

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	10mΩ@10V	65A
	13mΩ@4.5V	

Feature

- Advanced trench technology
- Excellent $R_{DS(ON)}$
- Low gate charge

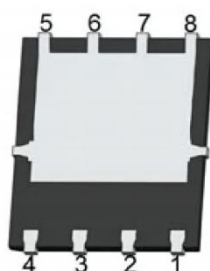
Application

- Battery protection
- Load switch
- Uninterruptible power supply

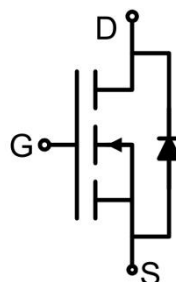
Package



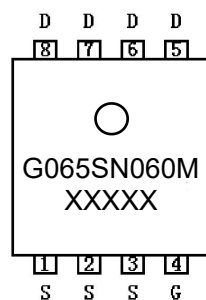
PDFN5*6-8L



Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹⁾	I_D	65	A
Pulsed Drain Current ²⁾	I_{DM}	138	A
Single Pulse Avalanche Energy ⁴⁾	E_{AS}	30	mJ
Power Dissipation ³⁾	P_D	60	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	2.1	$^{\circ}\text{C/W}$
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	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	1.5	2.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		7.5	10	mΩ
		V _{GS} =4.5V, I _D =10A		10	13	
Dynamic characteristics ⁵⁾						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V f =100KHz		1182.1		pF
Output Capacitance	C _{oss}			199.5		
Reverse Transfer Capacitance	C _{rss}			4.1		
Total Gate Charge	Q _g	V _{DS} =50V, V _{GS} =10V, I _D =10A		18.4		nC
Gate-Source Charge	Q _{gs}			3.3		
Gate-Drain Charge	Q _{gd}			3.1		
Turn-on delay time	t _{d(on)}	V _{DS} =50V, V _{GS} =10V, I _D =10A R _G =2Ω		17.9		nS
Turn-on rise time	t _r			4		
Turn-off delay time	t _{d(off)}			34.9		
Turn-off fall time	t _f			5.5		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				65	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =20A			1.3	V
Reverse recover time	T _{rr}	I _S =10A, di/dt =100A/us		41.8		nS
Reverse recovery charge	Q _{rr}			36.1		nC
Peak reverse recovery current	I _{rrm}			1.4		A

Notes:

- 1) Calculated continuous current based on maximum allowable junction temperature.
- 2) Repetitive rating; pulse width limited by max. junction temperature.
- 3) P_D is based on max. junction temperature, using junction-case thermal resistance.
- 4) $V_{DD}=50V, R_G=50\Omega, L=0.3mH$, starting $T_J=25^{\circ}\text{C}$.
- 5) Guaranteed by design, not subject to production.

