIC CURVES

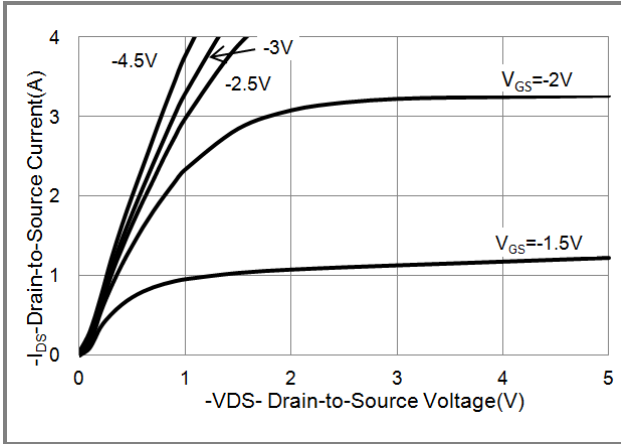


Fig.1 On-Region Characteristics

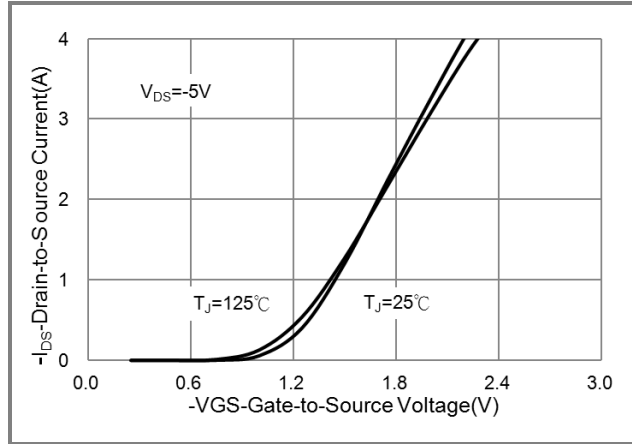


Fig.2 Transfer Characteristics

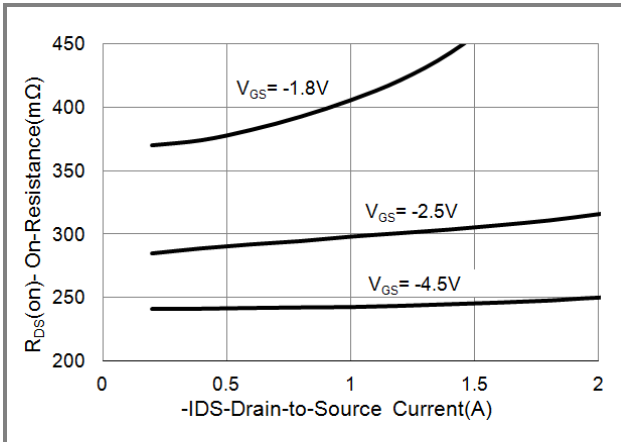


Fig.3 On-Resistance vs. Drain Current

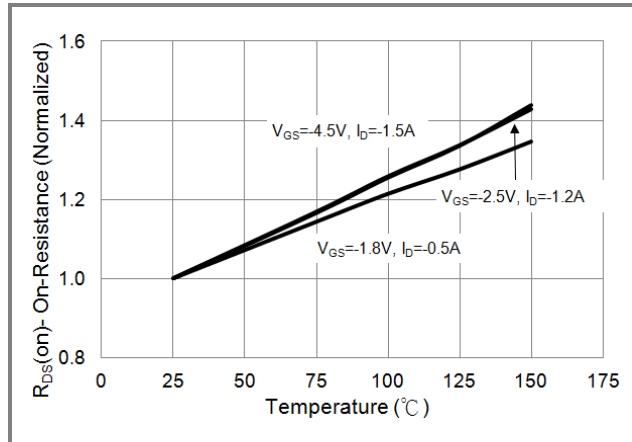


Fig.4 On-Resistance vs. Junction temperature

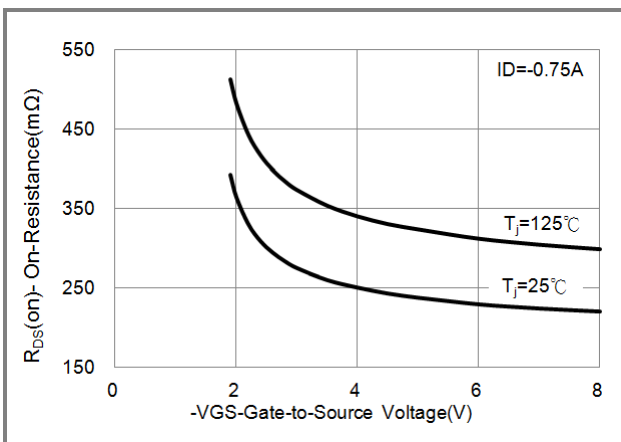


Fig.5 On-Resistance Variation with VGS.

