PJM40250NTO
Silicon N-Channel Power MOSFET

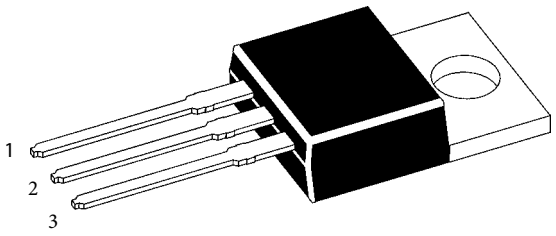
Features

- Advanced Trench Technology
- $R_{ds(On)}$ <2.5mΩ @ V_{gs}=10v (Typ1.6mΩ)
- High Density Cell Design for Ultra Low $R_{ds(On)}$
- Fully Characterized Avalanche Voltage and Current
- Excellent Package for Good Heat Dissipation

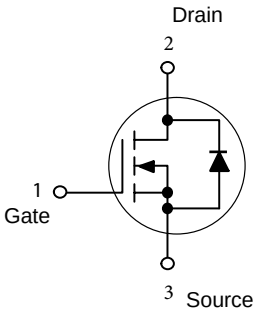
Applications

- Power Switching Application
- Hard Switched and High Frequency Circuits
- Uninterruptible Power Supply

TO-220



Schematic diagram



Absolute Maximum Ratings

Ratings at T_C = 25℃ unless otherwise specified.

Parameter	Symbol	Value	Units
Drain-to-Source Voltage	V_{DS}	40	V
Continuous Drain Current	I_D	250	A
Pulsed Drain Current Note 1	I_{DM}	1000	A
Gate-to-Source Voltage	V_{GS}	±20	V
Single Pulse Avalanche Energy	E_{AS}	1300	mJ
Power Dissipation	P_D	242	W
Operating Junction Temperature	T_J	175	℃
Storage Temperature Range	T_{STG}	–55 to 175	℃

Thermal Characteristics

Parameter	Symbol	Value	Units
Thermal Resistance, Junction-to-Case Note 1	$R_{\theta JC}$	0.62	℃/W

Note: 1. Surface Mounted on FR4 Board, t≤10sec.

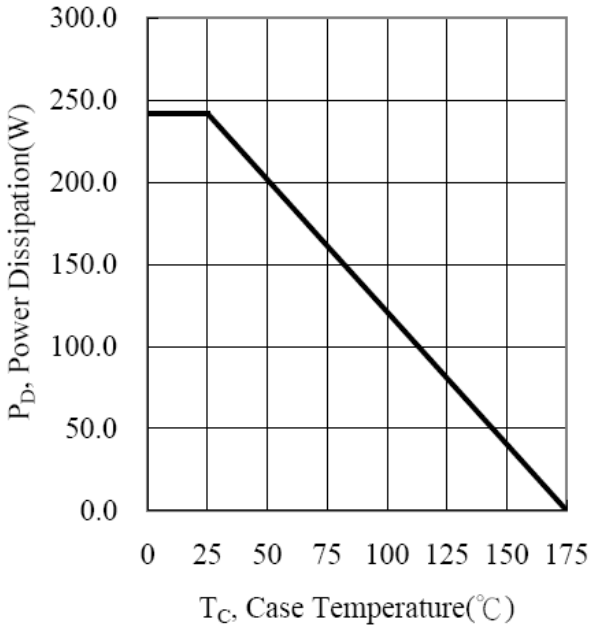
Electrical Characteristics

Ratings at T_C = 25℃ unless otherwise specified.

