

# PJQ5494

## 150V N-Channel Enhancement Mode MOSFET

Voltage	150 V	Current	40A
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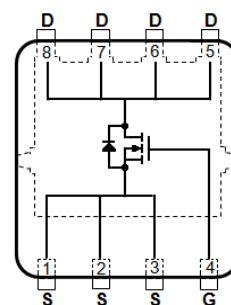
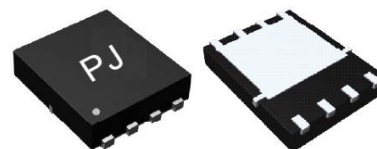
### Features

- $R_{DS(ON)}$ ,  $V_{GS}@10V$ ,  $I_D@20A<35m\Omega$
- 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		$V_{DS}$	150	V
Gate-Source Voltage		$V_{GS}$	$\pm 20$	
Continuous Drain Current	$T_C=25^{\circ}C$	$I_D$	40	A
	$T_C=100^{\circ}C$		25	
Pulsed Drain Current <sup>(Note 1)</sup>	$T_C=25^{\circ}C$	$I_{DM}$	120	W
Power Dissipation	$T_C=25^{\circ}C$	$P_D$	131	
	$T_C=100^{\circ}C$		52	A
Continuous Drain Current	$T_A=25^{\circ}C$	$I_D$	5.0	
	$T_A=70^{\circ}C$		4.0	W
Power Dissipation	$T_A=25^{\circ}C$	$P_D$	2.0	
Power Dissipation	$T_A=70^{\circ}C$		1.3	mJ
Single Pulse Avalanche Energy <sup>(Note 6)</sup>		$E_{AS}$	31.5	
Operating Junction and Storage Temperature Range		$T_J, T_{STG}$	-55~150	$^{\circ}C$
Typical Thermal Resistance <sup>(Note 4,5)</sup>	Junction to Case	$R_{\theta JC}$	0.95	$^{\circ}C/W$
	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)

