

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	5.3mΩ@10V	50A
	8.2mΩ@4.5V	

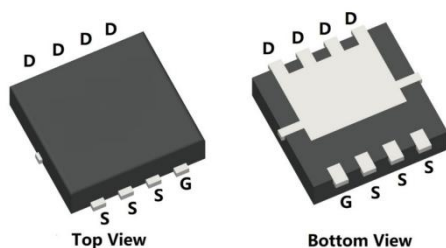
Feature

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

Application

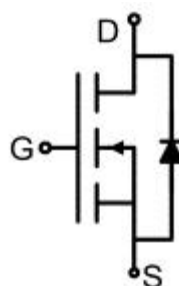
- Load Switch
- PWM Application
- Power Management

Package

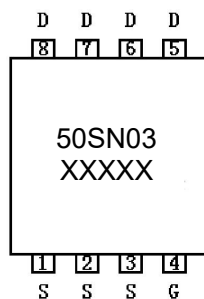


PDFN3.3*3.3-8L

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_C=25^{\circ}\text{C}$)	I_D	50	A
Continuous Drain Current ($T_C=100^{\circ}\text{C}$)	$I_D (100^{\circ}\text{C})$	30	A
Pulsed Drain Current ¹⁾	I_{DM}	200	A
Single Pulse Avalanche Energy ²⁾	E_{AS}	36	mJ
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	24	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	5.2	$^{\circ}\text{C/W}$
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	30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =30V, 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	1.9	2.4	V
Drain-source on-resistance ³⁾	R _{DS(on)}	V _{GS} =10V, I _D =12A		4.1	5.3	mΩ
		V _{GS} =4.5V, I _D =8A		6.3	8.2	
Dynamic characteristics ⁴⁾						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f =1MHz		920		pF
Output Capacitance	C _{oss}			793		
Reverse Transfer Capacitance	C _{rss}			47		
Total Gate Charge	Q _g	V _{DS} =15V, V _{GS} =10V, I _D =20A		16		nC
Gate-Source Charge	Q _{gs}			3		
Gate-Drain Charge	Q _{gd}			3.3		
Turn-on delay time	t _{d(on)}	V _{DS} =15V, V _{GS} =10V, I _D =20A R _G =3Ω		6.3		nS
Turn-on rise time	t _r			3.2		
Turn-off delay time	t _{d(off)}			18		
Turn-off fall time	t _f			3.6		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				50	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =8A			1.2	V
Reverse Recovery Time	T _{rr}	I _F =15A, di/dt =100A/μs		27		nS
Reverse Recovery Charge	Q _{rr}			11		nC

Notes:

- 1) Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
- 2) EAS condition: Starting $T_J=25^{\circ}\text{C}$, $V_{DD}=15V$, $V_G=10V$, $R_G=25\Omega$, $L=0.5\text{mH}$, $I_{AS}=12A$.
- 3) Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$.
- 4) Guaranteed by design, not subject to production.

