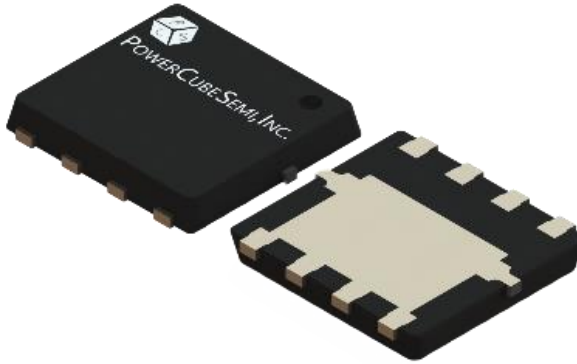# PM008N085GG

85V 65A 8.5mΩ Si Single N-ch Enhancement Mode Power MOSFET with Normal Diode

Features

Si Single N-ch Enhancement Mode Power MOSFET
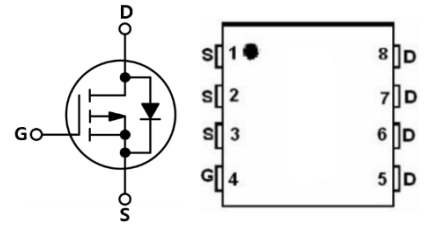
- Rated to 85V at 65Amps @T_J = 25℃
- Max $R_{DS(on)}$ = 8.5 mΩ
- Typ $R_{DS(on)}$ = 7 mΩ
- Gate Charge(Typ. Q_g=39 nC)
- 100% Avalanche Tested

Application

- Power switch
- DC-DC Converters

PKG type : DFN5X6-8L

Description

The PM008N085GG 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	85	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, L=0.5mH, R_G=25Ω	81	mJ
P_d	Power Dissipation	T_C=25℃	69	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
PN008N085GG	PN008N085	PDFN56	REEL	-	5000

Electrical Characteristics of Si MOSFET

Symbol	Parameter	Test Condition	Numerical			Unit
			Min	Typ.	Max.	
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0V$, $I_D = 250\mu A$, $T_J = 25°C$	85	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 85V$, $V_{GS} = 0V$	-	-	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS} = \pm20V$, $V_{DS} = 0V$	-	-	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$, $I_D = 250\mu A$	2.0	3.0	4.0	V
$R_{DS(ON)}$	Static Drain-Source on state resistance	$V_{GS} = 10V$, $I_D = 20A$	-	7	8.5	$m\Omega$
g_{FS}	Forward Transconductance	$V_{DS} = 5V$, $I_D = 20A$	-	34	-	S
$t_{d(on)}$	Turn-on Delay time	$V_{DD} = 40$ V, $I_D = 20A$, $R_G = 3\Omega$	-	17	-	ns
T_r	Turn-on Rise time		-	4	-	
$t_{d(off)}$	Turn-off Delay time		-	32	-	
T_f	Turn-off Fall time		-	8	-	

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	$V_{DS} = 40V$, $V_{GS} = 0V$, f = 1.0㎒	1682	-	pF
C_{oss}	Output Capacitance		540	-	
C_{rss}	Reverse Transfer Capacitance		26	-	
$Q_{g(tot)}$	Total Gate Charge at 10V	$V_{DD} = 40V$, $I_D = 20A$ $V_{GS(on)} = 10V$	39	-	nC
Q_{gs}	Gate to Source Gate Charge		8.1	-	
Q_{gd}	Gate to Drain "Miller" Charge		10.5	-	

