



PJQ5476AL

100V N-Channel Enhancement Mode MOSFET

Voltage

100 V

Current

42A

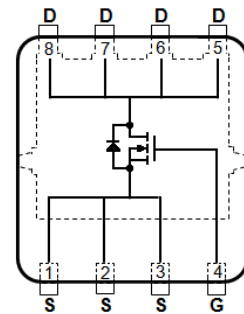
Features

- RDS(ON) , VGS@10V, ID@20A<25mΩ
- RDS(ON) , VGS@4.5V, ID@15A<28.5mΩ
- Advanced Trench Process Technology
- High density cell design for ultra low on-resistance
- 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: Q5476AL

DFN5060-8L



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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V _{DS}	100	V
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current	T _C =25°C	I _D	42	A
	T _C =100°C		26.6	
Pulsed Drain Current ^(Note 1)	T _C =25°C	I _{DM}	150	
Power Dissipation	T _C =25°C	P _D	83	W
	T _C =100°C		33	
Continuous Drain Current	T _A =25°C	I _D	6.5	A
	T _A =70°C		5.2	A
Power Dissipation	T _A =25°C	P _D	2.0	W
	T _A =70°C		1.3	
Single Pulse Avalanche Energy ^(Note 6)		E _{AS}	63.4	mJ
Operating Junction and Storage Temperature Range		T _J , T _{STG}	-55~150	°C
Typical Thermal Resistance ^(Note 4,5)	Junction to Case	R _{θJC}	1.5	°C/W
	Junction to Ambient	R _{θJA}	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}	$V_{GS}=0V, I_D=250\mu A$	100	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.8	2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$	-	20	25	m Ω
		$V_{GS}=4.5V, I_D=15A$	-	22	28.5	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=80V, V_{GS}=0V$	-	-	1.0	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Dynamic (Note 7)						
Total Gate Charge	Q_g	$V_{DS}=50V, I_D=10A,$ $V_{GS}=10V$ (Note 1,2)	-	31	-	nC
Gate-Source Charge	Q_{gs}		-	5.1	-	
Gate-Drain Charge	Q_{gd}		-	7.3	-	
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V,$ $f=1.0\text{MHz}$	-	1519	-	pF
Output Capacitance	C_{oss}		-	132	-	
Reverse Transfer Capacitance	C_{rss}		-	66	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=50V, I_D=10A,$ $V_{GS}=10V,$ $R_G=3\Omega$ (Note 1,2)	-	11	-	ns
Turn-On Rise Time	t_r		-	42	-	
Turn-Off Delay Time	$t_{d(off)}$		-	40	-	
Turn-Off Fall Time	t_f		-	19	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	42	A
Diode Forward Voltage	V_{SD}	$I_S=1A, V_{GS}=0V$	-	0.7	1.2	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 $L=3\text{mH}, I_{AS}=6.5A, V_{DD}=50V, V_{GS}=10V$
7. Guaranteed by design, not subject to production testing.



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TYPICAL CHARACTERISTIC CURVES

