



# PJQ5476AL

## 100V N-Channel Enhancement Mode MOSFET

**Voltage**

**100 V**

**Current**

**42A**

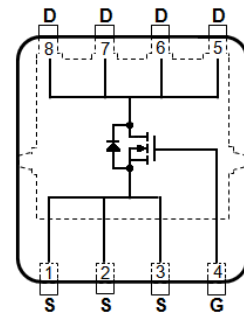
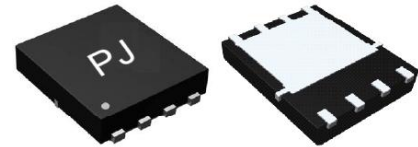
### Features

- 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 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
- Marking: Q5476AL

DFN5060-8L



### Maximum Ratings and Thermal Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNITS
Drain-Source Voltage	V <sub>DS</sub>	100	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current	I <sub>D</sub>	T <sub>C</sub> =25°C	42
		T <sub>C</sub> =100°C	26.6
Pulsed Drain Current <sup>(Note 1)</sup>	I <sub>DM</sub>	T <sub>C</sub> =25°C	150
Power Dissipation	P <sub>D</sub>	T <sub>C</sub> =25°C	83
		T <sub>C</sub> =100°C	33
Continuous Drain Current	I <sub>D</sub>	T <sub>A</sub> =25°C	6.5
		T <sub>A</sub> =70°C	5.2
Power Dissipation	P <sub>D</sub>	T <sub>A</sub> =25°C	2.0
		T <sub>A</sub> =70°C	1.3
Single Pulse Avalanche Energy <sup>(Note 6)</sup>	E <sub>AS</sub>	63.4	mJ
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55~150	°C
Typical Thermal Resistance <sup>(Note 4,5)</sup>	Junction to Case	R <sub>θJC</sub>	1.5
	Junction to Ambient	R <sub>θJA</sub>	62.5

- Limited only By Maximum Junction Temperature



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## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
<b>Static</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	100	-	-	V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	1.0	1.8	2.5	V
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =20A	-	20	25	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =15A	-	22	28.5	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =80V, V <sub>GS</sub> =0V	-	-	1.0	uA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±100	nA
<b>Dynamic</b> (Note 7)						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =50V, I <sub>D</sub> =10A, V <sub>GS</sub> =10V (Note 1,2)	-	31	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	5.1	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	7.3	-	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V, f=1.0MHZ	-	1519	-	pF
Output Capacitance	C <sub>oss</sub>		-	132	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	66	-	
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =50V, I <sub>D</sub> =10A, V <sub>GS</sub> =10V, R <sub>G</sub> =3Ω (Note 1,2)	-	11	-	ns
Turn-On Rise Time	t <sub>r</sub>		-	42	-	
Turn-Off Delay Time	t <sub>d(off)</sub>		-	40	-	
Turn-Off Fall Time	t <sub>f</sub>		-	19	-	
<b>Drain-Source Diode</b>						
Maximum Continuous Drain-Source Diode Forward Current	I <sub>S</sub>	---	-	-	42	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1A, V <sub>GS</sub> =0V	-	0.7	1.2	V

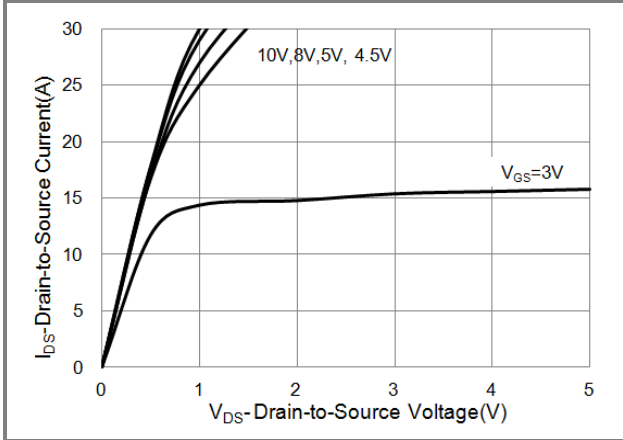
**NOTES :**

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<sub>J</sub>(MAX)=150°C. Ratings are based on low frequency and duty cycles to keep initial T<sub>J</sub> = 25°C.
4. The maximum current rating is package limited.
5. R<sub>θJA</sub> 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<sup>2</sup> with 2oz. square pad of copper.
6. The test condition is L=3mH, I<sub>AS</sub>=6.5A, V<sub>DD</sub>=50V, V<sub>GS</sub>=10V
7. Guaranteed by design, not subject to production testing.

