

PJQ1938L

60V N-Channel Enhancement Mode MOSFET

Voltage

60 V

Current

240mA

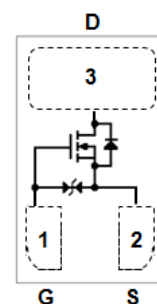
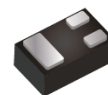
Features

- Advanced Trench Process Technology
- ESD Protected
- Specially Designed for Switch Load
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case : DFN1006-3L Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0007 grams

DFN1006-3L



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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V _{DS}	60	V
Gate-Source Voltage		V _{GS}	±20	
Continuous Drain Current ^(Note 4)		I _D	240	mA
Pulsed Drain Current ^(Note 1)		I _{DM}	500	
Power Dissipation	T _A =25°C	P _D	500	mW
	Derate above 25°C		4	mW/°C
Operating Junction and Storage Temperature Range		T _J ,T _{STG}	-55~150	°C
Typical Thermal Resistance		R _{θJA}	250	°C/W
- Junction to Ambient ^(Note 5)				



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Electrical Characteristics (T_A=25°C unless otherwise noted)

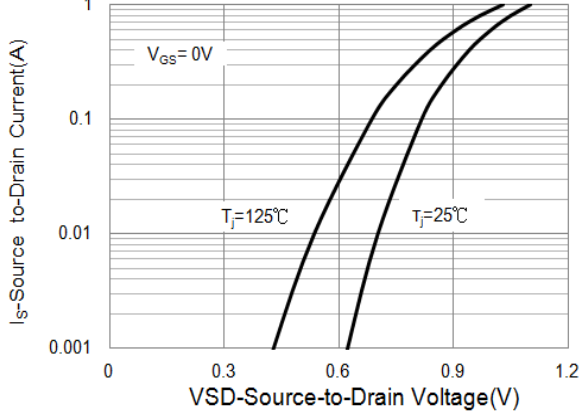
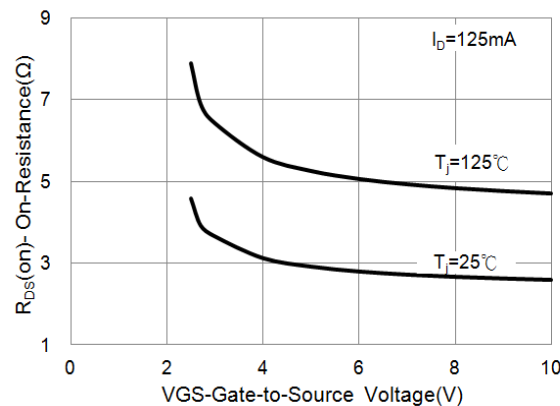
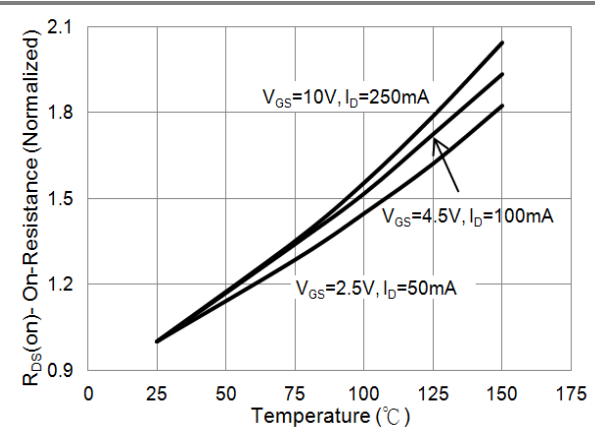
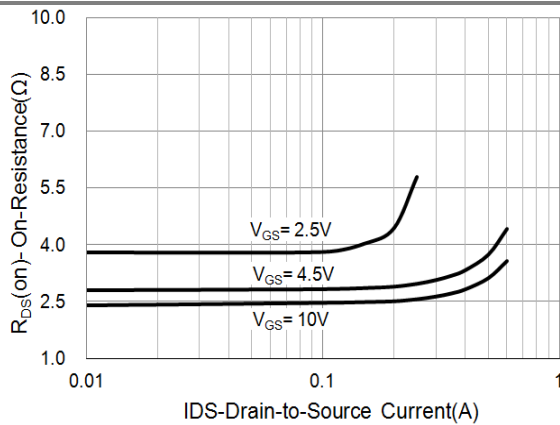
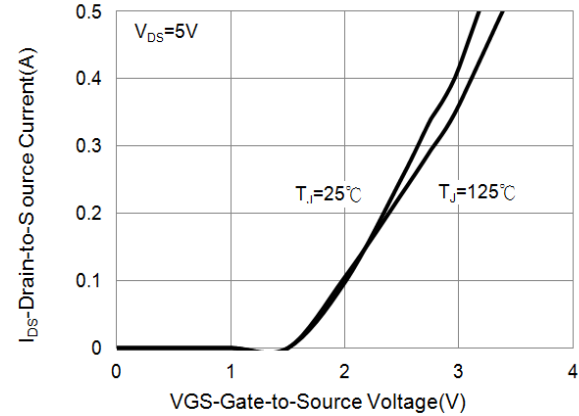
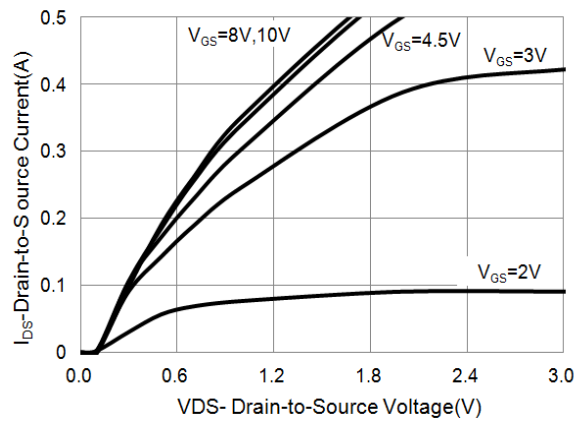
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	60	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	0.8	1.2	1.5	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =160mA	-	2.5	4.2	Ω
