

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	13mΩ@10V	60A
	15mΩ@4.5V	

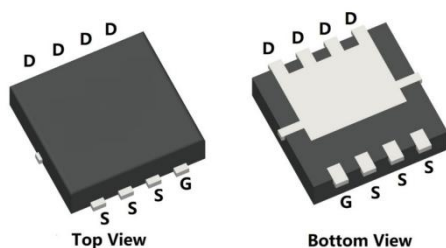
Feature

- Excellent package for heat dissipation
- Excellent $R_{DS(on)}$
- Low gate charge

Application

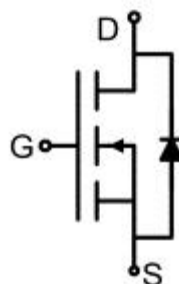
- DC-DC converter
- LED Back lighting
- Power Management Switches

Package

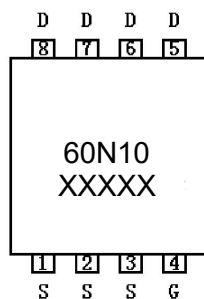


PDFN3.3X3.3-8L

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	60	A
Continuous Drain Current ¹⁾ (V _{GS} =10V, T _c =100°C)	I _D (100 °C)	35	A
Pulsed Drain Current	I _{DM}	252	A
Power Dissipation ³⁾	P _D	83	W
Single pulse avalanche energy ²⁾	E _{AS}	286	mJ
Thermal Resistance, Junction-to-Case	R _{θJC}	1.5	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_c=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	1.2	1.6	2.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =10A		10	13	mΩ
		V _{GS} =4.5V, I _D =6A		12	15	
Forward Transconductance	G _{FS}	V _{DS} =5V, I _D =20A		48		S
Dynamic characteristics ⁴⁾						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V, f =1MHz		1372		pF
Output Capacitance	C _{oss}			291		
Reverse Transfer Capacitance	C _{rss}			2		
Total Gate Charge	Q _g	V _{DS} =50V, V _{GS} =0 to 10V, I _D =10A		21		nC
Gate-Source Charge	Q _{gs}			5.4		
Gate-Drain Charge	Q _{gd}			5.5		
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz		2		Ω
Turn-on delay time	t _{d(on)}	V _{DS} =50V, V _{GS} =10V, R _L =2.5Ω, R _{GEN} =6Ω		10.7		nS
Turn-on rise time	t _r			20		
Turn-off delay time	t _{d(off)}			25		
Turn-off fall time	t _f			19.5		
Source-Drain Diode characteristics						
Diode Forward Current	I _S	T _C =25℃			60	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =1A			1.0	V
Reverse Recovery Time	T _{rr}	I _F =20A, dI _F /dt =100A/μs		48		nS
Reverse Recovery Charge	Q _{rr}			79		nC

Notes:

- 1) The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
- 2) The EAS data shows Max. rating. The test condition is V_{DD} =50V, V_{GS} =10V, L=0.1mH, I_{AS} =24A.
- 3) The power dissipation is limited by 150°C junction temperature.
- 4) Guaranteed by design, not subject to production.