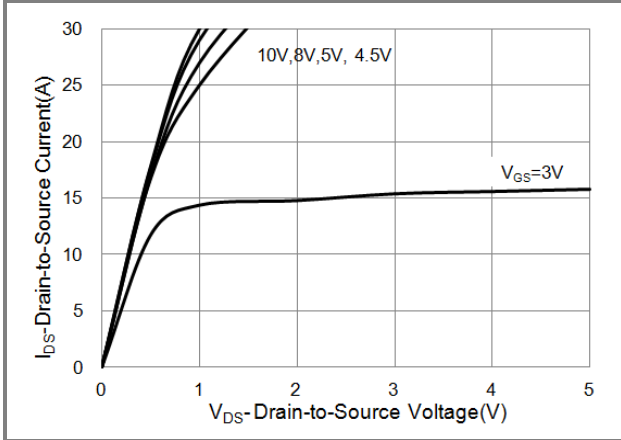


Fig.1 Output Characteristics

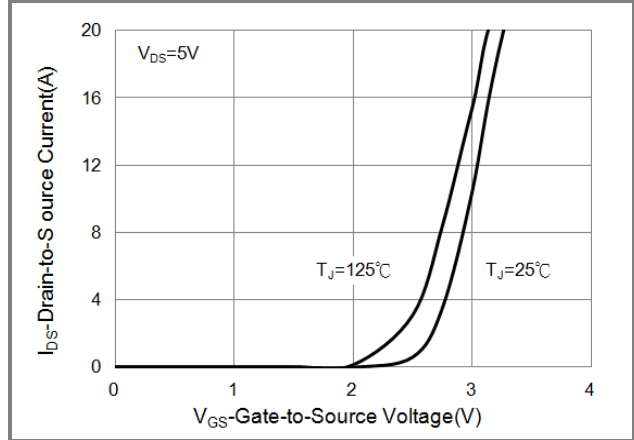


Fig.2 Transfer Characteristics

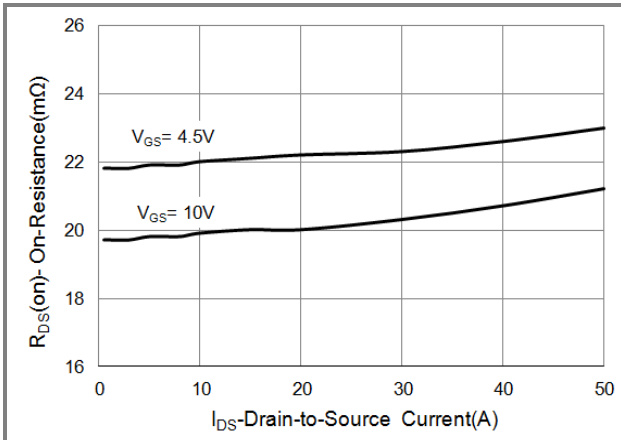


Fig.3 On-Resistance vs. Drain Current

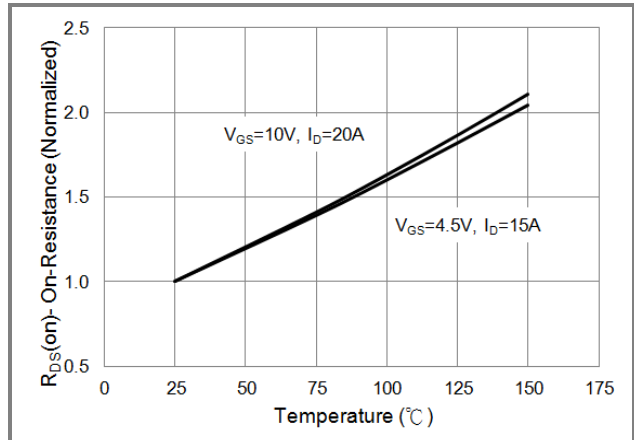


Fig.4 On-Resistance vs. Junction temperature

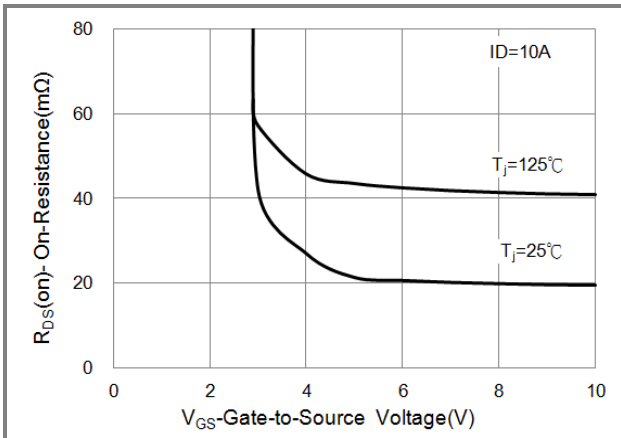


Fig.5 On-Resistance Variation with VGS.

