PJM60N40TE
N-Channel Enhancement Mode Power MOSFET

Product Summary

- V_{DS}= 40V,I_D= 60A
- $R_{DS(on)}$< 7mΩ @V_{GS}= 10V
- $R_{DS(on)}$< 12mΩ @V_{GS}= 4.5V

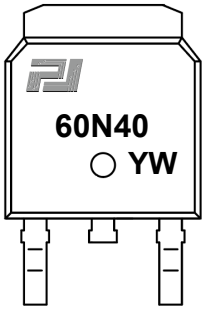
Features

- Advanced Trench Technology
- 100% Avalanche Tested
- RoHS Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 3

Application

- Load Switch
- PWM Application
- Power management

Marking Code



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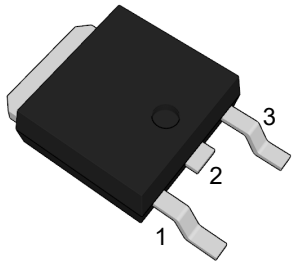
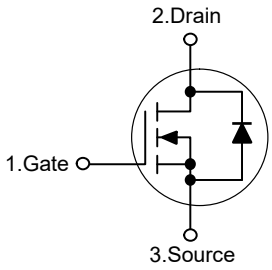


(Top View)

Pin	Description
1	Gate
2	Drain
3	Source

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25℃ case 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	60	A
Drain Current-Pulsed Note1	I_{DM}	240	A
Single Pulse Avalanche Energy Note2	E_{AS}	48	mJ
Maximum Power Dissipation	P_D	53	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	2.6	°C/W

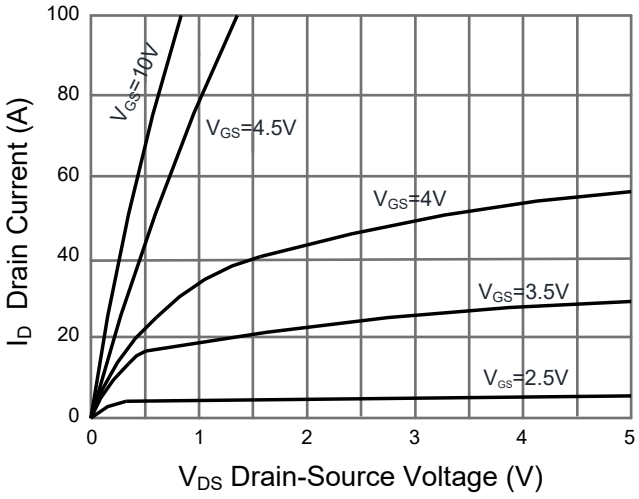
Electrical Characteristics

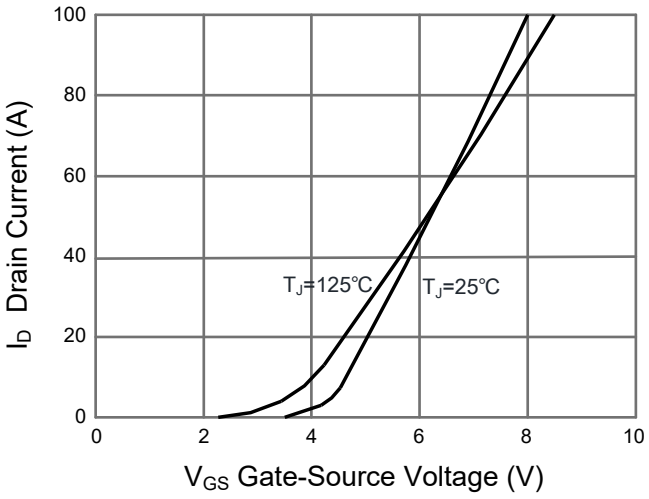
(T_J=25℃ unless otherwise specified)

