

PJQ5442

40V N-Channel Enhancement Mode MOSFET

Voltage

40 V

Current

90A

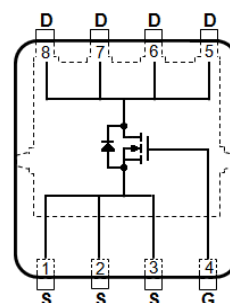
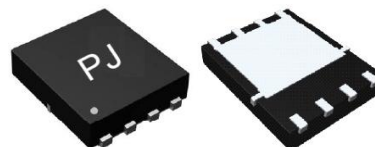
Features

- $R_{DS(ON)}$, $V_{GS}@10V$, $I_D@20A < 5.5m\Omega$
- $R_{DS(ON)}$, $V_{GS}@4.5V$, $I_D@10A < 7.5m\Omega$
- High switching speed
- Improved dv/dt capability
- Low reverse transfer capacitance
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case : DFN5060-8L Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0028 ounces, 0.08 grams

DFN5060-8L



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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current	$T_C=25^{\circ}C$	I_D	90	A
	$T_C=100^{\circ}C$		57	
Pulsed Drain Current ^(Note 1)	$T_C=25^{\circ}C$	I_{DM}	240	
Power Dissipation	$T_C=25^{\circ}C$	P_D	83	W
	$T_C=100^{\circ}C$		33	
Continuous Drain Current	$T_A=25^{\circ}C$	I_D	14	A
	$T_A=70^{\circ}C$		11	
Power Dissipation	$T_A=25^{\circ}C$	P_D	2.0	W
Power Dissipation	$T_A=70^{\circ}C$		1.3	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	$^{\circ}C$
Typical Thermal Resistance ^(Note 4,5)	Junction to Case	$R_{\theta JC}$	1.51	$^{\circ}C/W$
	Junction to Ambient	$R_{\theta JA}$	62.5	

- Limited only By Maximum Junction Temperature



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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	40	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	1	1.7	2.5	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A	-	4.2	5.5	mΩ
		V _{GS} =4.5V, I _D =10A	-	5.3	7.5	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =40V, V _{GS} =0V	-	-	1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Dynamic ^(Note 7)						
Total Gate Charge	Q _g	V _{DS} =32V, I _D =10A, V _{GS} =4.5V ^(Note 2,3)	-	25	-	nC
Gate-Source Charge	Q _{gs}		-	7	-	
Gate-Drain Charge	Q _{gd}		-	10	-	
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1.0MHZ	-	1258	-	pF
Output Capacitance	C _{oss}		-	134	-	
Reverse Transfer Capacitance	C _{rss}		-	88	-	
Turn-On Delay Time	td _(on)	V _{DS} =20V, I _D =1A, V _{GS} =10V, R _G =3.3Ω ^(Note 2,3)	-	18	-	ns
Turn-On Rise Time	t _r		-	13	-	
Turn-Off Delay Time	td _(off)		-	109	-	
Turn-Off Fall Time	t _f		-	73	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	90	A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V	-	0.7	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. The maximum current rating is package limited.
5. 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.
6. The test condition is L=0.1mH, I_{AS}=38A, V_{DD}=25V, V_{GS}=10V, Starting T_J=25°C.
7. Guaranteed by design, not subject to production testing.

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TYPICAL CHARACTERISTIC CURVES

