PM007P060DG

-60V -195A 7.5mΩ Si Single P-ch Enhancement Mode MOSFET with Normal Diode
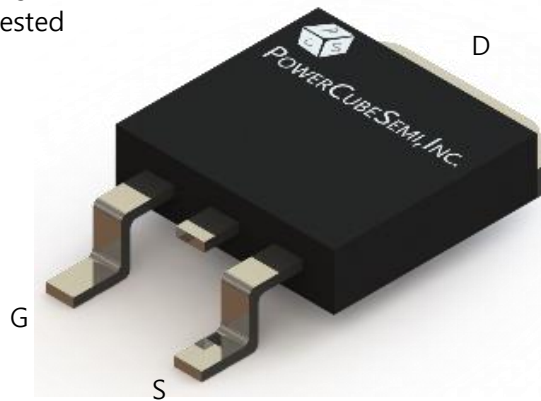
Features

Si P-Ch Enhancement Mode Power MOSFET

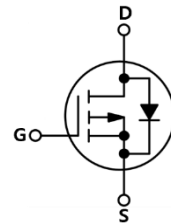- Rated to -60V at -195Amps @T_J = 25℃

- Max $R_{DS(on)}$ = 7.5 mΩ

- Typ $R_{DS(on)}$ = 6.2 mΩ

- Gate Charge(Typ. Q_g=186 nC)

- 100% Avalanche Tested

Application

- Power switch

- DC/DC converters

PKG type : TO-263 (D2PAK)

Description

The PM007P060DG 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=-250μA	-60	V
I_D	Drain current	T_C=25℃	-195	A
I_{DM}	Drain current	Pulse width limited by junction temperature	-780	A
V_{GS}	Gate-source voltage		±20	V
E_{AS}	Single pulsed avalanche energy	V_{GS}=-10V, R_G=25Ω V_{DD}=-50V, L=0.5mH	506	mJ
P_d	Power dissipation	T_C=25℃	294	W
T_j	Operating junction		150	℃
T_{stg}	Storage temperature		-55 to 150	℃

Package Marking and Ordering Information

Device Marking	Device	Package	Packing Method	Tape width	Quantity
PM007P060DG	PM007P060	TO-263	REEL	-	800

Electrical Characteristics of Si MOSFET

Symbol	Parameter	Test Condition	Numerical			Unit
			Min	Typ.	Max.	
BV_{DSS}	Drain-source breakdown voltage	$V_{GS} = 0V$, $I_D = -250\mu A$, $T_J = 25°C$	-60	-	-	V
I_{DSS}	Zero gate voltage drain current	$V_{DS} = -60V$, $V_{GS} = 0V$	-	-	-1	μA
I_{GSS}	Gate-source leakage current	$V_{GS} = \pm20V$	-	-	±100	nA
$V_{GS(th)}$	Gate threshold voltage	$V_{DS} = V_{GS}$, $I_D = -250\mu A$	-2	-2.4	-4	V
$R_{DS(ON)}$	Static drain-source on state resistance	$V_{GS} = -10V$, $I_D = -20A$	-	6.2	7.5	mΩ
g_{FS}	Forward transconductance	$V_{DS} = -5V$, $I_D = -20A$	-	35	-	S
$t_{d(on)}$	Turn-on Delay time	$V_{DD} = -30V$, $I_D = -20A$, $R_G = 3\Omega$	-	134	-	ns
t_r	Turn-on Rise time		-	20	-	
$t_{d(off)}$	Turn-off Delay time		-	118	-	
t_f	Turn-off Fall time		-	93	-	

Electrical Characteristics of Si MOSFET

Symbol	Parameter	Test Condition	Numerical		Unit
			Typ.	Max.	
$R_{\theta JC}$	Thermal resistance, Junction to case		0.42	-	℃/W
C_{iss}	Input capacitance	V_{DS} = -30V, V_{GS} = 0V, f = 1.0MHz	15870	-	pF
C_{oss}	Output capacitance		1195	-	
C_{rss}	Reverse transfer capacitance		730	-	
$Q_{g(tot)}$	Total gate charge at 10V	V_{DD} = -30V, I_D = -20A V_{GS} = -10V	186	-	nC
Q_{gs}	Gate to source gate charge		43	-	
Q_{gd}	Gate to drain "Miller" charge		56	-	

