

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	1.3mΩ@10V	200A
	2.0mΩ@4.5V	

Feature

- Advanced SGT technology
- Excellent $R_{DS(on)}$
- Low gate charge

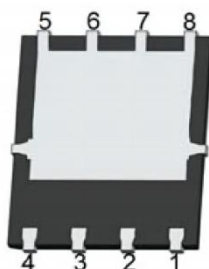
Application

- Battery protection
- UPS

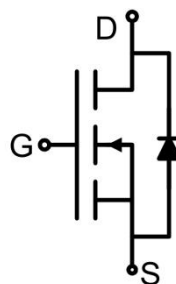
Package



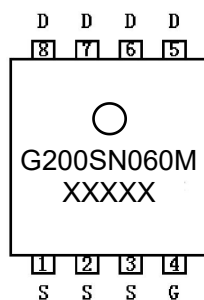
PDFN5*6-8L



Circuit diagram



Marking



Absolute maximum ratings (T_c=25°C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	60	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current ¹⁾	I _D	200	A
Continuous Drain Current ¹⁾ (T _c = 100°C)	I _D (100°C)	148	A
Pulsed Drain Current	I _{DM}	950	A
Single Pulse Avalanche Energy ²⁾	E _{AS}	885	mJ
Power Dissipation ³⁾	P _D	168	W
Thermal Resistance, Junction-to-Case ¹⁾	R _{θJC}	0.89	°C/W
Operating Junction Temperature	T _J	-55 ~ +175	°C
Storage Temperature	T _{STG}	-55 ~ +175	°C

Electrical characteristics (T_J=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	60			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.2	1.8	2.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		0.98	1.3	mΩ
		V _{GS} =4.5V, I _D =10A		1.5	2	
Dynamic characteristics ⁴⁾						
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f =1MHz		7192		pF
Output Capacitance	C _{oss}			1647		
Reverse Transfer Capacitance	C _{rss}			44		
Total Gate Charge	Q _g	V _{DS} =30V, V _{GS} =10V, I _D =50A		115		nC
Gate-Source Charge	Q _{gs}			28		
Gate-Drain Charge	Q _{gd}			16		
Turn-on delay time	t _{d(on)}	V _{DS} =30V, V _{GS} =10V, I _D =17A R _G =2.2Ω		0.6		nS
Turn-on rise time	t _r			21.8		
Turn-off delay time	t _{d(off)}			67.6		
Turn-off fall time	t _f			6.6		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				200	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =20A			1.2	V
Reverse recover time	T _{rr}	I _F =1A, di/dt =100A/us		98		nS
Reverse recovery charge	Q _{rr}			310		nC

Notes:

- 1) The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2) E_{AS} condition: T_J=25°C, V_{DD}=48V, V_G=10V, R_G=25Ω, L=0.1mH, I_{AS}=80A.
- 3) The power dissipation is limited by 175°C junction temperature.
- 4) Guaranteed by design, not subject to production.