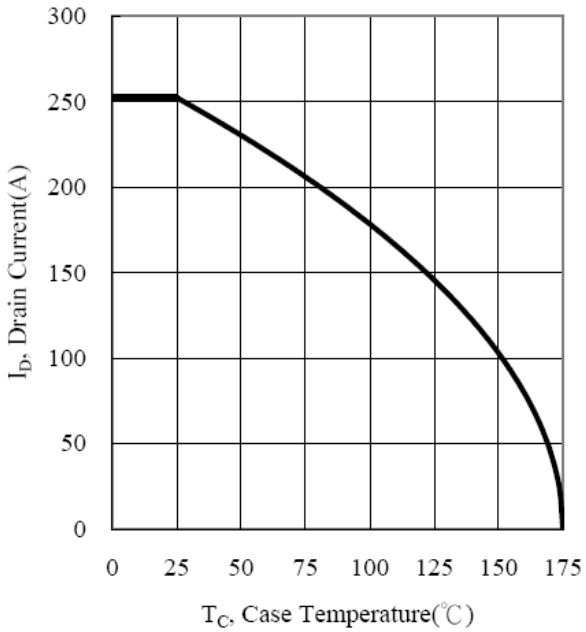
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	40	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.0	-	3.0	V
Gate Leakage Current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =32V, V_{GS} = 0V, T_A = 25℃	-	-	1.0	μA
Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 80A	-	1.6	2.5	mΩ
Dynamic Characteristics						
Total Gate Charge	Q_g	V_{DD} = 20V, V_{GS} = 10V, I_D = 85A,	-	125	-	nC
Gate-Source Charge	Q_{gs}		-	18	-	
Gate-Drain Charge	Q_{gd}		-	14	-	
Input Capacitance	C_{iss}	V_{DS} = 20V, V_{GS} = 0V, f = 1MHz	-	7500	-	pF
Output Capacitance	C_{oss}		-	1950	-	
Reverse Transfer Capacitance	C_{rss}		-	120	-	
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 20V, Rg = 1.6Ω, V_{GS} = 10V, I_D = 85A, R_L = 0.5Ω	-	15	-	ns
Turn-On Rise Time	t_r		-	9	-	
Turn-Off Delay Time	$t_{d(off)}$		-	60	-	
Turn-Off Fall Time	t_f		-	11	-	
Source-Drain Diode Characteristics						
Diode Forward Current	I_{SD}		-	-	250	A
Diode Forward Voltage	V_{SD}	I_S= 80 A, V_{GS} = 0V	-	-	1.2	V
Reverse Recovery Time	trr	I_S=170A, T_J=25℃ dI_F/dt=100A/μs, V_{GS}=0V	-	35	-	ns
Reverse Recovery Charge	Qrr		-	125	-	μC

