

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	7.8mΩ@10V	92A
	10mΩ@4.5V	

Feature

- Advanced Split Gate Trench Technology
- Excellent $R_{DS(on)}$
- Low Gate Charge

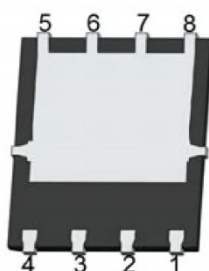
Application

- Load Switch
- PWM Application
- Power Management

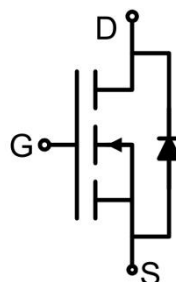
Package



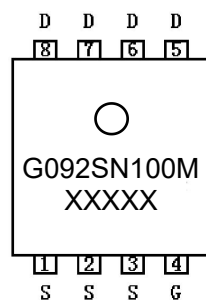
PDFN5*6-8L



Circuit diagram



Marking



Absolute maximum ratings ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_C=25^{\circ}\text{C}$)	I_D	92	A
Continuous Drain Current ($T_C=100^{\circ}\text{C}$)	$I_{D(100^{\circ}\text{C})}$	55	A
Pulsed Drain Current ¹⁾	I_{DM}	368	A
Single Pulse Avalanche Energy ²⁾	E_{AS}	132	mJ
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	125	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	1	$^{\circ}\text{C/W}$
Operating Junction Temperature	T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

Electrical characteristics ($T_J=25^{\circ}\text{C}$, 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 _{DS} =0V, V _{GS} =±20V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.4	2	2.6	V
Drain-source on-resistance ³⁾	R _{DS(on)}	V _{GS} =10V, I _D =30A		6	7.8	mΩ
		V _{GS} =4.5V, I _D =20A		8	10	
Dynamic characteristics ⁴⁾						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V, f =1MHz		2370		pF
Output Capacitance	C _{oss}			910		
Reverse Transfer Capacitance	C _{rss}			14		
Total Gate Charge	Q _g	V _{DS} =50V, V _{GS} =10V, I _D =20A		45		nC
Gate-Source Charge	Q _{gs}			9		
Gate-Drain Charge	Q _{gd}			7		
Turn-on delay time	t _{d(on)}	V _{DS} =50V, V _{GS} =10V, I _D =20A R _G =3Ω		12		nS
Turn-on rise time	t _r			15		
Turn-off delay time	t _{d(off)}			33		
Turn-off fall time	t _f			20		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				92	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =30A			1.2	V
Reverse recover time	T _{rr}	I _F =20A, di/dt =100A/us		55		nS
Reverse recovery charge	Q _{rr}			77		nC

Notes:

- 1) Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
- 2) EAS condition: Starting $T_J=25^{\circ}\text{C}$, $V_{DD}=50\text{V}$, $V_G=10\text{V}$, $R_G=25\Omega$, $L=0.5\text{mH}$, $I_{AS}=23\text{A}$.
- 3) Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$.
- 4) Guaranteed by design, not subject to production.