Typical Characteristics

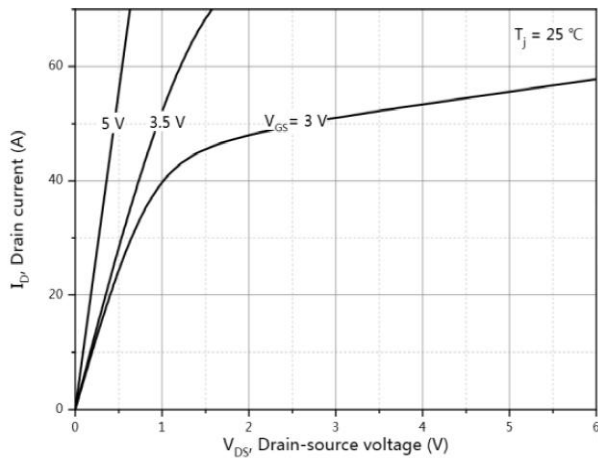


Figure 1, Typ.output characteristics

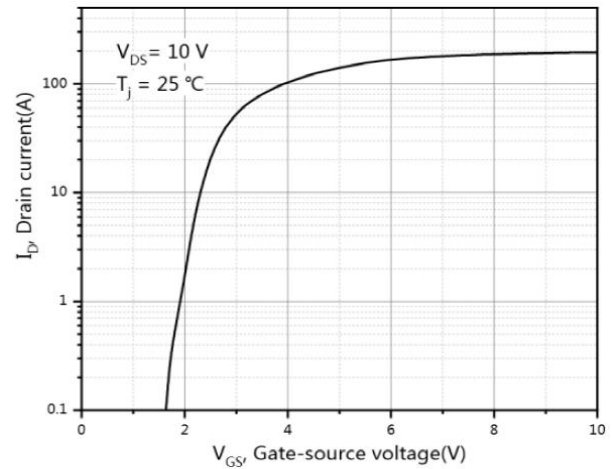


Figure 2, Typ.transfer characteristics

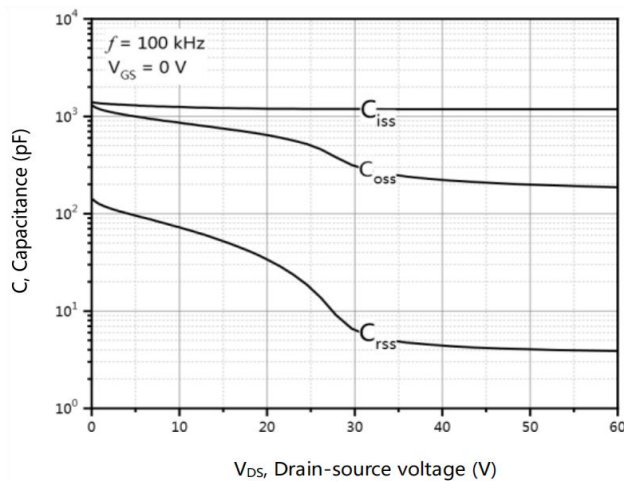


Figure 3, Typ. capacitances

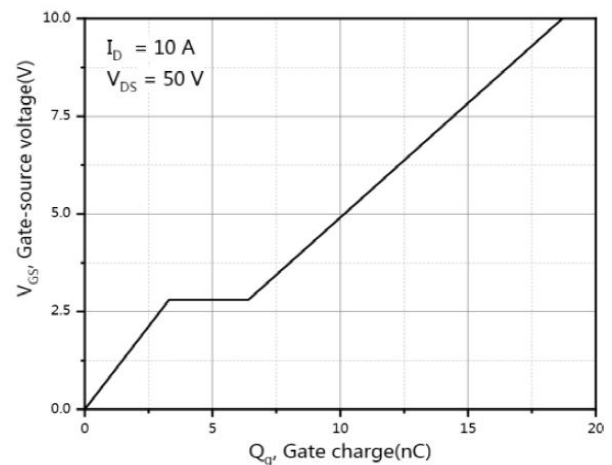


Figure 4, Typ. gate charge

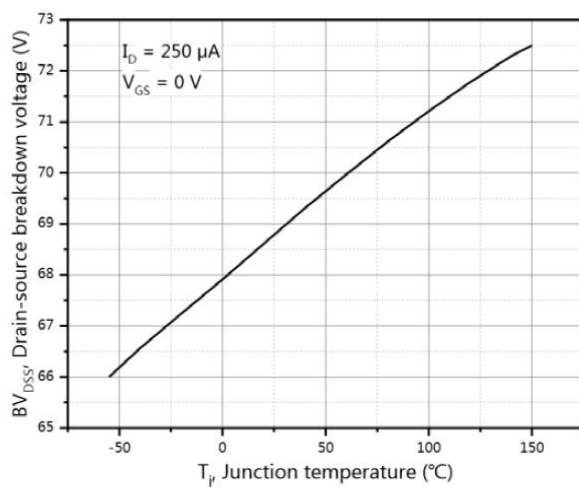


Figure 5, Drain-source breakdown voltage

