

PJQ5461A

60V P-Channel Enhancement Mode MOSFET

Voltage

-60 V

Current

-11.5 A

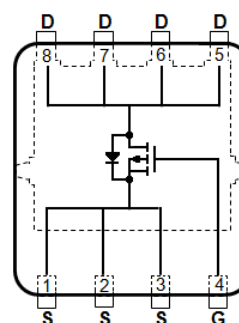
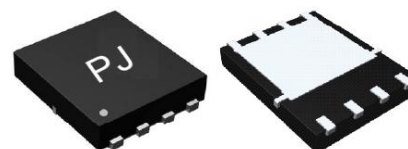
Features

- $R_{DS(ON)}$, $V_{GS}@-10V$, $I_D@-6A < 110m\Omega$
- $R_{DS(ON)}$, $V_{GS}@-4.5V$, $I_D@-3A < 130m\Omega$
- 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: DFN5060-8L Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0028 ounces, 0.08 grams
- Marking: Q5461A

DFN5060-8L



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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C=25^{\circ}C$	I_D	-11.5	A
	$T_C=100^{\circ}C$		-7.2	
Pulsed Drain Current ^(Note 1)	$T_C=25^{\circ}C$	I_{DM}	-35	
Power Dissipation	$T_C=25^{\circ}C$	P_D	26	W
	$T_C=100^{\circ}C$		10	
Continuous Drain Current	$T_A=25^{\circ}C$	I_D	-3.2	A
	$T_A=70^{\circ}C$		-2.5	A
Power Dissipation	$T_A=25^{\circ}C$	P_D	2.0	W
Power Dissipation	$T_A=70^{\circ}C$		1.3	
Single Pulse Avalanche Energy ^(Note 6)		E_{AS}	20	mJ
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	$^{\circ}C$
Typical Thermal Resistance ^(Note 4,5)	Junction to Case	$R_{\theta JC}$	4.8	$^{\circ}C/W$
	Junction to Ambient	$R_{\theta JA}$	62.5	

- Limited only By Maximum Junction Temperature



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

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250uA	-60	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-1.0	-1.7	-2.5	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-6A	-	87	110	mΩ
		V _{GS} =-4.5V, I _D =-3A	-	110	130	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-60V, V _{GS} =0V	-	-	-1.0	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} =-30V, I _D =-4A, V _{GS} =-10V (Note 1,2)	-	10	-	nC
Gate-Source Charge	Q _{gs}		-	1.6	-	
Gate-Drain Charge	Q _{gd}		-	3	-	
Input Capacitance	C _{iss}	V _{DS} =-30V, V _{GS} =0V, f=1.0MHZ	-	785	-	pF
Output Capacitance	C _{oss}		-	175	-	
Reverse Transfer Capacitance	C _{rss}		-	112	-	
Turn-On Delay Time	td _(on)	V _{DS} =-30V, RL=30Ω, V _{GS} =-10V, R _G =6.2Ω (Note 1,2)	-	8	-	ns
Turn-On Rise Time	t _r		-	15	-	
Turn-Off Delay Time	td _(off)		-	43	-	
Turn-Off Fall Time	t _f		-	8.4	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	-11.5	A
Diode Forward Voltage	V _{SD}	I _S =-1A, V _{GS} =0V	-	-0.76	-1.0	V

NOTES :

1. Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$
2. Essentially independent of operating temperature typical characteristics.
3. Repetitive rating, pulse width limited by junction temperature $T_J(\text{MAX})=150^{\circ}\text{C}$. Ratings are based on low frequency and duty cycles to keep initial $T_J=25^{\circ}\text{C}$.
4. The maximum current rating is package limited.
5. $R_{\theta JA}$ 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 inch² with 2oz.square pad of copper.
6. The test condition is $L=0.1\text{mH}$, $I_{AS}=20A$, $V_{DD}=25V$, $V_{GS}=10V$
7. Guaranteed by design, not subject to production testing.