Typical Characteristics

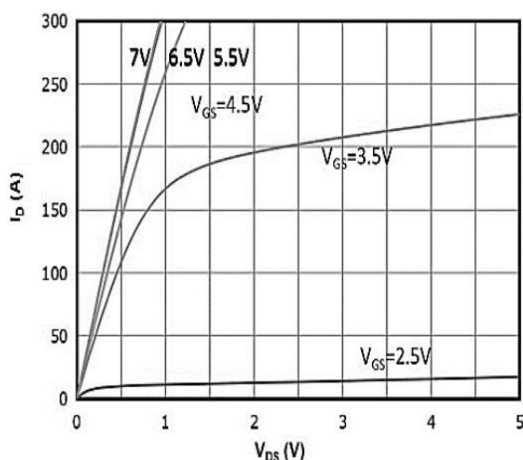


Figure 1. Output Characteristics

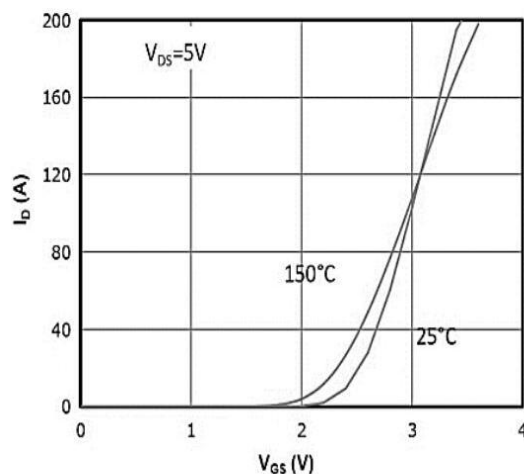


Figure 2. Transfer Characteristics

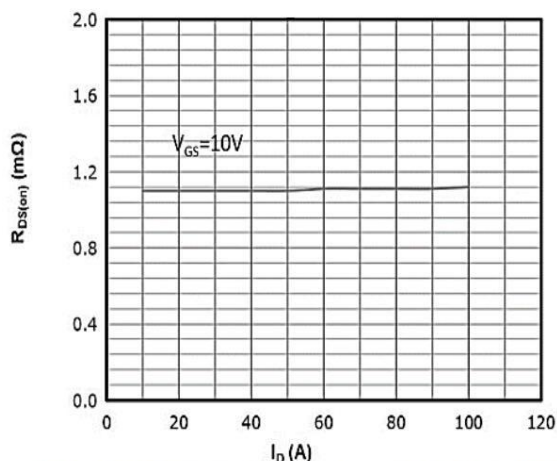


Figure 3 Rds(on) vs. Drain current and Gate Voltage

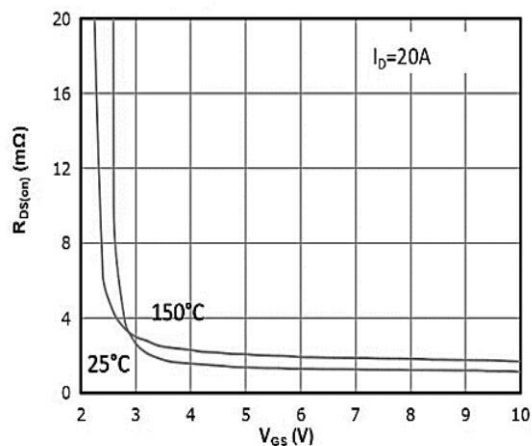


Figure 4. RDS(on) vs. VGS

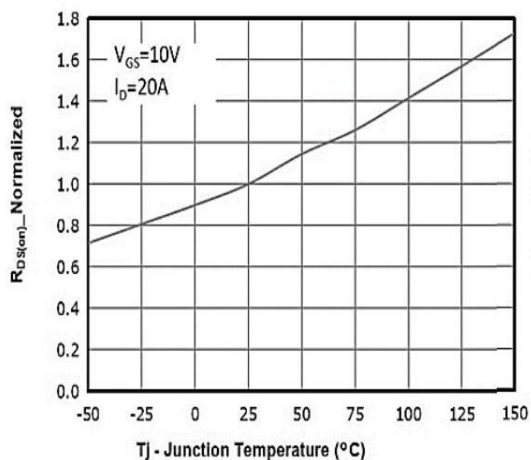


Figure 5. RDS(ON) vs. Temperature

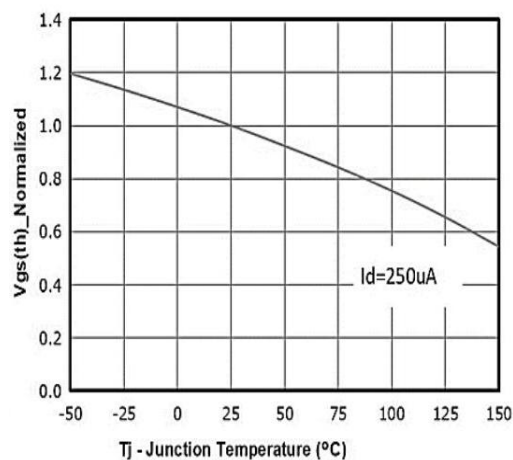


