



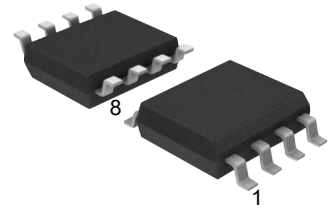
# PJM20DN60PA

## N-Channel Enhancement Mode Power MOSFET

### Features

- Fast Switching
- Low Reverse transfer capacitances
- Low Gate Charge and  $R_{DS(on)}$
- $V_{DS} = 60V, I_D = 20A$   
 $R_{DS(on)} < 40m\Omega @ V_{GS} = 10V$

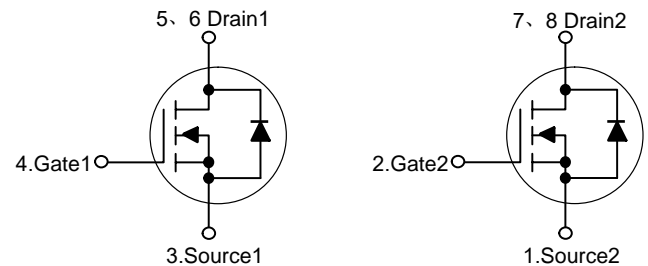
### SOP-8



### Applications

- Hard switched and high frequency circuits
- Uninterruptible power supply

### Schematic Diagram



### Absolute Maximum Ratings

Ratings at 25°C case temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current-Continuous	$I_D$	20	A
Drain Current-Pulsed <sup>Note1</sup>	$I_{DM}$	32	A
Single pulse avalanche energy <sup>Note4</sup>	$E_{AS}$	72	mJ
Avalanche energy, Repetitive <sup>Note1</sup>	$E_{AR}$	18	mJ
Avalanche Current <sup>Note1</sup>	$I_{AR}$	11	A
Maximum Power Dissipation	$P_D$	2	W
Junction Temperature	$T_J$	175	°C
Storage Temperature Range	$T_{STG}$	-55 to +175	°C

### Thermal Characteristics

Thermal Resistance, Junction-to-Ambient <sup>Note2</sup>	$R_{\theta JA}$	60	°C/W
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### Electrical Characteristics

(T<sub>C</sub>=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	60	--	--	V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V	--	--	1	μA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	--	--	±1	μA
Gate Threshold Voltage <sup>Note3</sup>	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1	1.7	2.5	V
Drain-Source On-Resistance <sup>Note3</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =8A	--	30	40	mΩ
Forward Transconductance <sup>Note3</sup>	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =8A	18	--	--	S
<b>Dynamic Characteristics</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V, f=1MHz	--	500	--	pF
Output Capacitance	C <sub>oss</sub>		--	60	--	pF
Reverse Transfer Capacitance	C <sub>rss</sub>		--	25	--	pF
<b>Switching Characteristics</b>						
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =30V, V <sub>GS</sub> =10V, I <sub>D</sub> =2A R <sub>G</sub> =3Ω	--	5	--	nS
Turn-on Rise Time	t <sub>r</sub>		--	2.6	--	nS
Turn-off Delay Time	t <sub>d(off)</sub>		--	2.3	--	nS
Turn-off Fall Time	t <sub>f</sub>		--	5.5	--	nS
Total Gate Charge	Q <sub>g</sub>	V <sub>DD</sub> =30V, V <sub>GS</sub> =10V, I <sub>D</sub> =4.5A	--	47	--	nC
Gate-Source Charge	Q <sub>gs</sub>		--	6	--	nC
Gate-Drain Charge	Q <sub>gd</sub>		--	14	--	nC
<b>Source-Drain Diode Characteristics</b>						
Diode Forward Voltage <sup>Note3</sup>	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =8A	--	--	1.5	V
Diode Forward Current <sup>Note2</sup>	I <sub>S</sub>		--	--	8	A

