PM008N100CG

PowerCubeSemi, Inc.
Potential · Convergence · Smart

100V 65A 8mΩ Si Single N-ch Enhancement Mode Power MOSFET with Normal Diode

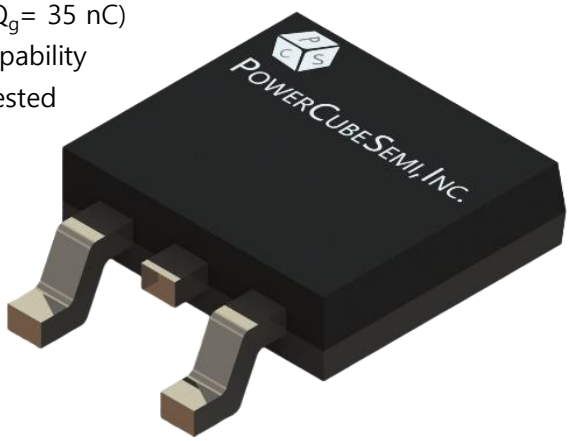
Features

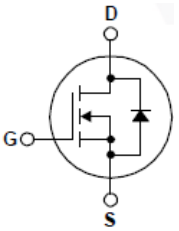
Si Single N-ch Enhancement Mode Power MOSFET

- Rated to 100V at 65Amps @T_J = 25℃
- Max $R_{DS(on)}$ = 8.0 mΩ
- Typ $R_{DS(on)}$ = 6.2 mΩ
- Gate Charge(Typ. Q_g= 35 nC)
- Improved dv/dt Capability
- 100% Avalanche Tested

Application

- Power Switch
- DC/DC Converters





Halogen-Free

RoHS

PKG type : TO-252 (DPAK)

Description

The PM008N100CG 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	100	V
I_D	Drain Current	T_c=25℃	65	A
I_{DM}	Pulsed Drain Current	Pulse width limited by junction temperature	260	A
V_{GS}	Gate-Source Voltage		±20	V
E_{AS}	Single Pulsed Avalanche Energy	V_{DD}=50V, V_{GS}=10V R_G=25Ω, L=1.0mH	144	mJ
P_d	Power Dissipation	T_C=25℃	79	W
T_j	Operating Junction Temperature		150	℃
T_{stg}	Storage Temperature		-55 to 150	℃

Package Marking and Ordering Information

Device Marking	Device	Package	Packing Method	Tape width	Quantity
PM008N100CG	PM008N100	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 = 250μA, T_J = 25°C	100	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 100V, V_{GS} = 0V	-	-	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS} = ±20V, V_{DS} = 0V	-	-	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} =V_{GS}, I_D = 250μA	1.0	1.65	2.5	V
$R_{DS(ON)}$	Static Drain-Source on state resistance	V_{GS} = 10V, I_D = 20A	-	6.2	8.0	mΩ
g_{FS}	Forward Transconductance	V_{DS} =10V, I_D = 20A	-	48	-	S
$t_{d(on)}$	Turn-on Delay time	V_{DD} = 50 V, I_D = 20A, R_G = 3Ω	-	10	-	ns
T_r	Turn-on Rise time		-	4	-	
$t_{d(off)}$	Turn-off Delay time		-	31	-	
T_f	Turn-off Fall time		-	6	-	

Electrical Characteristics of Si MOSFET

Symbol	Parameter	Test Condition	Numerical		Unit
			Typ.	Max.	
$R_{\theta JC}$	Thermal Resistance, Junction to Case		1.8	-	℃/W
C_{iss}	Input Capacitance	V_{DS} = 50V, V_{GS} = 0V, f = 1.0㎒	2521	-	pF
C_{oss}	Output Capacitance		396	-	
C_{rss}	Reverse Transfer Capacitance		15	-	
$Q_{g(tot)}$	Total Gate Charge at 10V	V_{DD} = 50V, I_D = 20A $V_{GS(on)}$ = 10V	35	-	nC
Q_{gs}	Gate to Source Gate Charge		8	-	
Q_{gd}	Gate to Drain “Miller” Charge		5	-	