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TYPICAL CHARACTERISTIC CURVES

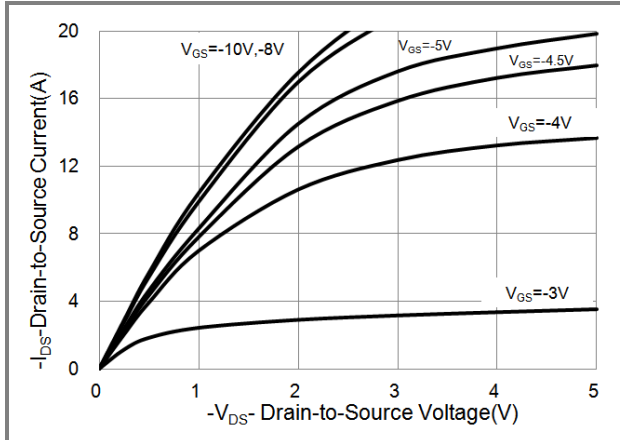


Fig.1 Output Characteristics

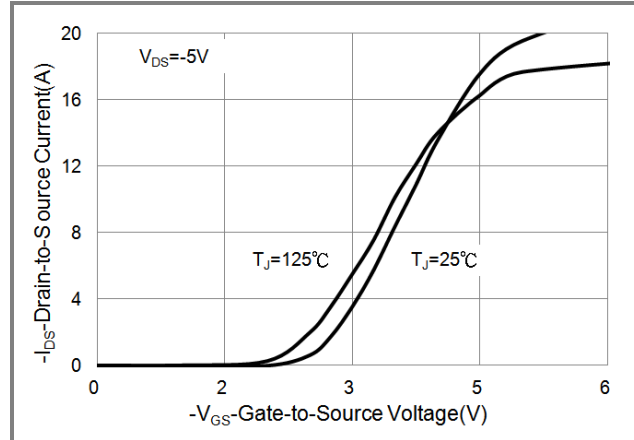


Fig.2 Transfer Characteristics

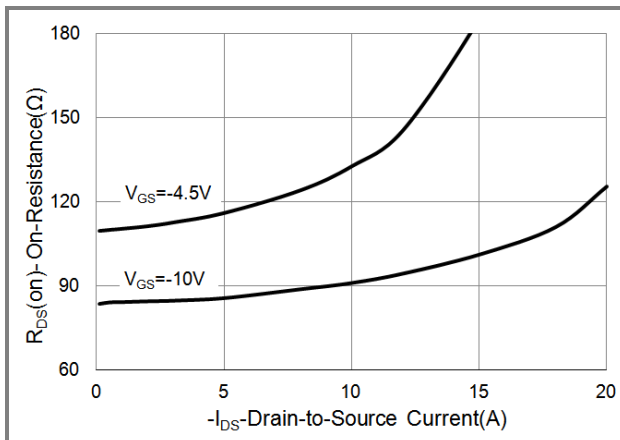


Fig.3 On-Resistance vs. Drain Current

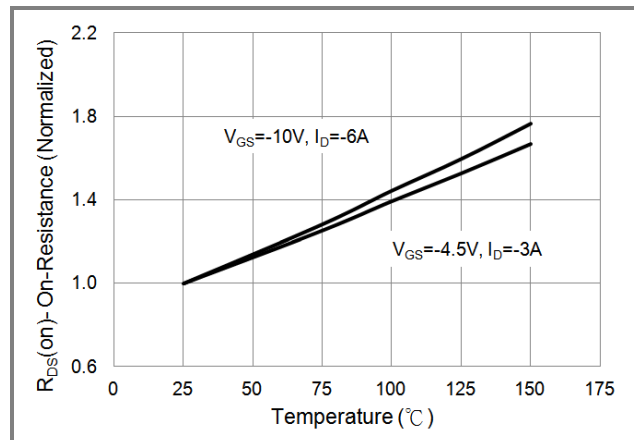


Fig.4 On-Resistance vs. Junction temperature

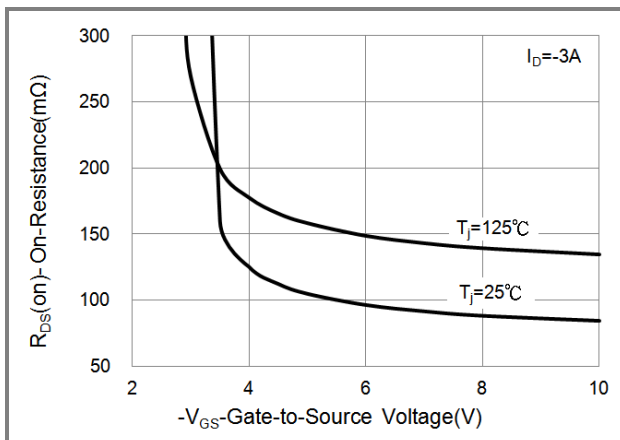


Fig.5 On-Resistance Variation with V_GS.