Typical Characteristics

Figure 1: Output Characteristics

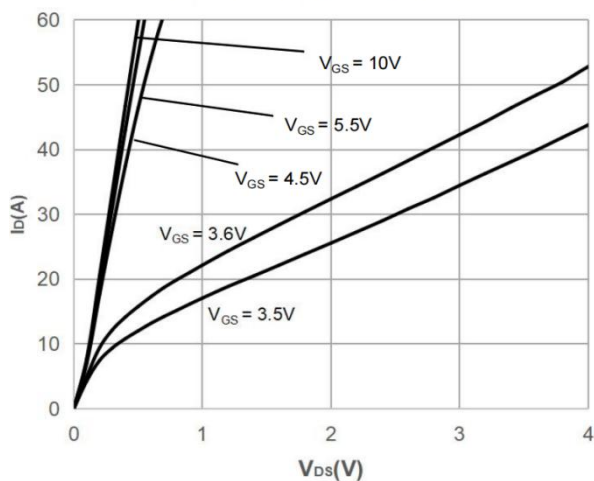


Figure 2: Typical Transfer Characteristics

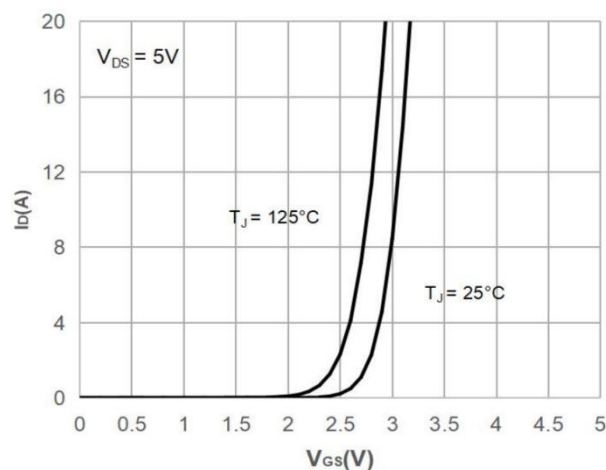


Figure 3: On-resistance vs. Drain Current

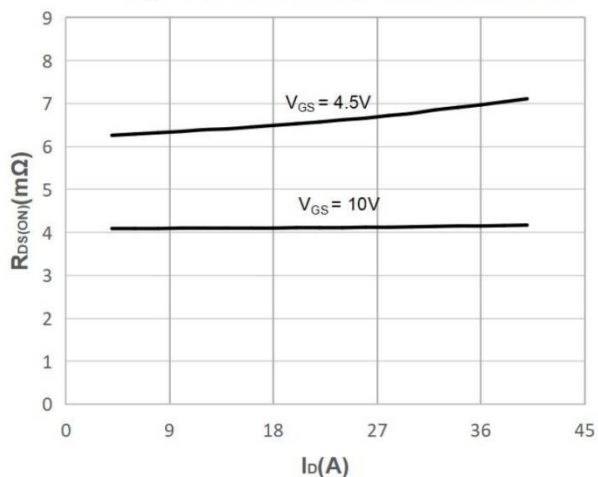


Figure 4: Body Diode Characteristics

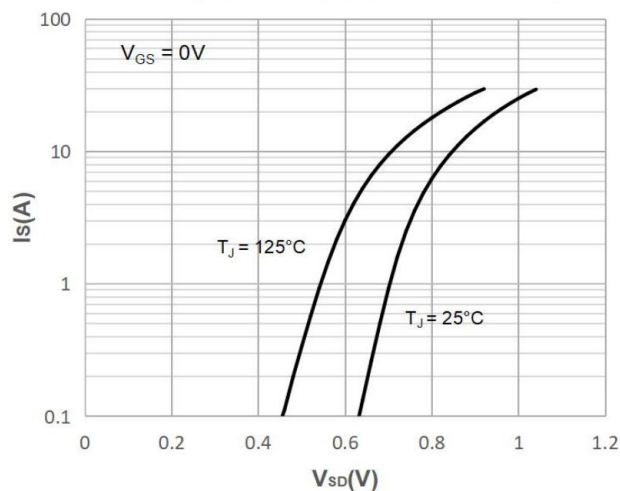


Figure 5: Gate Charge Characteristics

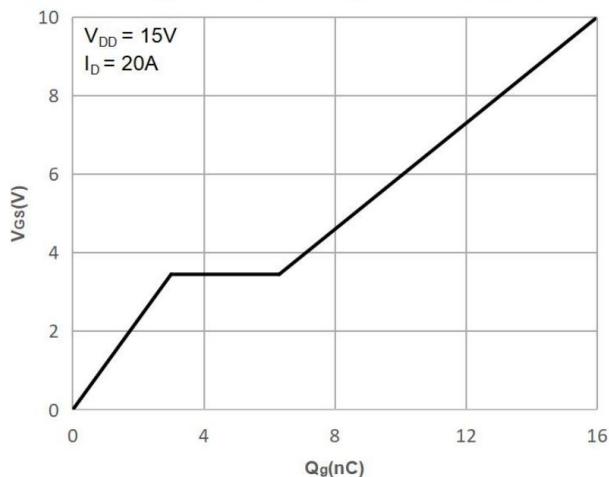
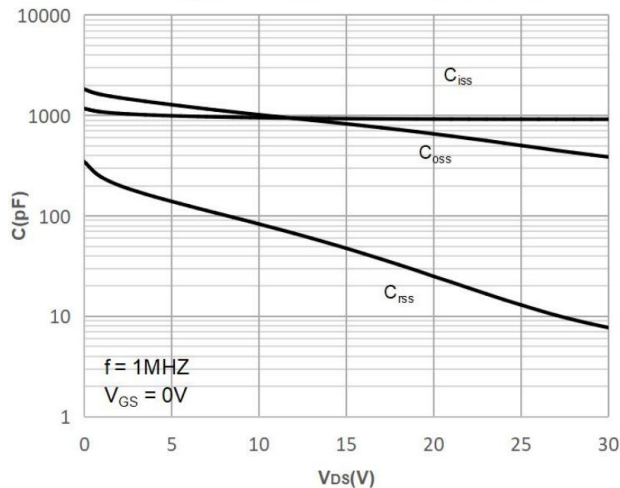


