



150V N-Channel Enhancement Mode MOSFET

Voltage

150 V

Current

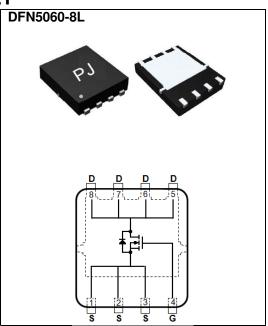
40A

Features

- $R_{DS(ON)}$, V_{GS} @10V, I_{D} @20A<35m Ω
- 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



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

PARAMETER		SYMBOL	LIMIT	UNITS	
Drain-Source Voltage		V_{DS}	150	- v	
Gate-Source Voltage		V_{GS}	<u>+</u> 20		
Continuous Drain Current	T _C =25°C	l _D	40	A	
	T _C =100°C		25		
Pulsed Drain Current ^(Note 1)	T _C =25°C	I _{DM}	120	7	
Power Dissipation	T _C =25°C	Po	131	W	
	T _C =100°C		52		
Continuous Drain Current	T _A =25°C	I _D	5.0	Α	
	T _A =70°C		4.0		
Power Dissipation	T _A =25°C	-	2.0	W	
Power Dissipation	T _A =70°C	Po	1.3		
Single Pulse Avalanche Energy ^(Note 6)		E _{AS}	31.5	mJ	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	°C	
Typical Thermal Resistance ^(Note 4,5)	Junction to Case	$R_{ heta JC}$	0.95	°C/W	
	Junction to Ambient	$R_{\theta JA}$	62.5		

Limited only By Maximum Junction Temperature





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	150	-	-	V		
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_{D}=250uA$	2.0	3.0	4.0			
Drain-Source On-State Resistance	R _{DS(on)}	V_{GS} =10V, I_D =20A	-	30	35	mΩ		
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =120V, V _{GS} =0V	-	-	1.0	uA		
Gate-Source Leakage Current	I _{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	<u>+</u> 100	nA		
Dynamic (Note 7)								
Total Gate Charge	Q_g	V_{DS} =120V, I_{D} =30A, V_{GS} =10V (Note 1,2)	-	52	-	nC		
Gate-Source Charge	Q_{gs}		-	10	-			
Gate-Drain Charge	Q_gd		-	19	-			
Input Capacitance	Ciss	V _{DS} =75V, V _{GS} =0V,	-	2207	-	pF		
Output Capacitance	Coss		-	136	-			
Reverse Transfer Capacitance	Crss	f=1.0MHZ	-	58	-			
Turn-On Delay Time	td _(on)	V 75V DI 470	-	17	-	ns		
Turn-On Rise Time	t _r	V_{DS} =75V, RL=1.7 Ω , V_{GS} =10V, R _G =25 Ω	-	100	-			
Turn-Off Delay Time	td _(off)		-	35	-			
Turn-Off Fall Time	t _f		-	106	-			
Drain-Source Diode								
Maximum Continuous Drain-Source	,		-	-	40	Α		
Diode Forward Current	I _S							
Diode Forward Voltage	V_{SD}	I _S =1A,V _{GS} =0V	-	0.7	1.3	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. Rejah 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.