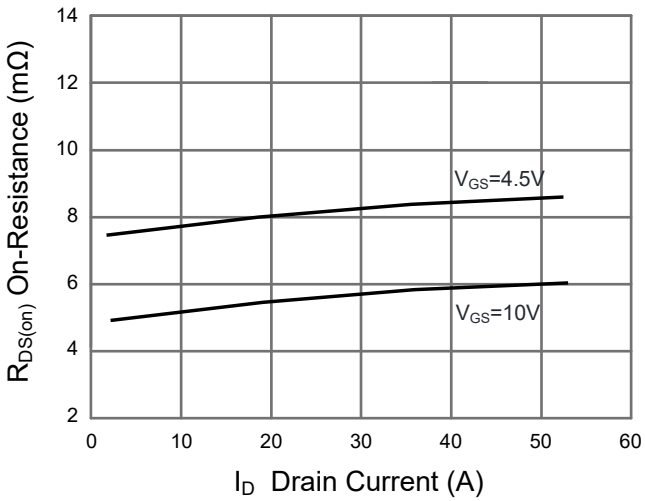
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250μA	40	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V,V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	--	--	±100	nA
Gate Threshold Voltage Note3	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	1.0	1.75	2.5	V
Drain-Source On-Resistance Note3	$R_{DS(on)}$	V_{GS}=10V,I_D=30A	--	5.8	7	mΩ
		V_{GS}=4.5V,I_D=20A	--	8	12	mΩ
Forward Transconductance Note3	g_{fs}	V_{DS}=5V,I_D=3A	--	13	--	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=20V,V_{GS}=0V,f =1MHz	--	2400	--	pF
Output Capacitance	C_{oss}		--	192	--	pF
Reverse Transfer Capacitance	C_{rss}		--	165	--	pF
Gate Resistance	R_g	V_{GS}=0V,V_{DS}=0V,f=1MHz	--	1.9	--	Ω
Total Gate Charge	Q_g	V_{DS}=20V,I_D=25A,V_{GS}=10V	--	45	--	nC
Gate-Source Charge	Q_{gs}		--	8	--	nC
Gate-Drain Charge	Q_{gd}		--	10	--	nC
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=30V, I_D=25A, V_{GS}=10V,R_L=1.2Ω,R_{GEN}=3Ω	--	12	--	nS
Turn-on Rise Time	t_r		--	75	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	50	--	nS
Turn-off Fall Time	t_f		--	105	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=30A	--	--	1.2	V
Diode Forward Current	I_S		--	--	60	A

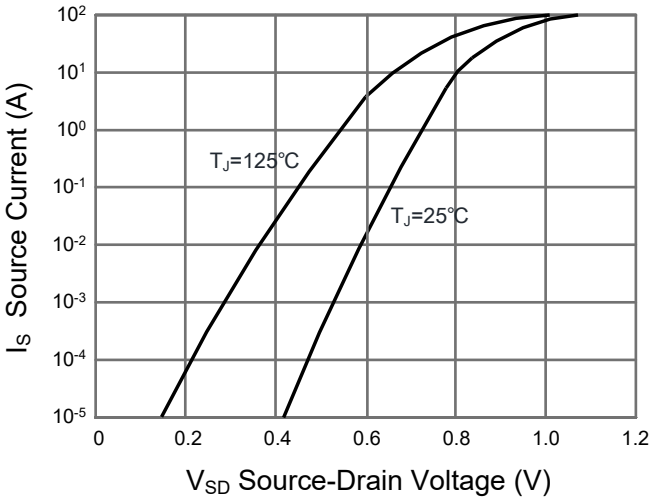
Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. EAS condition: T_J=25℃,V_{DD}=20V, V_G=10V, R_G=25Ω, L=0.5mH, I_{AS}=15A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