Figure 6: Capacitance Characteristics



Typical Characteristics

Figure 7: Normalized Breakdown voltage vs. Junction Temperature

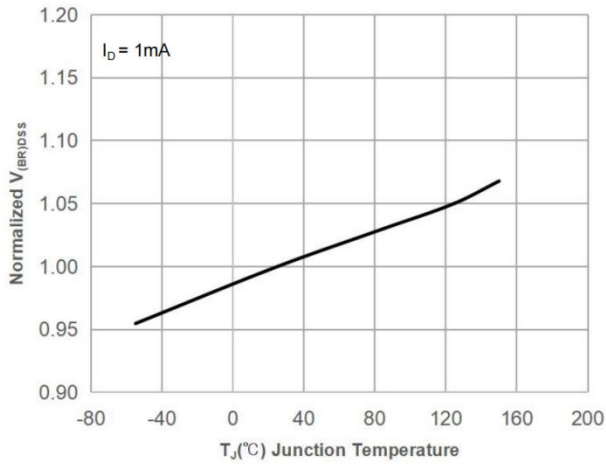


Figure 8: Normalized on Resistance vs. Junction Temperature

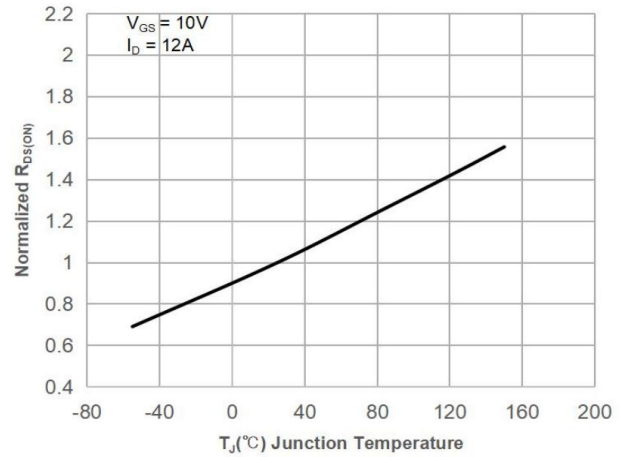


Figure 9: Maximum Safe Operating Area

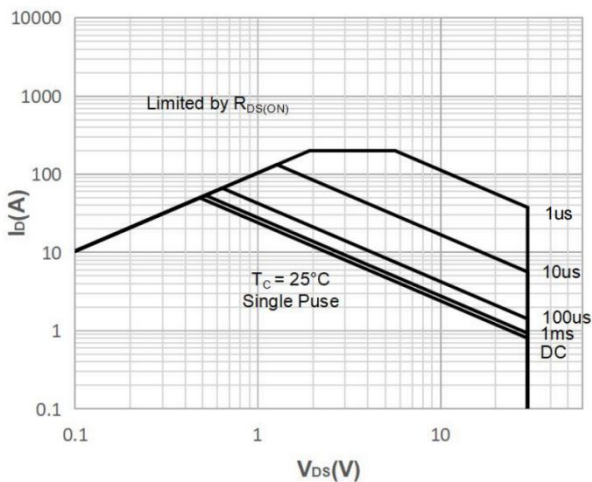


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

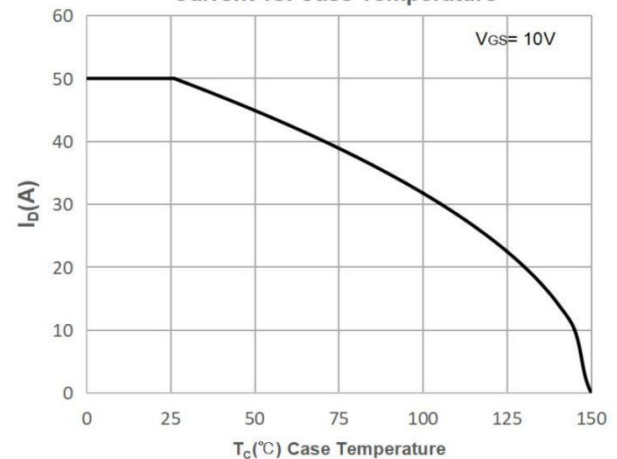


Figure 11: Normalized Maximum Transient Thermal Impedance