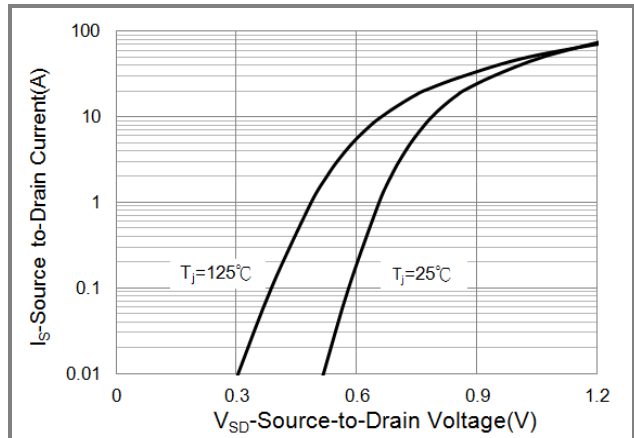


Fig.6 Source-Drain Diode Forward Voltage



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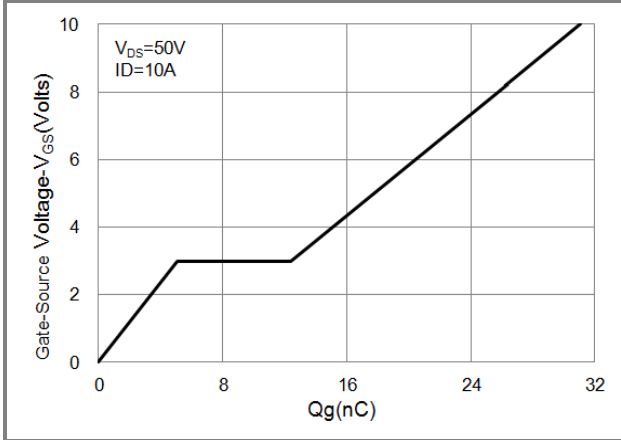