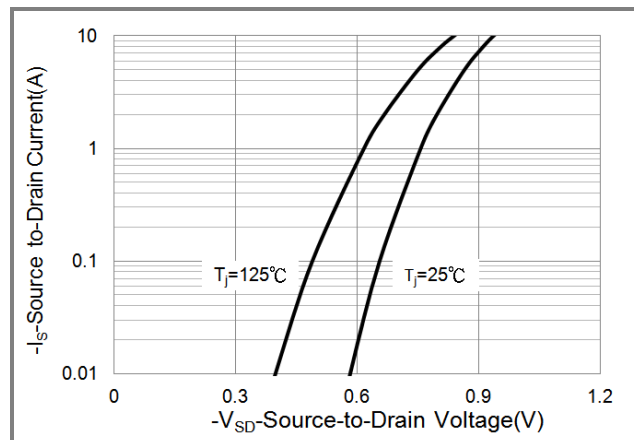


Fig.6 Source-Drain Diode Forward Voltage

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TYPICAL CHARACTERISTIC CURVES

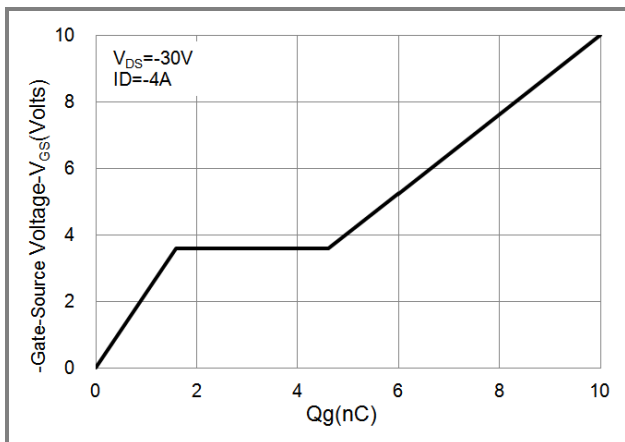


Fig.7 Gate-Charge Characteristics

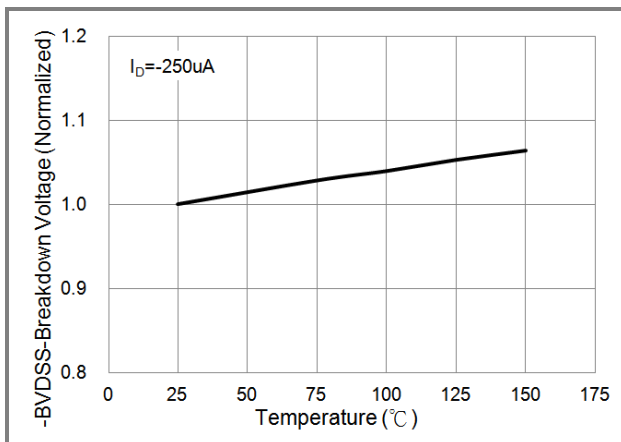