Electrical Characteristics Curves

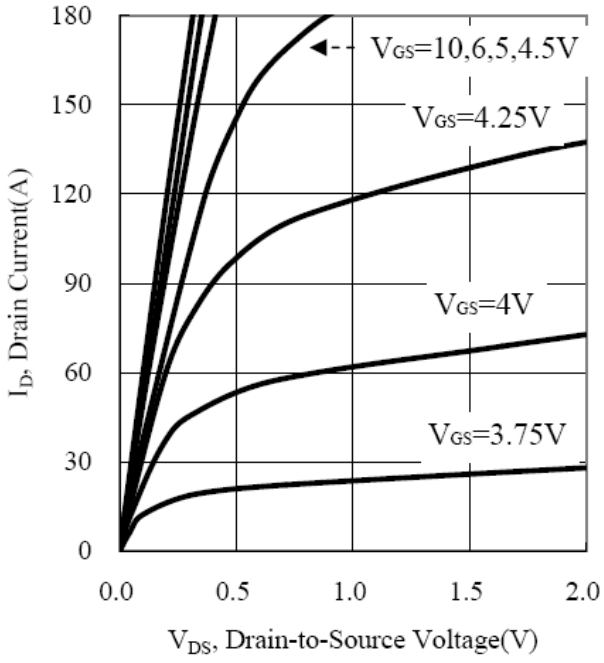
1. Power Dissipation



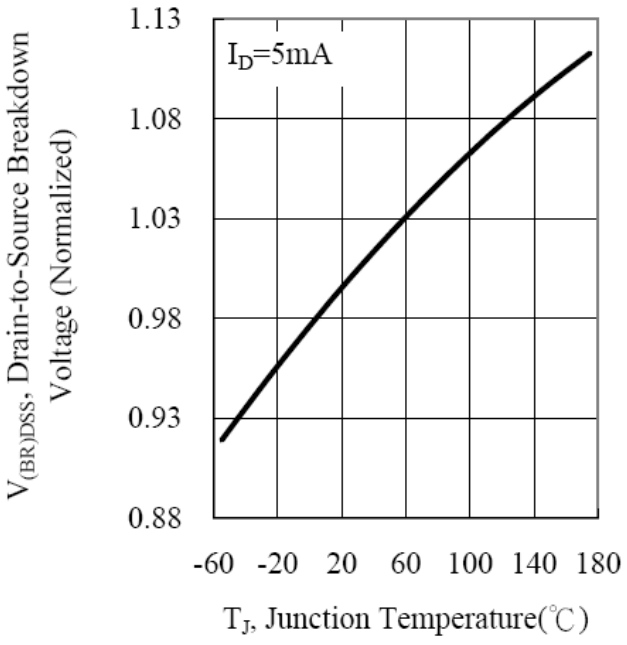
2. Drain Current



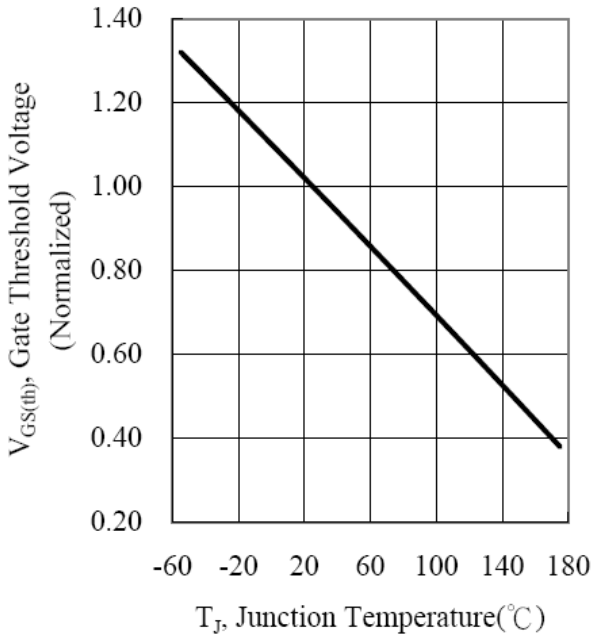
3. Output Characteristics T_C=25°C



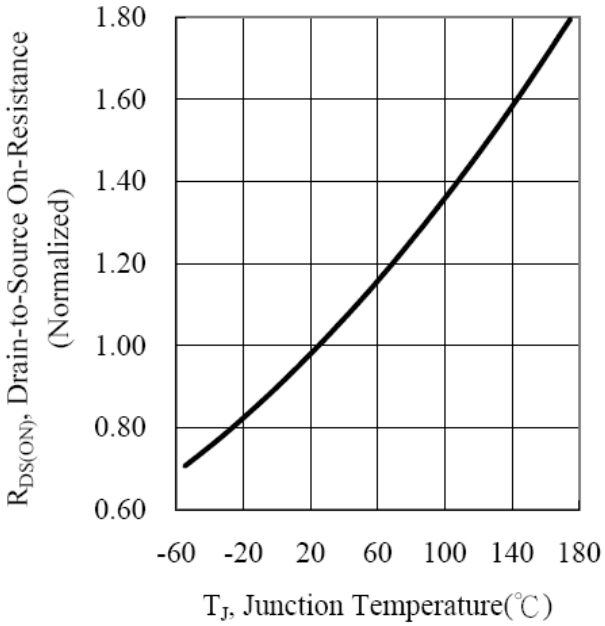
4. Drain-to-Source Breakdown Voltage



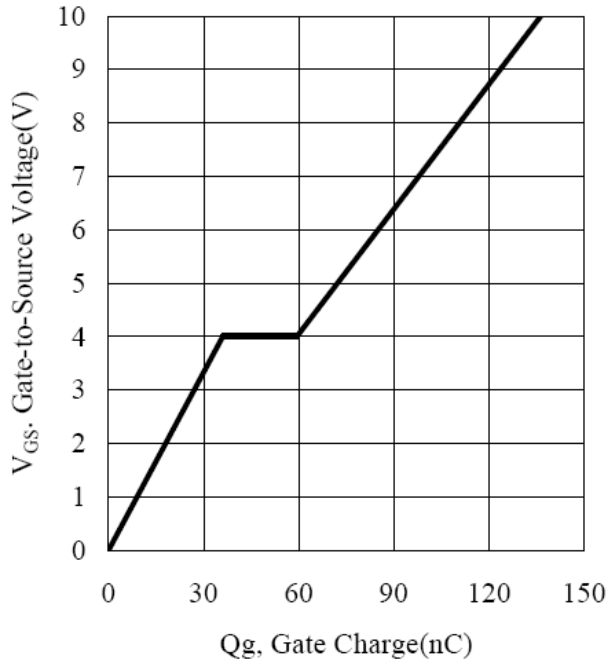
5. Gate Threshold Voltage



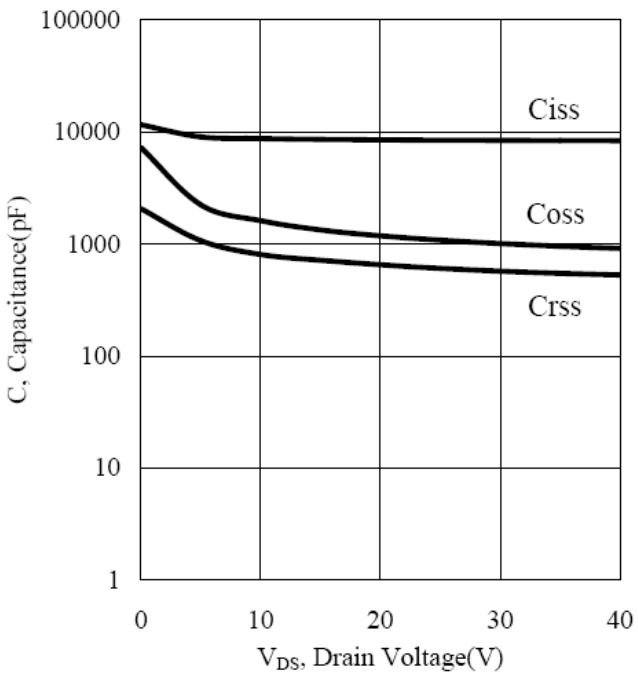
