



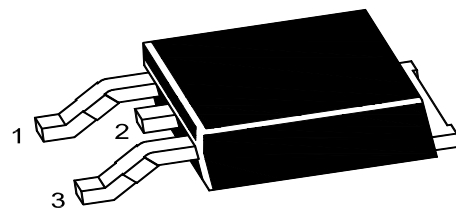
# PJM20H20NTE

## N-Channel Enhancement Mode Power MOSFET

### Features

- Fast Switching
- Low Reverse transfer capacitances
- Low gate charge and low  $R_{DS(on)}$
- $V_{DS} = 200V, I_D = 20A$   
 $R_{DS(on)} < 0.14\Omega @ V_{GS} = 10V$

TO-252

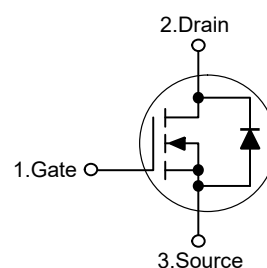


1. Gate 2. Drain 3. Source

### Applications

- LED Lighting
- Charger
- Standby Power

### Schematic Diagram



### Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	200	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current-Continuous	$I_D$	20	A
Drain Current-Pulsed <sup>Note1</sup>	$I_{DM}$	80	A
Single pulse avalanche energy <sup>Note4</sup>	$E_{AS}$	500	mJ
Maximum Power Dissipation	$P_D$	96	W
Junction Temperature	$T_J$	150	°C
Storage Temperature Range	$T_{STG}$	-55 to +150	°C

### Thermal Characteristics

Thermal Resistance, Junction-to-Ambient <sup>Note2</sup>	$R_{\theta JA}$	83.3	°C/W
Maximum Junction-to-Case <sup>Note2</sup>	$R_{\theta JC}$	1.3	°C/W



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### Electrical Characteristics

(Ta=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	200	--	--	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=200V, V_{GS}=0V$	--	--	1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	--	--	$\pm 100$	nA
Gate Threshold Voltage <sup>Note3</sup>	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	--	1.5	V
Drain-Source On-Resistance <sup>Note3</sup>	$R_{DS(on)}$	$V_{GS}=10V, I_D=10A$	--	--	0.14	$\Omega$
Forward Transconductance <sup>Note3</sup>	$g_{FS}$	$V_{DS}=10V, I_D=10A$	--	50	--	S
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	--	1600	--	pF
Output Capacitance	$C_{oss}$		--	190	--	pF
Reverse Transfer Capacitance	$C_{rss}$		--	60	--	pF
<b>Switching Characteristics</b>						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=100V, V_{GS}=5V, I_D=20A, R_G=10\Omega$	--	24	--	nS
Turn-on Rise Time	$t_r$		--	42	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	45	--	nS
Turn-off Fall Time	$t_f$		--	15	--	nS
Total Gate Charge	$Q_g$	$V_{DD}=100V, V_{GS}=5V, I_D=20A$	--	26	--	nC
Gate-Source Charge	$Q_{gs}$		--	9	--	nC
Gate-Drain Charge	$Q_{gd}$		--	9.5	--	nC
<b>Source-Drain Diode Characteristics</b>						
Diode Forward Voltage <sup>Note3</sup>	$V_{SD}$	$V_{GS}=0V, I_S=20A$	--	--	1.5	V
Diode Forward Current <sup>Note2</sup>	$I_S$		--	--	20	A