Electrical Characteristics of Si Diode

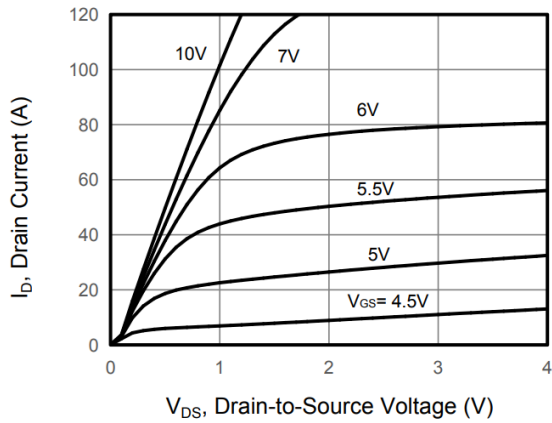| Symbol	Parameter	Test Condition	Numerical		Unit
			Typ.	Max.	
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	65	A
V_{SD}	Drain to Source Diode Forward Voltage	$I_{SD} = 20A$, $V_{GS} = 0V$	-	1.2	V
T_{rr}	Reverse Recovery Time	$I_F = 20A$, $V_{GS} = 0V$, $dI_F/dt=100A/\mu s$	50.4	-	ns
Q_{rr}	Reverse Recovery Charge		68	-	nC

Typical Characteristics

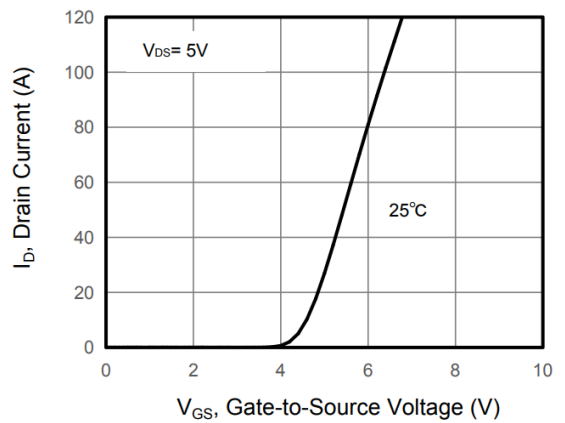Figure 1. Output Characteristics

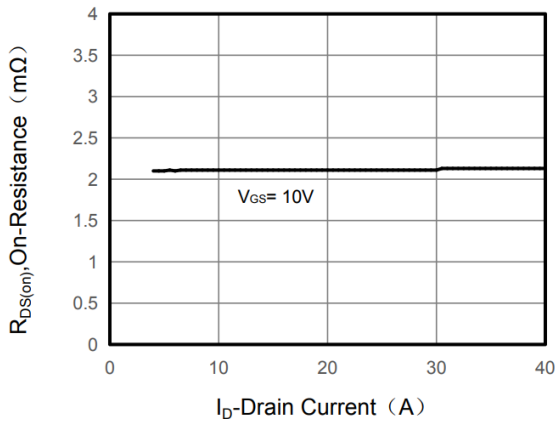Figure 2. Transfer Characteristics
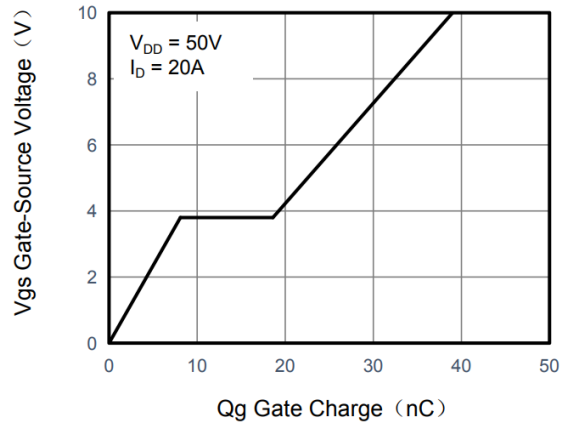