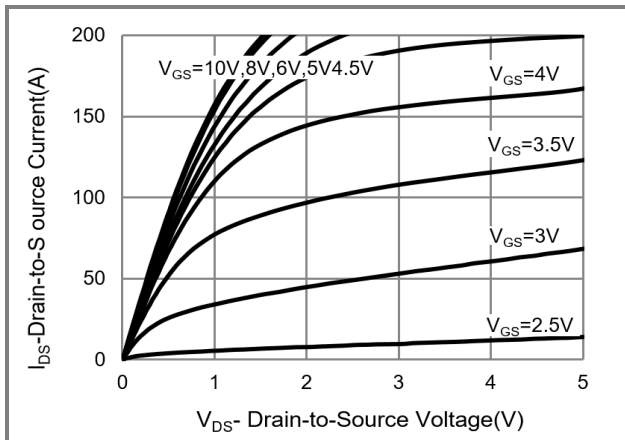


Fig.1 On-Region Characteristics

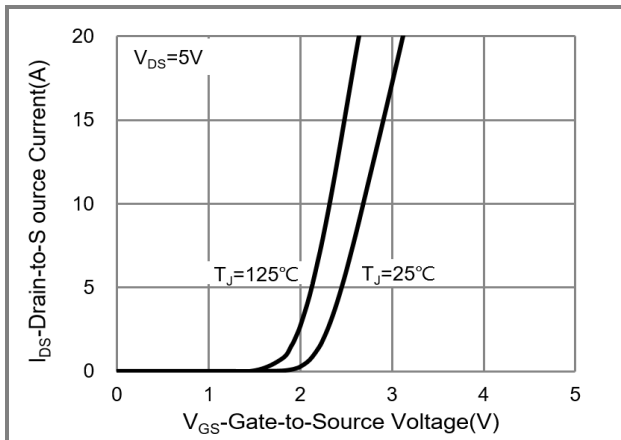


Fig.2 Transfer Characteristics

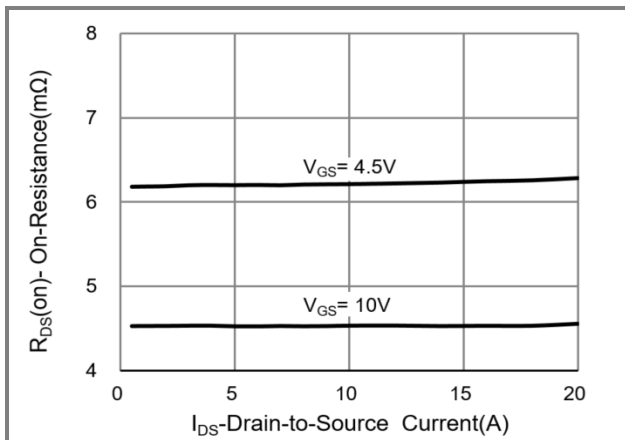


Fig.3 On-Resistance vs. Drain Current

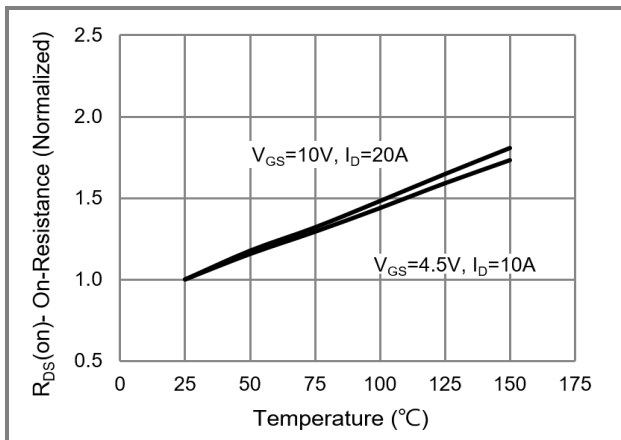


Fig.4 On-Resistance vs. Junction temperature

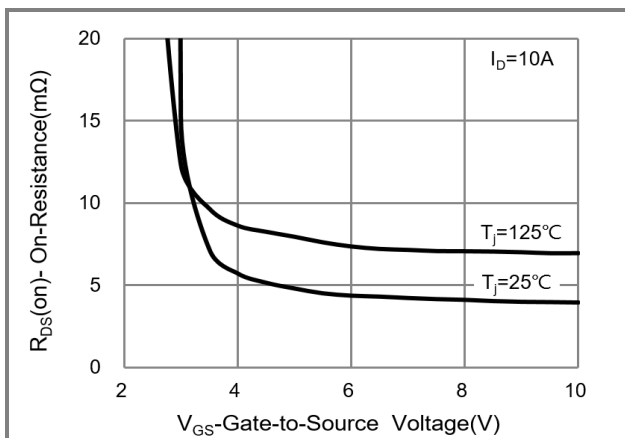


