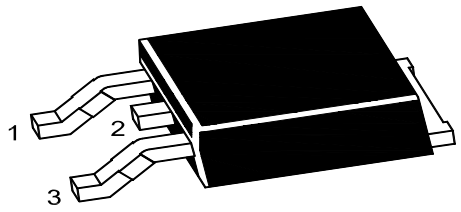
PJM50P60TE
P-Channel Enhancement Mode Power MOSFET

Features

- Low reverse transfer capacitance
- Low gate charge and $R_{DS(on)}$
- V_{DS}= -60V,I_D= -50A
  $R_{DS(on)}$< 28mΩ @V_{GS}= -10V

TO-252

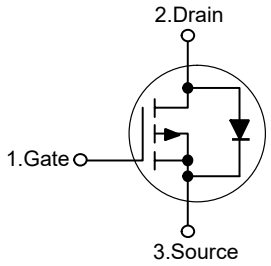


1. Gate 2.Drain 3.Sourse

Applications

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

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25℃ ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$-V_{DS}$	60	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	$-I_D$	50	A
Drain Current-Pulsed Note1	$-I_{DM}$	150	A
Maximum Power Dissipation	P_D	95	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Maximum Junction-to-Case Note2	$R_{\theta JC}$	1.31	°C/W

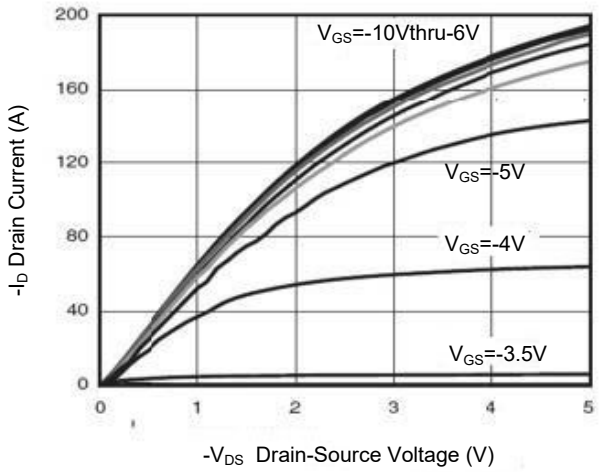
Electrical Characteristics

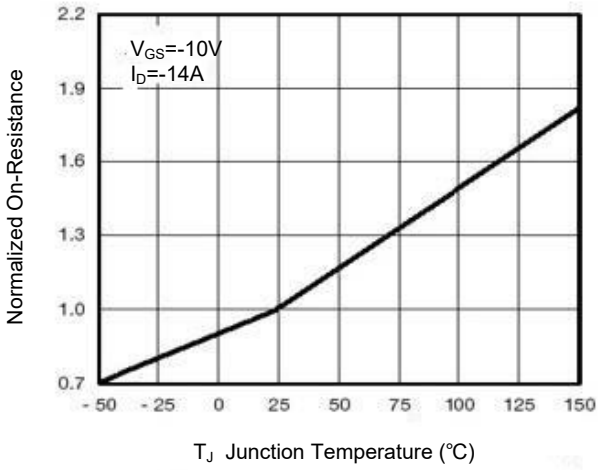
(Ta=25℃ unless otherwise specified)

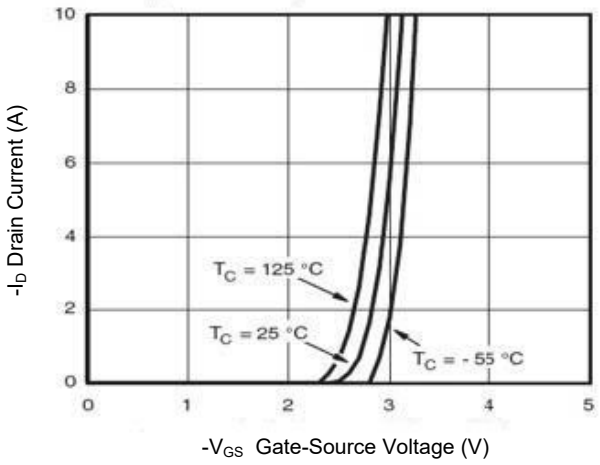
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$-V_{(BR)DSS}$	V_{GS}=0V,I_D=-250μA	60	--	--	V
Zero Gate Voltage Drain Current	$-I_{DSS}$	V_{DS}=-60V,V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	--	--	±1	nA
Gate Threshold Voltage Note3	$-V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	2	2.6	3.5	V
Drain-Source On-Resistance Note3	$R_{DS(on)}$	V_{GS}=-10V,I_D=-20A	--	23	28	mΩ
Forward Transconductance Note3	g_{FS}	V_{DS}=-10V,I_D=-20A	--	25	--	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-25V,V_{GS}=0V,f=1MHz	--	6500	--	pF
Output Capacitance	C_{oss}		--	720	--	pF
Reverse Transfer Capacitance	C_{rss}		--	535	--	pF
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-30V, R_L=-1.5Ω, V_{GS}=-10V,R_G=1.5Ω	--	15	--	nS
Turn-on Rise Time	t_r		--	17	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	40	--	nS
Turn-off Fall Time	t_f		--	45	--	nS
Total Gate Charge	Q_g	V_{DD}=-30V,I_D=-20A, V_{GS}=-10V	--	75	--	nC
Gate-Source Charge	Q_{gs}		--	16	--	nC
Gate-Drain Charge	Q_{gd}		--	19	--	nC
Source-Drain Diode Characteristics						
Diode Forward Voltage Note3	$-V_{SD}$	V_{GS}=0V,I_S=-50A	--	--	1.5	V
Diode Forward Current Note2	$-I_S$		--	--	50	A

