PSZ06080C

800V 6A 900mΩ Si Super junction MOSFET with Zener Diode

PowerCubeSemi, Inc.
Potential · Convergence · Smart

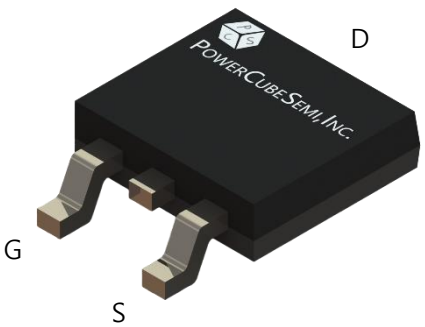
Features

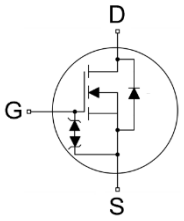
Si Super junction MOSFET

- Rated to 800V at 6Amps @T_J = 25℃
- Max $R_{DS(on)}$ = 900 mΩ
- Typ $R_{DS(on)}$ = 780 mΩ
- Gate Charge(Typ. Q_g=16 nC)
- Low Power loss by High-Speed switching and low On-Resistance
- 100% Avalanche Tested

Application

- PFC Power supply
- LED Lighting
- Low Power Charger & Adapter
- Industrial Power
- PV Inverter





Halogen-Free

RoHS

PKG type : DPAK (TO-252)

Description

PSZ06080C is Power MOSFET using PowerCubeSemi's advanced Super Junction technology that can realize very low on-resistance and gate charge. it will provide much high efficiency by using optimized charge coupling technology. These user friendly devices give an advantage of low EMI to designers as well as low switching loss.

Absolute Maximum Ratings

Symbol	Parameter	Test Condition	Value	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	800	V
I_D	Drain Current	T_c=25℃	6	A
I_{DM}	Pulsed Drain Current	Pulse width limited by junction temperature	18	A
V_{GS}	Gate-Source Voltage		±30	V
E_{AS}	Single Pulsed Avalanche Energy		174	mJ
P_d	Power Dissipation	T_C=25℃	86	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
PSZ06080C	PSZ06080	TO-252	REEL	-	-

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	800	-	-	V
I_{DSS}	Zero gate voltage drain current	V_{DS} = 800V, V_{GS} = 0V	-	-	10	μA
I_{GSS}	Gate-source leakage current	V_{GS} = ±30V, V_{DS} = 0V	-	-	10	μA
$V_{GS(th)}$	Gate threshold voltage	V_{DS} =V_{GS}, I_D = 250μA	2.5	-	4.5	V
$R_{DS(ON)}$	Static drain-source on state resistance	V_{GS} = 10V, I_D = 3A Pulse width = 200μs	-	780	900	mΩ
$t_{d(on)}$	Turn-on Delay time	V_{DD} = 400 V, I_D = 6A, V_{GS} = 18 V, R_G = 4.7Ω	-	16	-	ns
T_r	Turn-on Rise time		-	4	-	
$t_{d(off)}$	Turn-off Delay time		-	85	-	
T_f	Turn-off Fall time		-	9	-	

Electrical Characteristics of Si MOSFET

Symbol	Parameter	Test Condition	Numerical		Unit
			Typ.	Max.	
$R_{\theta JC}$	Thermal resistance, Junction to case		1.45	-	℃/W
R_g	Gate resistance	V_{GS} = 0V, f = 1.0㎒	40	-	Ω
C_{iss}	Input capacitance	V_{DS} = 100V, V_{GS} = 0V, f = 400㎑	630	-	pF
C_{oss}	Output capacitance		22	-	
C_{rss}	Reverse transfer capacitance		1	-	
$Q_{g(tot)}$	Total gate charge at 10V	V_{DS} = 640V, I_D = 6A $V_{GS(on)}$ = 10V	16	-	nC
Q_{gs}	Gate to source gate charge		2.6	-	
Q_{gd}	Gate to drain "Miller" charge		7.5	-	