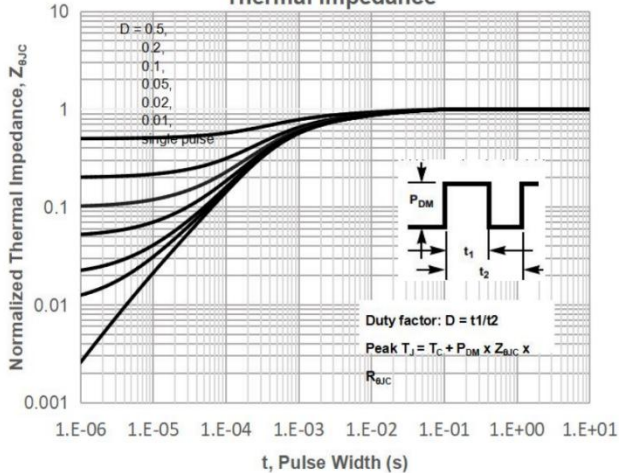
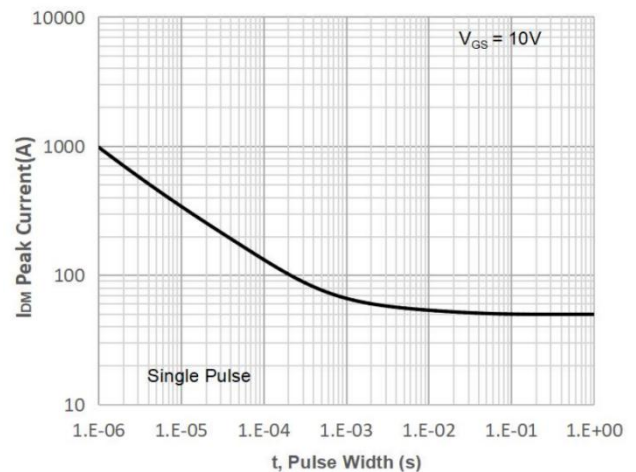
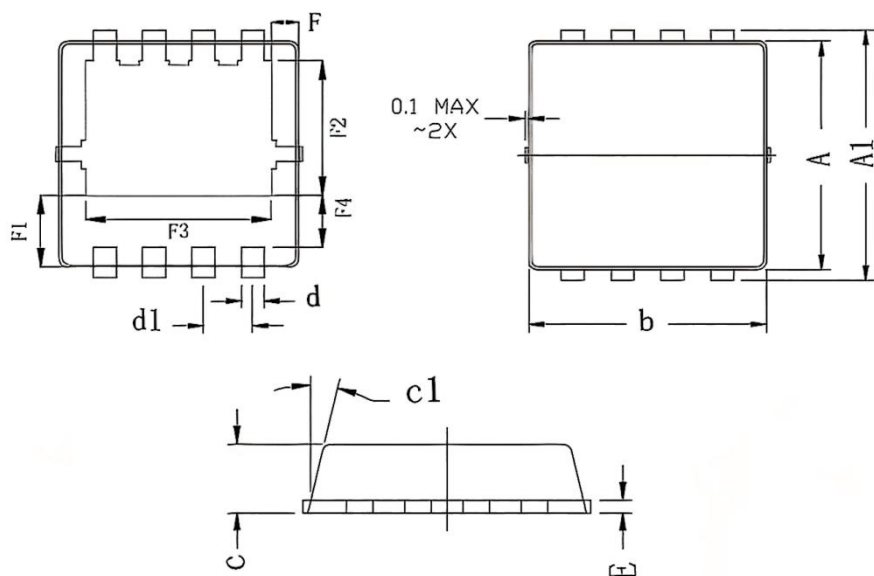


Figure 12: Peak Current Capacity



PDFN3.3*3.3-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	3.070	3.130	0.121	0.123
A1	3.300	3.500	0.130	0.138
b	3.070	3.130	0.121	0.123
c	0.770	0.830	0.030	0.033
c1	13°		13°	
d	0.275	0.325	0.011	0.013
d1	0.625	0.675	0.025	0.027
E	0.144	0.160	0.006	0.006
F	0.300	0.325	0.012	0.013
F1	0.960	1.010	0.038	0.040
F2	1.775	1.825	0.070	0.072
F3	2.425	2.475	0.095	0.097
F4	0.660	0.710	0.026	0.028