Electrical Characteristics of Si Diode

Symbol	Parameter	Test Condition	Numerical		Unit
			Typ.	Max.	
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	65	A
V_{SD}	Drain to Source Diode Forward Voltage	I_F = 20A, V_{GS} = 0V	-	1.2	V
T_{rr}	Reverse Recovery Time	I_F = 20A, dI_F/dt=500A/㎲	34	-	ns
Q_{rr}	Reverse Recovery Charge		170	-	nC

Typical Characteristics

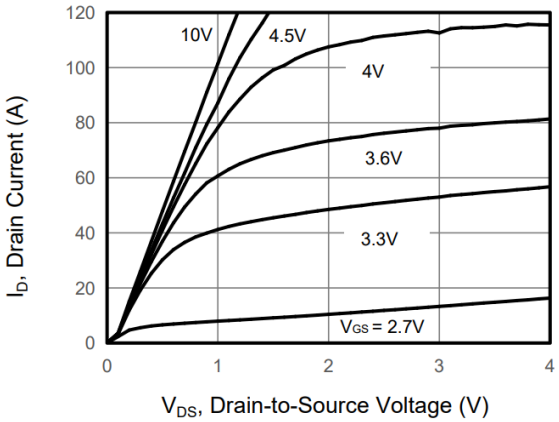


Figure 1. Output Characteristics

