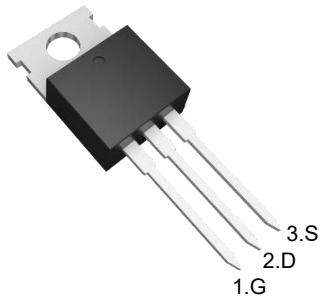
PJM10H180NTO

N-Channel Enhancement Mode Power MOSFET

Features

- Excellent package for good heat dissipation
- Fully characterized avalanche voltage and current
- High density cell design for ultra low $R_{DS(on)}$
- V_{DS}= 100V,I_D= 180A
  $R_{DS(on)}$< 4.5mΩ @V_{GS}= 10V

TO-220

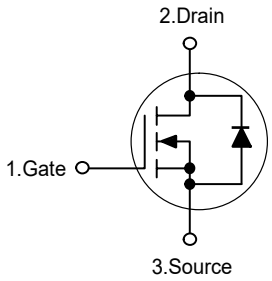


1.Gate 2.Drain 3.Source

Applications

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

Schematic diagram



Absolute Maximum Ratings

Ratings at 25℃ case temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	180	A
Drain Current-Pulsed Note1	I_{DM}	720	A
Single pulse avalanche energy Note4	E_{AS}	1000	mJ
Maximum Power Dissipation	P_D	300	W
Junction Temperature	T_J	175	°C
Storage Temperature Range	T_{STG}	-55 to +175	°C

Thermal Characteristics

Maximum Junction-to-Case Note2	$R_{\theta JC}$	0.5	°C/W

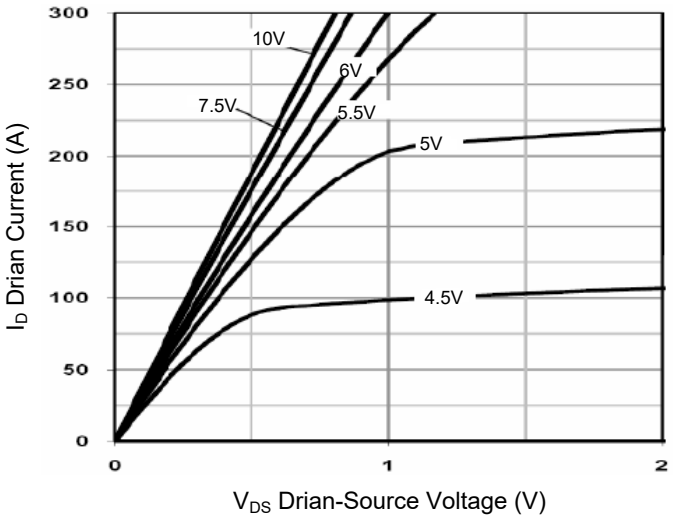
Electrical Characteristics

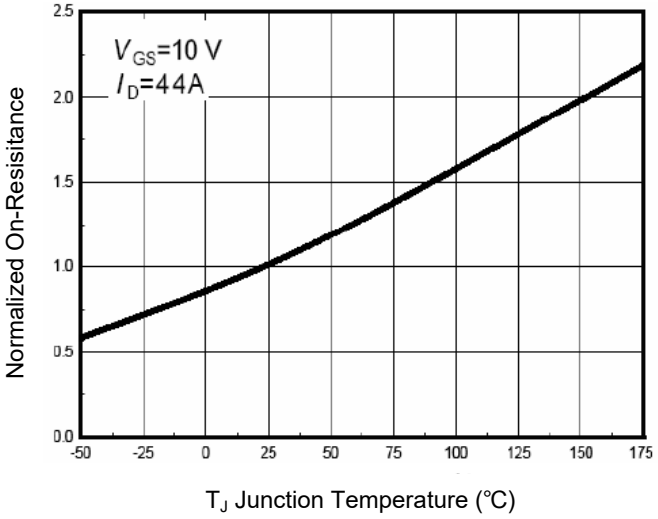
(T_C=25℃ unless otherwise specified)