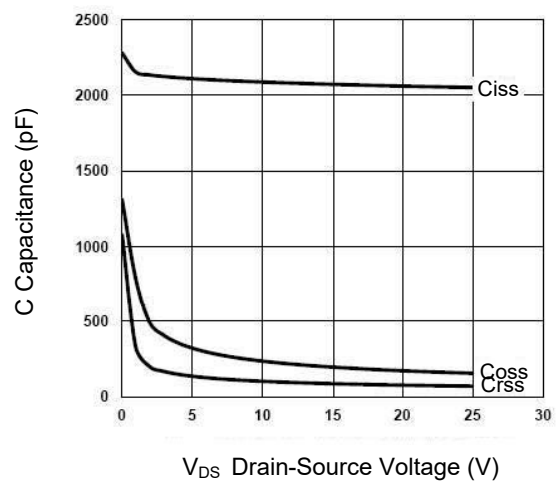
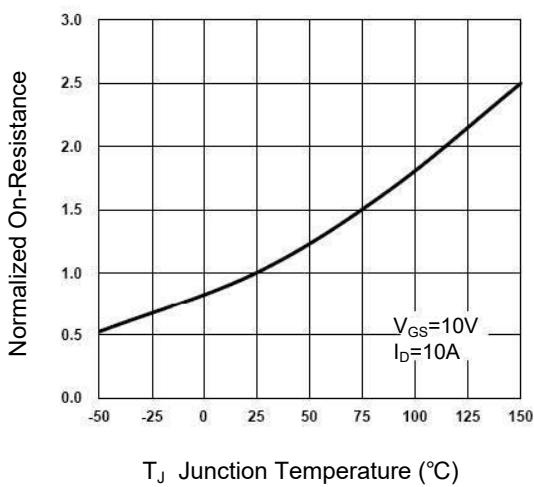
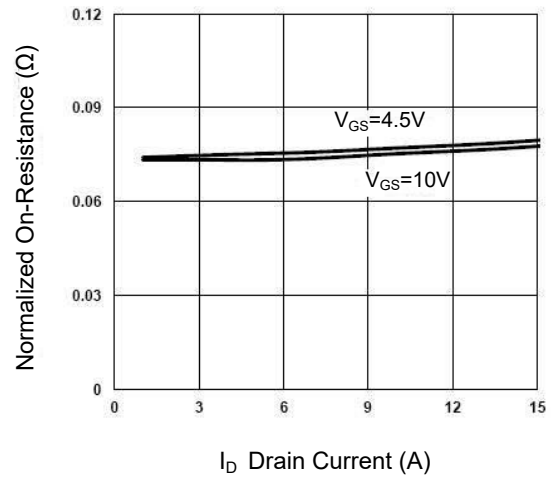
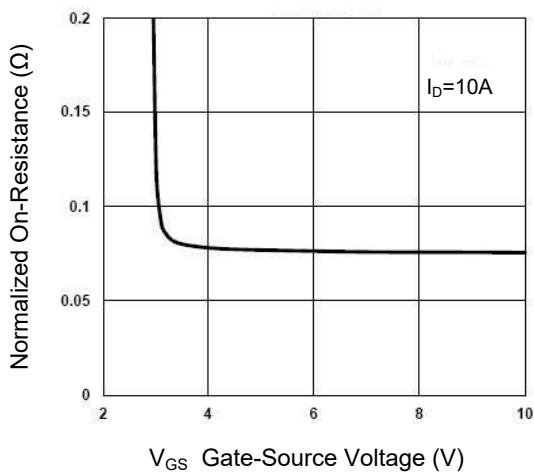
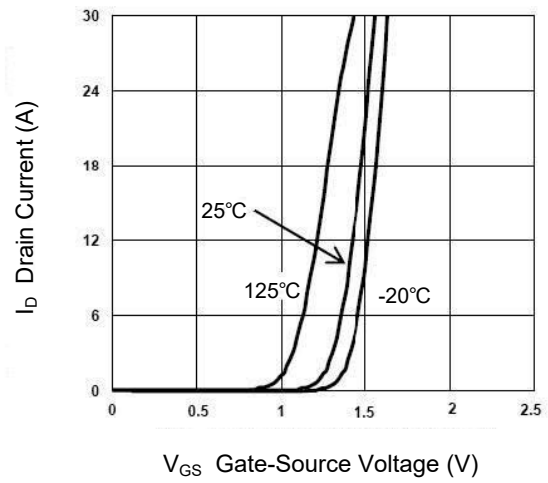
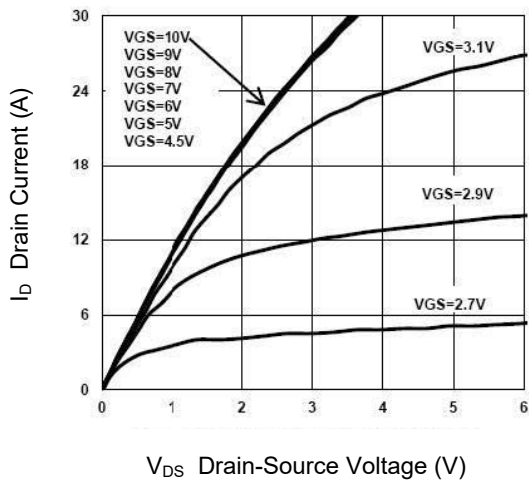
- Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.  
 2. Surface Mounted on FR4 Board,  $t \leq 10$  sec.  
 3. Pulse Test: Pulse width  $< 380\mu s$ , duty cycle  $< 2\%$   
 4.  $E_{AS}$  condition :  $L=10mH, I_D=13A$ , start  $T_J=25^\circ C$ .