Electrical Characteristics of Si Diode

Symbol	Parameter	Test Condition	Numerical		Unit
			Typ.	Max.	
I_S	Maximum continuous drain to source diode forward current		-	6	A
V_{SD}	Drain to source diode forward voltage	I_{SD} = 6A, V_{GS} = 0V	-	1.1	V
T_{rr}	Reverse recovery time	I_{SD} = 6A, V_{DD} = 100V, dI_F/dt=100A/㎲	315	-	ns
Q_{rr}	Reverse recovery charge		2.7	-	μC
I_{rrm}	Reverse recovery current		13.7	-	A

Typical Characteristics

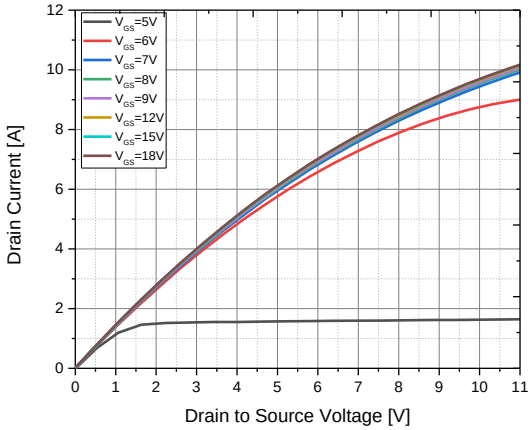


Figure 1. On-state characteristics

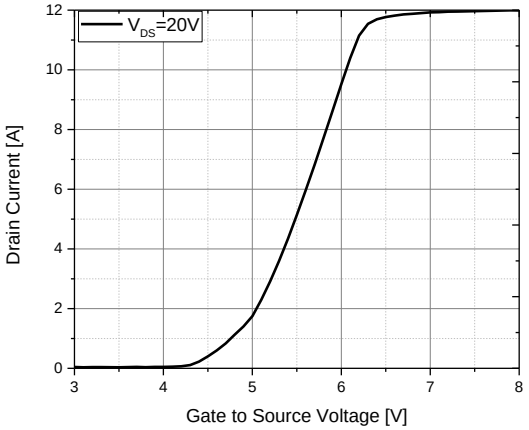


Figure 2. Transfer Characteristics

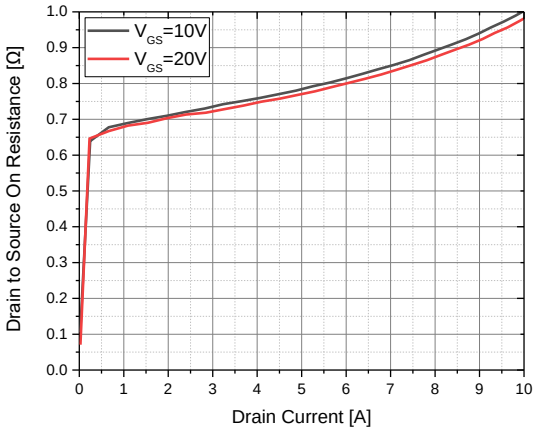