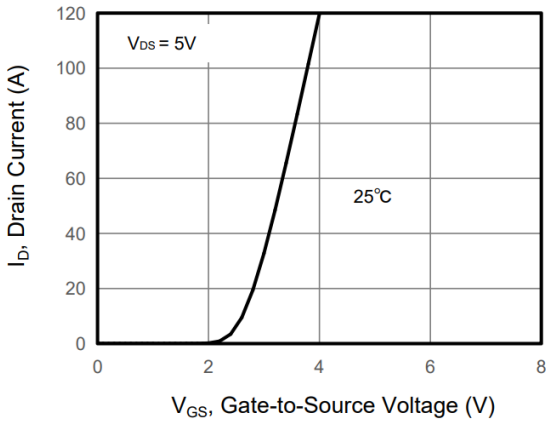


Figure 2. Transfer Characteristics

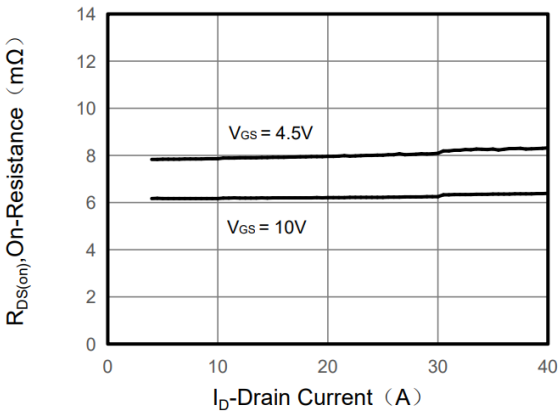


Figure 3. Drain to Source On-Resistance

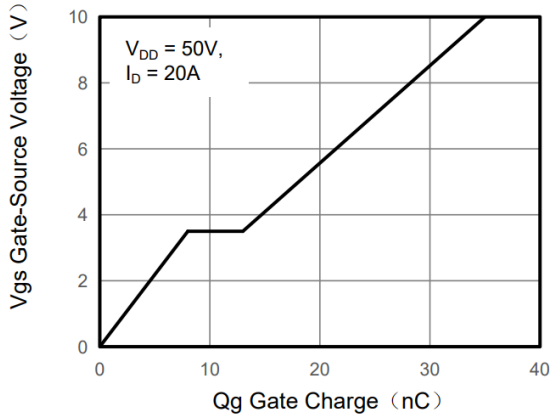


Figure 4. Gate Charge

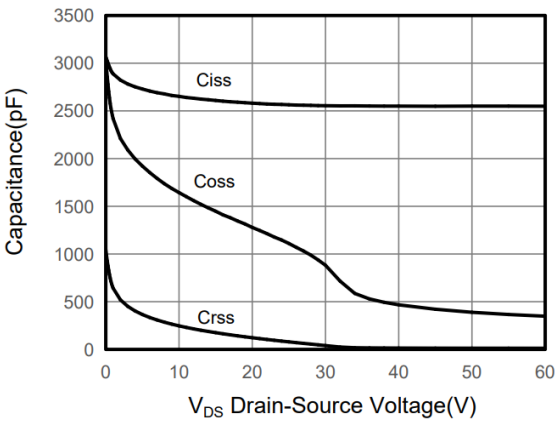


Figure 5. Capacitance Characteristics

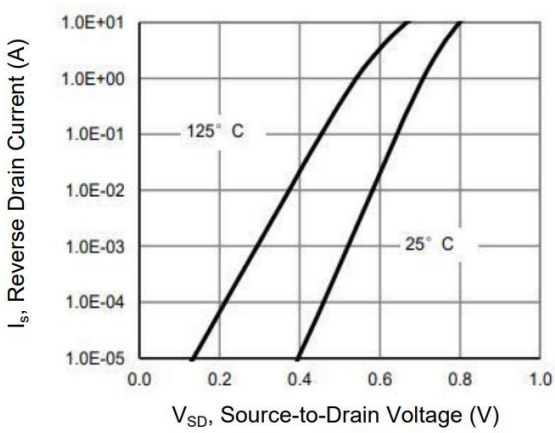


Figure 6. Source to Drain Diode Forward

Typical Characteristics

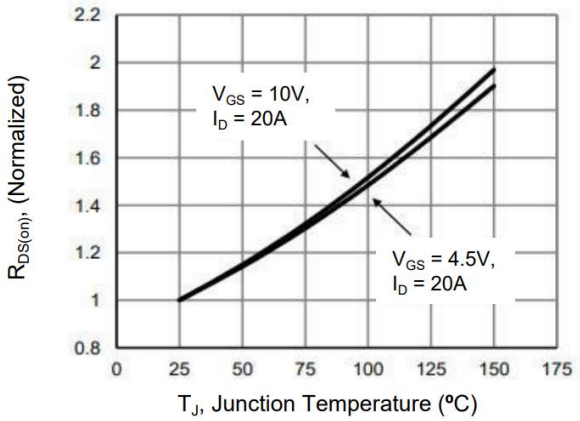