Fig.8 Breakdown Voltage Variation vs. Temperature

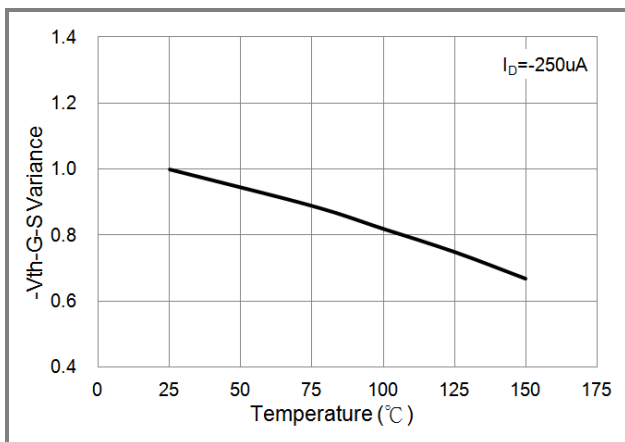


Fig.9 Threshold Voltage Variation with Temperature

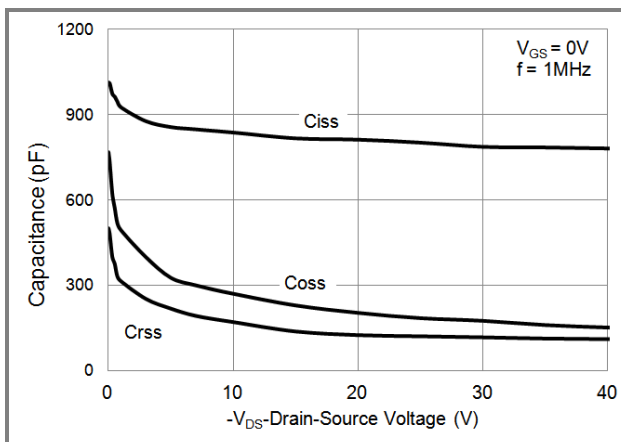


Fig.10 Capacitance vs. Drain-Source Voltage

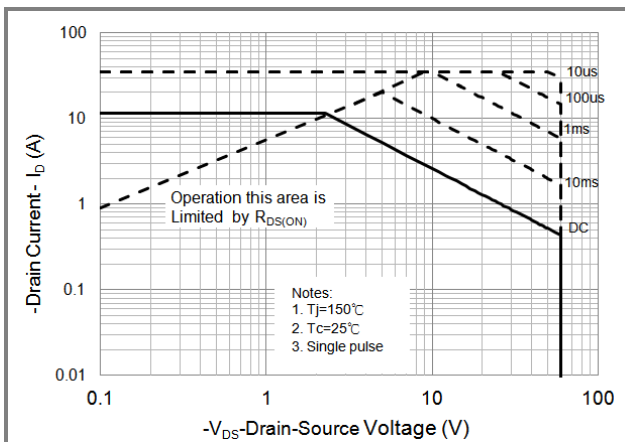
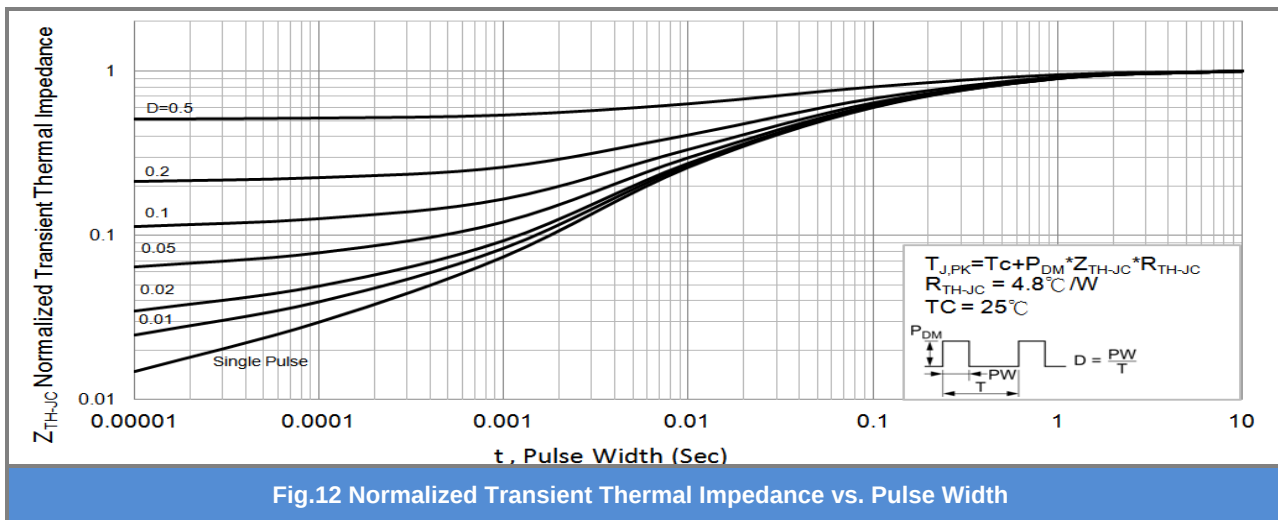


