

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	5.5mΩ@10V	100A

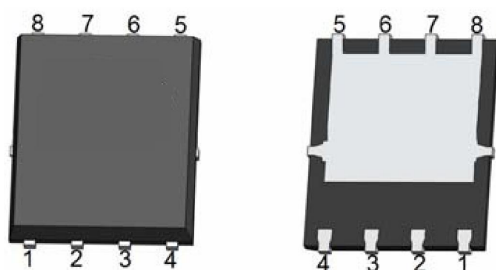
Feature

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

Application

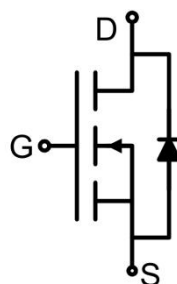
- BLDC
- LED Backlighting

Package

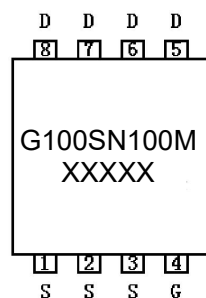


PDFN5*6-8L

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	100	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current ¹⁾ (V _{GS} =10V)	I _D	100	A
Continuous Drain Current ¹⁾ (V _{GS} =10V, T _c =100°C)	I _D (100°C)	68	A
Pulsed Drain Current	I _{DM}	417	A
Power Dissipation	P _D	125	W
Thermal Resistance, Junction-to-Case	R _{θJC}	1	°C/W
Single Pulse Avalanche Energy	E _{AS}	245	mJ
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°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	100			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =100V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2	2.9	4	V
Drain-source on-resistance ²⁾	R _{DS(on)}	V _{GS} =10V, I _D =20A		4.3	5.5	mΩ
Dynamic characteristics ³⁾						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V, f =1MHz		2816		pF
Output Capacitance	C _{oss}			614		
Reverse Transfer Capacitance	C _{rss}			7.4		
Total Gate Charge	Q _g	V _{DS} =50V, V _{GS} =10V, I _D =20A		42		nC
Gate-Source Charge	Q _{gs}			9.7		
Gate-Drain Charge	Q _{gd}			10.6		
Turn-on delay time	t _{d(on)}	V _{DS} =50V, V _{GS} =10V, I _D =20A R _G =3Ω		13		nS
Turn-on rise time	t _r			25		
Turn-off delay time	t _{d(off)}			43		
Turn-off fall time	t _f			37		
Source-Drain Diode characteristics						
Diode Forward voltage ²⁾	V _{SD}	I _F = 20A, V _{GS} =0V			1.2	V
Reverse Recovery Time	t _{rr}	I _F = 20A, di/dt = 100A/μs		60		nS
Reverse Recovery Charge	Q _{rr}			61		nC

Notes:.

1) The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.

2) The data tested by pulsed , pulse width ≦300us , duty cycle ≦2%.

3) Guaranteed by design, not subject to production testing.