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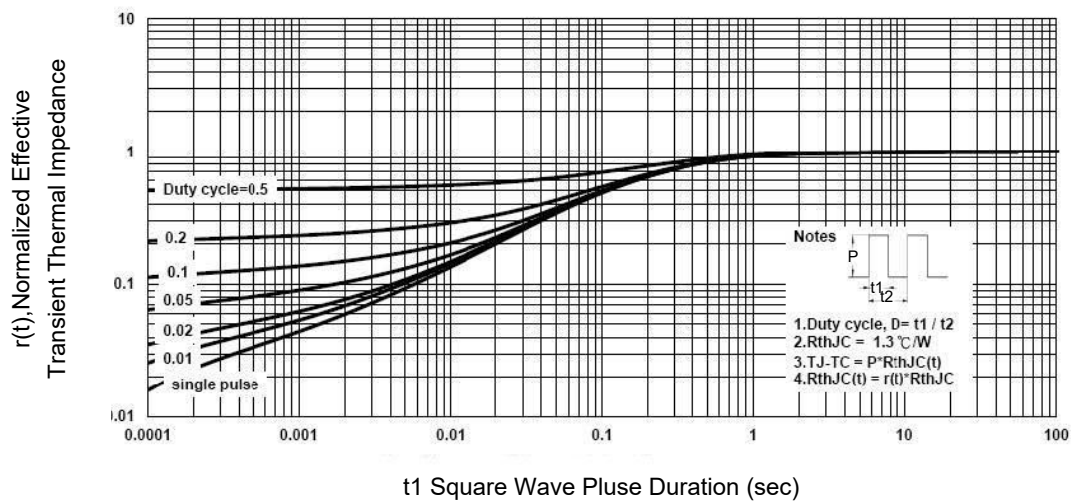
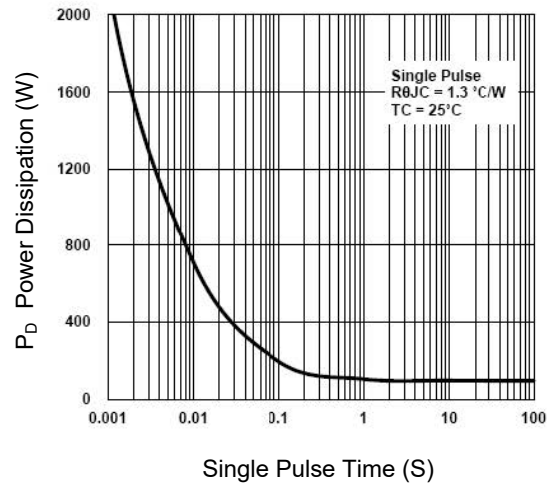
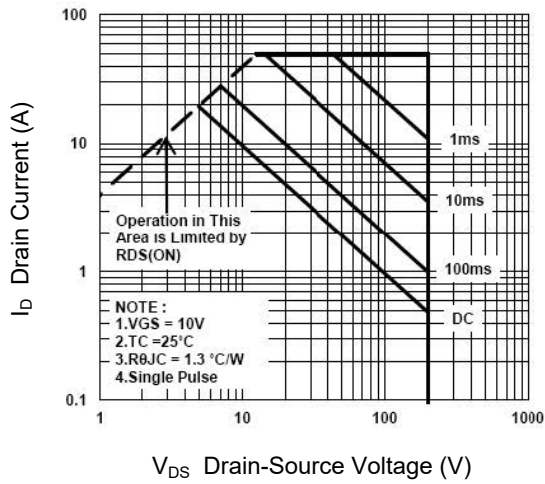
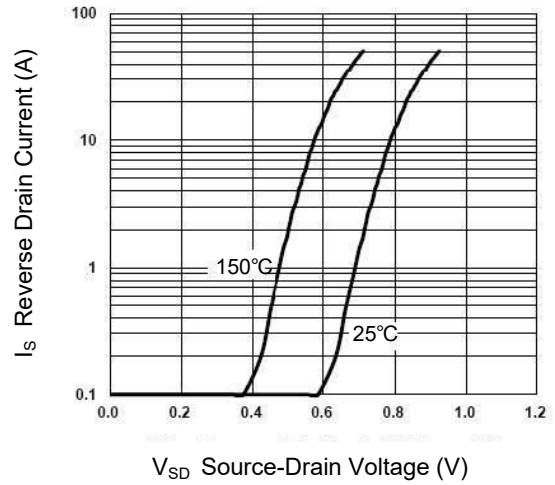
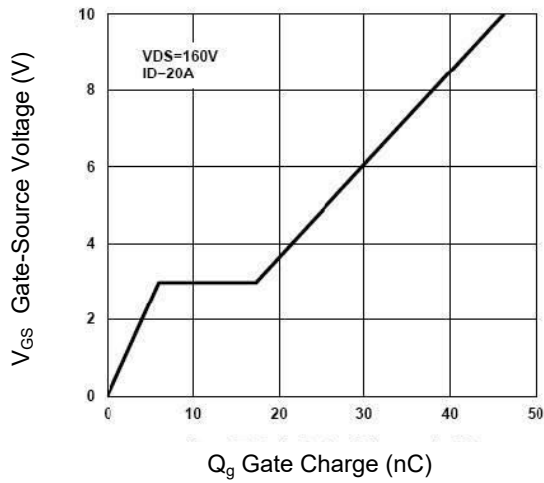
### Typical Characteristic Curves





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### Package Outline

TO-252

Dimensions in mm

