

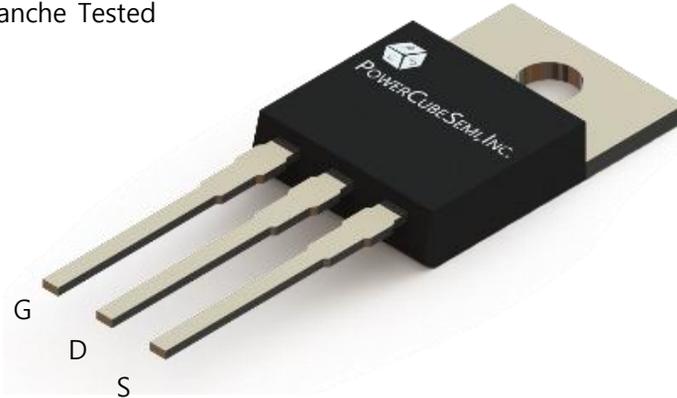
PM002N060AGH

60V 223A 2.7mΩ Si Single N-ch Enhancement Mode MOSFET with Normal Diode

Features

Si N-Ch Enhancement Mode Power MOSFET

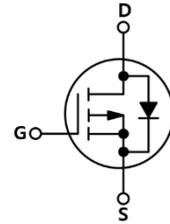
- Rated to 60V at 223Amps @ $T_j = 25^\circ\text{C}$
- Max $R_{DS(on)} = 2.7\text{ m}\Omega$
- Typ $R_{DS(on)} = 2.2\text{ m}\Omega$
- Gate Charge(Typ. $Q_g=101\text{ nC}$)
- 100% Avalanche Tested



PKG type : TO-220

Application

- Power switch
- DC/DC converters



Description

The PM002N060AGH uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge. It can be used in a wide variety of applications.

Absolute Maximum Ratings

Symbol	Parameter	Test Condition	Value	Unit
BV_{DSS}	Drain-source breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	60	V
I_D	Drain current	$T_c=25^\circ\text{C}$	223	A
I_{DM}	Drain current	Pulse width limited by junction temperature	892	A
V_{GS}	Gate-source voltage		± 20	V
E_{AS}	Single pulsed avalanche energy	$V_{GS}=10V, R_G=25\Omega$ $V_{DD}=50V, L=0.5mH$	441	mJ
P_d	Power dissipation	$T_c=25^\circ\text{C}$	240	W
T_j	Operating junction		150	$^\circ\text{C}$
T_{stg}	Storage temperature		-55 to 150	$^\circ\text{C}$

Package Marking and Ordering Information

Device Marking	Device	Package	Packing Method	Tape width	Quantity
PM002N060AGH	PM002N060	TO-220	TUBE	-	50

Electrical Characteristics of Si MOSFET

Symbol	Parameter	Test Condition	Numerical			Unit
			Min	Typ.	Max.	
BV_{DSS}	Drain-source breakdown voltage	$V_{GS} = 0V, I_D = 250\mu A, T_J = 25^\circ C$	60	-	-	V
I_{DSS}	Zero gate voltage drain current	$V_{DS} = 60V, V_{GS} = 0V$	-	-	1	μA
I_{GSS}	Gate-source leakage current	$V_{GS} = \pm 20V$	-	-	± 100	nA
$V_{GS(th)}$	Gate threshold voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	1.7	2.5	V
$R_{DS(ON)}$	Static drain-source on state resistance	$V_{GS} = 10V, I_D = 30A$	-	2.2	2.7	m Ω
g_{FS}	Forward transconductance	$V_{DS} = 5V, I_D = 30A$	-	70	-	S
$t_{d(on)}$	Turn-on Delay time	$V_{DD} = 30V, I_D = 30A, R_G = 2.1\Omega$	-	73	-	ns
t_r	Turn-on Rise time		-	244	-	
$t_{d(off)}$	Turn-off Delay time		-	122	-	
t_f	Turn-off Fall time		-	122	-	



Electrical Characteristics of Si MOSFET

Symbol	Parameter	Test Condition	Numerical		Unit
			Typ.	Max.	
$R_{\theta JC}$	Thermal resistance, Junction to case		0.52	-	$^{\circ}\text{C}/\text{W}$
C_{iss}	Input capacitance	$V_{DS} = 30\text{V}, V_{GS} = 0\text{V},$ $f = 1.0\text{MHz}$	11999	-	pF
C_{oss}	Output capacitance		1072	-	
C_{rss}	Reverse transfer capacitance		745	-	
$Q_{g(\text{tot})}$	Total gate charge at 10V	$V_{DD} = 30\text{V}, I_D = 30\text{A}$ $V_{GS} = 4.5\text{V}$	101	-	nC
Q_{gs}	Gate to source gate charge		34	-	
Q_{gd}	Gate to drain "Miller" charge		57	-	