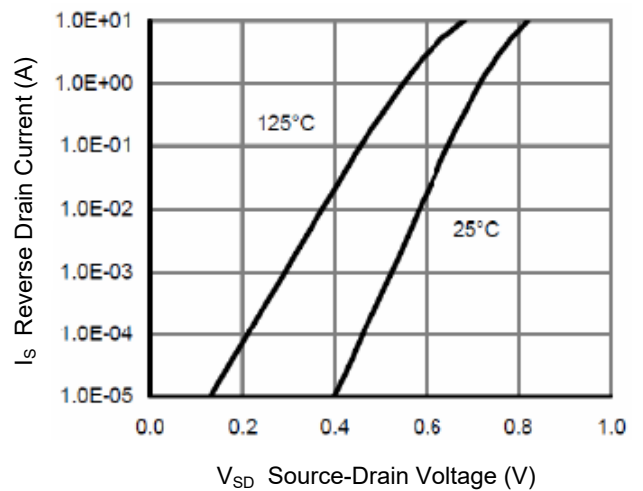
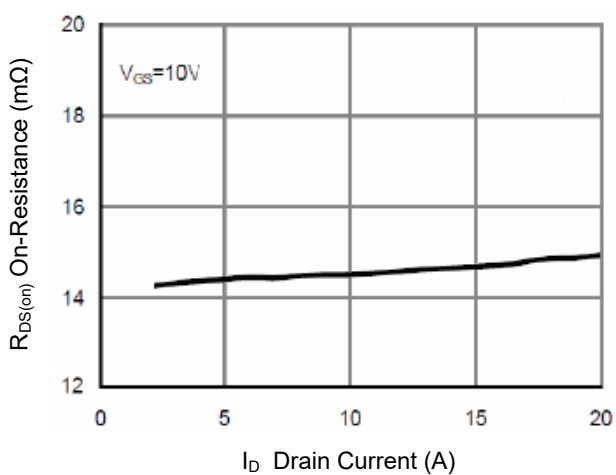
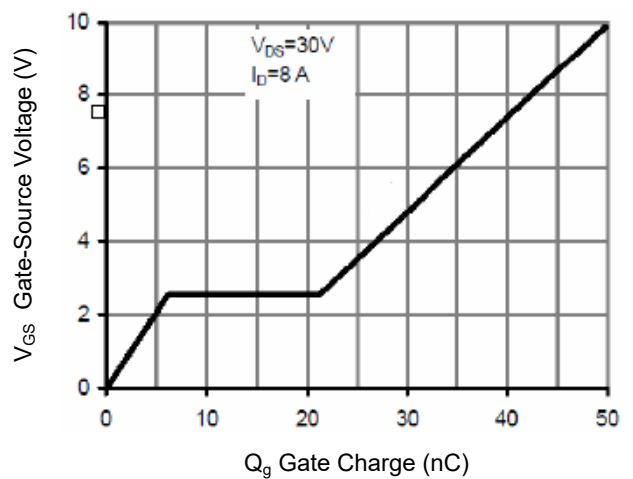
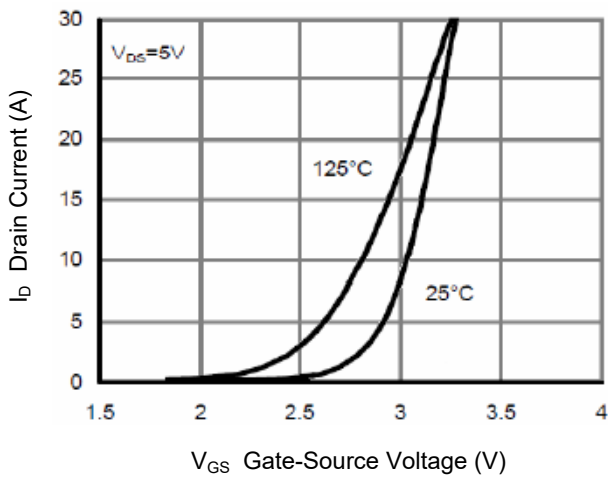
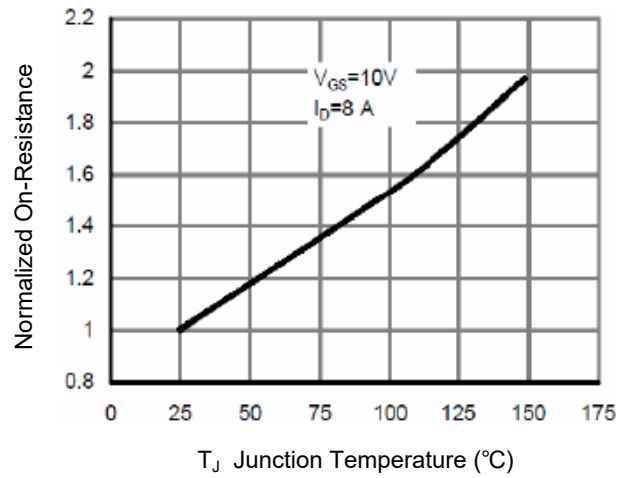
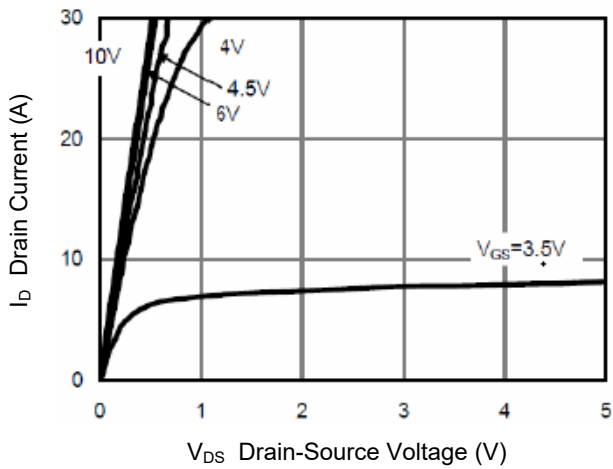
- Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.  
 2. Surface Mounted on FR4 Board, t ≤ 10 sec.  
 3. Pulse Test: Pulse width ≤ 380μs, duty cycle ≤ 2%.  
 4. EAS condition: T<sub>J</sub>=25°C, V<sub>DD</sub>=30V, V<sub>G</sub>=10V, L=0.5mH, R<sub>G</sub>=25Ω.