6. Drain-to-Source On-Resistance



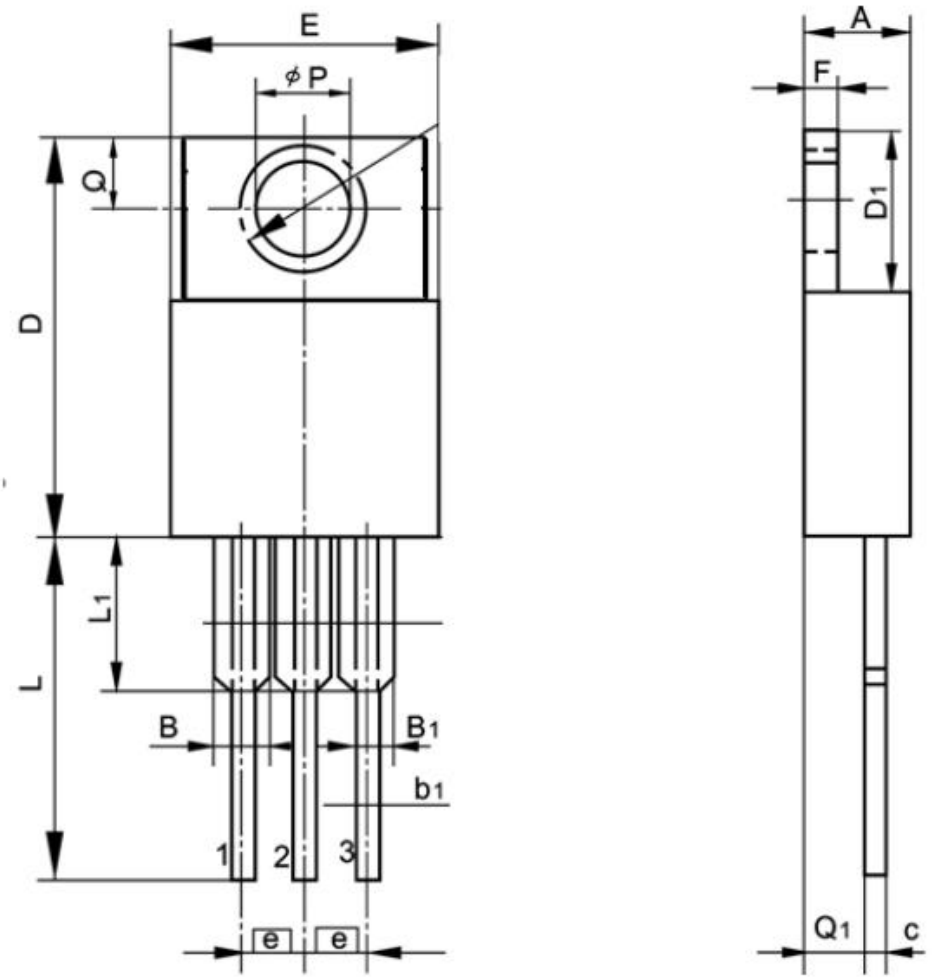
7. Typ. Gate Charge



8. Typ. Capacitance



Package Outline



TO-220 MECHANICAL DATA

UNIT：mm

SYMBOL	min	nom	max	SYMBOL	min	nom	max
A	4.00		4.80	E	9.70		10.70
B	1.15		1.45	e		2.54	
B1	0.90		1.40	F	1.10		1.40
b1	0.65		0.95	L	12.50		14.50
c	0.30		0.50	L1	2.90	3.40	3.90
D	14.40		16.40	Q	2.50		3.10
D1	5.90		6.90	Q1	2.00		3.00
				ϕP	3.60		4.00