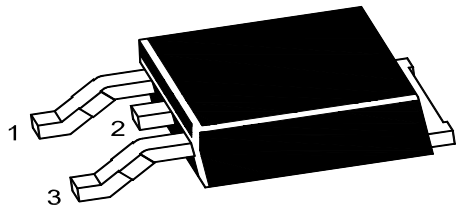
PJM12P40TE
P-Channel Enhancement Mode Power MOSFET

Features

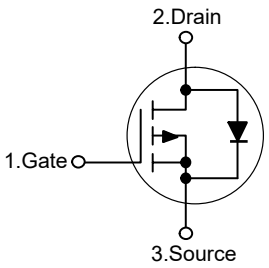
- Excellent package for good heat dissipation
- High density cell design for ultra low $R_{DS(on)}$
- V_{DS}= -40V,I_D= -12A
  $R_{DS(on)}$< 35mΩ @V_{GS}= -10V

TO-252



1. Gate 2.Drain 3.Sourse

Schematic Diagram



Applications

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

Absolute Maximum Ratings

Ratings at 25℃ ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$-V_{DS}$	40	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	$-I_D$	12	A
Drain Current-Pulsed Note1	$-I_{DM}$	48	A
Single pulse avalanche energy Note4	E_{AS}	90	mJ
Maximum Power Dissipation	P_D	45	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Maximum Junction-to-Case Note2	$R_{\theta JC}$	2.5	°C/W

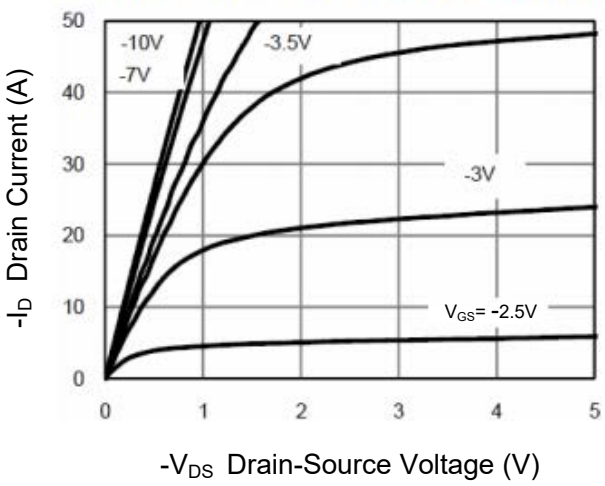
Electrical Characteristics

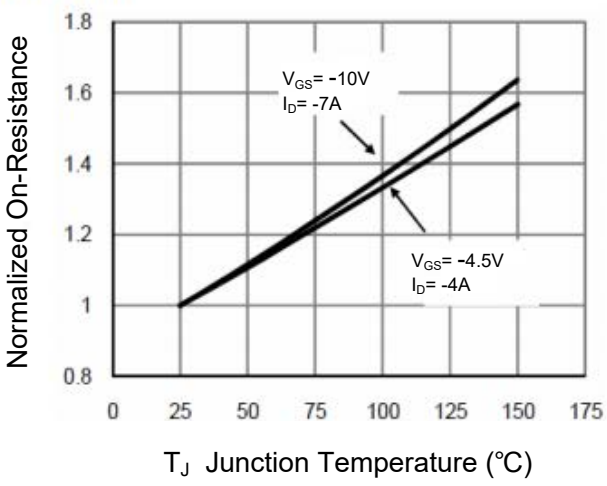
(Ta=25℃ unless otherwise specified)

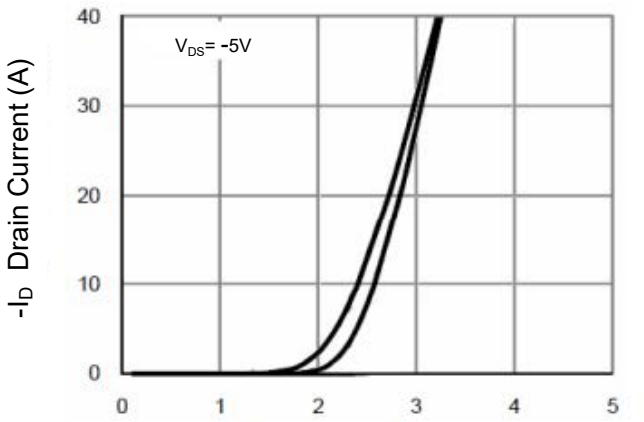
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$-V_{(BR)DSS}$	V_{GS}=0V,I_D=-250μA	40	--	--	V
Zero Gate Voltage Drain Current	$-I_{DSS}$	V_{DS}=-40V,V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	--	--	±0.1	μA
Gate Threshold Voltage Note3	$-V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	1	--	3	V
Drain-Source On-Resistance Note3	$R_{DS(on)}$	V_{GS}=-10V,I_D=-8A	--	29	35	mΩ
		V_{GS}=-4.5V,I_D=-4A	--	34	45	mΩ
Forward Transconductance Note3	g_{FS}	V_{DS}=-15V,I_D=-8A	20	--	--	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-20V,V_{GS}=0V,f =1MHz	--	530	--	pF
Output Capacitance	C_{oss}		--	100	--	pF
Reverse Transfer Capacitance	C_{rss}		--	65	--	pF
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-20V, I_D=-12A V_{GS}=-10V,R_G=3Ω	--	8.8	--	nS
Turn-on Rise Time	t_r		--	6.5	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	20	--	nS
Turn-off Fall Time	t_f		--	8	--	nS
Total Gate Charge	Q_g	V_{DS}=-20V,I_D=-12A, V_{GS}=-10V	--	15	--	nC
Gate-Source Charge	Q_{gs}		--	4.5	--	nC
Gate-Drain Charge	Q_{gd}		--	3.5	--	nC
Source-Drain Diode Characteristics						
Diode Forward Voltage Note3	$-V_{SD}$	V_{GS}=0V,I_S=-12A	--	--	1.5	V
Diode Forward Current Note2	$-I_S$		--	--	12	A