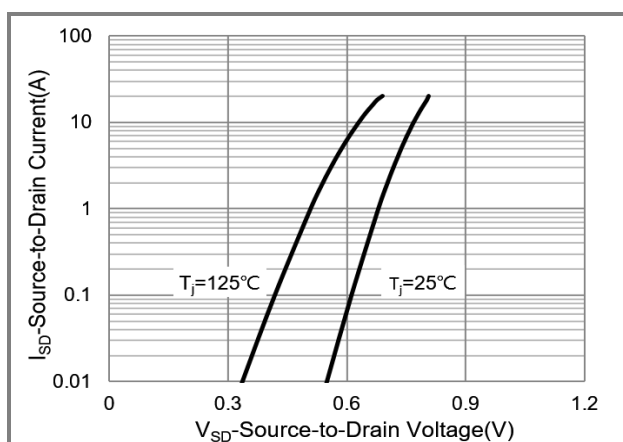
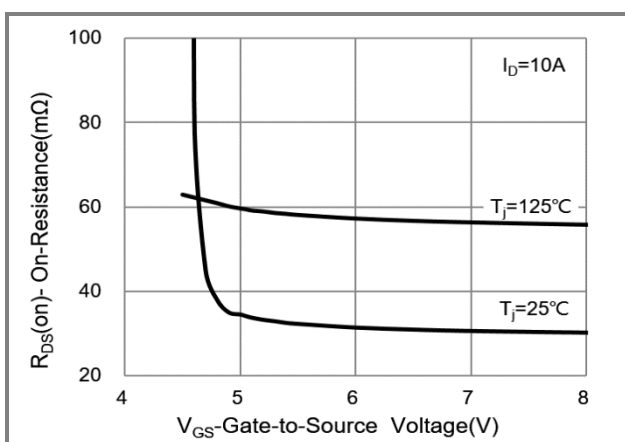
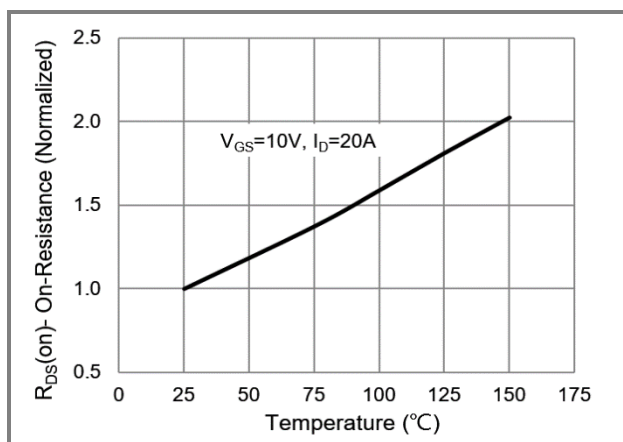
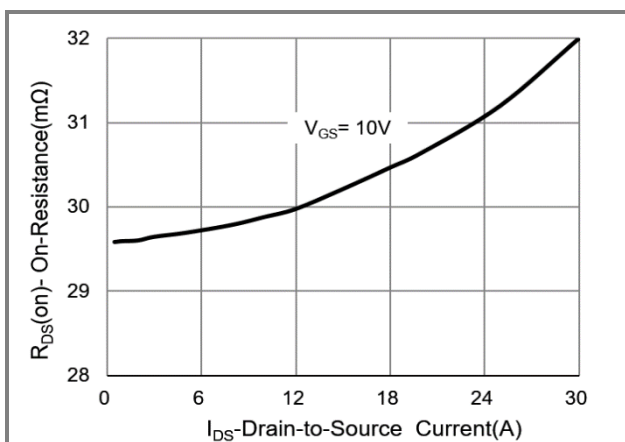
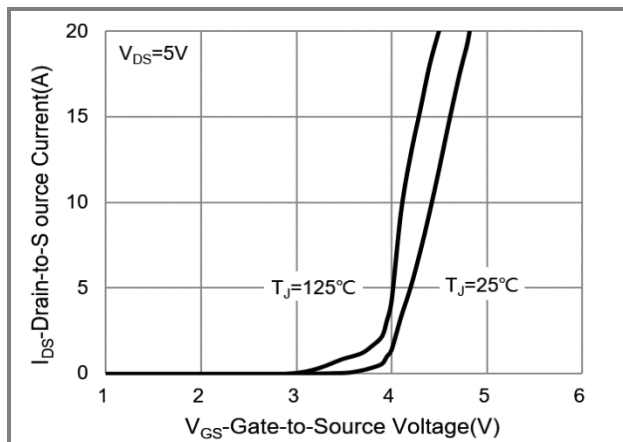
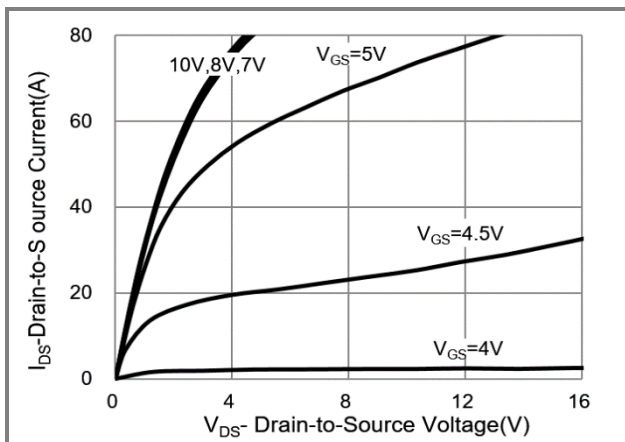
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	150	-	-	V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	2.0	3.0	4.0	
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =20A	-	30	35	mΩ
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =120V, 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
Dynamic (Note 7)						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =120V, I <sub>D</sub> =30A, V <sub>GS</sub> =10V (Note 1,2)	-	52	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	10	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	19	-	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =75V, V <sub>GS</sub> =0V, f=1.0MHZ	-	2207	-	pF
Output Capacitance	C <sub>oss</sub>		-	136	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	58	-	
Turn-On Delay Time	td <sub>(on)</sub>	V <sub>DS</sub> =75V, RL=1.7Ω, V <sub>GS</sub> =10V, R <sub>G</sub> =25Ω (Note 1,2)	-	17	-	ns
Turn-On Rise Time	t <sub>r</sub>		-	100	-	
Turn-Off Delay Time	td <sub>(off)</sub>		-	35	-	
Turn-Off Fall Time	t <sub>f</sub>		-	106	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I <sub>S</sub>	---	-	-	40	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1A,V <sub>GS</sub> =0V	-	0.7	1.3	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  $T_{J(MAX)}=150^{\circ}\text{C}$ . 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 inch<sup>2</sup> with 2oz.square pad of copper.
6. The test condition is  $L=0.1\text{mH}$ ,  $I_{AS}=38A$ ,  $V_{DD}=25V$ ,  $V_{GS}=10V$ , Starting  $T_J=25^{\circ}\text{C}$ .
7. Guaranteed by design, not subject to production testing.