Figure 3. On Resistance Variation vs Drain Current and Gate Voltage

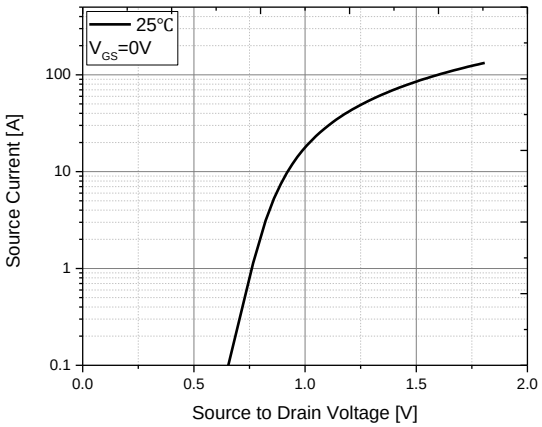


Figure 4. Body Forward Voltage Variation vs Source Current and Temperature

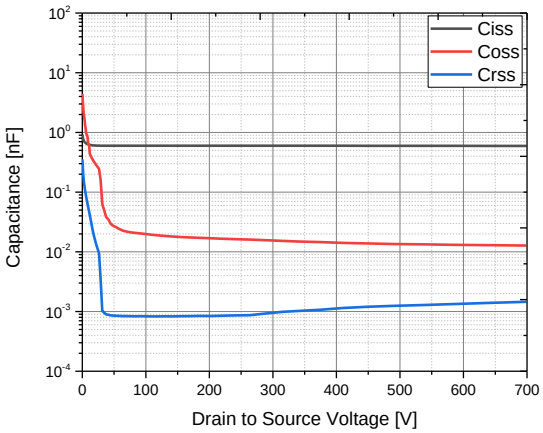


Figure 5. Capacitance Characteristics

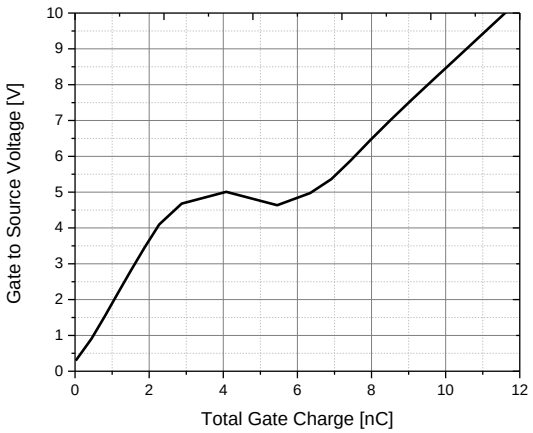


Figure 6. Gate Charge Characteristics

Typical Characteristics

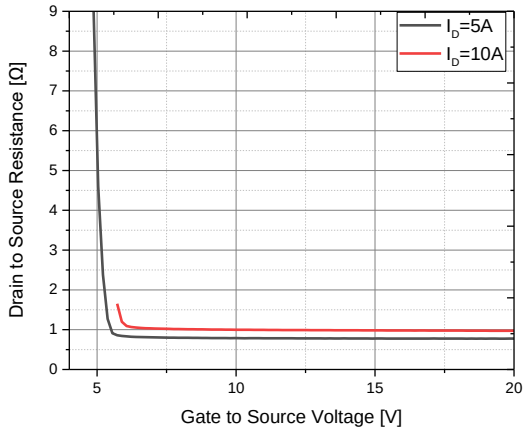


Figure 7. Drain to Source Resistance vs Gate to Source Voltage

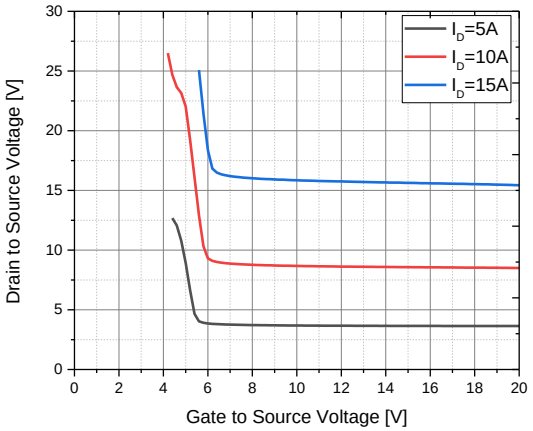


Figure 8. Drain to Source Voltage vs Gate to Source Voltage

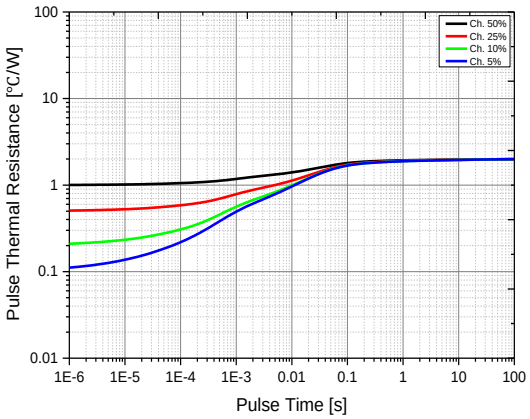


Figure 9. Thermal Resistance

Package Outline

[Unit : mm]