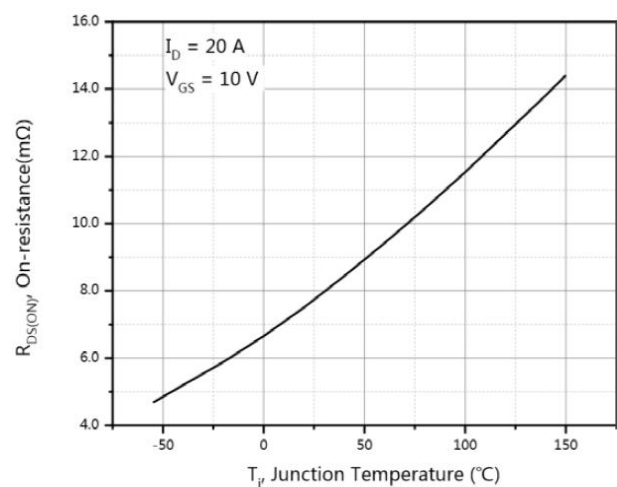


Figure 6, Drain-source on-state resistance

Typical Characteristics

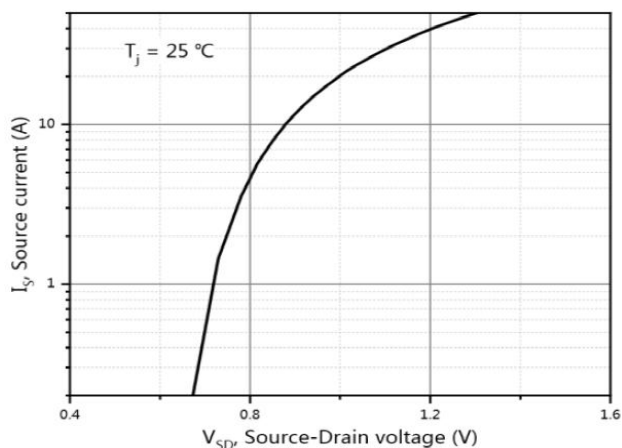


Figure 7, Forward characteristic of body

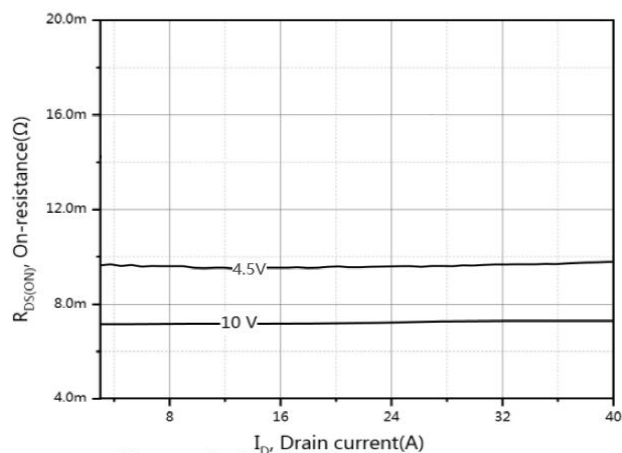


Figure 8, Drain-source on-state resistance diode

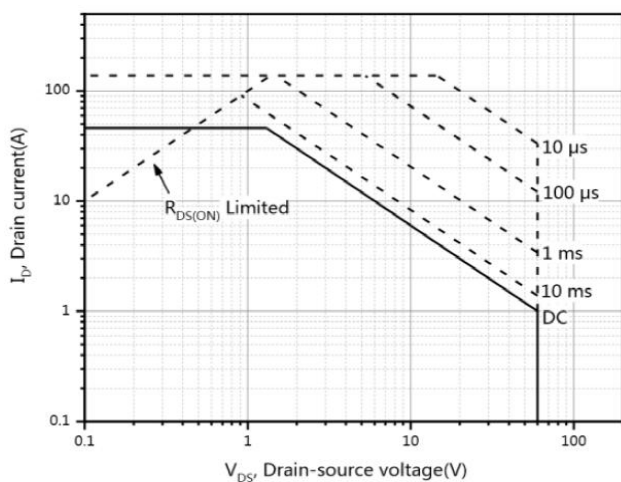
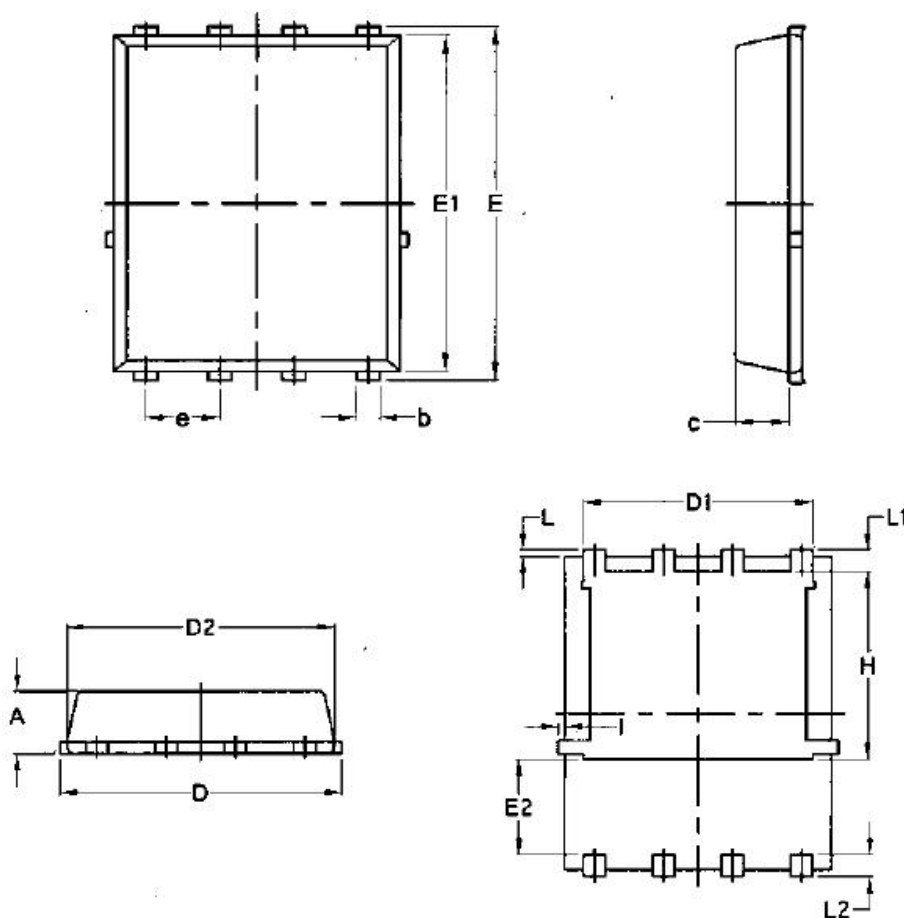


figure9, Safe operation area $T_C=25^{\circ}\text{C}$

PDFN5*6-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.030	1.170	0.041	0.046
b	0.340	0.480	0.013	0.019
c	0.824	0.970	0.032	0.038
D	4.800	5.400	0.189	0.213
D1	4.110	4.310	0.162	0.170
D2	4.800	5.000	0.189	0.197
E	5.950	6.150	0.234	0.242
E1	5.650	5.850	0.222	0.230
E2	1.600	-	0.063	-
e	1.270 BSC.		0.050 BSC.	
L	0.050	0.250	0.002	0.010
L1	0.380	0.500	0.015	0.020
L2	0.380	0.500	0.015	0.020
H	3.300	3.500	0.130	0.138
I	-	0.180	-	0.007