Typical Characteristics

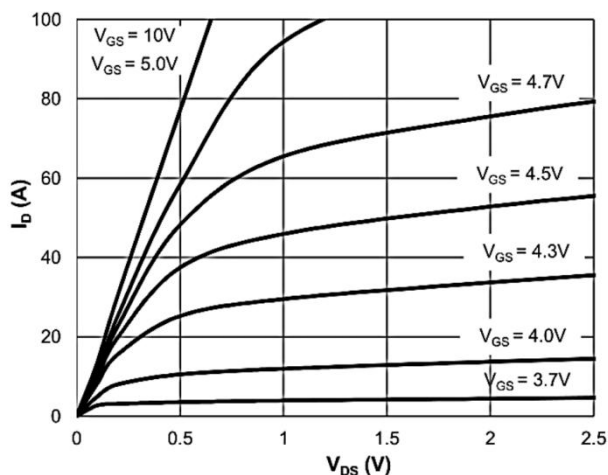


Figure 1: Saturation Characteristics

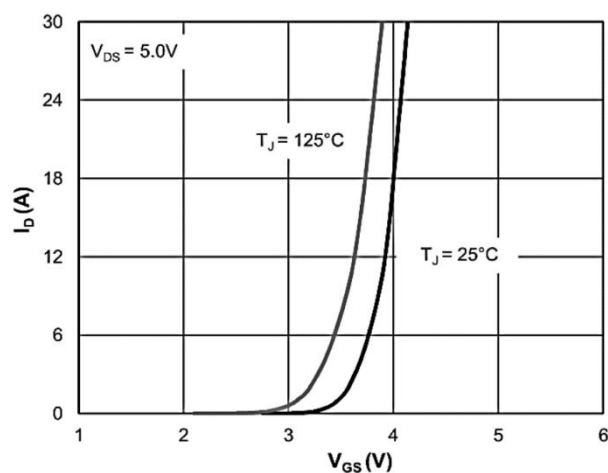


Figure 2: Transfer Characteristics

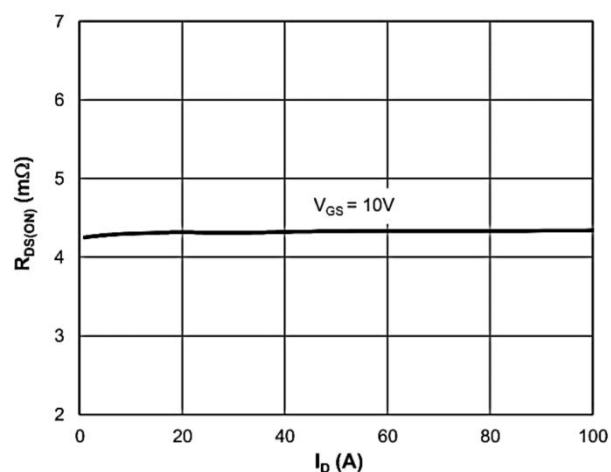


Figure 3: $R_{DS(ON)}$ vs. Drain Current

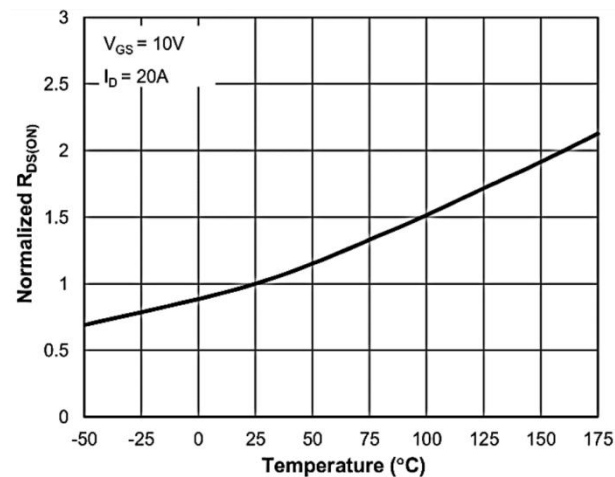


Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

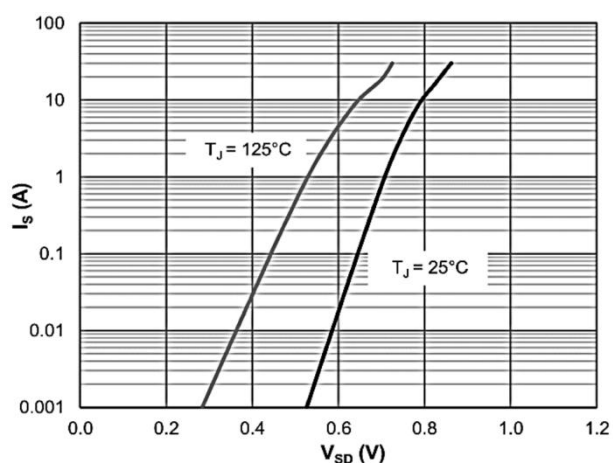


Figure 5: Body-Diode Characteristics

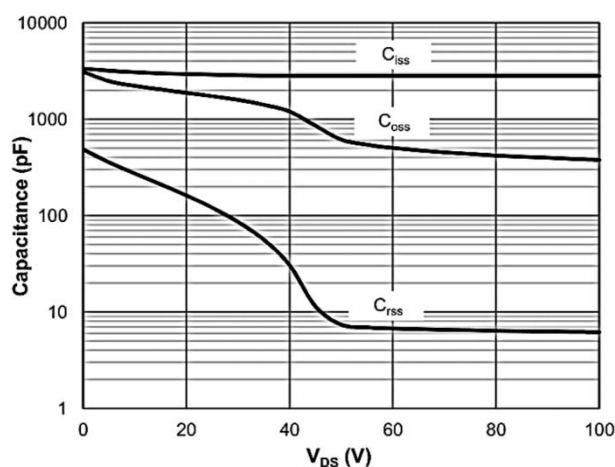