Fig.5 On-Resistance Variation with V_{GS}

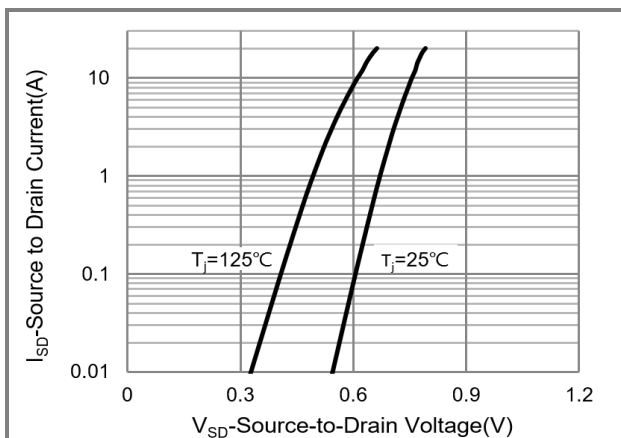
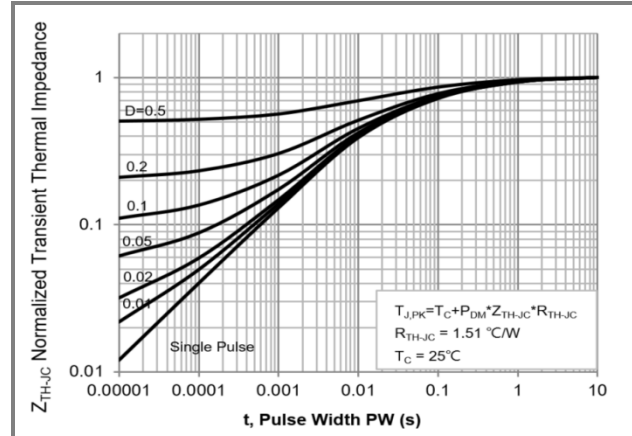
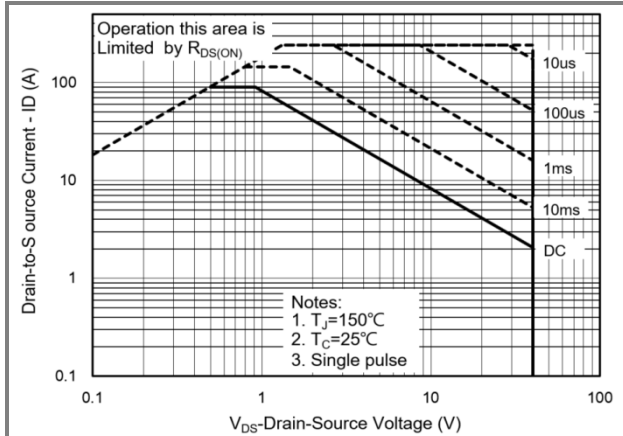
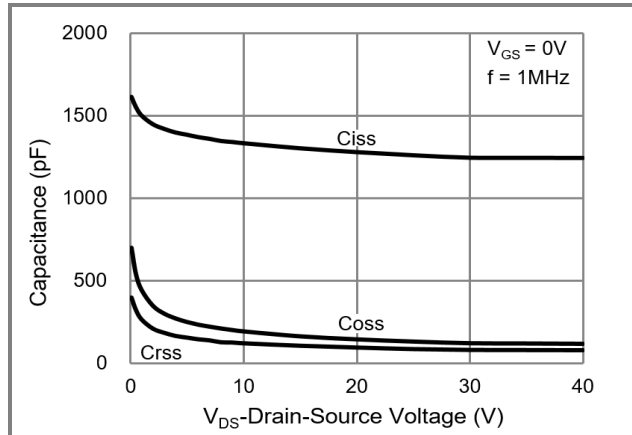
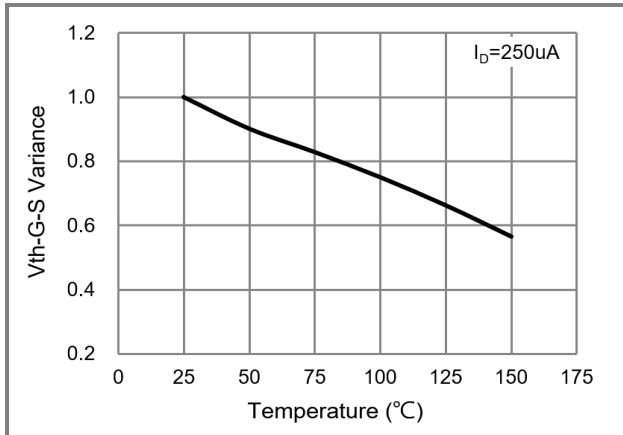
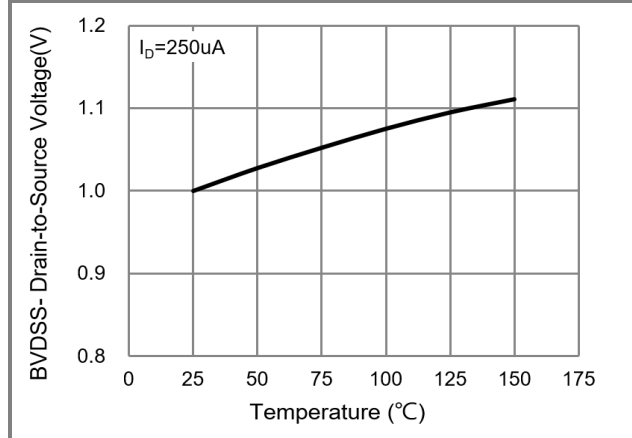
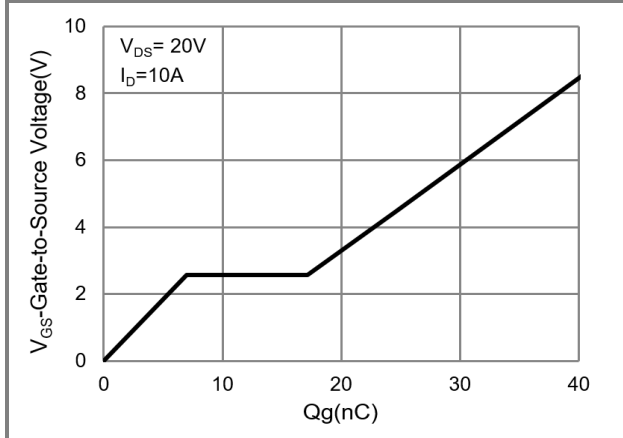