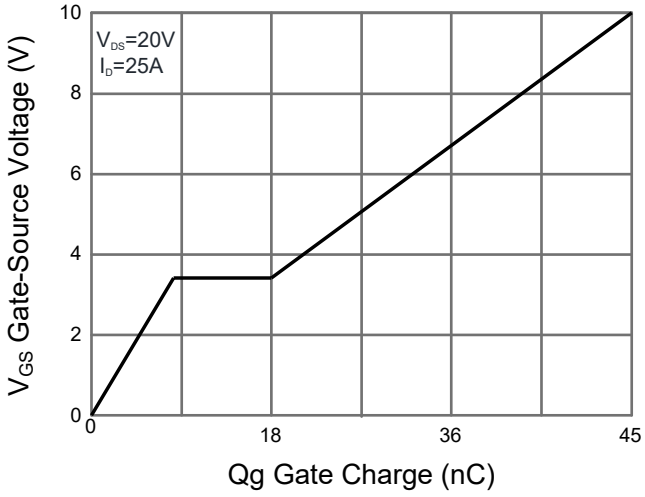
Typical Characteristic Curves

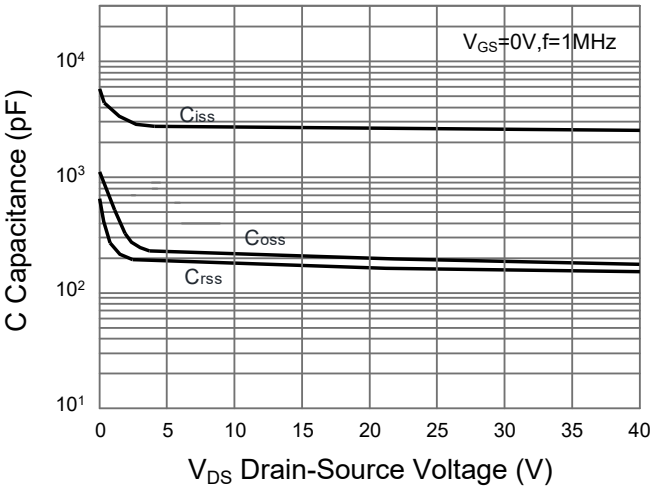


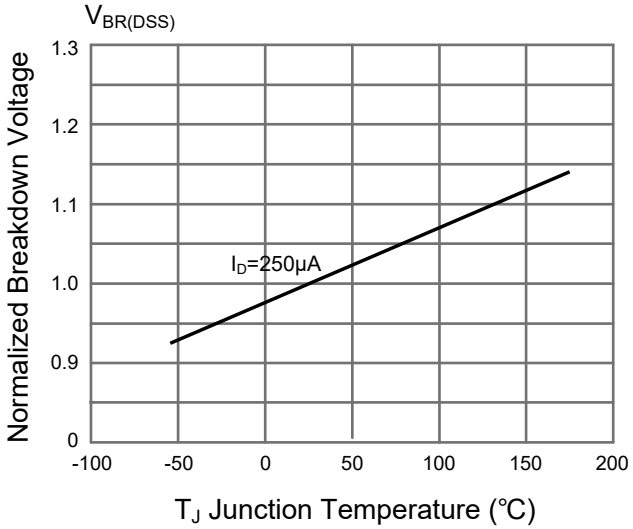


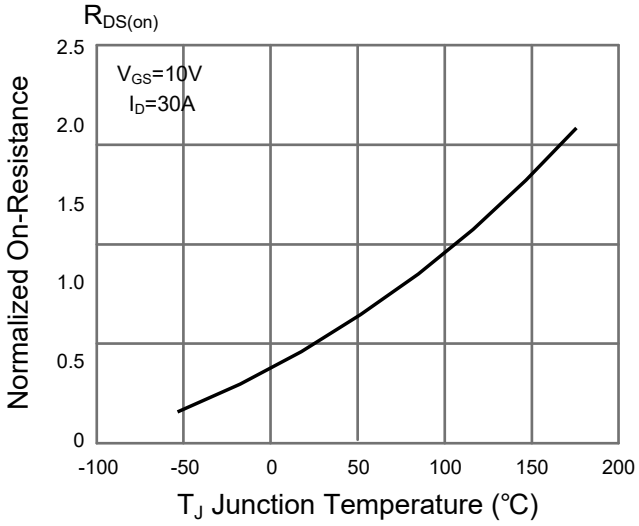


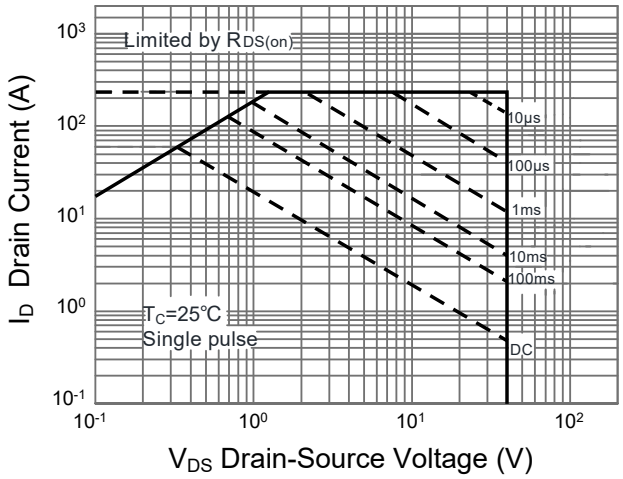







$V_{BR(DSS)}$
Normalized Breakdown Voltage
1.3
1.2
1.1
1.0
0.9
0
I_D=250μA
-100
-50
0
50
100
150
200
T_J Junction Temperature (℃)