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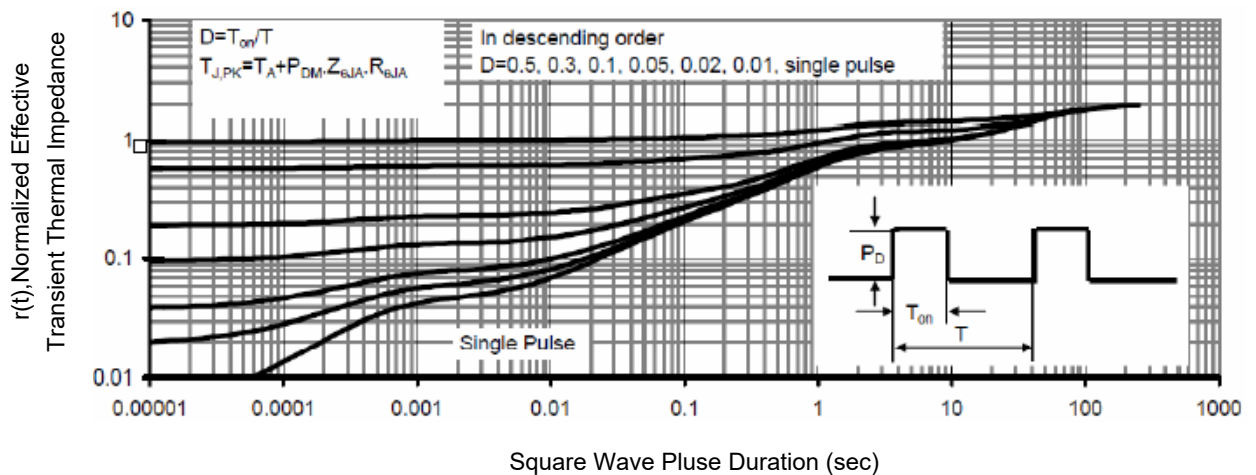
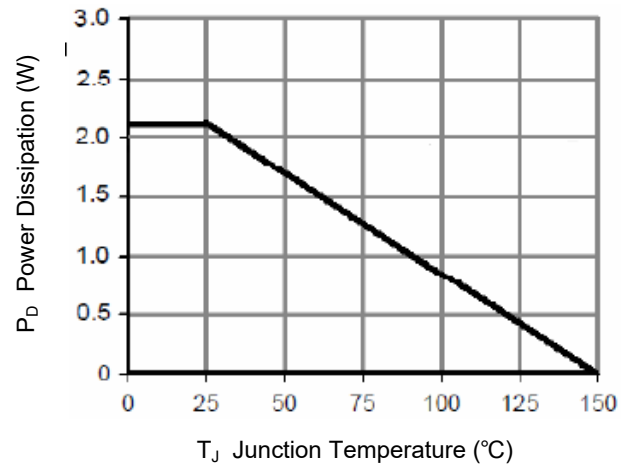
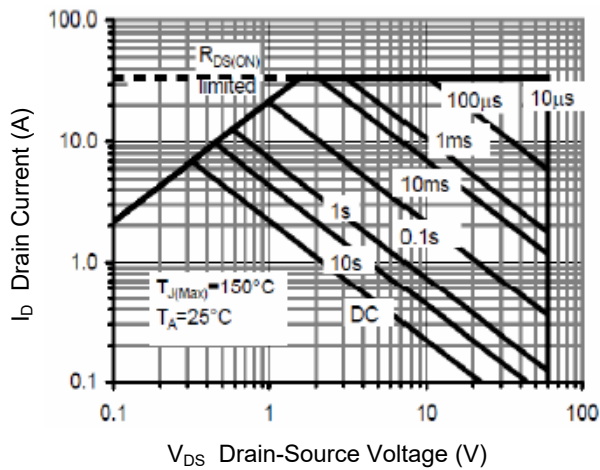
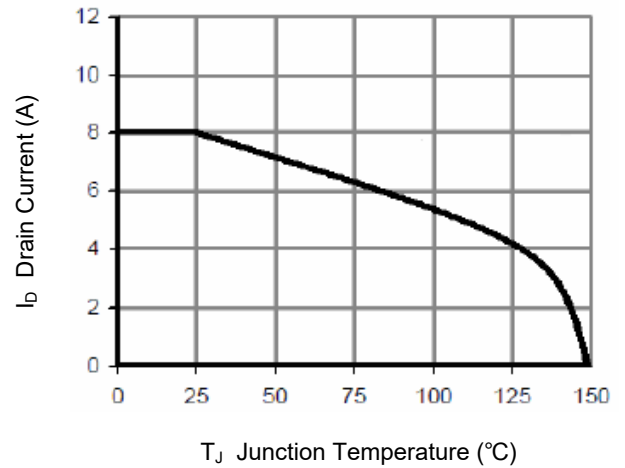
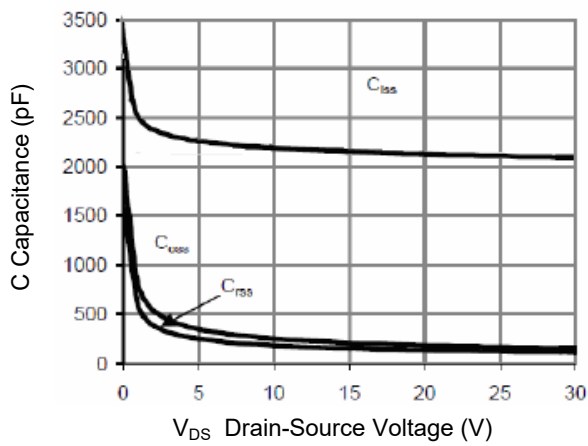
### Typical Characteristic Curves