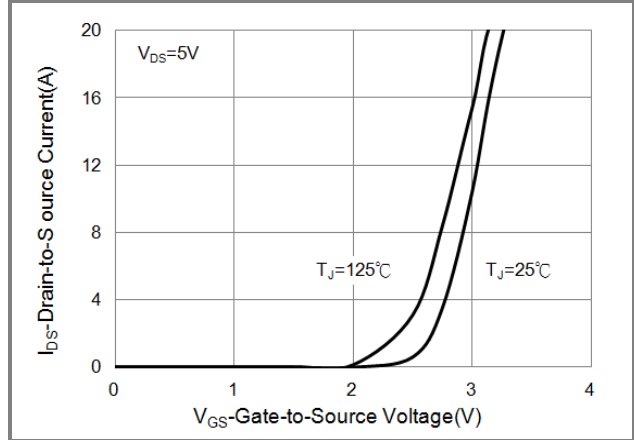


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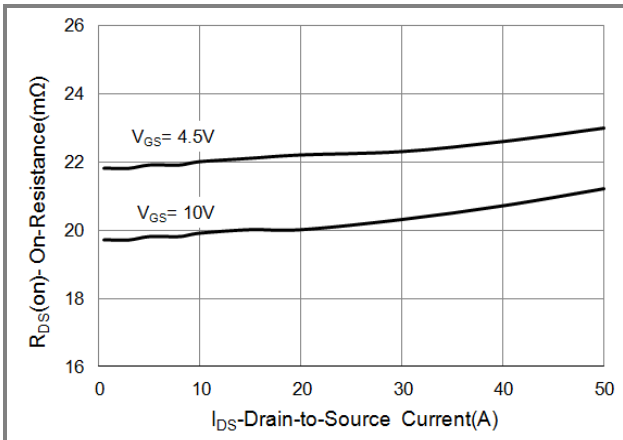
## TYPICAL CHARACTERISTIC CURVES