Electrical Characteristics of Si Diode

Symbol	Parameter	Test Condition	Numerical		Unit
			Typ.	Max.	
I_S	Maximum continuous drain to source diode forward current	$T_c = 25^{\circ}\text{C}$	-	223	A
V_{SD}	Drain to source diode forward voltage	$I_{SD} = 30\text{A}, V_{GS} = 0\text{V}$	-	1.2	V
T_{rr}	Reverse recovery time	$I_F = 30\text{A}, V_{GS} = 0\text{V},$ $di_F/dt = 100\text{A}/\mu\text{s}$	69	-	ns
Q_{rr}	Reverse recovery charge		344	-	nC

Typical Characteristics

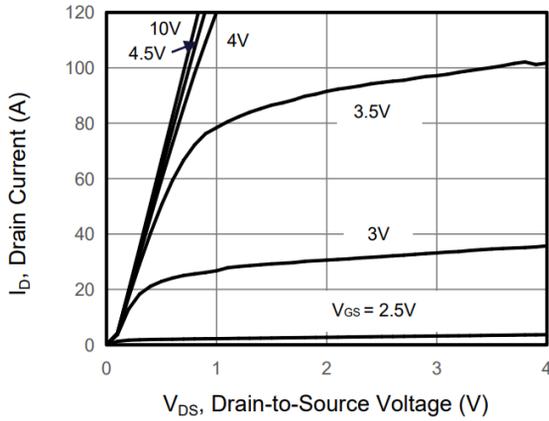


Figure 1. Output Characteristics

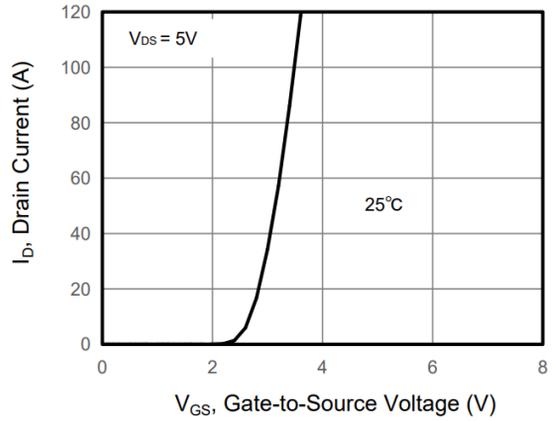


Figure 2. Transfer Characteristics