Typical Characteristics

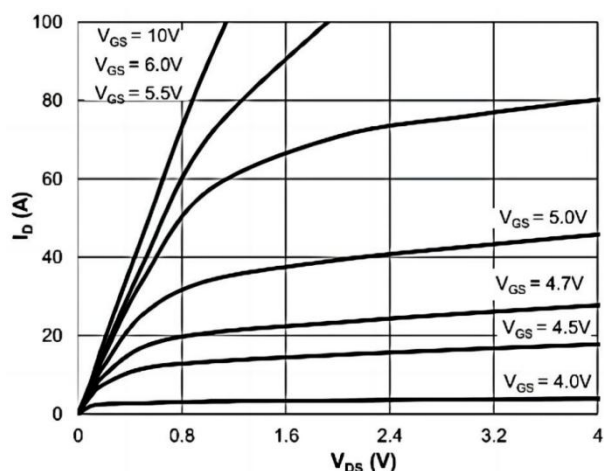


Figure 1: Saturation Characteristics

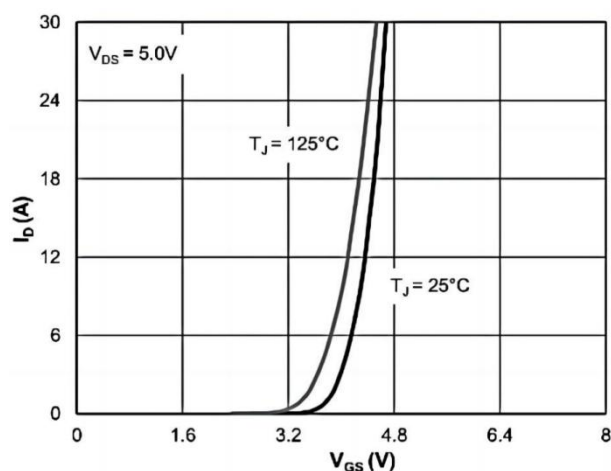


Figure 2: Transfer Characteristics

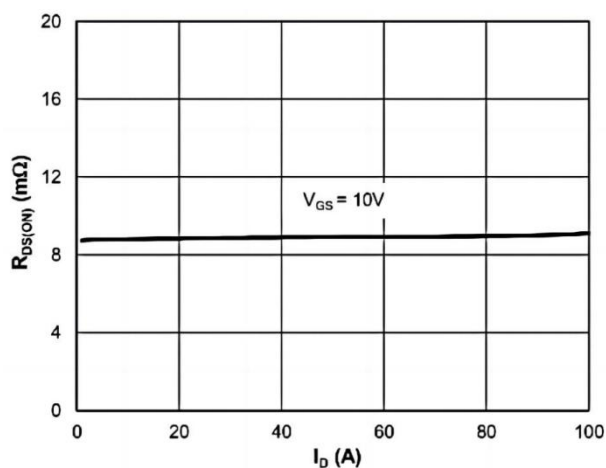


Figure 3: $R_{DS(ON)}$ vs. Drain Current

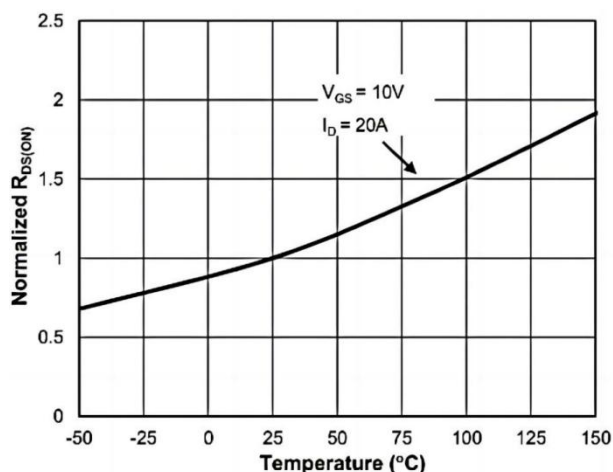


Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

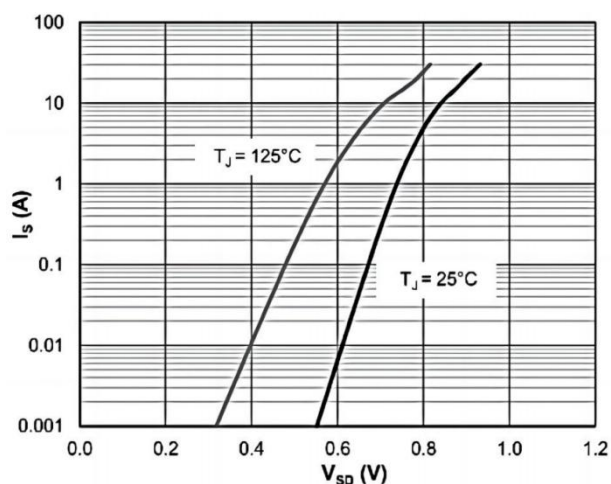


Figure 5: Body-Diode Characteristics

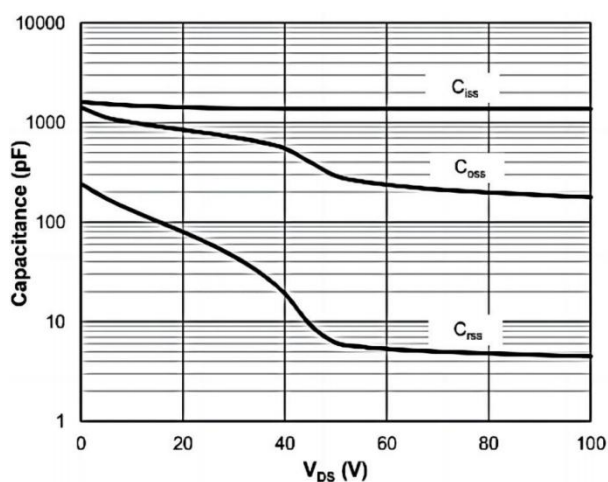


