

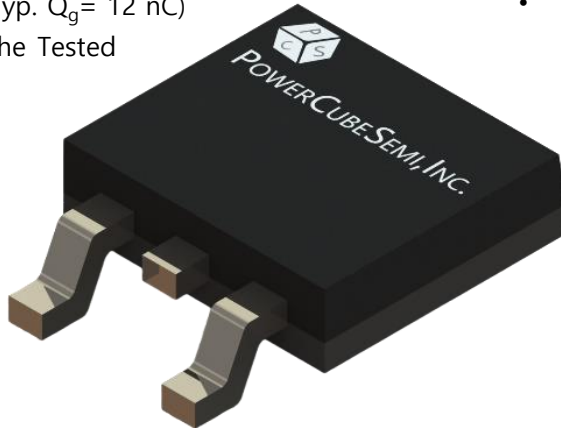
PM065N150CG

150V 20A 65mΩ Si Single N-ch Enhancement Mode Power MOSFET with Normal Diode

Features

Si Single N-ch Enhancement Mode Power MOSFET

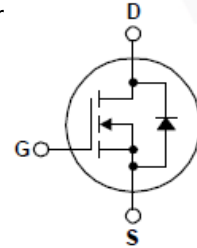
- Rated to 150V at 20Amps @ $T_j = 25^\circ\text{C}$
- Max $R_{DS(on)} = 65\text{ m}\Omega$
- Typ $R_{DS(on)} = 59\text{ m}\Omega$
- Gate Charge(Typ. $Q_g = 12\text{ nC}$)
- 100% Avalanche Tested



PKG type : TO-252 (DPAK)

Application

- High frequency circuit
- Motor Control
- BMS
- UPS
- Synchronous rectification in SMPS or LED Driver



Description

The PM065N150CG 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	$V_{GS}=0V, I_D=250\mu A$	150	V
I_D	Drain Current	$T_c=25^\circ\text{C}$	20	A
I_{DM}	Pulsed Drain Current	Pulse width limited by junction temperature	80	A
V_{GS}	Gate-Source Voltage		± 20	V
E_{AS}	Single Pulsed Avalanche Energy	$R_G=25\Omega, V_{GS}=10V$ $V_{DD}=50V, L=0.5mH$	65	mJ
P_d	Power Dissipation	$T_c=25^\circ\text{C}$	68	W
T_j	Operating Junction Temperature		175	$^\circ\text{C}$
T_{stg}	Storage Temperature		-55 to 175	$^\circ\text{C}$

Package Marking and Ordering Information

Device Marking	Device	Package	Packing Method	Tape width	Quantity
PM065N150CG	PM065N150	TO-252	REEL	-	2500

Electrical Characteristics of Si MOSFET

Symbol	Parameter	Test Condition	Numerical			Unit
			Min	Typ.	Max.	
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A, T_J = 25^\circ C$	150	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 100V, V_{GS} = 0V$	-	-	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	2.5	3.3	4.5	V
$R_{DS(ON)}$	Static Drain-Source on state resistance	$V_{GS} = 10V, I_D = 10A$	-	59	65	m Ω
g_{FS}	Forward Transconductance	$V_{DS} = 5V, I_D = 10A$	15	-	-	S
$t_{d(on)}$	Turn-on Delay time	$V_{DD} = 75V, R_L = 7.5\Omega, V_{GS} = 10V, R_G = 3\Omega$	-	9.5	-	ns
T_r	Turn-on Rise time		-	5.5	-	
$t_{d(off)}$	Turn-off Delay time		-	12.5	-	
T_f	Turn-off Fall time		-	3	-	



Electrical Characteristics of Si MOSFET

Symbol	Parameter	Test Condition	Numerical		Unit
			Typ.	Max.	
$R_{\theta JC}$	Thermal Resistance, Junction to Case		2.2	-	$^{\circ}\text{C}/\text{W}$
C_{iss}	Input Capacitance	$V_{DS} = 75\text{V}, V_{GS} = 0\text{V},$ $f = 1.0\text{MHz}$	600	-	pF
C_{oss}	Output Capacitance		74.7	-	
C_{rss}	Reverse Transfer Capacitance		10.8	-	
$Q_{g(tot)}$	Total Gate Charge at 10V	$V_{DD} = 75\text{V}, I_D = 10\text{A}$ $V_{GS(on)} = 10\text{V}$	12	-	nC
Q_{gs}	Gate to Source Gate Charge		5.7	-	
Q_{gd}	Gate to Drain "Miller" Charge		2.7	-	