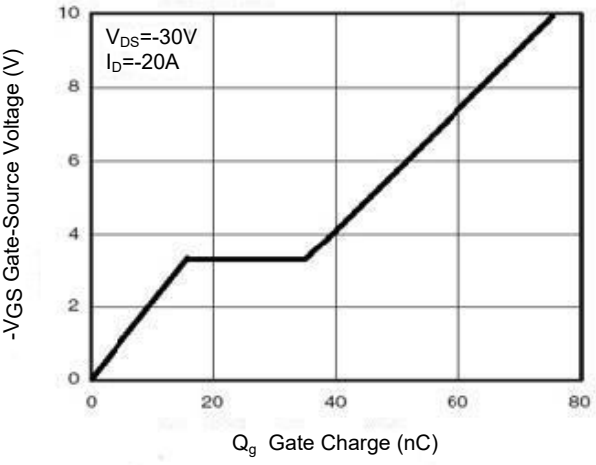
Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse width≤300μs, duty cycle≤2%.

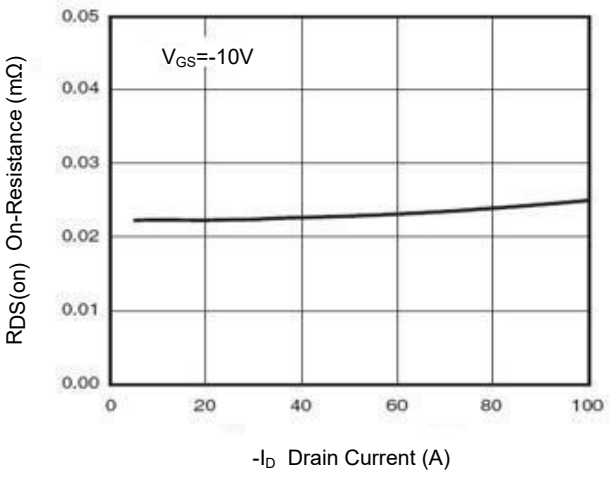
Typical Characteristic Curves

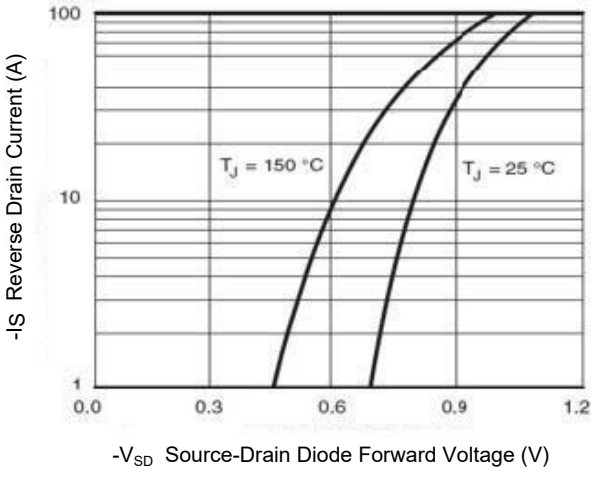


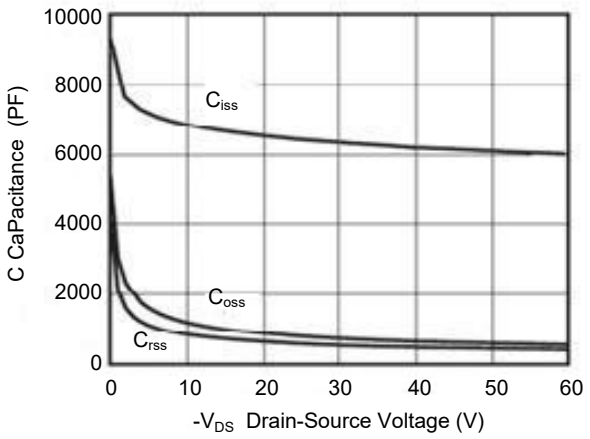


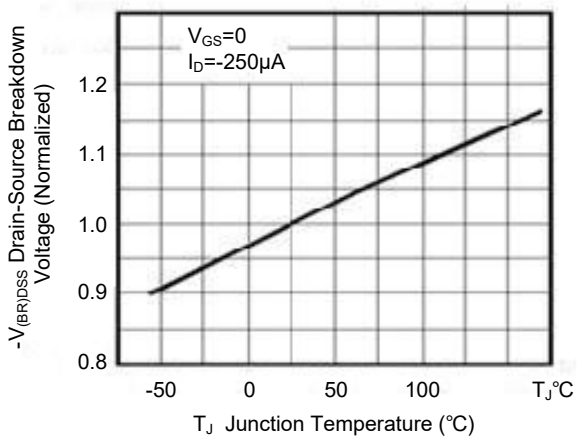


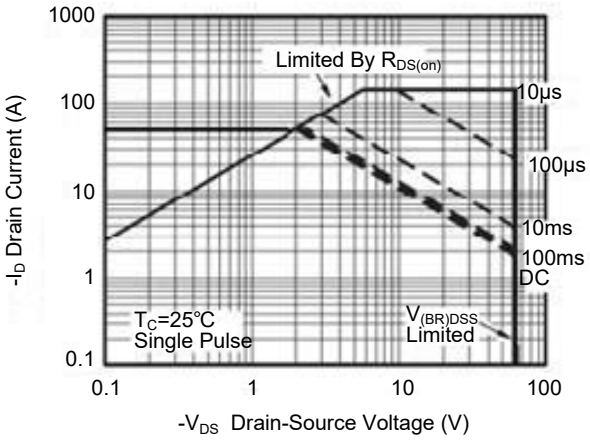


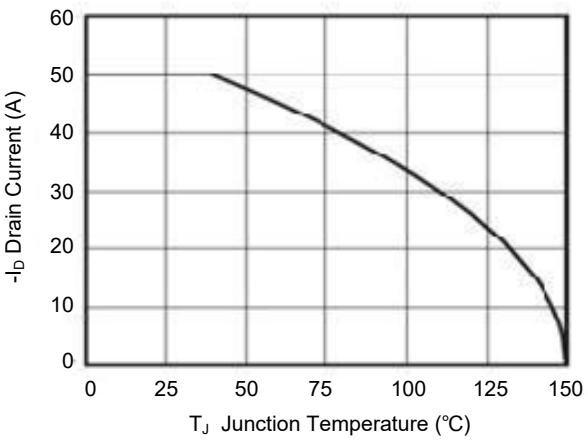


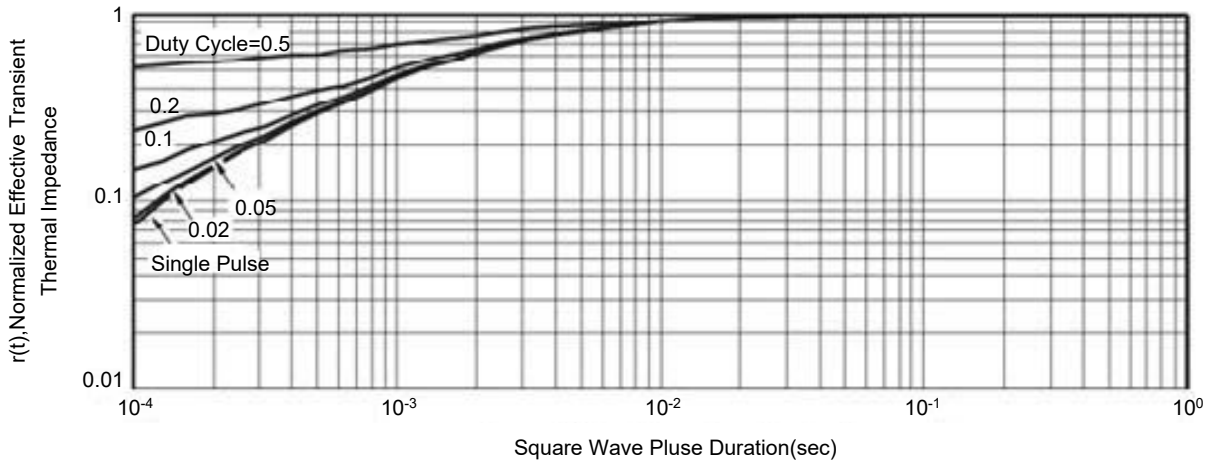



C CaPacitance (PF)
10000
8000
6000
4000
2000
0
Ciss
Coss
Crss
0
10
20
30
40
50
60
-VDS Drain-Source Voltage (V)


VGS=0
ID=-250μA
-V(BR)DSS Drain-Source Breakdown Voltage (Normalized)
1.2
1.1
1.0
0.9
0.8
-50
0
50
100
TJ℃
TJ Junction Temperature (℃)


-ID Drain Current (A)
1000
100
10
1
0.1
Limited By RDS(on)
10μs
100μs
10ms
100ms
DC
TC=25℃
Single Pulse
V(BR)DSS
Limited
0.1
1
10
100
-VDS Drain-Source Voltage (V)


-ID Drain Current (A)
60
50
40
30
20
10
0
0
25
50
75
100
125
150
TJ Junction Temperature (℃)


r(t),Normalized Effective Transient Thermal Impedance
1
0.1
0.01
Duty Cycle=0.5
0.2
0.1
0.05
0.02
Single Pulse
10-4
10-3
10-2
10-1
100
Square Wave Pluse Duration(sec)

Package Outline

TO-252

Dimensions in mm