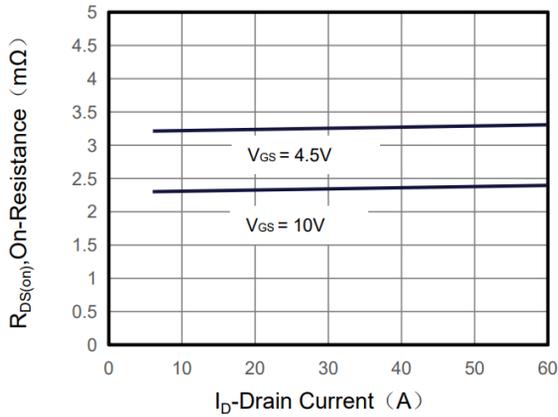


Figure 3. Drain to Source On-Resistance

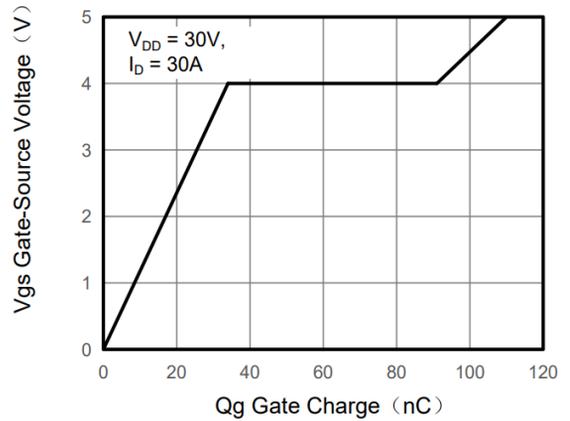


Figure 4. Gate Charge

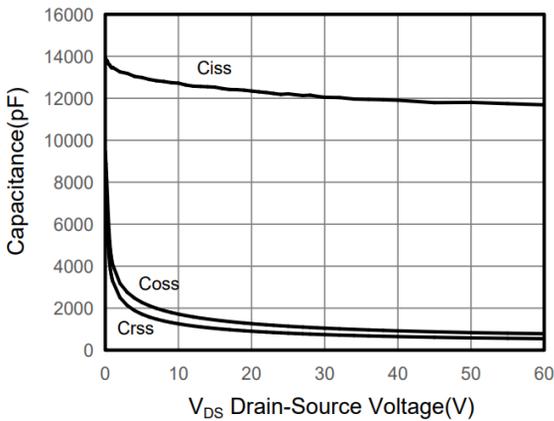


Figure 5. Capacitance Characteristics

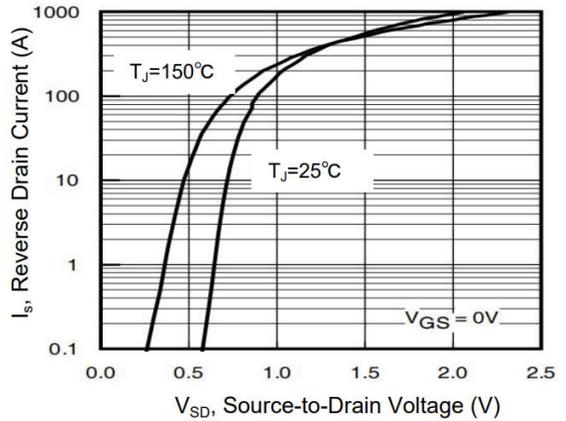


Figure 6. Source to Drain Diode Forward

Typical Characteristics

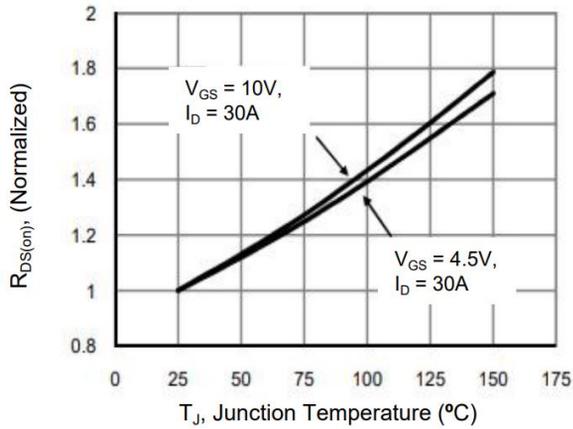


Figure 7. Drain to Source On-Resistance

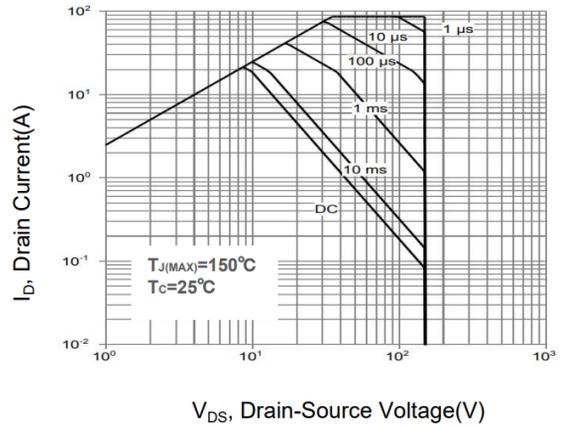


Figure 8. Safe Operation Area

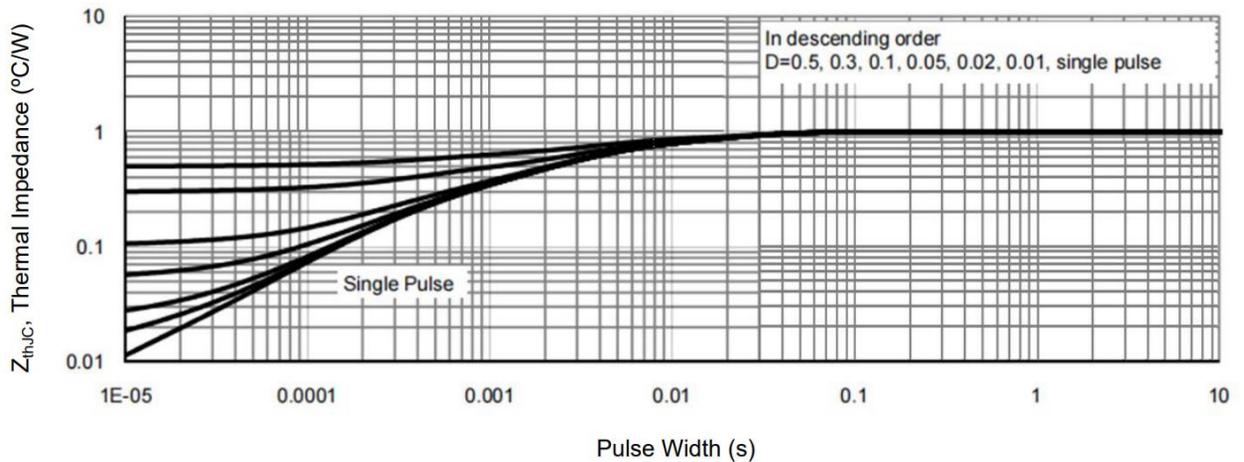


Figure 9. Normalized Maximum Transient Thermal Impedance



Package Outline

Unit : mm