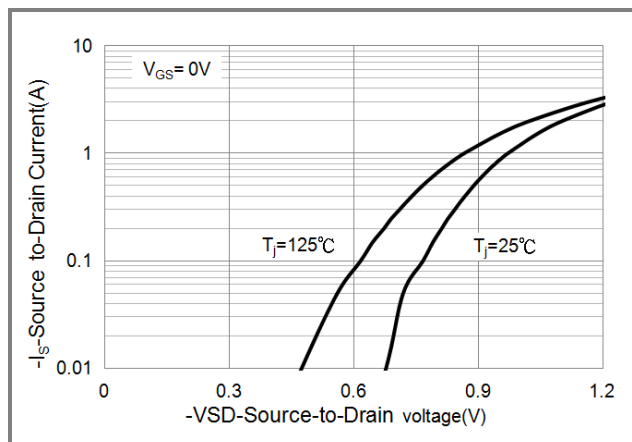


Fig.6 Body Diode Characteristics



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TYPICAL CHARACTERISTIC CURVES

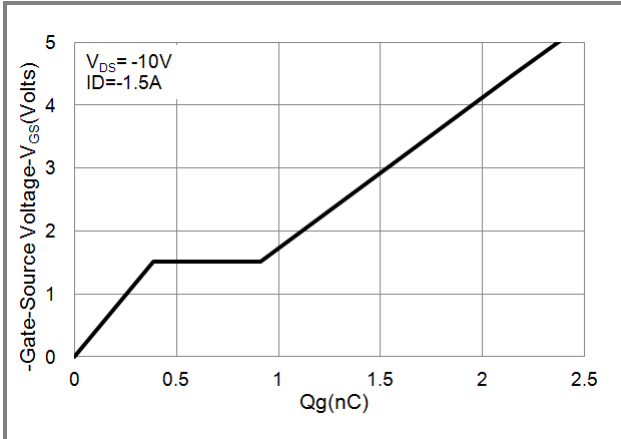


Fig.7 Gate-Charge Characteristics

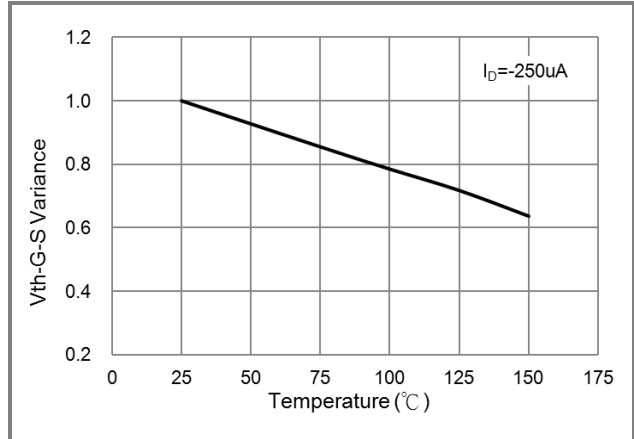


Fig.8 Threshold Voltage Variation with Temperature.

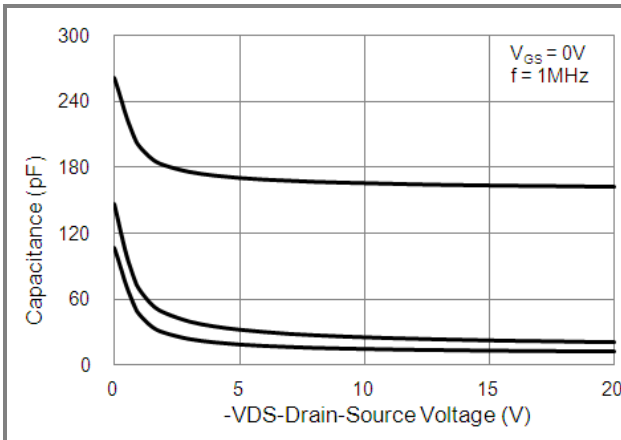


Fig.9 Capacitance vs. Drain-Source Voltage.

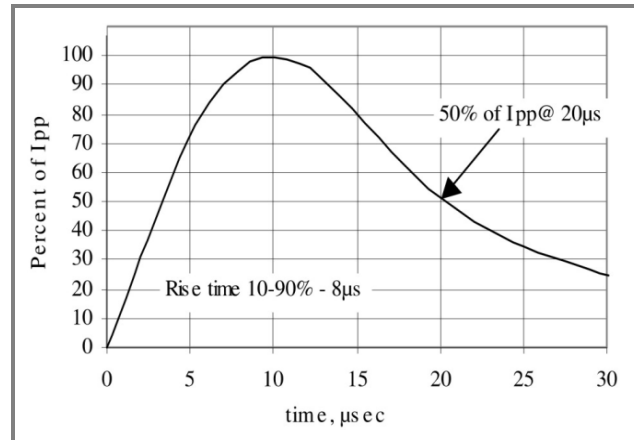


Fig.10 TVS Diode Surge Pulse Waveform Definition.