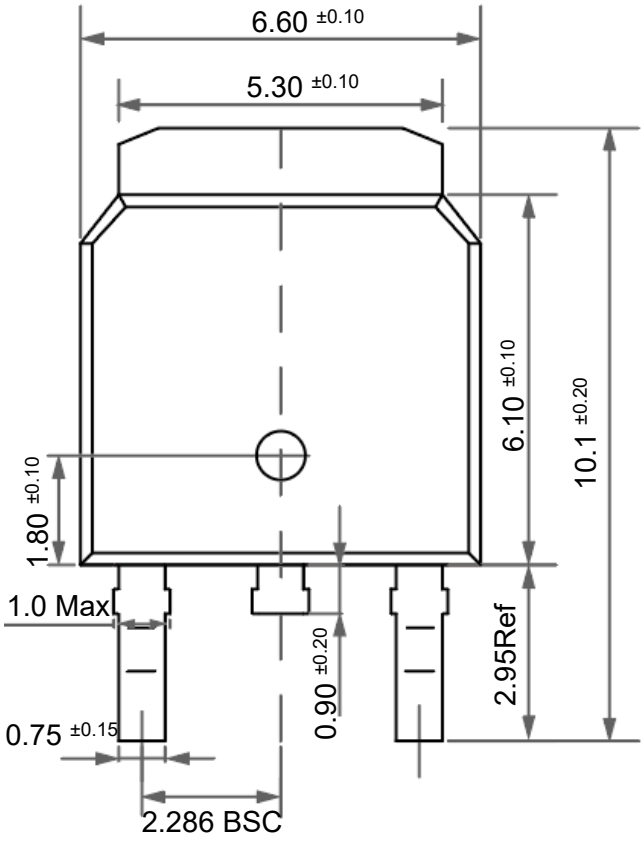

$R_{DS(on)}$
Normalized On-Resistance
2.5
2.0
1.5
1.0
0.5
0
V_{GS}=10V
I_D=30A
-100
-50
0
50
100
150
200
T_J Junction Temperature (℃)


I_D Drain Current (A)
10^3
10^2
10^1
10^0
10^{-1}
Limited by $R_{DS(on)}$
10μs
100μs
1ms
10ms
100ms
DC
T_C=25℃
Single pulse
10^{-1}
10^0
10^1
10^2
V_{DS} Drain-Source Voltage (V)

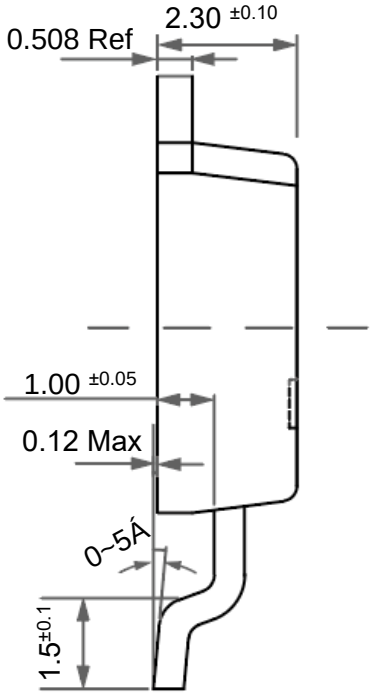
Package Outline

TO-252

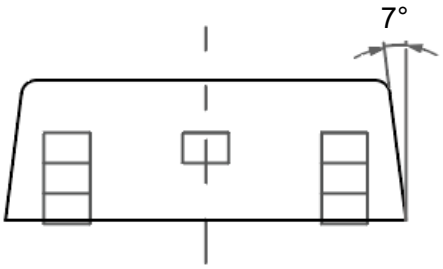
Dimensions in mm



Front View



Side View



Bottom View

Ordering Information

Device	Package	Shipping
PJM60N40TE	TO-252	2,500PCS/Reel&13inches