Fig.6 Body Diode Characteristics

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TYPICAL CHARACTERISTIC CURVES



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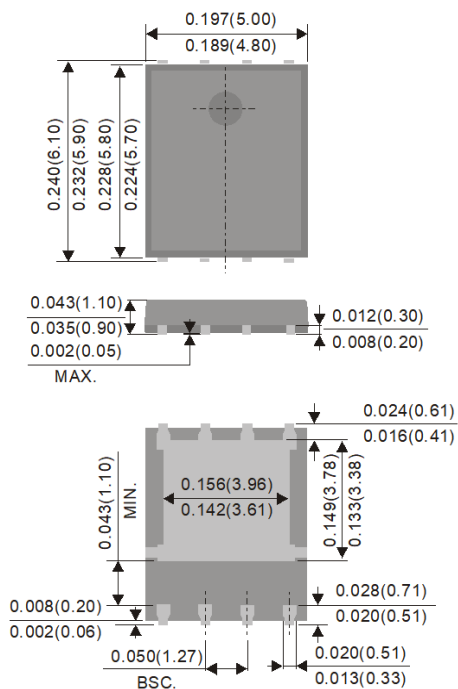
Part No Packing Code Version

Part No Packing Code	Package Type	Packing Type	Marking	Version
PJQ5442_R2_00001	DFN5060-8L	3000pcs / 13" reel	Q5442	Halogen free

Packaging Information & Mounting Pad Layout

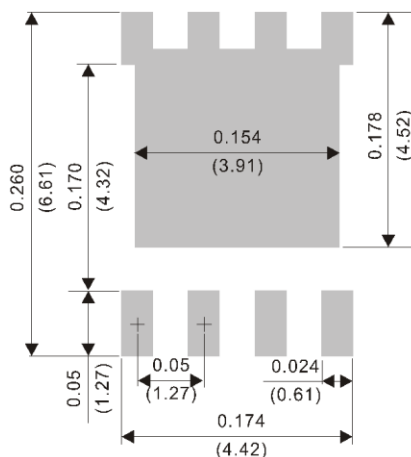
DFN5060-8L Dimension

Unit: inch(mm)



DFN5060-8L Pad Layout

Unit: inch(mm)





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