Fig.7 Gate-Charge Characteristics

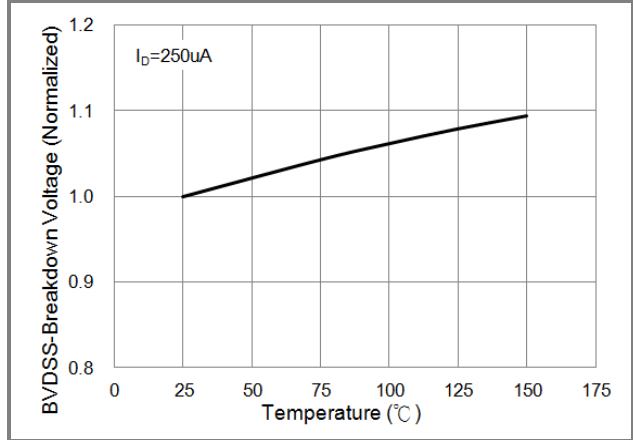


Fig.8 Breakdown Voltage Variation vs. Temperature

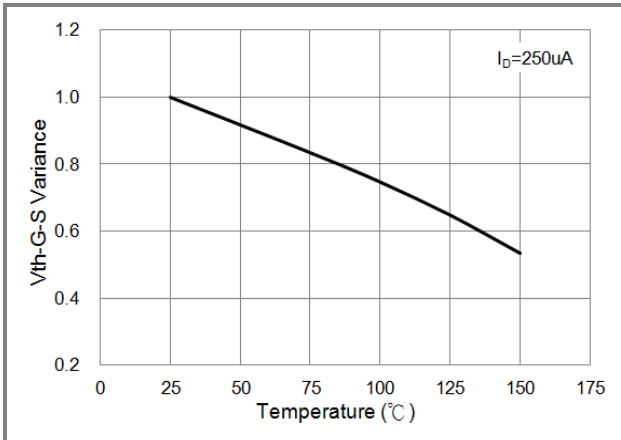


Fig.9 Threshold Voltage Variation with Temperature

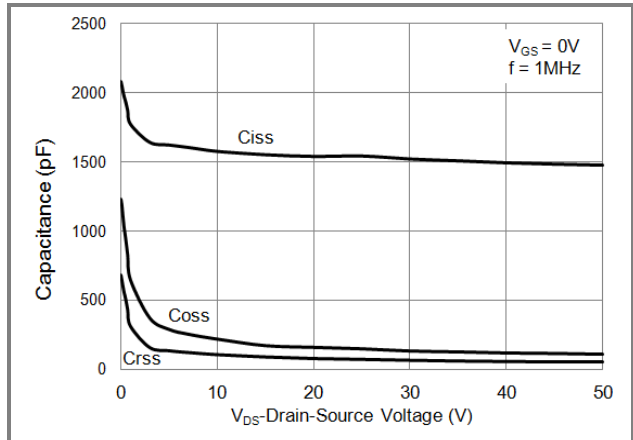


Fig.10 Capacitance vs. Drain-Source Voltage

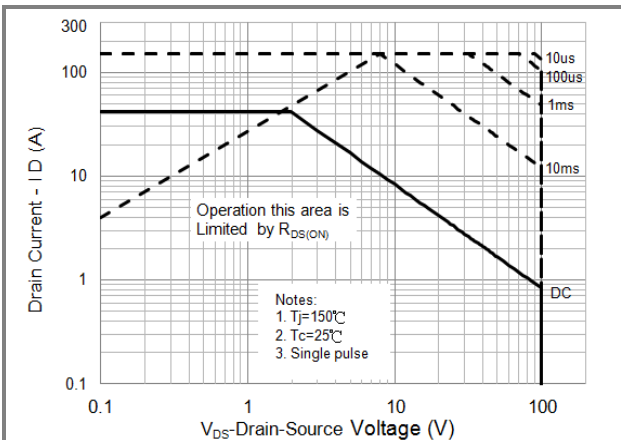


Fig.11 Maximum Safe Operating Area



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TYPICAL CHARACTERISTIC CURVES