Figure 3. Drain to Source On-Resistance
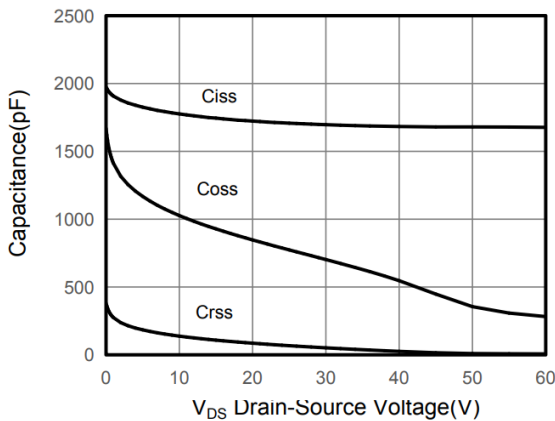

Figure 4. Gate Charge

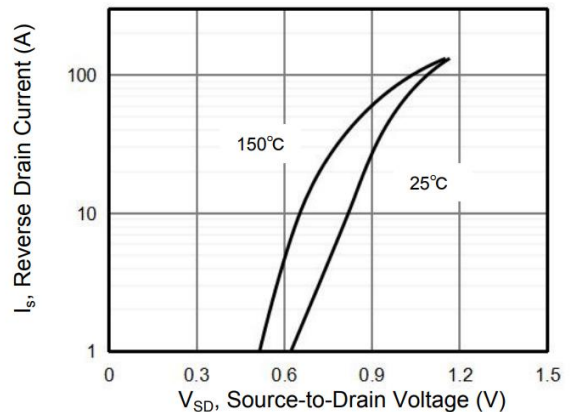Figure 5. Capacitance Characteristics

Figure 6. Source to Drain Diode Forward

Typical Characteristics

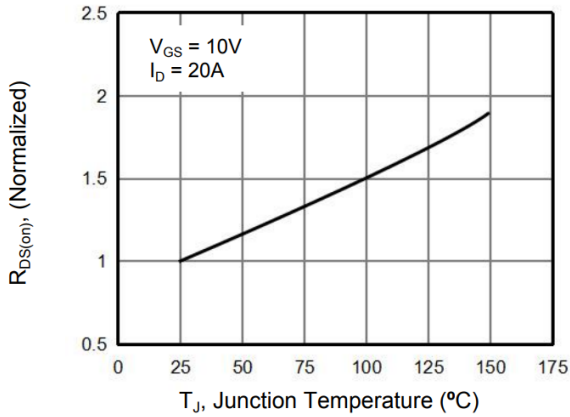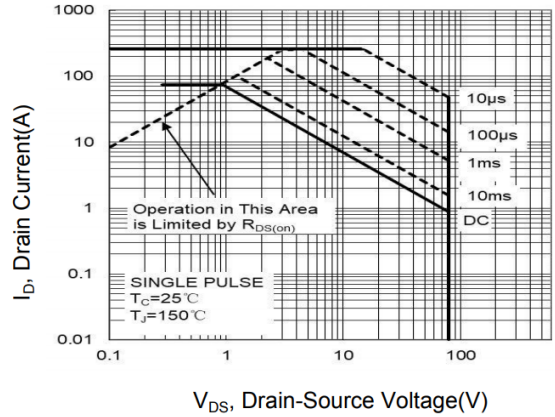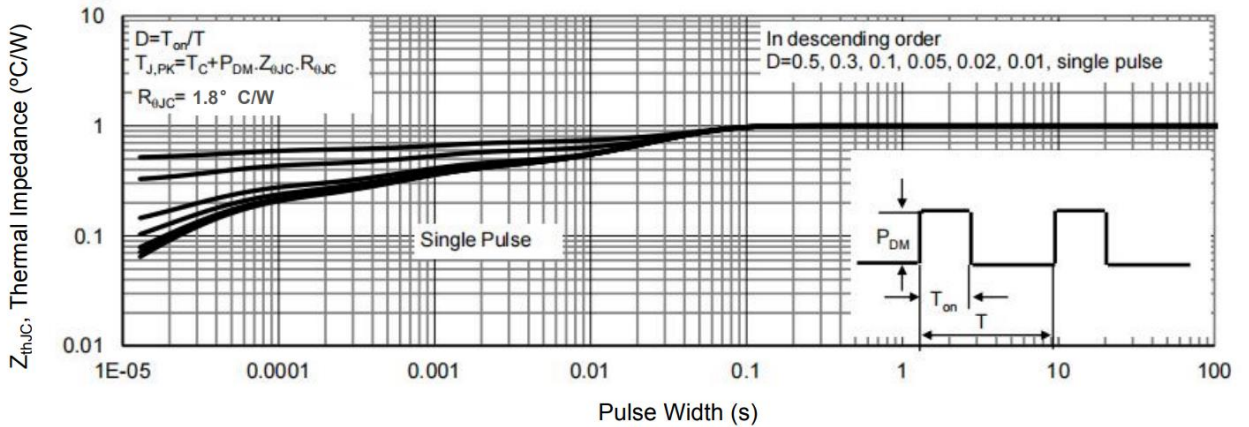**Figure 7. Drain to Source On-Resistance**
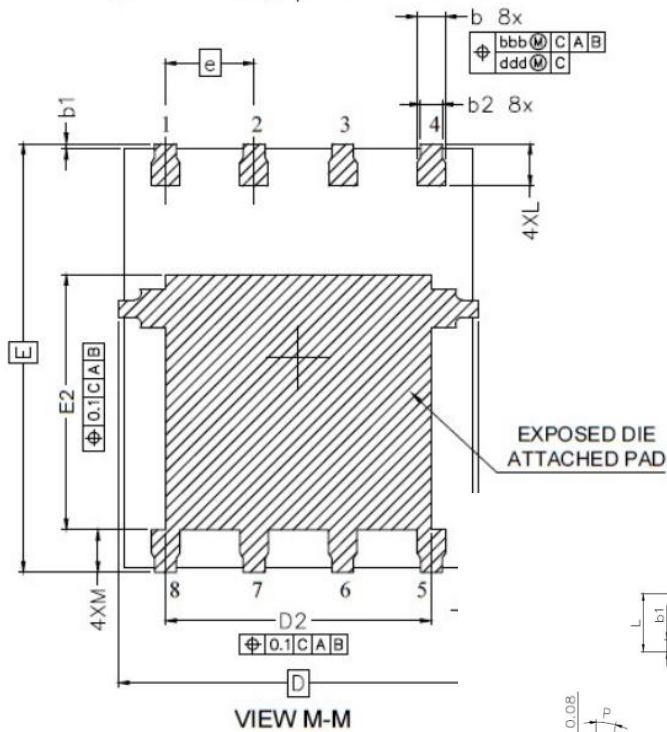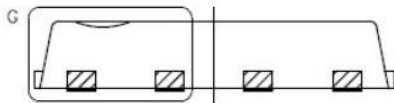

Figure 8. Safe Operation Area

Figure 9. Normalized Maximum Transient Thermal Impedance

Package Outline

SYMBOL	DIMENSION	
	MIN	MAX
A	0.95	1.05
A1	0.00	0.05
A3	0.254 REF	
b	0.31	0.51
b1	0.03	0.13
b2	0.21	0.41
D	5.15 BSC	
D1	5.00 BSC	
D2	3.70	3.90
E	6.15 BSC	
E1	6.00 BSC	
E2	3.56	3.76
e	1.27 BSC	
L	0.51	0.71
M	0.51	0.71
P	10°	12°
aaa	0.10	
bbb	0.10	
ccc	0.10	
ddd	0.05	
eee	0.08	

PIN #1 I.D
ø0.80
DP:0.08 MAX

EXPOSED DIE
ATTACHED PAD

VIEW M-M

(DATUM A OR B)

TERMINAL TIP

EVEN / ODD TERMINL SIDE

DETAIL G

SEATING PLANE

Rev. 1.0, 2023-03-05   ***www.powercubesemi.com***