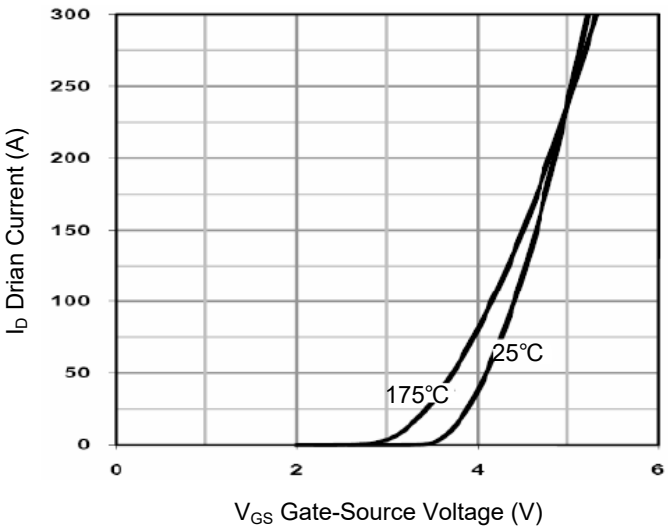
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250μA	100	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V,V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	--	--	±100	nA
Gate Threshold Voltage Note3	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	1.0	2.8	4.5	V
Drain-Source On-Resistance Note3	$R_{DS(on)}$	V_{GS}=10V,I_D=100A	--	3.8	4.5	mΩ
Forward Transconductance Note3	g_{FS}	V_{DS}=10V,I_D=50A	40	--	--	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=50V,V_{GS}=0V,f=1MHz	--	11500	--	pF
Output Capacitance	C_{oss}		--	2480	--	pF
Reverse Transfer Capacitance	C_{rss}		--	75	--	pF
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=50V, I_D=100A V_{GS}=10V,R_{GEN}=1.6Ω	--	35	--	nS
Turn-on Rise Time	t_r		--	59	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	89	--	nS
Turn-off Fall Time	t_f		--	29	--	nS
Total Gate Charge	Q_g	V_{DD}=50V,I_D=100A, V_{GS}=10V	--	160	--	nC
Gate-Source Charge	Q_{gs}		--	52	--	nC
Gate-Drain Charge	Q_{gd}		--	29	--	nC
Source-Drain Diode Characteristics						
Diode Forward Voltage Note3	V_{SD}	V_{GS}=0V,I_S=180A	--	--	1.2	V
Diode Forward Current Note2	I_S		--	--	180	A

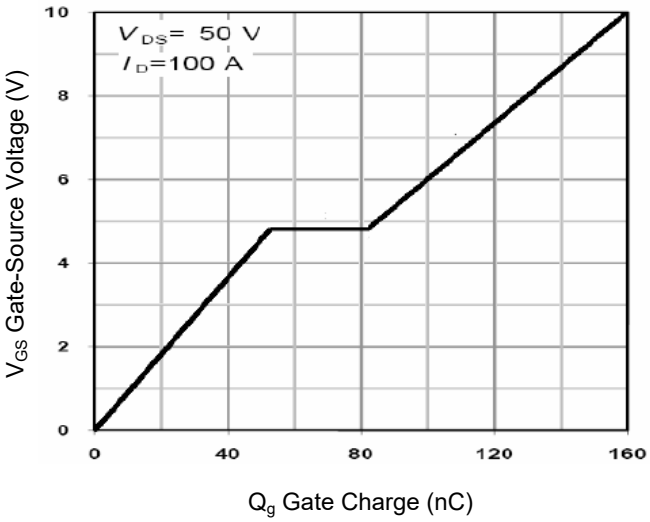
Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2.Surface Mounted on FR4 Board, t ≤ 10 sec.
3.Pulse Test: Pulse width≤300μs, duty cycle≤2%.
4.E_{AS} is tested at starting T_j=25℃,V_{DD}=50V, V_{GS}=10V, L=0.5mH, Rg =25Ω.