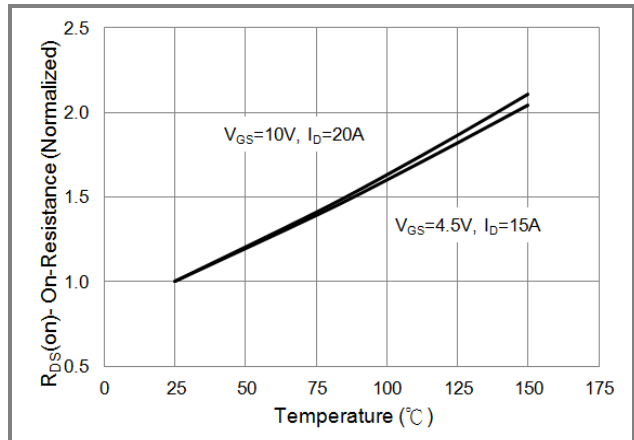
**Fig.1 Output Characteristics**



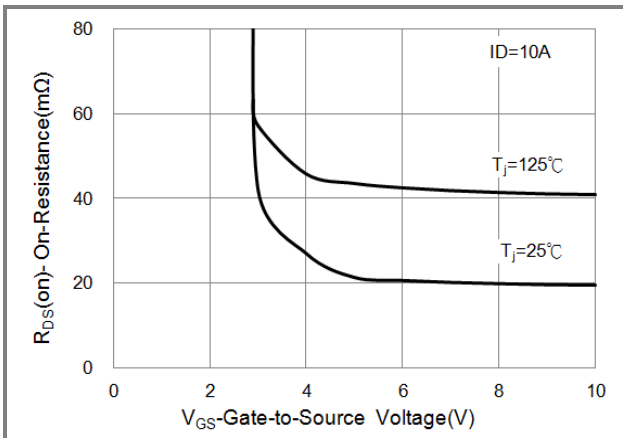
**Fig.2 Transfer Characteristics**



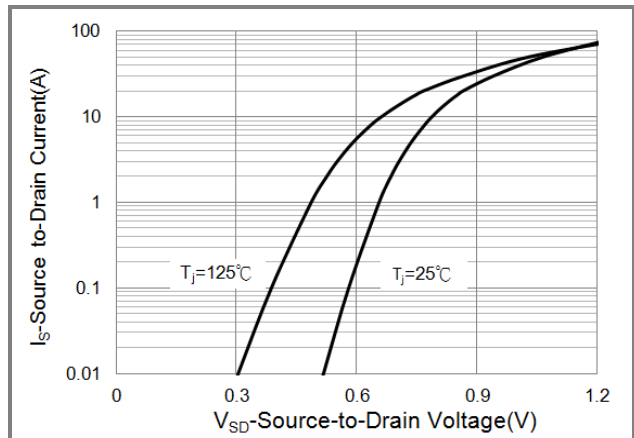
**Fig.3 On-Resistance vs. Drain Current**