Typical Characteristics

Figure 1: Output Characteristics

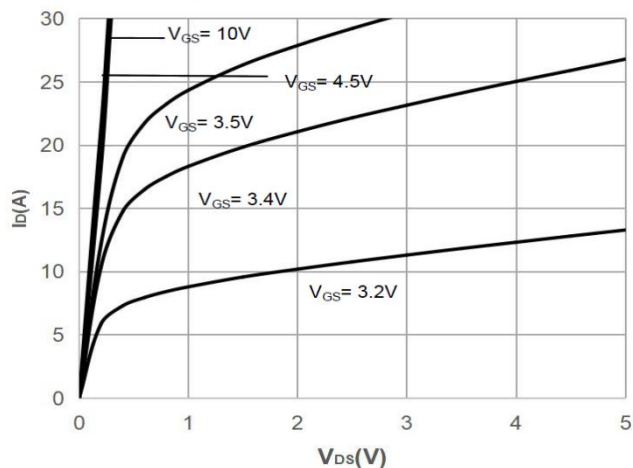


Figure 2: Typical Transfer Characteristics

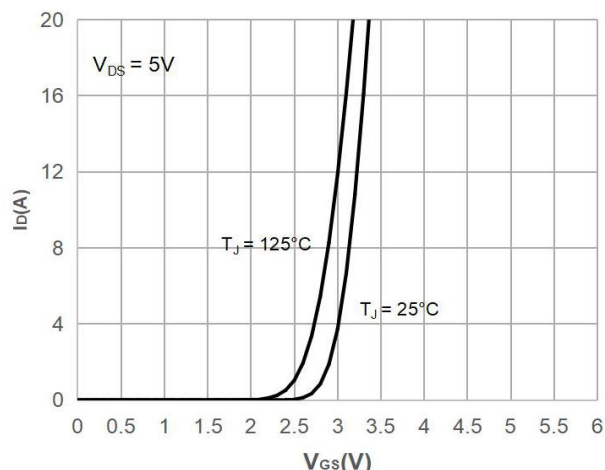


Figure 3: On-resistance vs. Drain Current

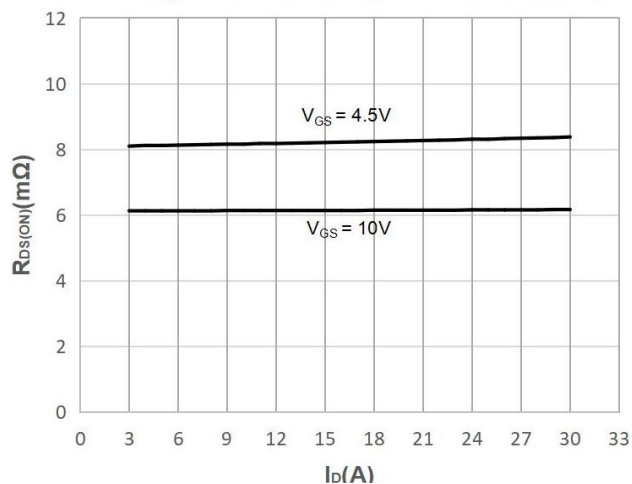


Figure 4: Body Diode Characteristics

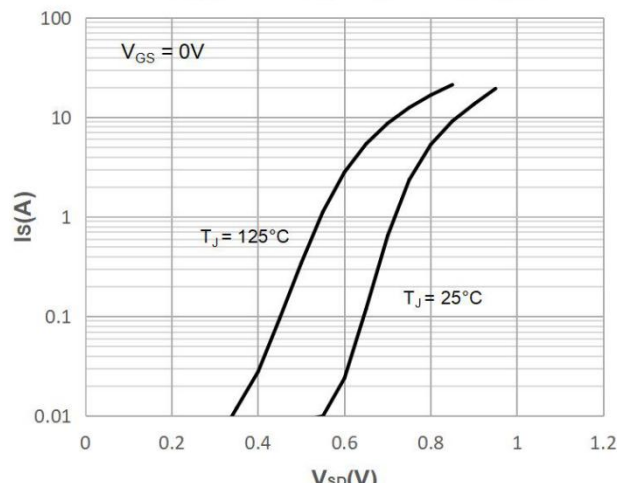


Figure 5: Gate Charge Characteristics

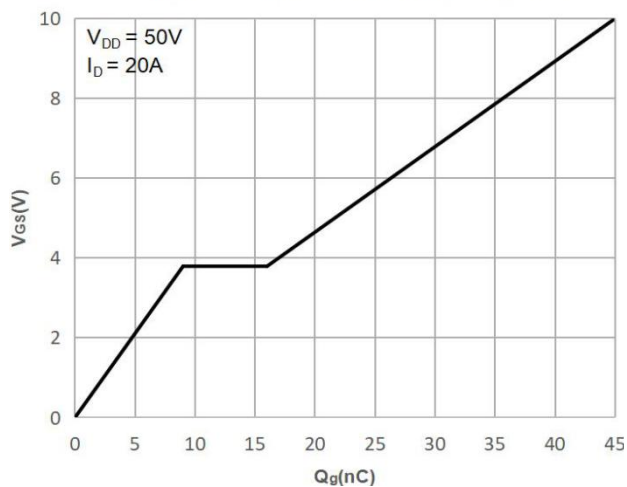
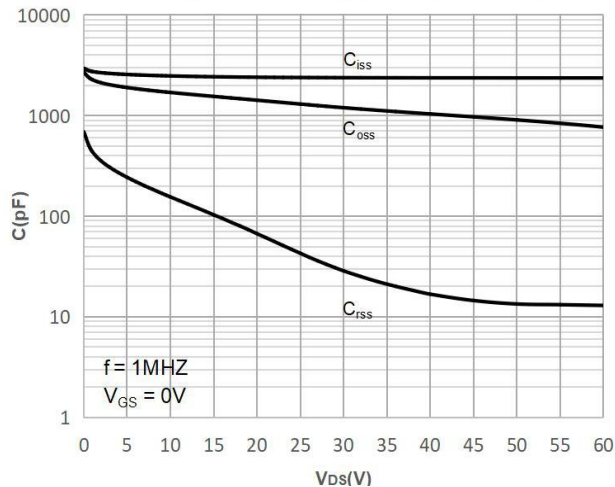