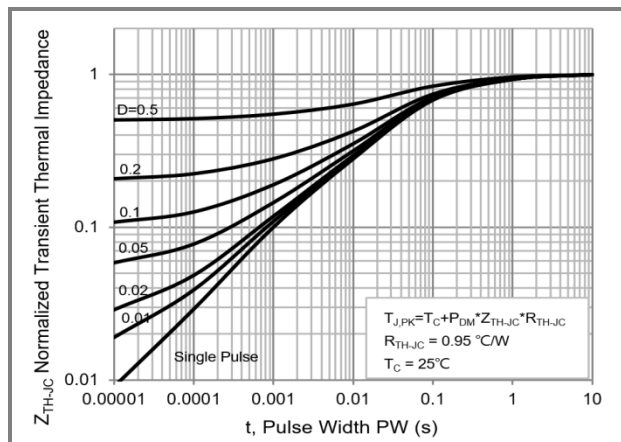
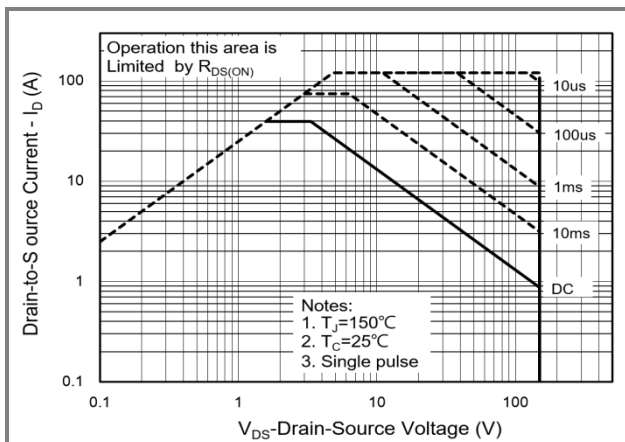
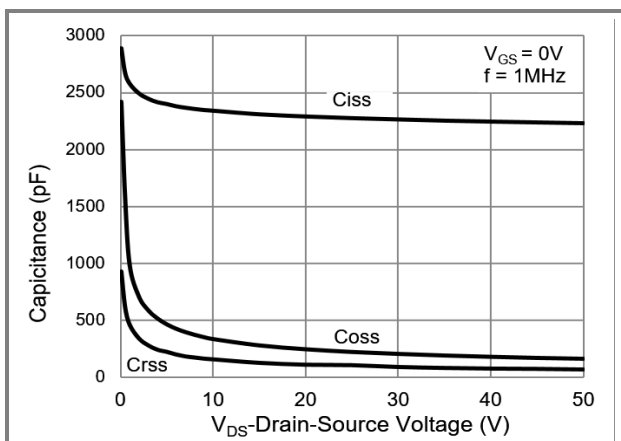
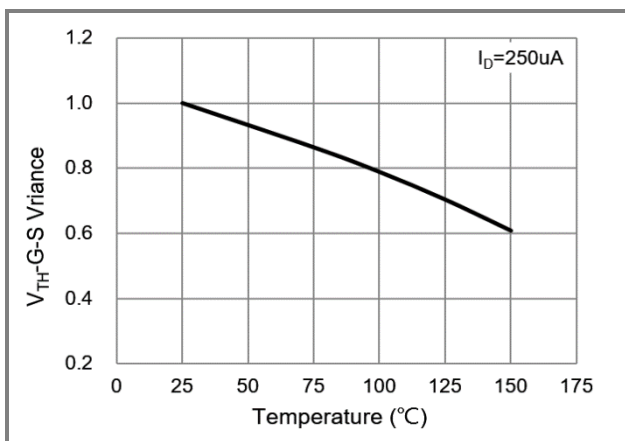
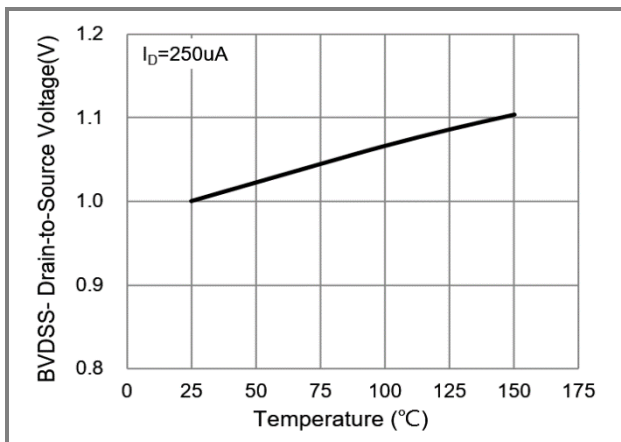
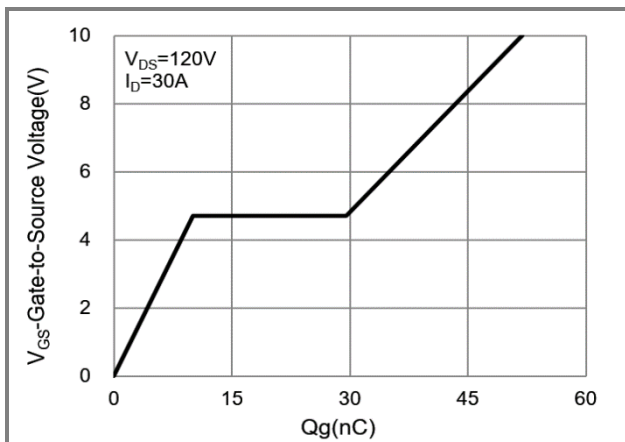
# PJQ5494