**Fig.4 On-Resistance vs. Junction temperature**



**Fig.5 On-Resistance Variation with VGS.**



**Fig.6 Source-Drain Diode Forward Voltage**



# PJQ5476AL

## TYPICAL CHARACTERISTIC CURVES

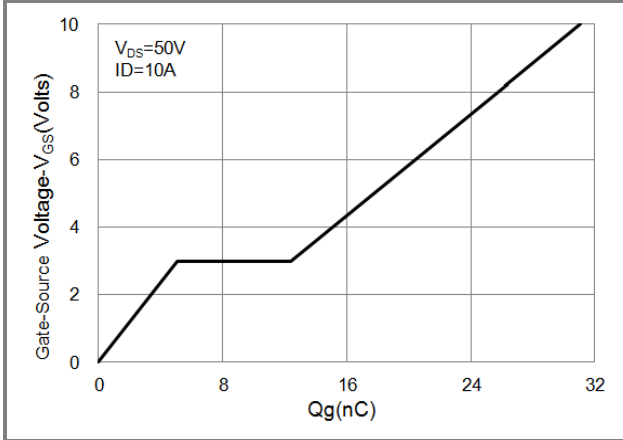


Fig.7 Gate-Charge Characteristics

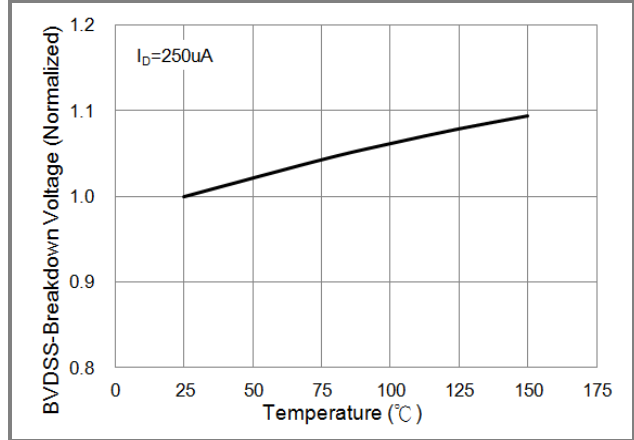


Fig.8 Breakdown Voltage Variation vs. Temperature

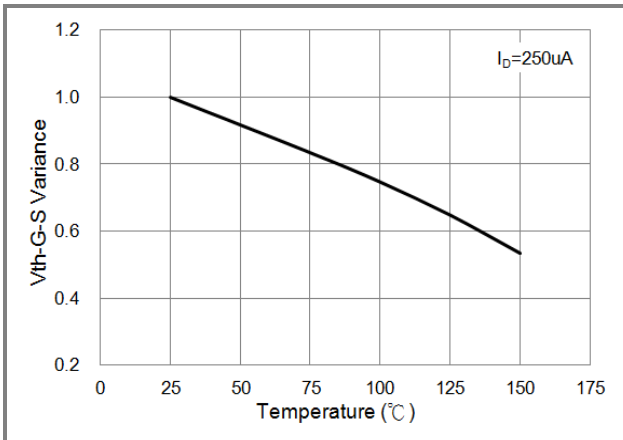


Fig.9 Threshold Voltage Variation with Temperature

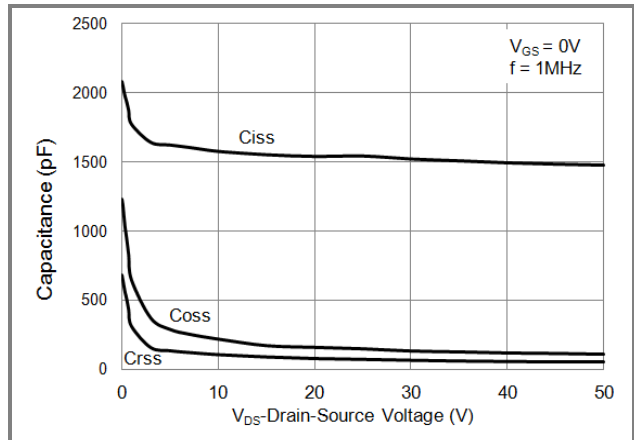


Fig.10 Capacitance vs. Drain-Source Voltage

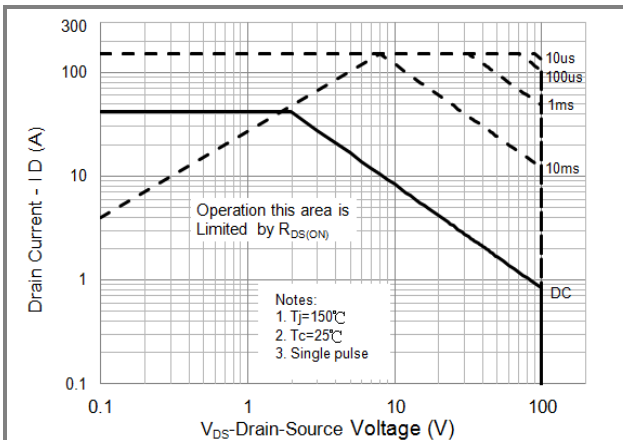


Fig.11 Maximum Safe Operating Area



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## TYPICAL CHARACTERISTIC CURVES