Figure 6: Capacitance Characteristics



Typical Characteristics

Figure 7: Normalized Breakdown voltage vs. Junction Temperature

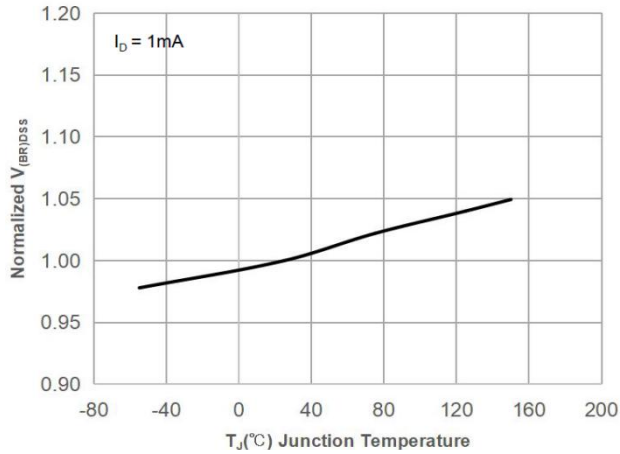


Figure 8: Normalized on Resistance vs. Junction Temperature

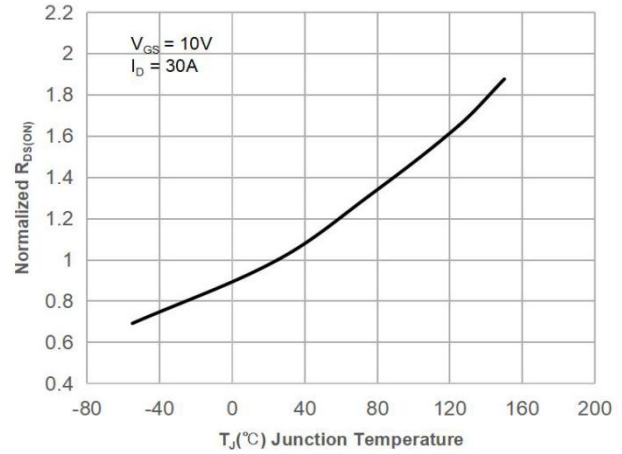


Figure 9: Maximum Safe Operating Area

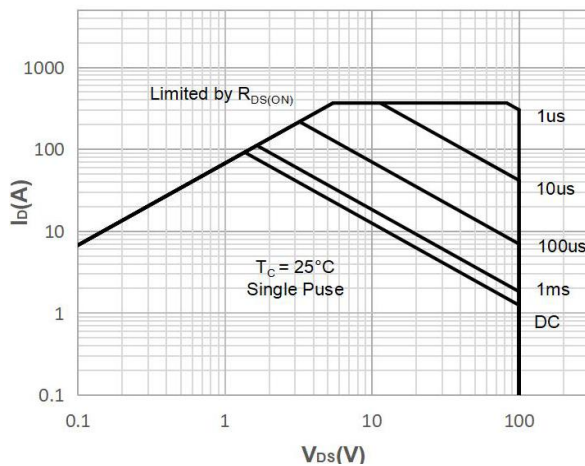


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

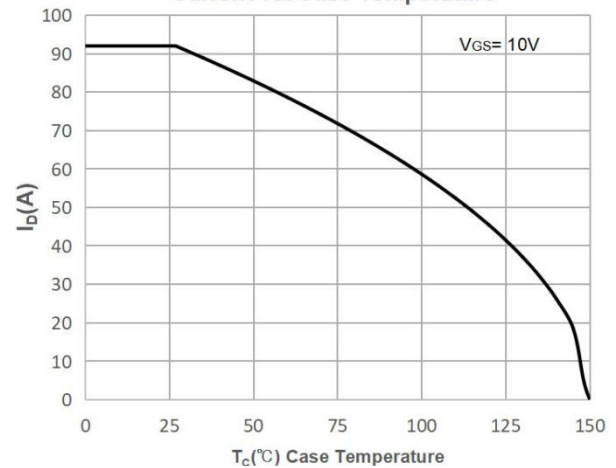


Figure 11: Normalized Maximum Transient Thermal Impedance