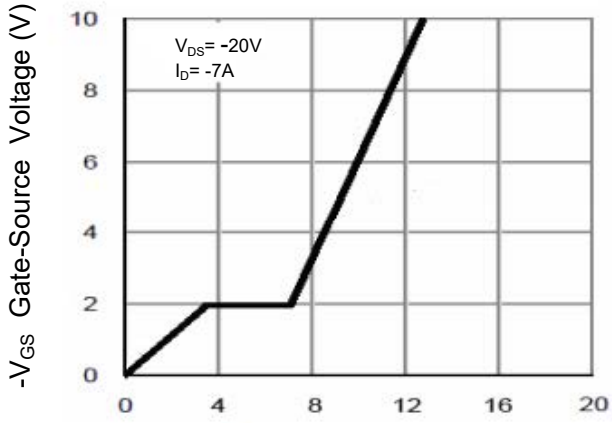
Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse width≤300μs, duty cycle≤2%
4. E_{AS} condition : T_j=25℃,V_{DD}=-15V,V_G=-10V,L=0.5mH.

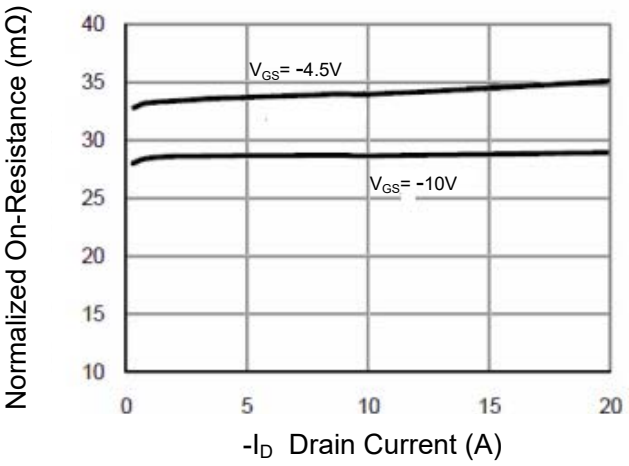
Typical Characteristic Curves

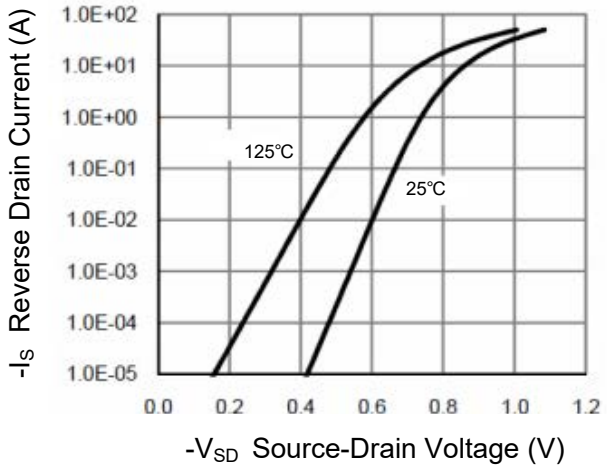


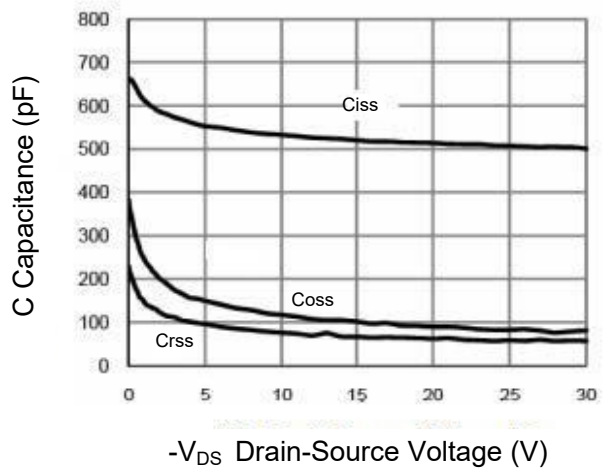




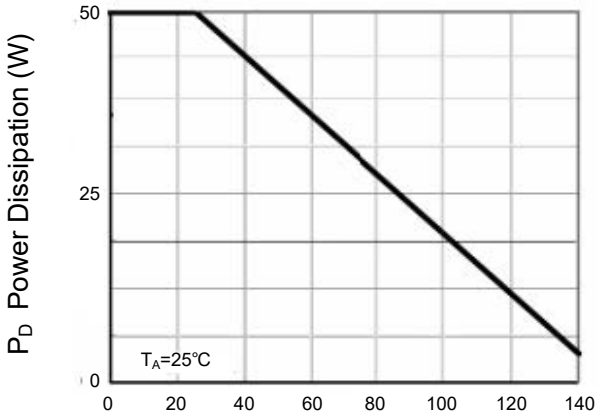