Figure 6: Capacitance Characteristics

Typical Characteristics

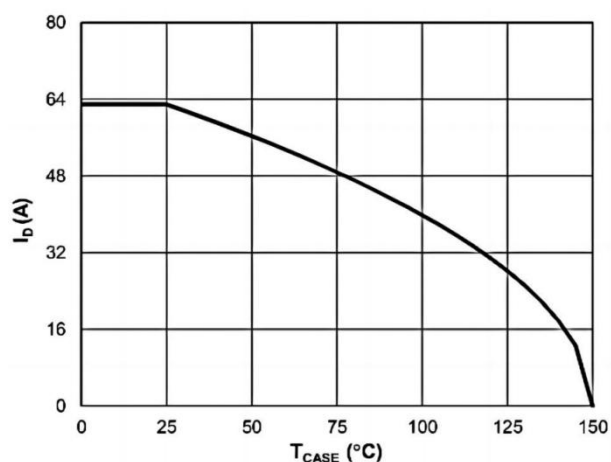


Figure 7: Current De-rating

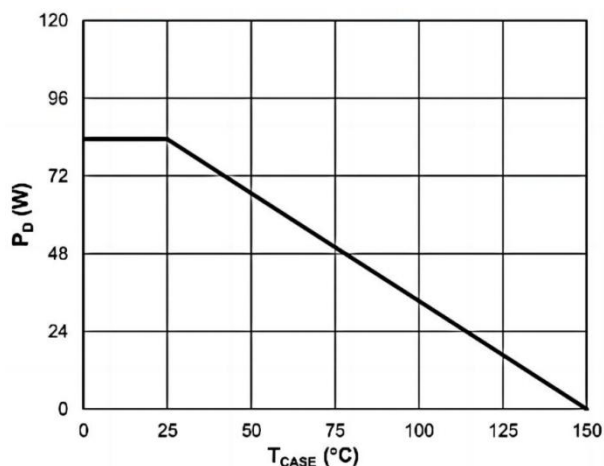


Figure 8: Power De-rating

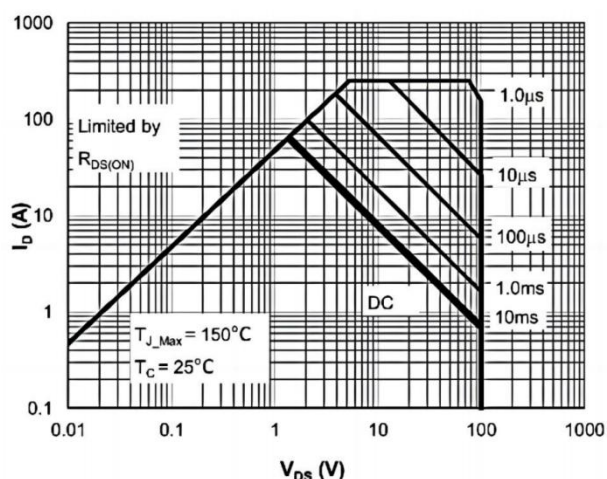


Figure 9: Maximum Safe Operating Area

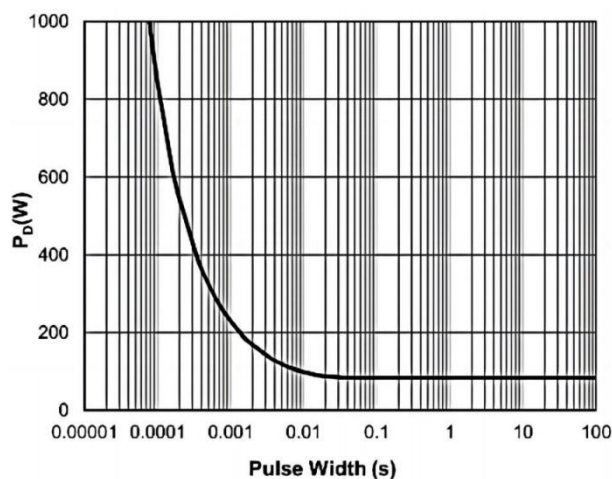


Figure 10: Single Pulse Power Rating, Junction-to-Case

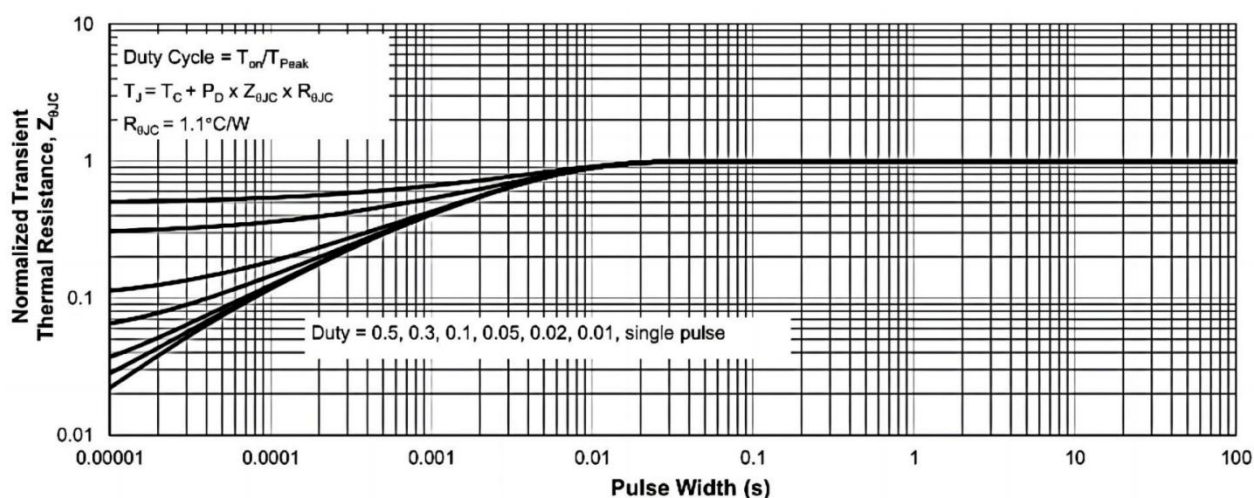
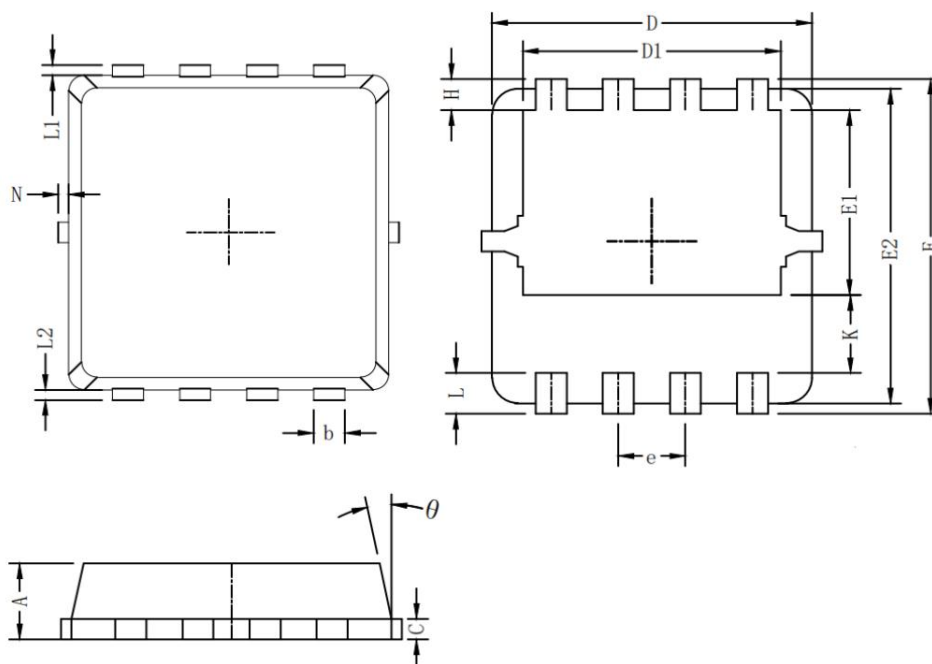


Figure 11: Normalized Maximum Transient Thermal Impedance

PDFN3.3X3.3-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.600	0.900	0.024	0.035
b	0.200	0.400	0.008	0.016
C	0.150	0.250	0.006	0.010
D	3.000	3.200	0.118	0.126
D1	2.300	2.600	0.091	0.102
E	3.150	3.450	0.124	0.136
E1	1.430	1.930	0.056	0.076
E2	2.900	3.200	0.114	0.126
e	0.650 BSC.		0.026 BSC.	
H	0.200	0.500	0.008	0.020
K	0.570	0.870	0.022	0.034
L	0.300	0.500	0.012	0.020
L1/L2	0.100 REF.		0.004 REF.	
θ	8°	13°	8°	13°
N	0.000	0.15	0.000	0.006