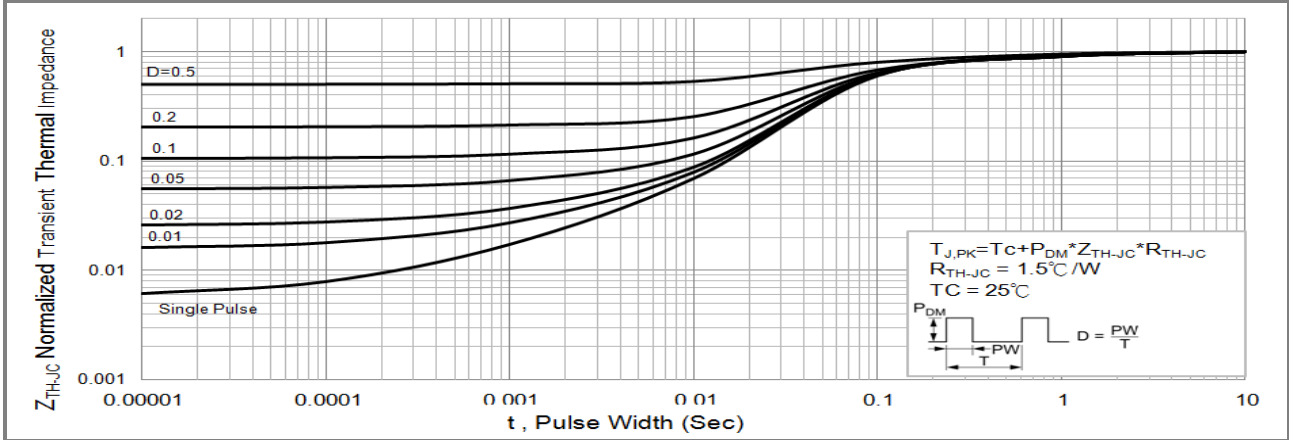


Fig.12 Normalized Transient Thermal Impedance vs. Pulse Width

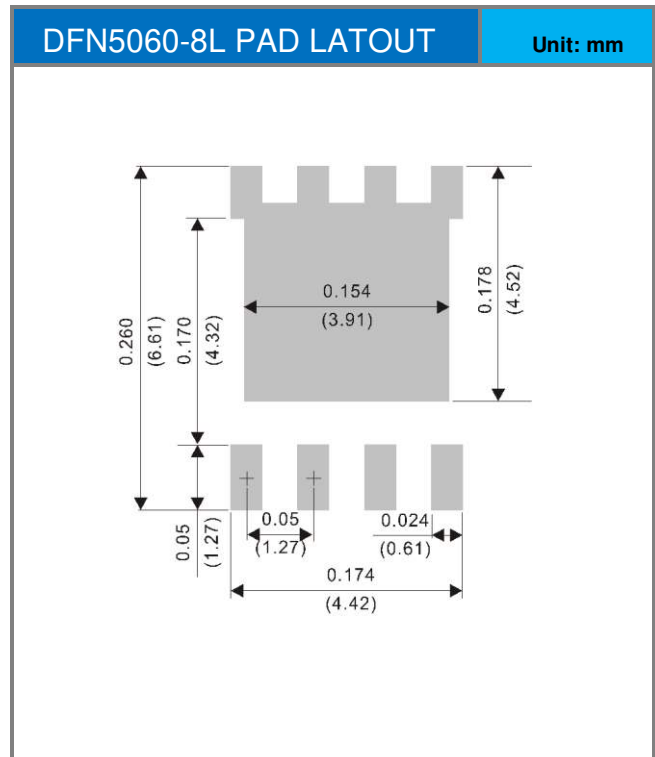
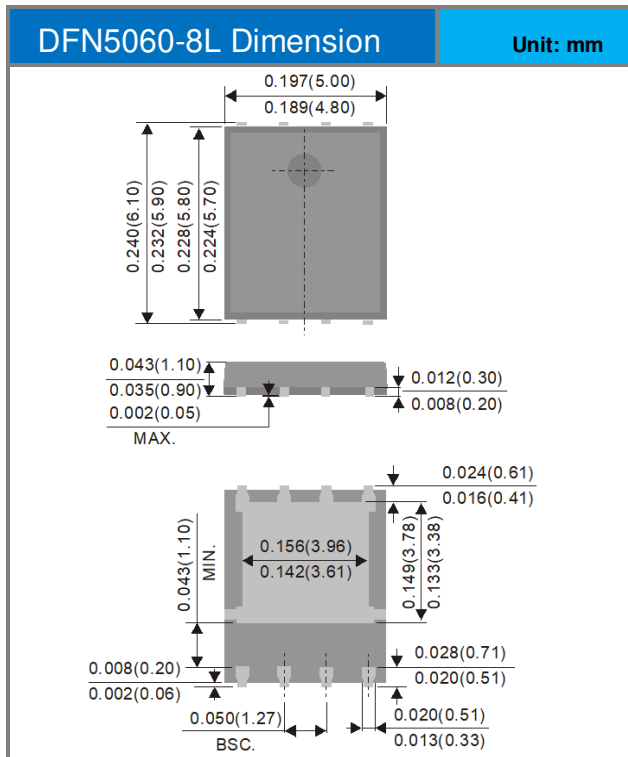


# PJQ5476AL

## 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





## PJQ5476AL

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