Figure 6: Capacitance Characteristics

Typical Characteristics

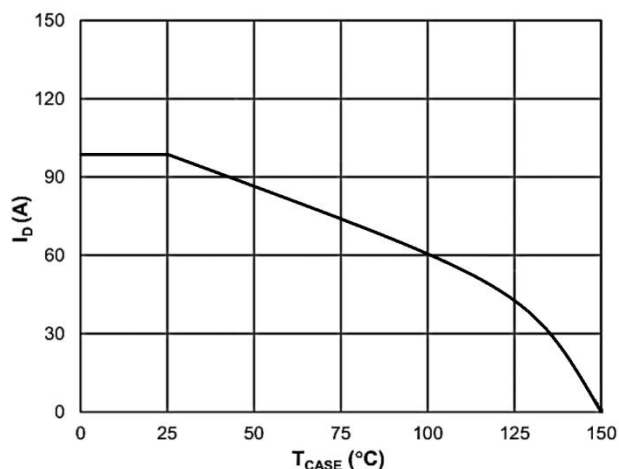


Figure 7: Current De-rating

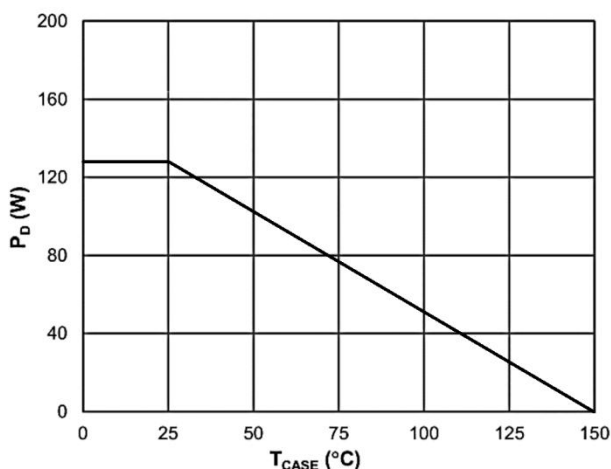


Figure 8: Power De-rating

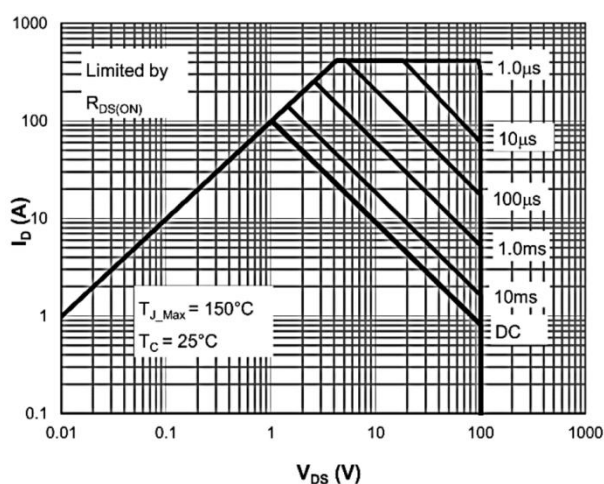


Figure 9: Maximum Safe Operating Area

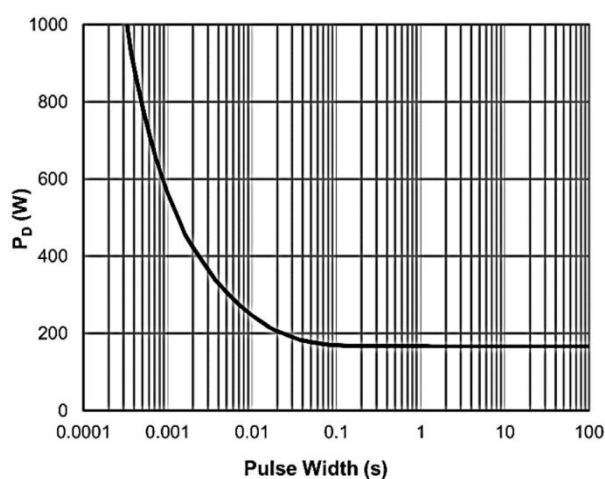


Figure 10: Single Pulse Power Rating, Junction-to-Case

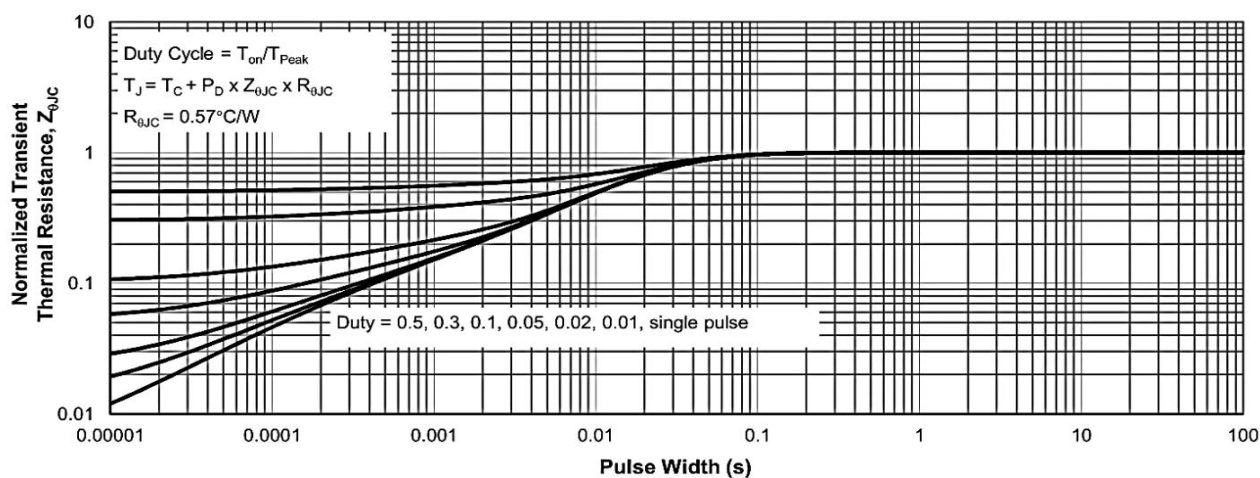
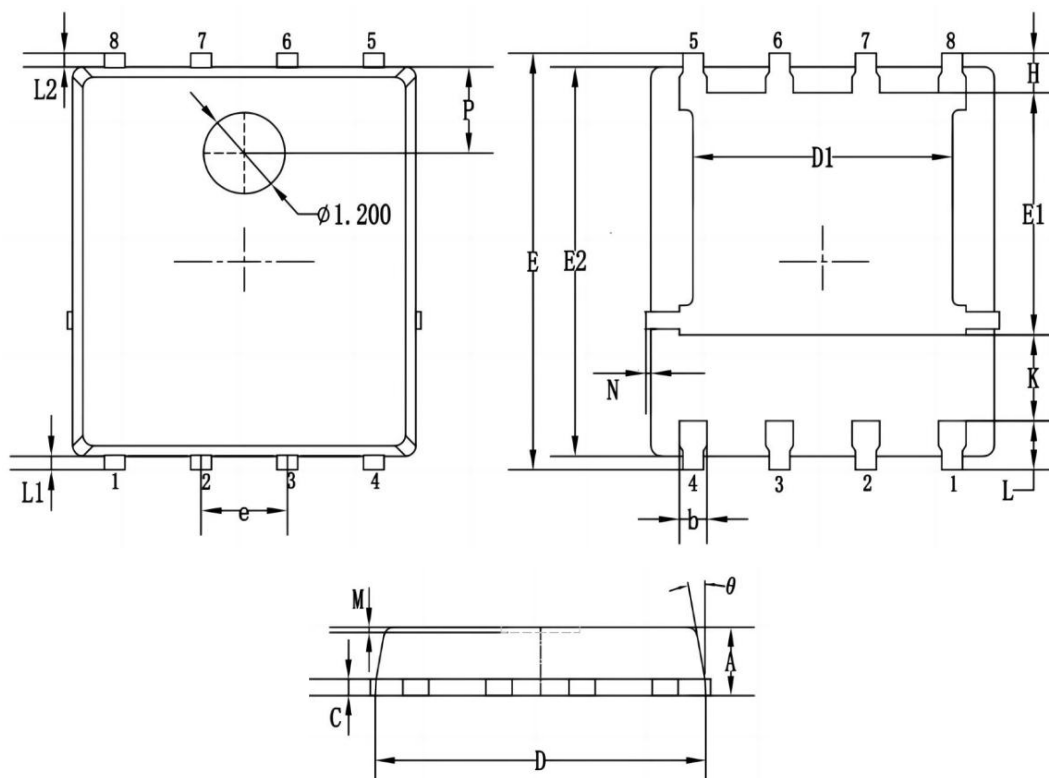


Figure 11: Normalized Maximum Transient Thermal Impedance

PDFN5*6-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.200	0.035	0.047
b	0.300	0.500	0.012	0.020
C	0.200	0.350	0.008	0.014
D	4.900	5.200	0.193	0.205
D1	3.720	4.120	0.146	0.162
E	5.900	6.300	0.232	0.248
E1	3.300	3.700	0.130	0.146
E2	5.600	5.900	0.220	0.232
e	1.270 BSC		0.050 BSC	
H	0.480	0.700	0.019	0.028
K	1.140	1.400	0.045	0.055
L	0.540	0.840	0.021	0.033
L1/L2	0.100	0.300	0.004	0.012
θ	8°	12°	8°	12°
M	0.080 REF		0.003 REF	
N	0.000	0.150	0.000	0.006
P	1.280 REF		0.050 REF	