Figure 6. Vgs(th) vs. Temperature

Typical Characteristics

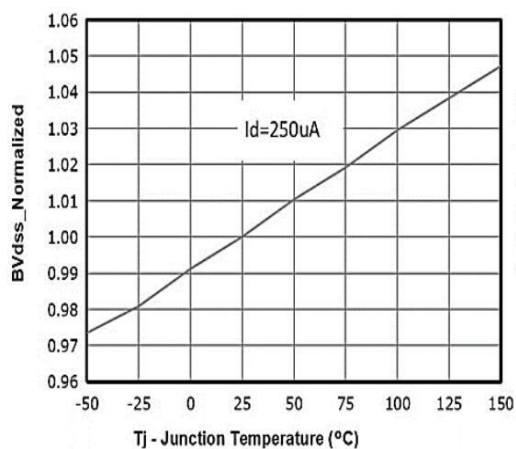


Figure 7. Bvds vs. Temperature

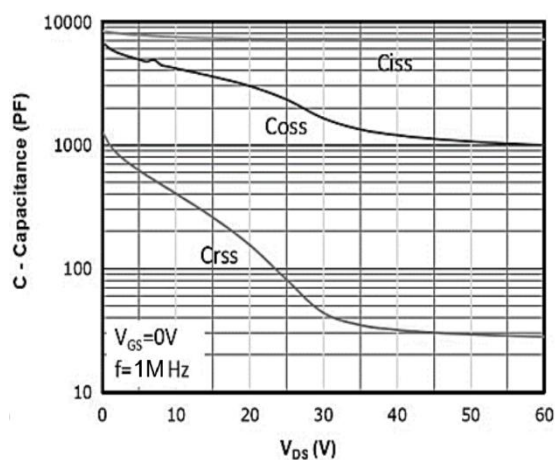


Figure 8. Gate Charge Characteristics

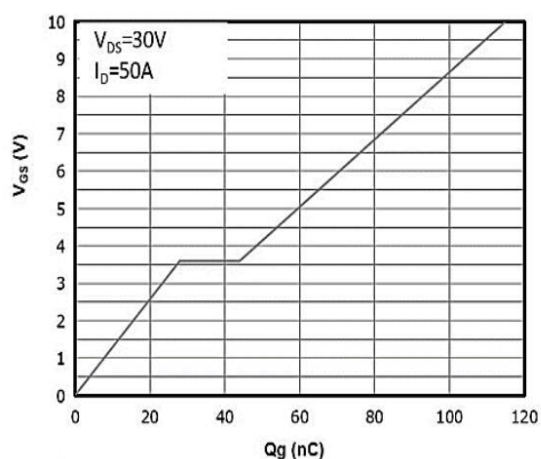


Figure 9. Gate Charge Characteristics

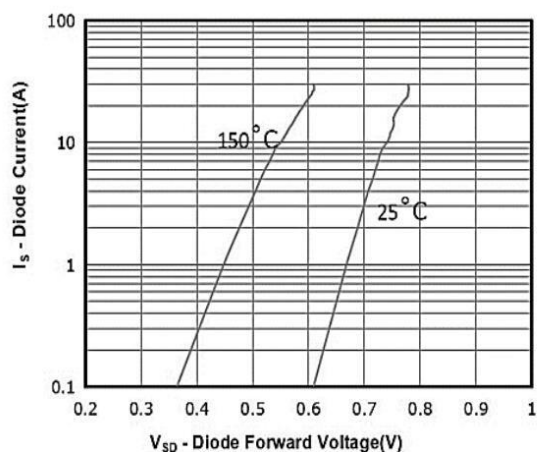


Figure 10. Body-diode Forward Characteristics

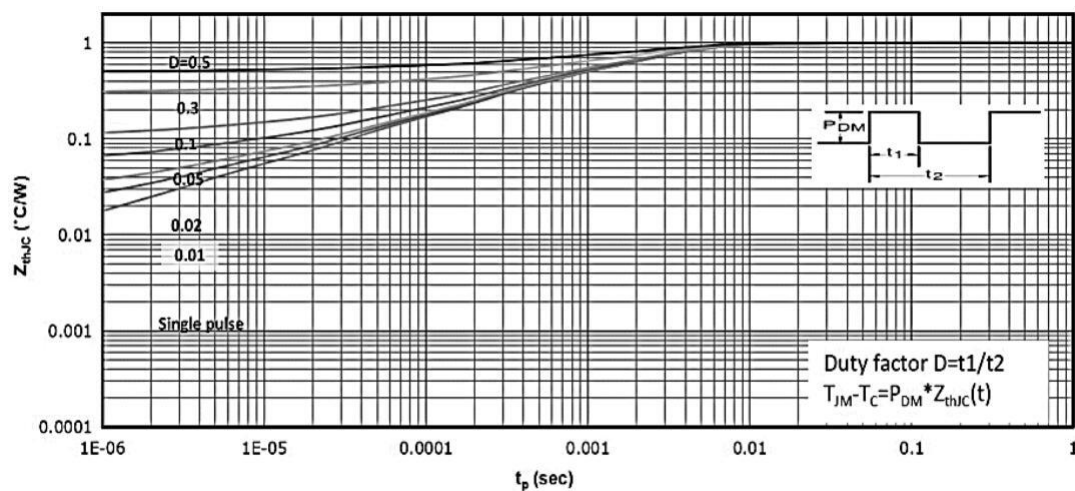
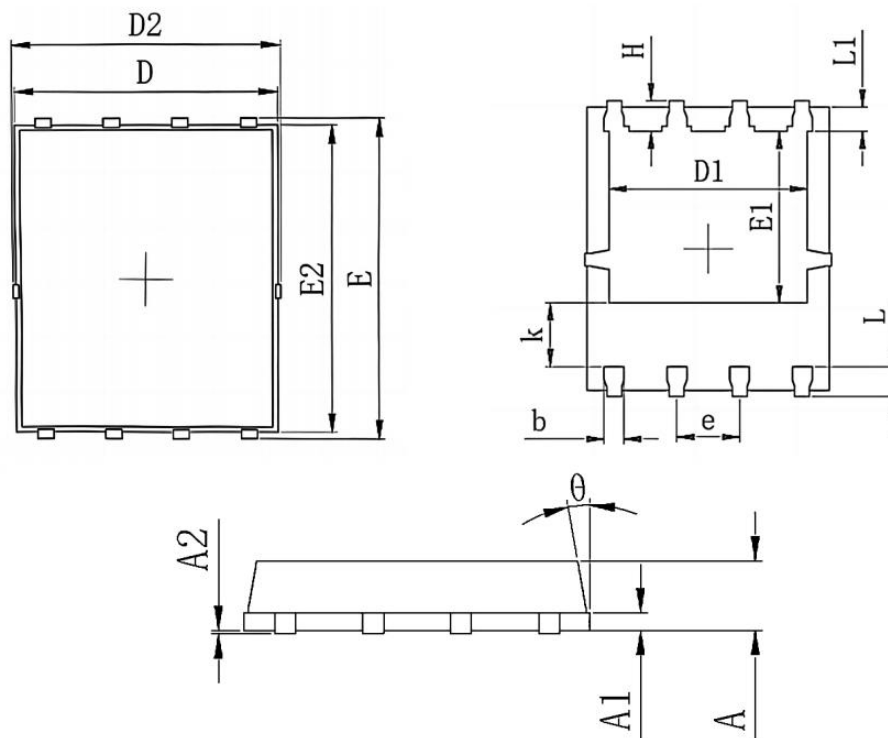


Figure 11. Normalized Maximum Transient Thermal Impedance

PDFN5*6-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.254 REF.		0.010 REF.	
A2	0.000	0.050	0.000	0.002
D	4.824	4.976	0.190	0.196
D1	3.910	4.110	0.154	0.162
D2	4.944	5.076	0.195	0.200
E	5.924	6.076	0.233	0.239
E1	3.375	3.575	0.133	0.141
E2	5.674	5.826	0.223	0.229
b	0.350	0.450	0.014	0.018
e	1.270 BSC.		0.050 BSC.	
L	0.534	0.686	0.021	0.027
L1	0.424	0.576	0.017	0.023
K	1.190	1.390	0.047	0.055
H	0.549	0.701	0.022	0.028
ϕ	8°	12°	8°	12°