## TYPICAL CHARACTERISTIC CURVES



# PJQ5494

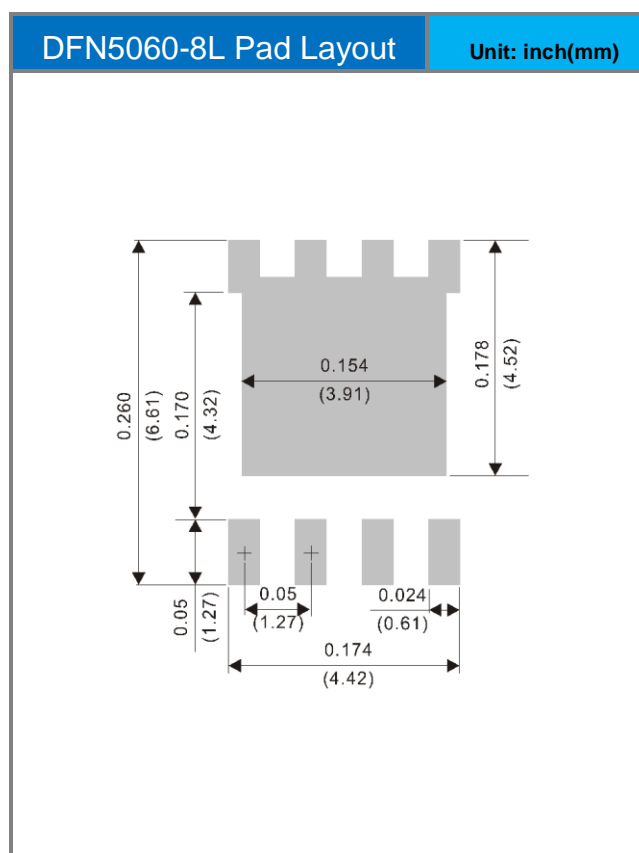
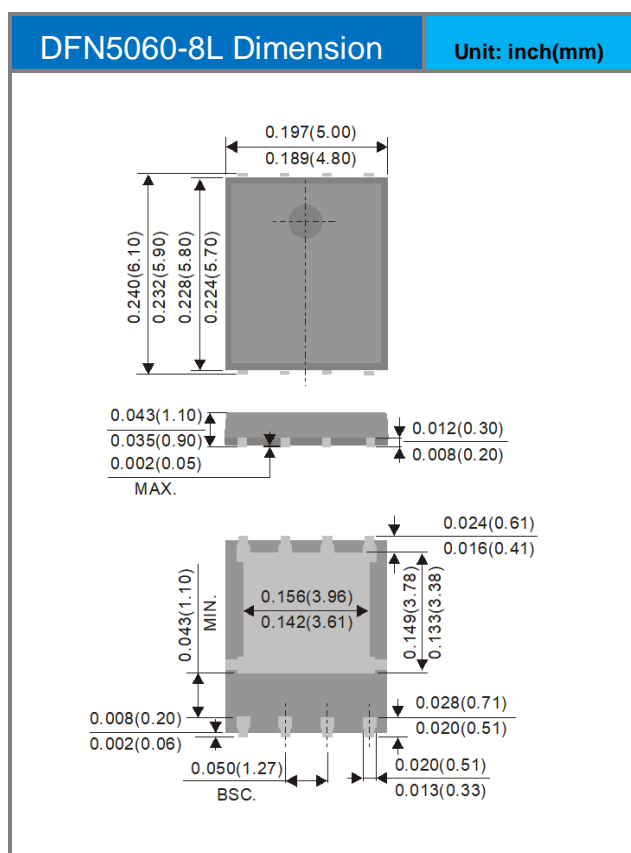
## TYPICAL CHARACTERISTIC CURVES



## 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





## PJQ5494

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