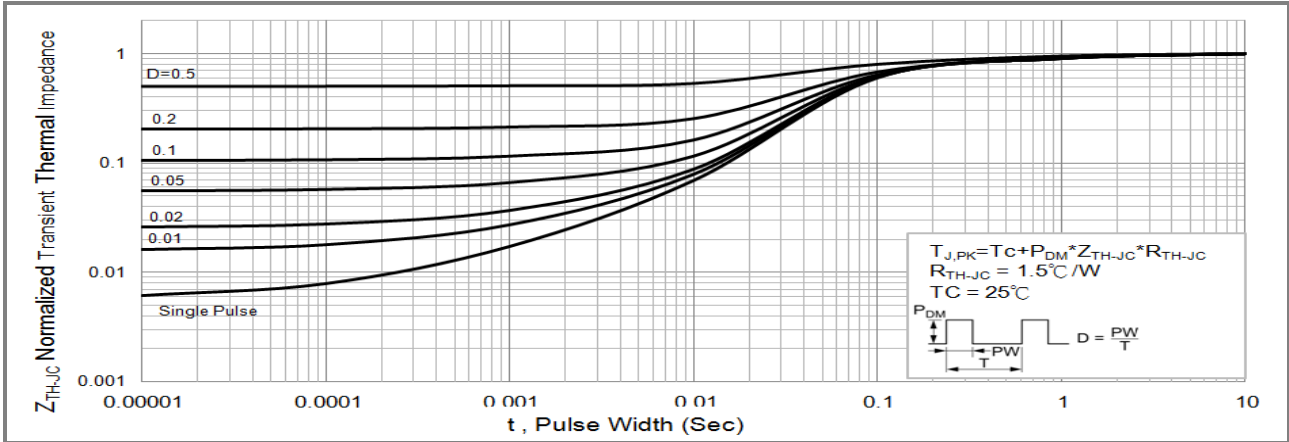


Fig.12 Normalized Transient Thermal Impedance vs. Pulse Width

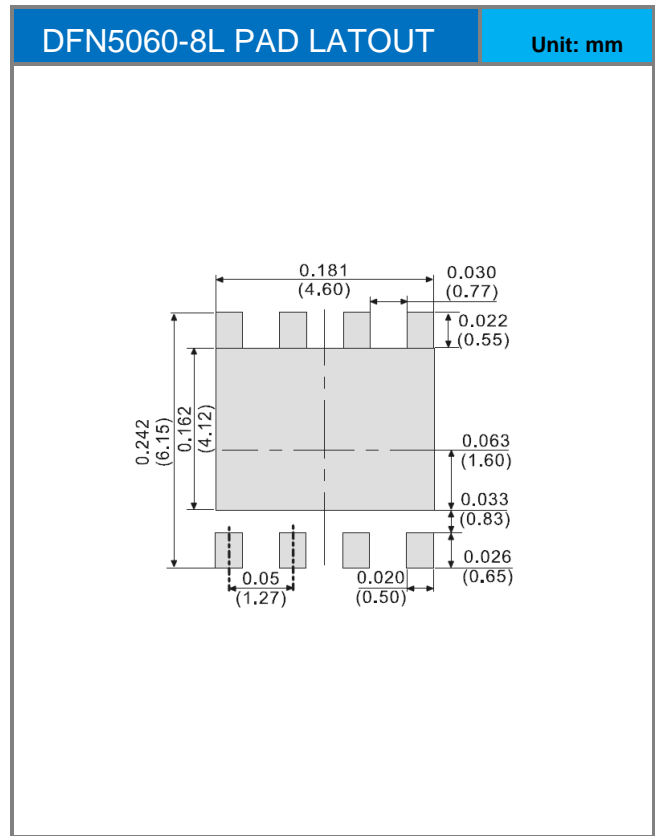
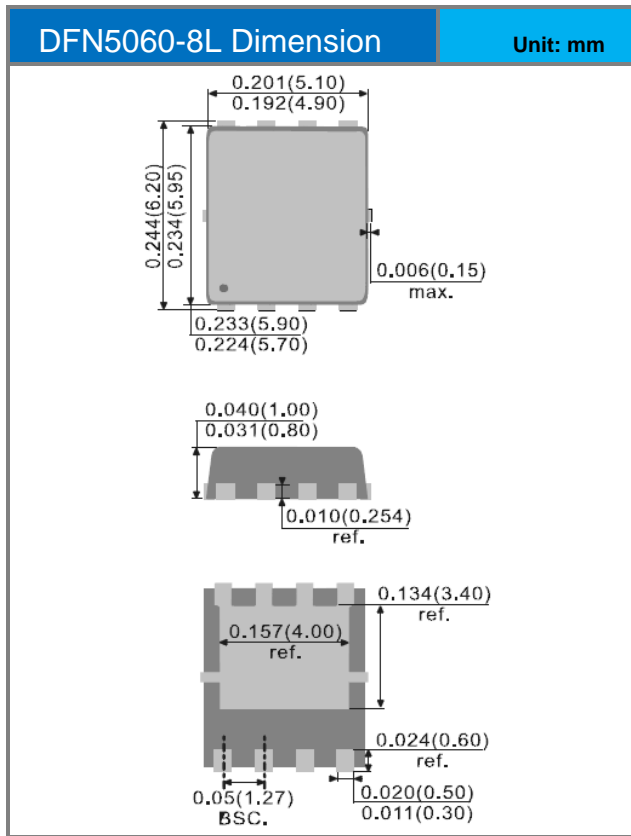


PJQ5476AL

PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type	Marking	Version
PJQ5476AL_R2_00001	DFN5060-8L	3000pcs / 13" reel	Q5476AL	Halogen free

Packaging Information & Mounting Pad Layout





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