Electrical Characteristics of Si Diode

Symbol	Parameter	Test Condition	Numerical		Unit
			Typ.	Max.	
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	20	A
V_{SD}	Drain to Source Diode Forward Voltage	$I_F = 10\text{A}, V_{GS} = 0\text{V}$	-	1.2	V
T_{rr}	Reverse Recovery Time	$I_F = I_S, dI_F/dt = 100\text{A}/\mu\text{s}$	29	-	ns
Q_{rr}	Reverse Recovery Charge		130	-	nC

Typical Characteristics

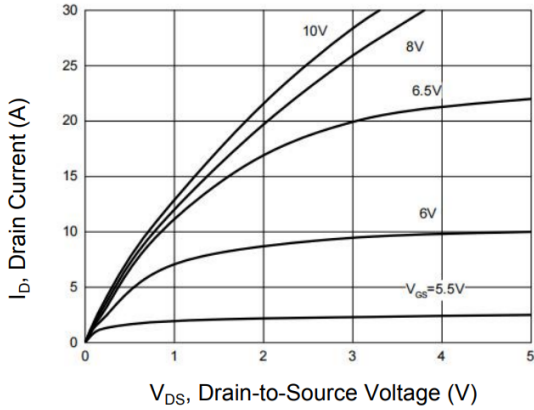


Figure 1. Output Characteristics

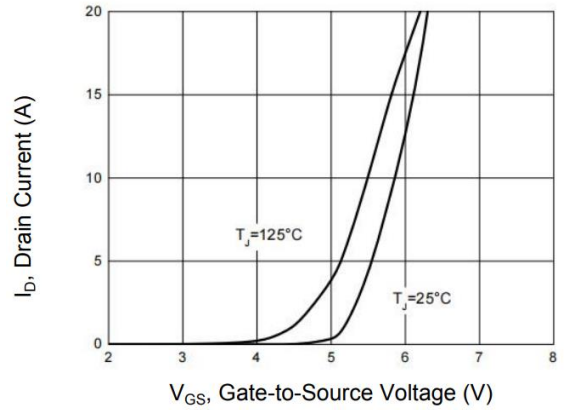