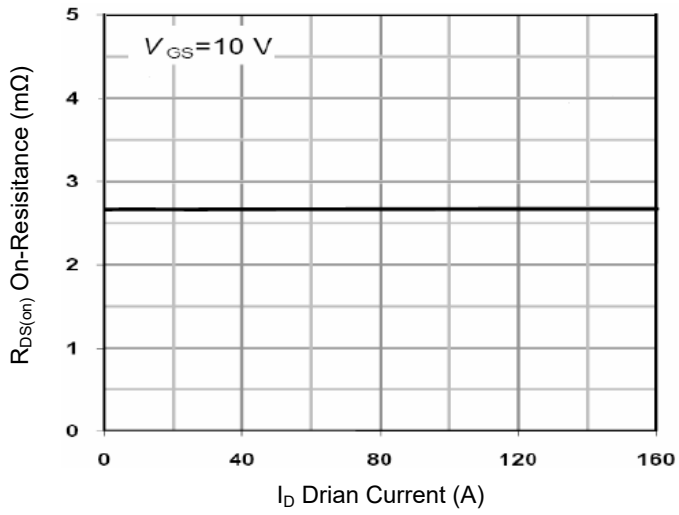
Typical Characteristic Curves

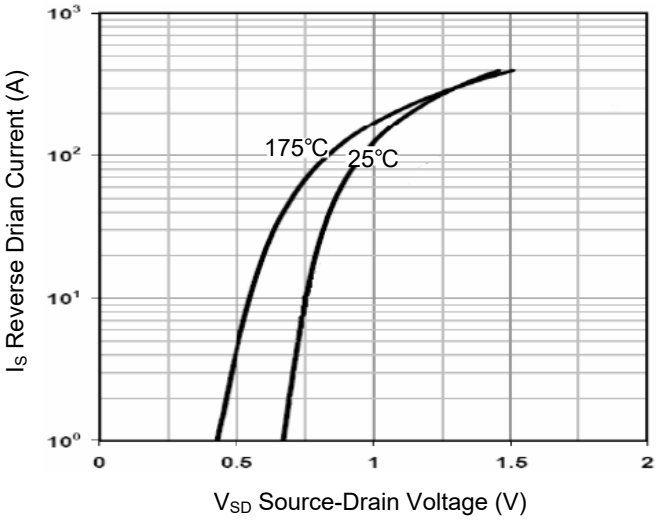


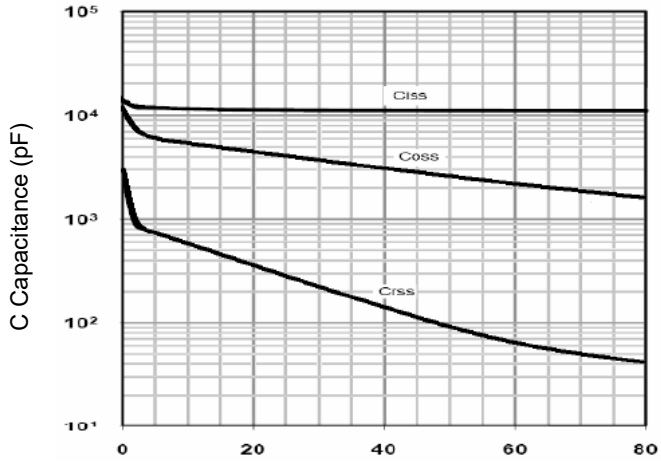


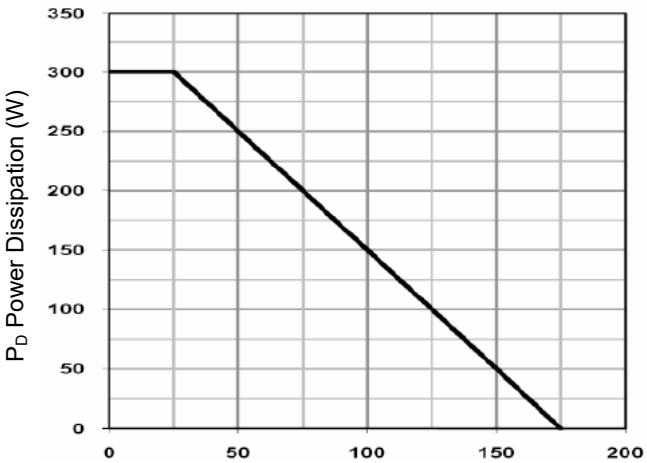


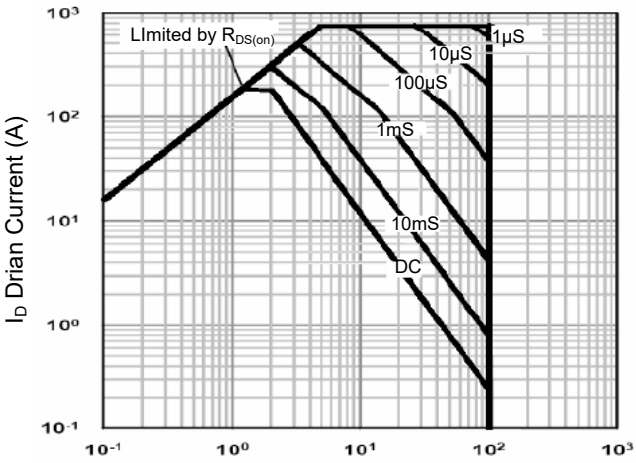


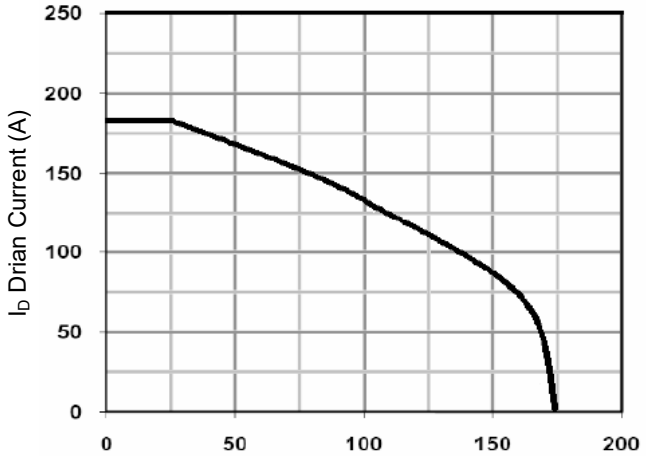





C Capacitance (pF)
Ciss
Coss
Crss
V_{DS} Drian-Source Voltage (V)


P_D Power Dissipation (W)
T_J Junction Temperature (℃)


I_D Drian Current (A)
LImited by $R_{DS(on)}$
1μS
10μS
100μS
1mS
10mS
DC
V_{DS} Drian-Source Voltage (V)


I_D Drian Current (A)
T_J Junction Temperature (℃)

Package Outline

TO-220
Dimensions in mm