		V _{GS} =4.5V, I _D =100mA	-	2.8	5	
		V _{GS} =2.5V, I _D =50mA	-	3.7	7	
		V _{GS} =1.8V, I _D =10mA	-	12	-	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	-	-	1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±10	
Dynamic ^(Note 6)						
Total Gate Charge	Q _g	V _{DS} =15V, I _D =160mA, V _{GS} =4.5V	-	0.7	-	nC
Gate-Source Charge	Q _{gs}		-	0.33	-	
Gate-Drain Charge	Q _{gd}		-	0.2	-	
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f=1.0MHZ	-	15	-	pF
Output Capacitance	C _{oss}		-	8.4	-	
Reverse Transfer Capacitance	C _{rss}		-	4.2	-	
Turn-On Delay Time	t _{d(on)}	V _{DD} =10V, I _D =160mA, V _{GS} =10V, R _G =10Ω ^(Note 1,2)	-	7	-	ns
Turn-On Rise Time	t _r		-	22	-	
Turn-Off Delay Time	t _{d(off)}		-	21	-	
Turn-Off Fall Time	t _f		-	25	-	
Drain-Source Diode						
Diode Forward Current	I _S	---	-	-	450	mA
Diode Forward Voltage	V _{SD}	I _S =160mA, V _{GS} =0V	-	0.8	1.1	V

Notes :

- 1.Pulse width<300us, Duty cycle<2%.
- 2.Essentially independent of operating temperature typical characteristics.
- 3.Repetitive rating, pulse width limited by junction temperature T_J(MAX)=150°C.Ratings are based on low frequency and duty cycles to keep initial T_J =25°C.
- 4.R_{θJA} 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 inch² with 2oz.square pad of copper.
- 5.Guaranteed by design, not subject to production testing.