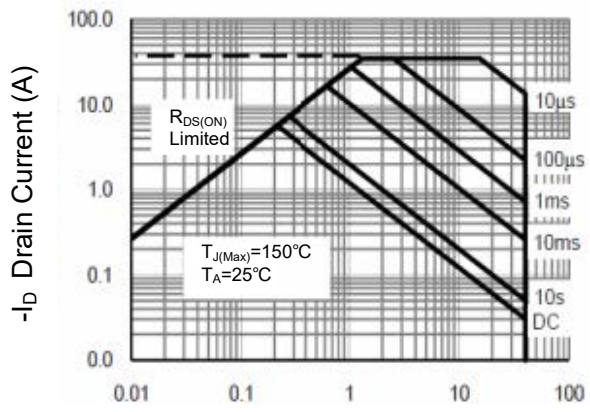




-V_{DS} Drain-Source Voltage (V)



T_J Junction Temperature (℃)



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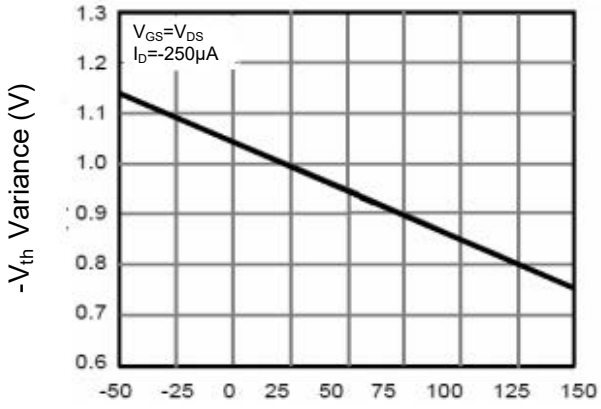

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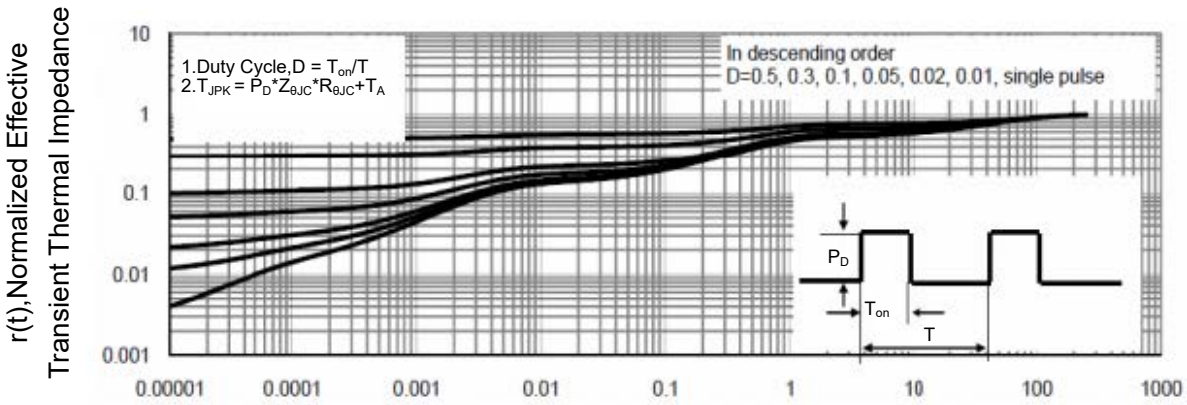

Square Wave Pluse Duration (sec)

Package Outline

TO-252

Dimensions in mm