Figure 2. Transfer Characteristics

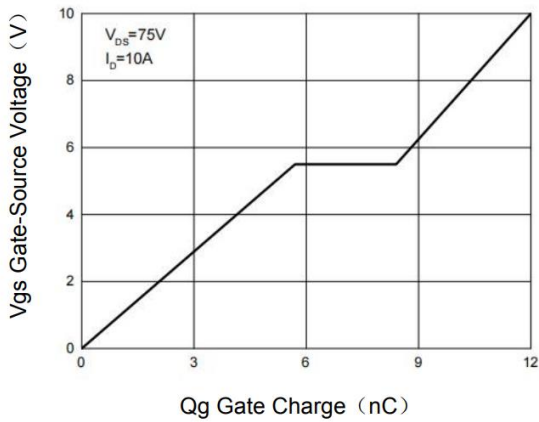


Figure 3. Gate Charge

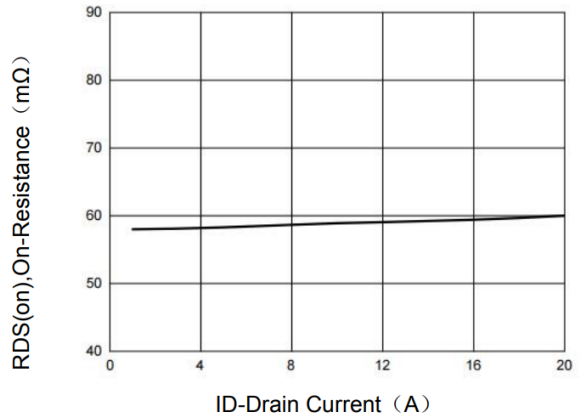


Figure 4. Drain to Source On-Resistance

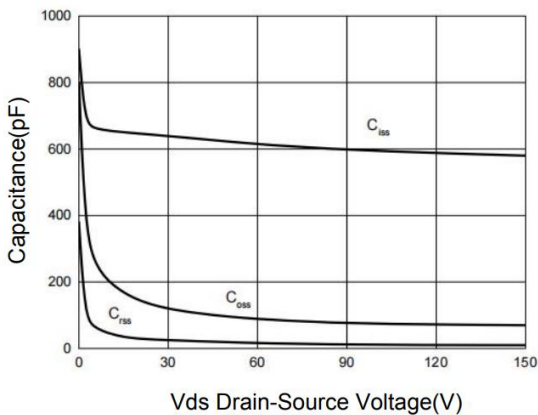


Figure 5. Capacitance vs. Drain to Source Voltage

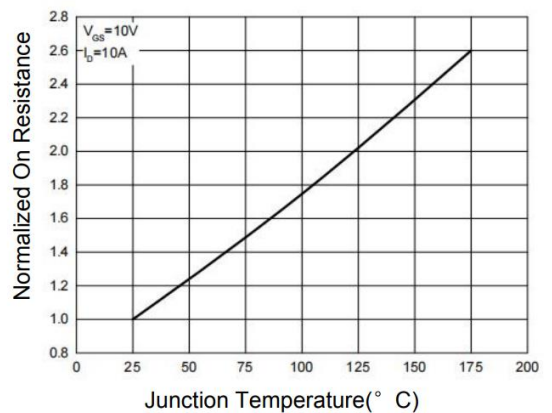


Figure 6. Normalized On Resistance Characteristics

Typical Characteristics

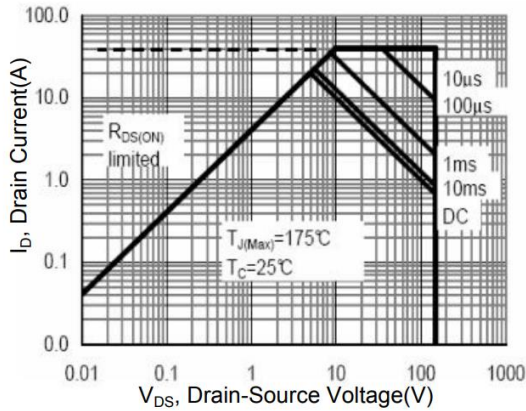


Figure 7. Safe Operation Area

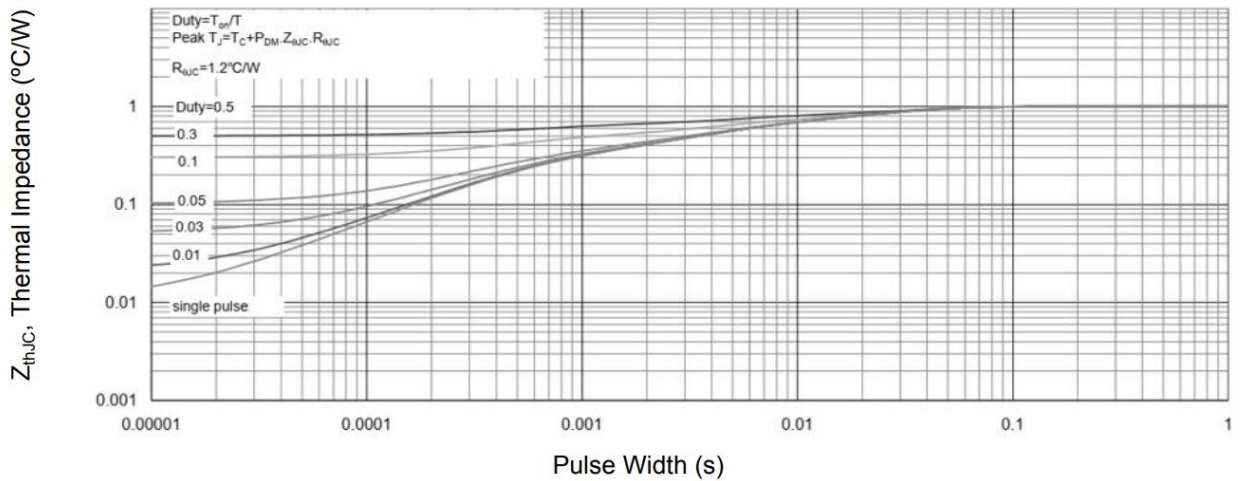