Electrical Characteristics of Si Diode

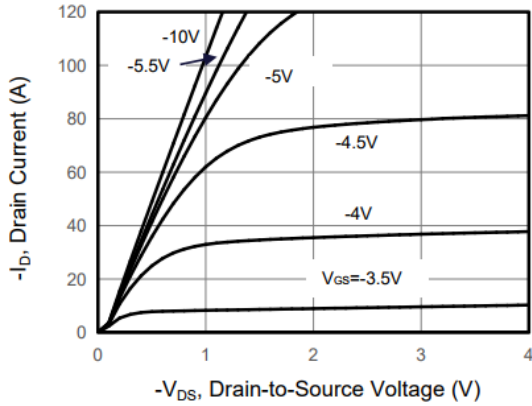| Symbol	Parameter	Test Condition	Numerical		Unit
			Typ.	Max.	
I_S	Maximum continuous drain to source diode forward current	T_c=25℃	-	-195	A
V_{SD}	Drain to source diode forward voltage	I_{SD} = -20A, V_{GS} = 0V	-	-1.2	V
T_{rr}	Reverse recovery time	I_F = -20A, V_{GS} = 0V, dI_F/dt=-100A/μs	46	-	ns
Q_{rr}	Reverse recovery charge		71	-	nC

Typical Characteristics
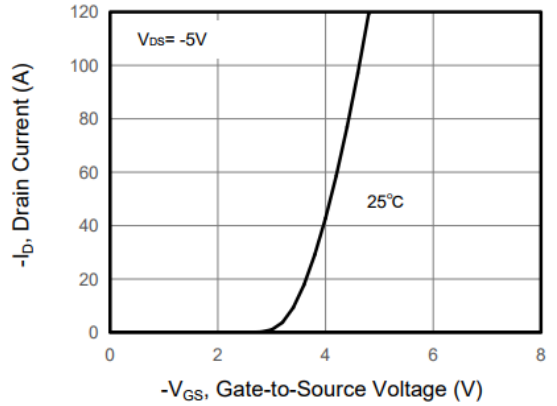

Figure 1. Output Characteristics
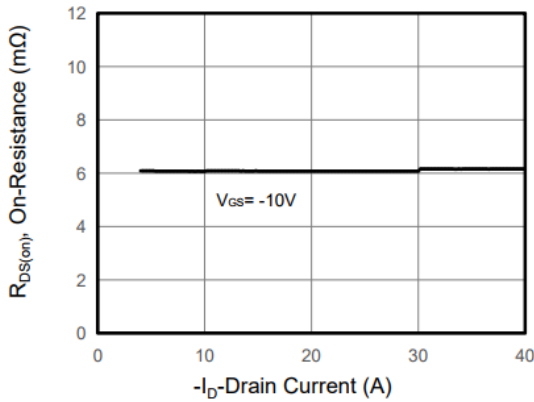

Figure 2. Transfer Characteristics

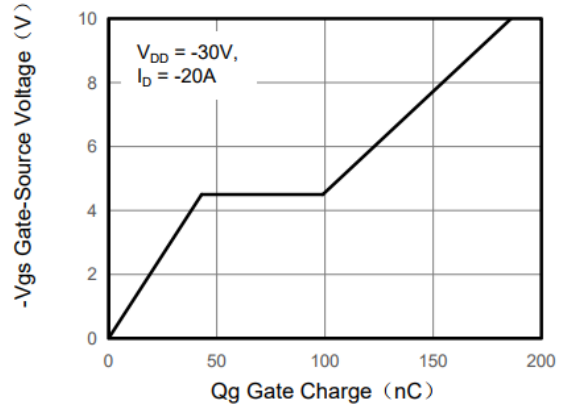Figure 3. Drain Source On Resistance
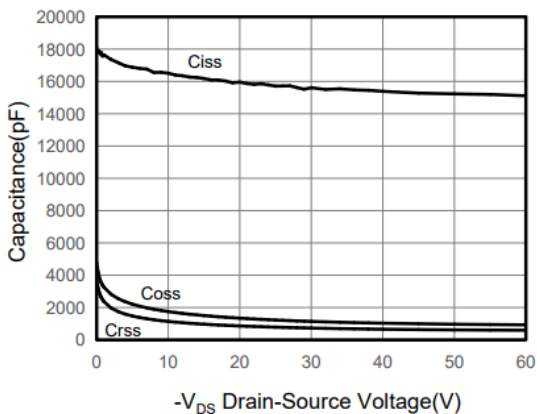