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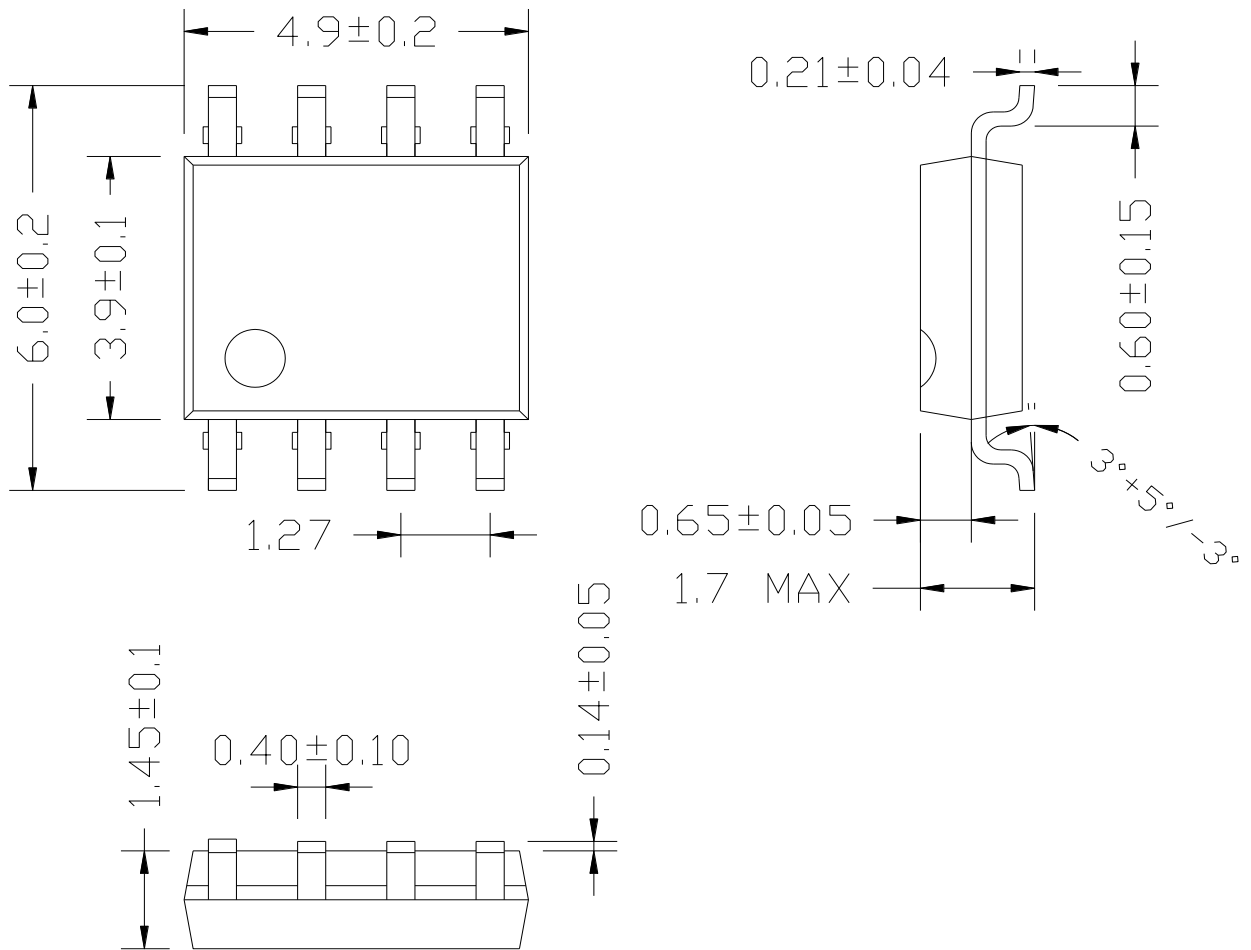
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## N-Channel Enhancement Mode Power MOSFET

### Package Outline

SOP-8

Dimensions in mm



单位: mm