TYPICAL CHARACTERISTIC CURVES

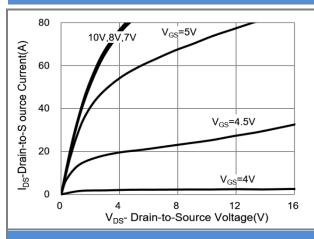


Fig.1 On-Region Characteristics

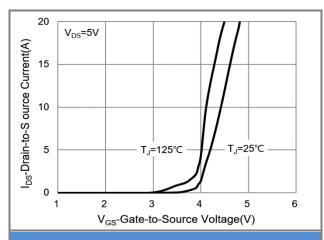


Fig.2 Transfer Characteristics

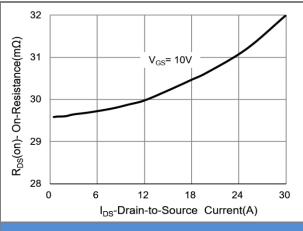


Fig.3 On-Resistance vs. Drain Current

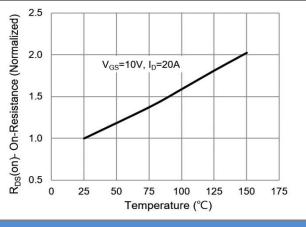


Fig.4 On-Resistance vs. Junction temperature

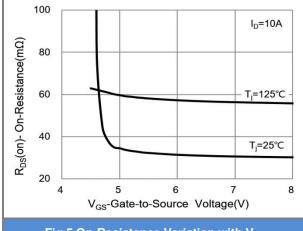
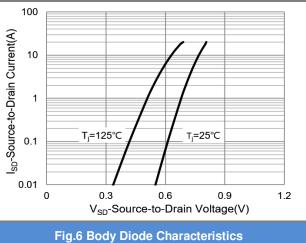


Fig.5 On-Resistance Variation with V_{GS}







TYPICAL CHARACTERISTIC CURVES

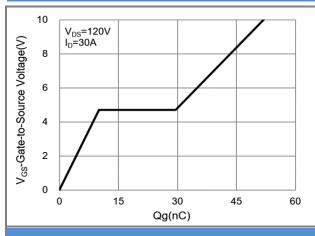


Fig.7 Gate-Charge Characteristics

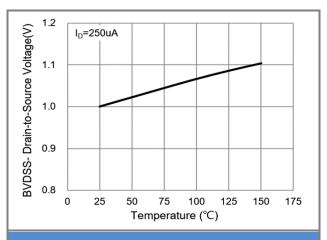


Fig.8 Breakdown Voltage Variation vs. Temperature

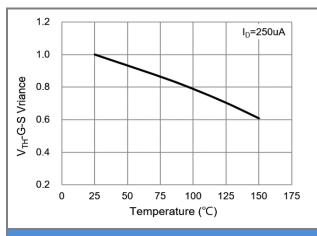


Fig.9 Threshold Voltage Variation with Temperature

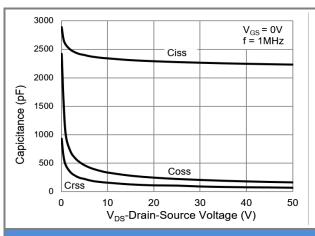


Fig.10 Capacitance vs. Drain-Source Voltage

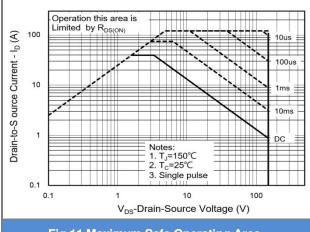


Fig.11 Maximum Safe Operating Area

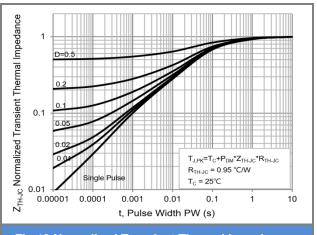


Fig.12 Normalized Transient Thermal Impedance

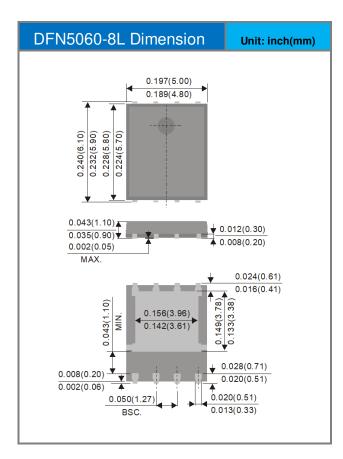


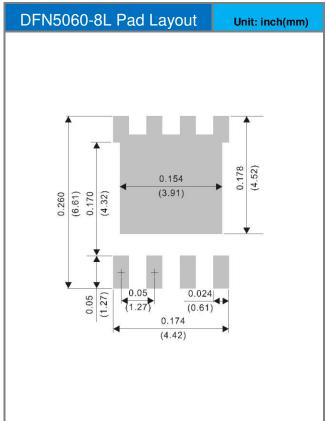


Part No Packing Code Version

Part No Packing Code	Package Type	Packing Type	Marking	Version	
PJQ5494_R2_00001	DFN5060-8L	3000pcs / 13" reel	Q5494	Halogen free	

Packaging Information & Mounting Pad Layout









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