Figure 4. Gate Charge

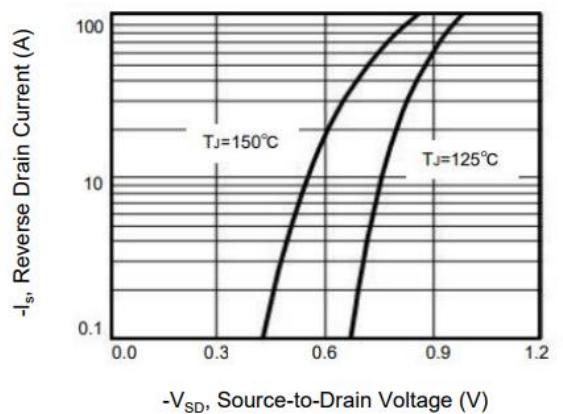Figure 5. Capacitance

Figure 6. Source-Drain Diode Forward

Typical Characteristics

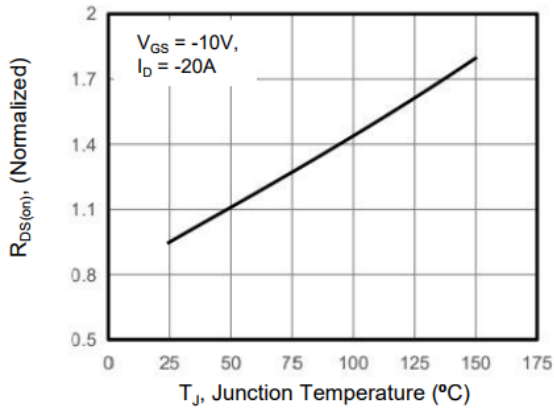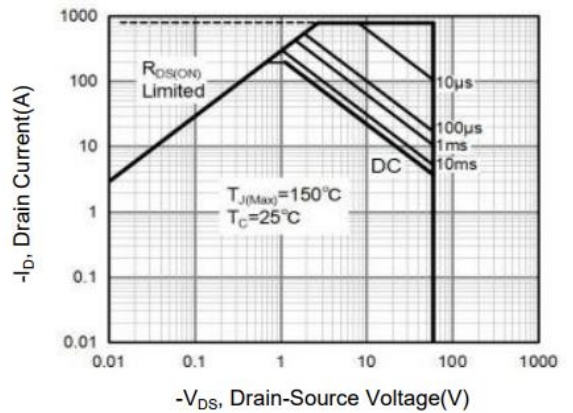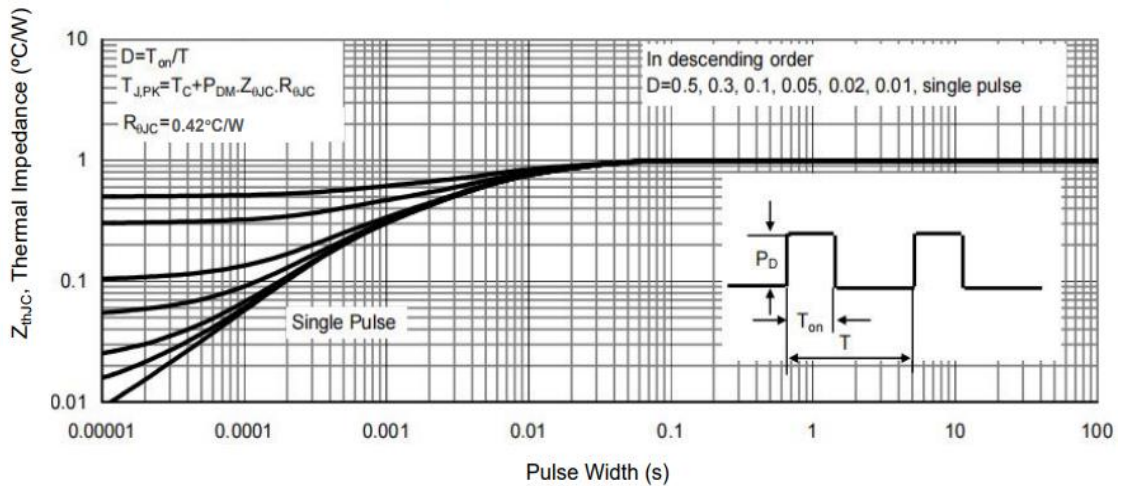Figure 7. Drain-Source On-Resistance