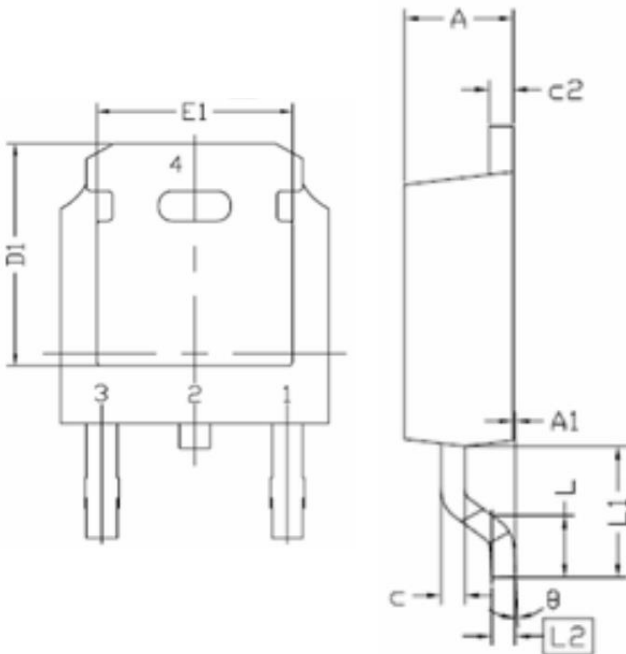
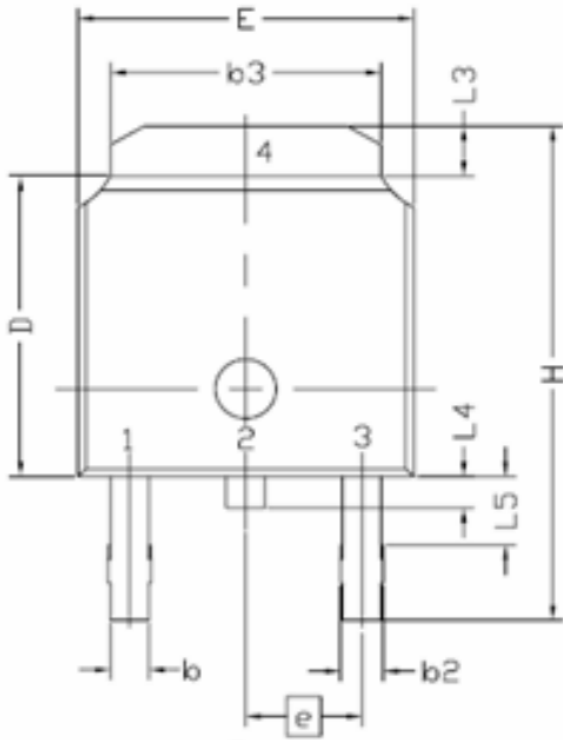


Figure 8. Normalized Maximum Transient Thermal Impedance

Package Outline

Unit : mm



SYMBOL	DIMENSIONS		
	MIN	NOM	MAX
E	6.34	6.54	6.74
L	1.30	1.60	1.90
L1	2.60	2.90	3.20
L2	0.5 BSC		
L3	0.82	1.02	1.22
L4	0.80	1.00	1.20
L5	2.60	2.90	3.20
D	5.80	6.10	6.40
H	8.40	9.00	9.60
b	1.42	1.52	1.62
b2	2.35	2.55	2.75
b3	5.20	5.30	5.40
e	4.58 BSC		
A	2.08	2.28	2.48
A1	0.00	0.15	-
c	0.40	0.50	0.60
c2	0.40	0.50	0.60
D1	-	5.25	-
E1	-	4.8	-
θ	0.00°	10.00°	