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TYPICAL CHARACTERISTIC CURVES





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TYPICAL CHARACTERISTIC CURVES

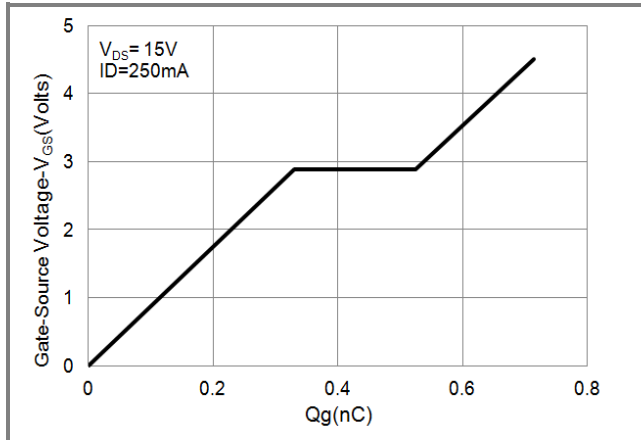


Fig.7 Gate-Charge Characteristics

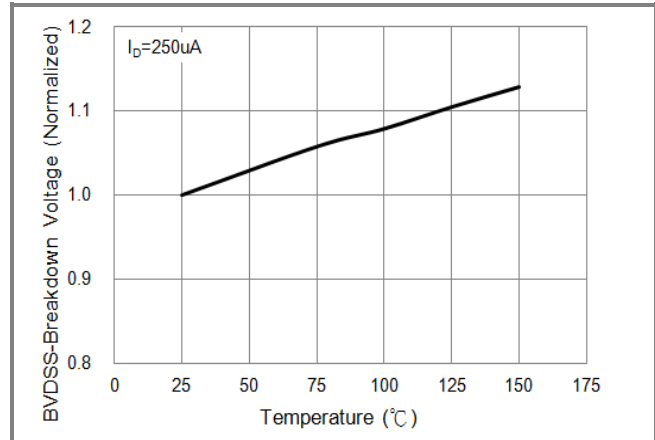


Fig.8 Breakdown Voltage Variation vs. Temperature

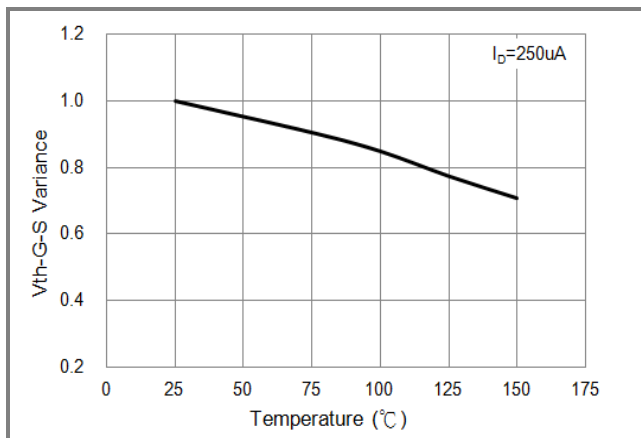


Fig.9 Threshold Voltage Variation with Temperature