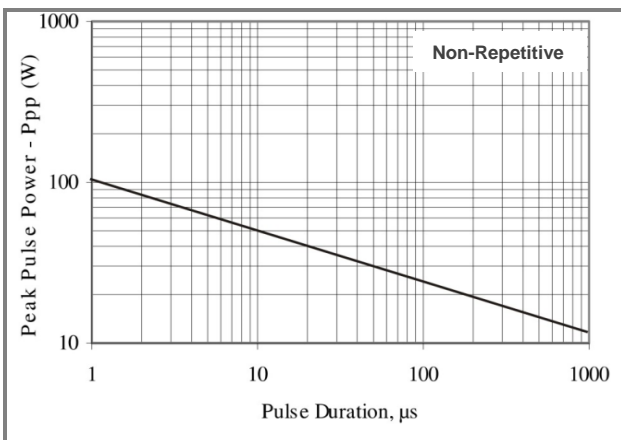


Fig.11 TVS Diode Peak Pulse Power vs. Pulse Time

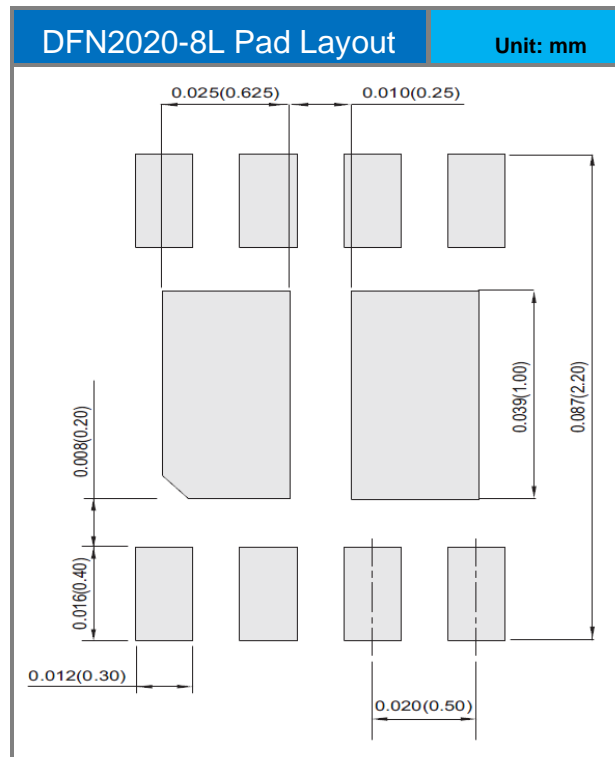
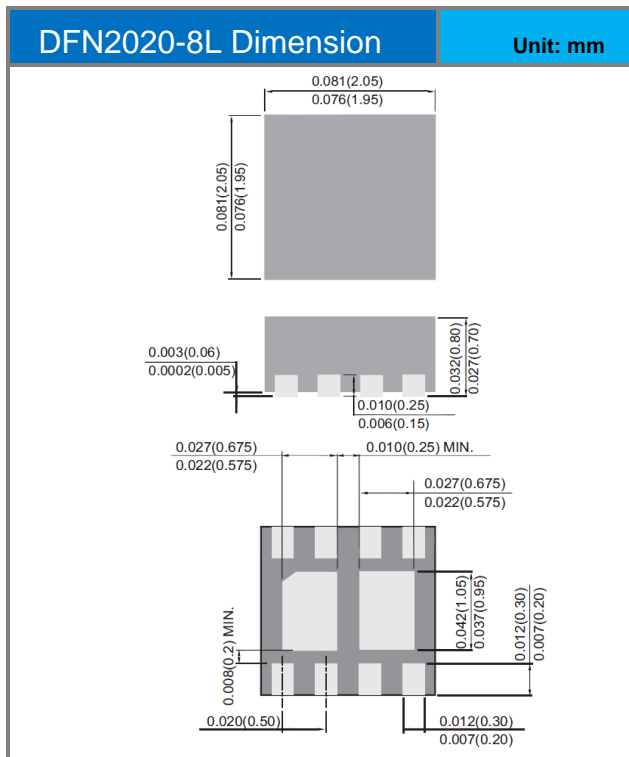


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PART NO PACKING CODE VERSION

PART NO PACKING CODE	Package Type	Packing type	Marking	Version
PJQ2888_S1_00001	DFN2020-8L	3K pcs / 7" reel	888	Halogen free

MOUNTING PAD LAYOUT





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