Figure 8. Safe Operation Area

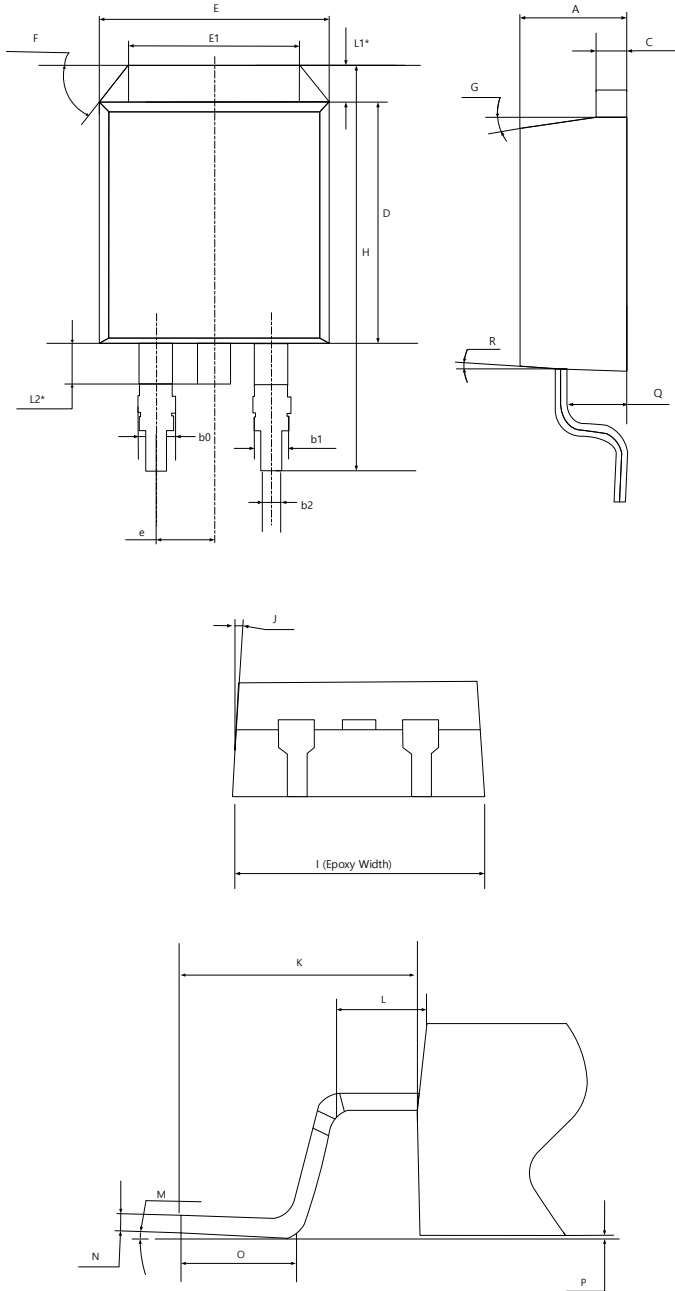
Figure 9. Normalized Maximum Transient Thermal Impedance

Package Outline

Unit : mm

SYMBOL	DIMENSIONS		
	MIN	**NOM**	**MAX**
A	4.40	4.60	4.80
b0	1.17	1.37	1.57
b1	1.17	1.27	1.37
b2	0.70	0.80	0.90
C	1.17	1.27	1.37
D	8.50	8.70	8.90
E	9.80	10.00	10.20
E1	6.50	-	-
e	2.44	2.54	2.64
F	-	30º (Ref)	-
G	-	7.0º	-
H	15.00	15.30	15.60
I	9.80	10.00	10.20
J	-	3.0º	-
K	5.00	5.30	5.60
L	1.80	2.00	2.20
L1	1.07	1.27	1.47
L2	1.20	1.50	1.80
M	0.0º	-	8.0º
N	0.30	0.45	0.60
O	2.34	2.54	2.74
P	0	-	0.25
Q	2.37	2.67	2.97
R	-	7.0º	-