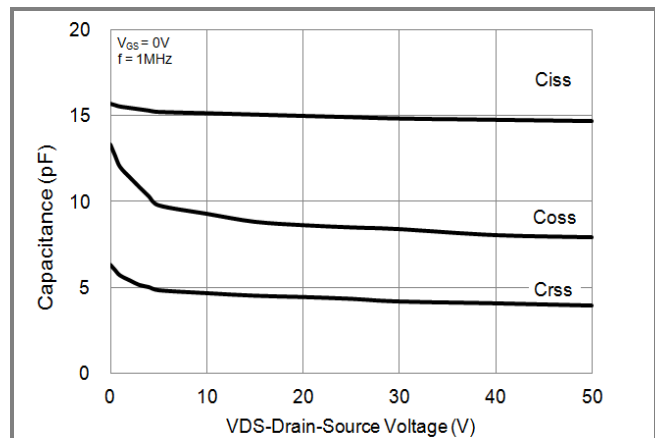


Fig.10 Capacitance vs. Drain-Source Voltage

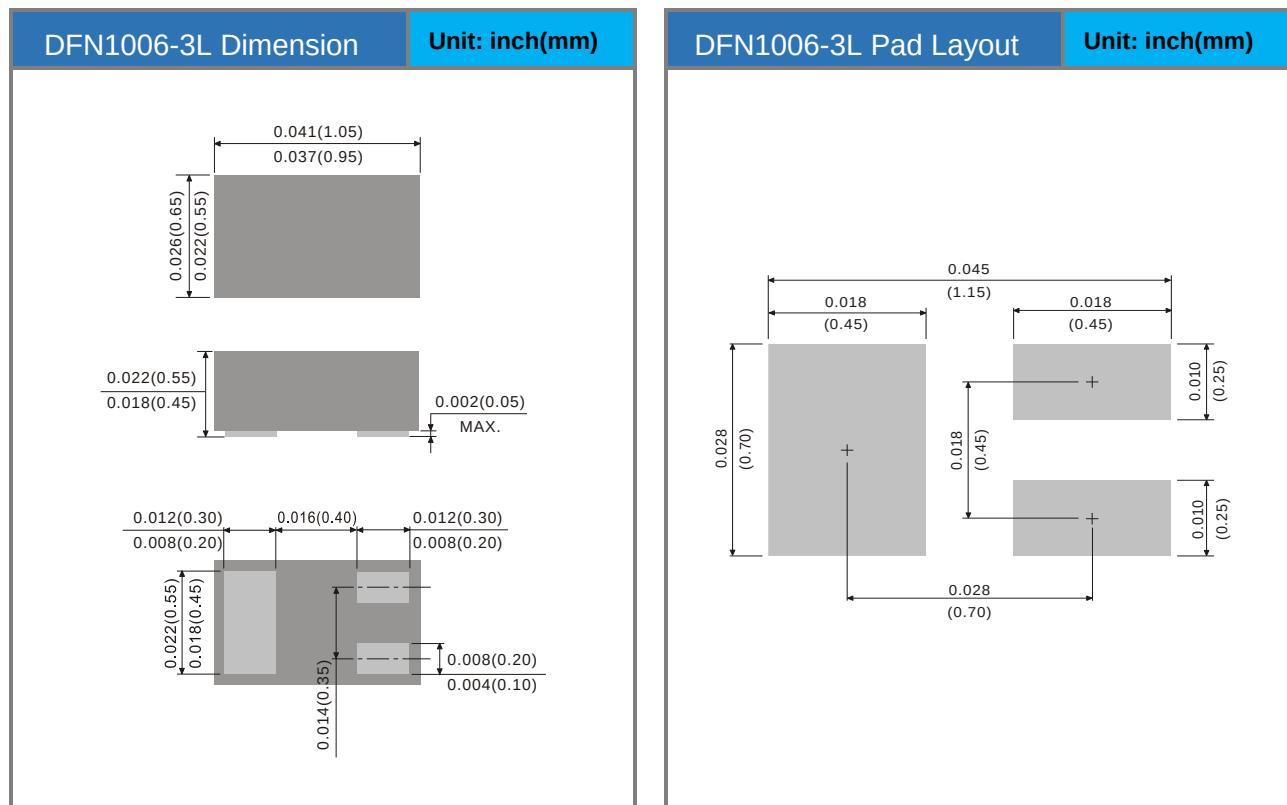


PJQ1938L

Part No. Packing Code Version

Part No. Packing Code	Package Type	Packing Type	Marking	Version
PJQ1938L_R1_00201	DFN1006-3L	10K pcs / 7" reel	Y	Halogen free RoHS compliant

Packaging Information & Mounting Pad Layout





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