Fig.11 Maximum Safe Operating Area



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TYPICAL CHARACTERISTIC CURVES

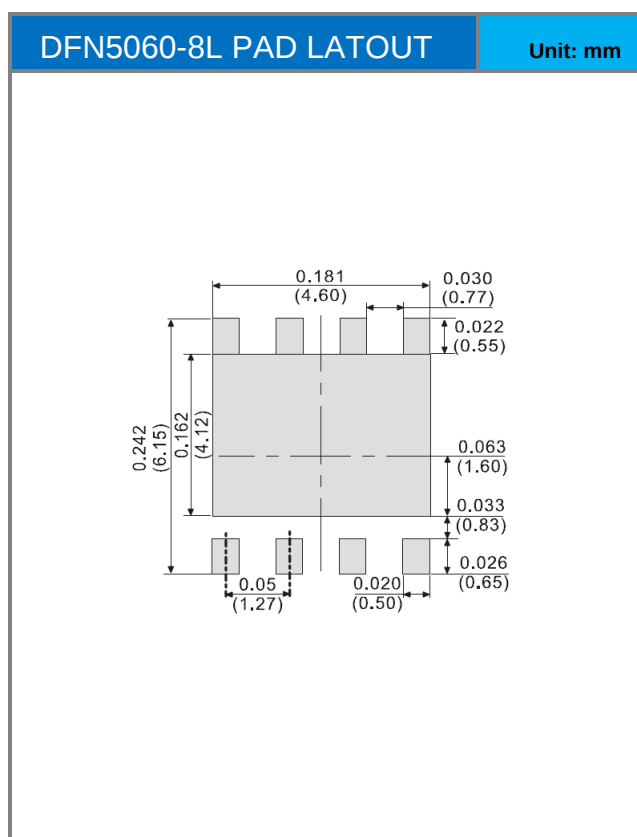
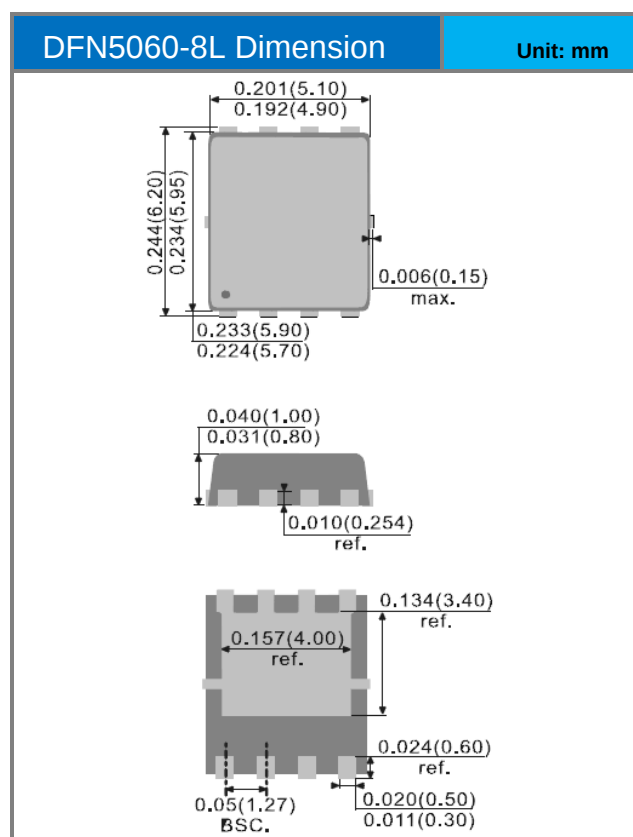


PJQ5461A

PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type	Marking	Version
PJQ5461A_R2_00001	DFN5060-8L	3000pcs / 13" reel	Q5461A	Halogen free

Packaging Information & Mounting Pad Layout





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