Figure 7. Drain to Source On-Resistance

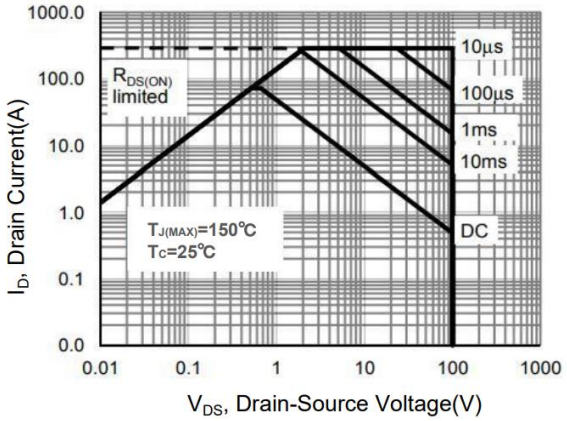


Figure 8. Safe Operation Area

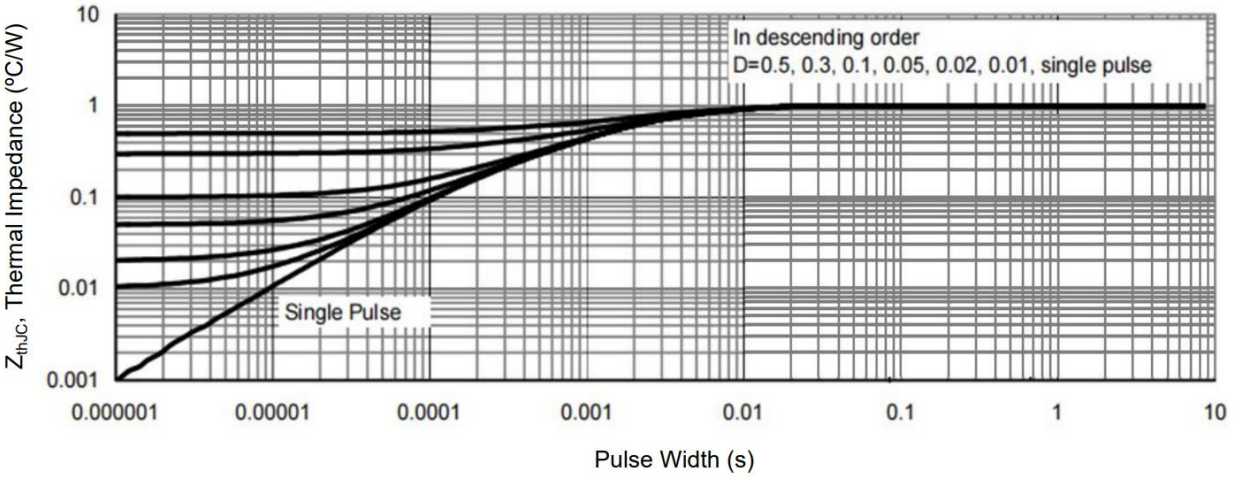
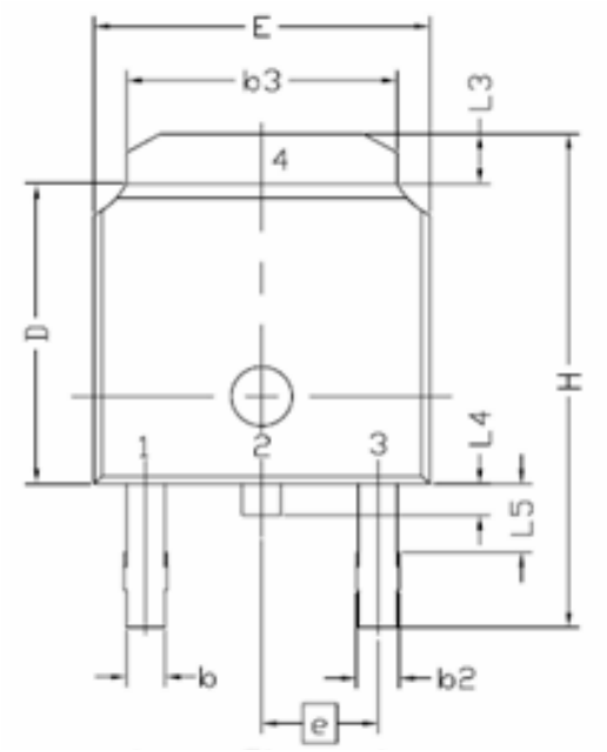
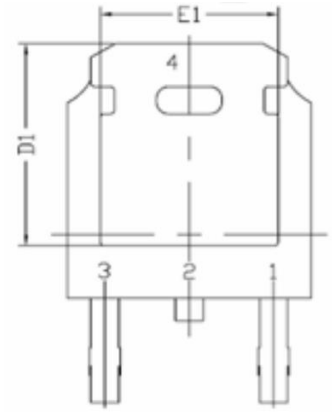


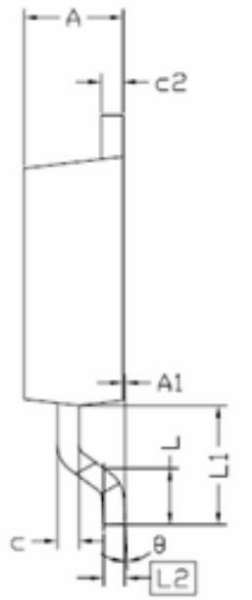
Figure 9. Normalized Maximum Transient Thermal Impedance

Package Outline

Unit : mm







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°	