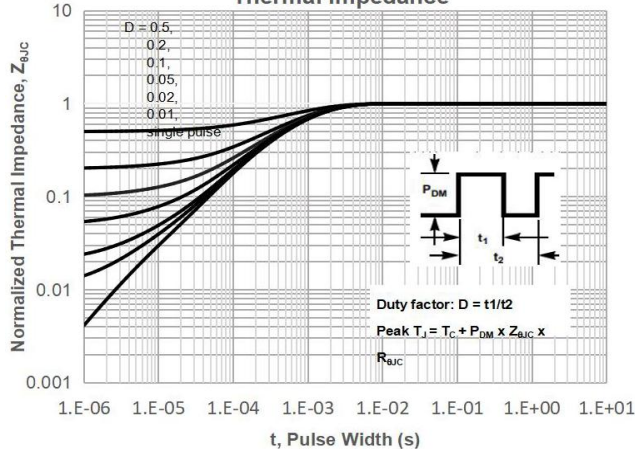
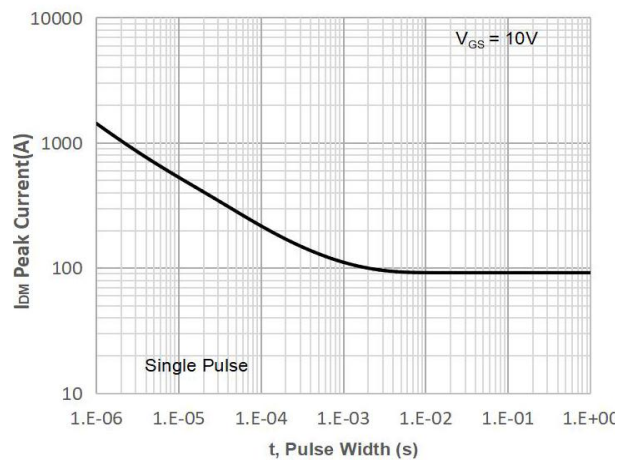
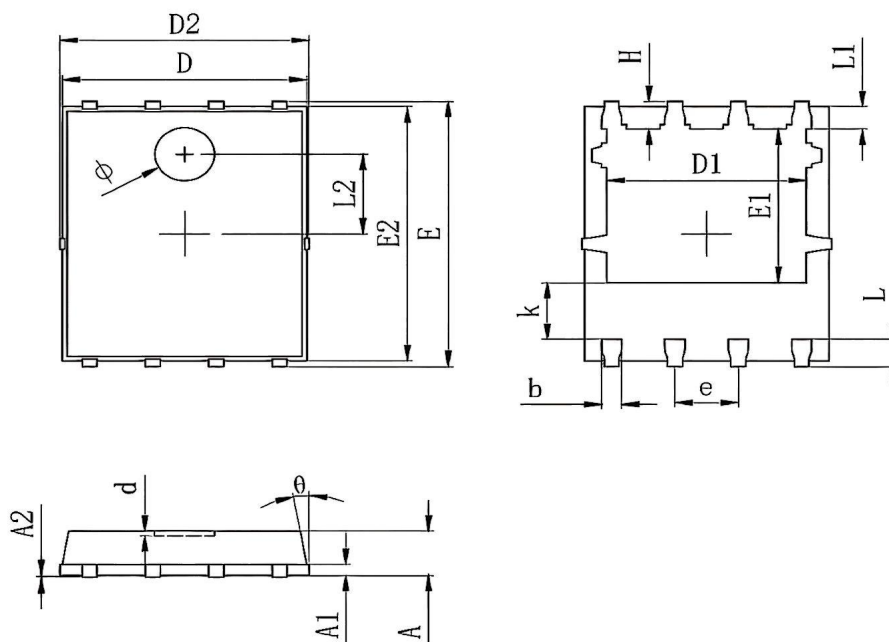


Figure 12: Peak Current Capacity



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	4.924	5.076	0.194	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 TYP.		0.050 TYP.	
L	0.534	0.686	0.021	0.027
L1	0.424	0.576	0.017	0.023
L2	1.800 REF.		0.071 REF.	
K	1.190	1.390	0.047	0.055
H	0.549	0.701	0.022	0.028
θ	8°	12°	8°	12°
φ	1.100	1.300	0.043	0.051
d	-	0.100	-	0.004