N-Channel 100V(D-S) MOSFET

Product summary		
V_{DS}	100	V
$R_{DS(ON)}$(at V_{GS}=10V) Typ.	7.8	mΩ
$R_{DS(ON)}$(at V_{GS}=4.5V) Typ.	11.2	mΩ
I_D(Tc=25℃)	62	A

Features

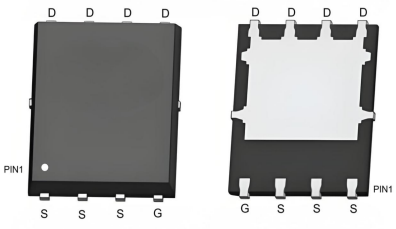
- Low $R_{DS(ON)}$ @V_{GS}=10V
- 100% UIS Tested

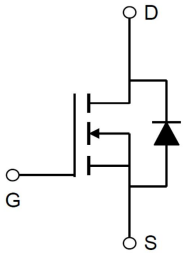
Applications

- Load switching
- Quick Charger
- High efficiency power supply

Pin Configuration

PDFN5X6-8L





Packing Information

Device	Package	Reel Size	Quantity(Min. Package)
ECAP62N10A	PDFN5X6-8L	13″	4000pcs

Absolute Maximum Ratings (at T_A=25℃ Unless Otherwise Noted)

Symbol	Parameter		Rating	Units
V_{DS}	Drain-Source Voltage		100	V
V_{GS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current	T_C=25℃	62	A
		T_C=100℃	39	A
I_{DM}	Pulse Drain Current Tested [A]		200	A
E_{AS}	Single Pulse Avalanche Energy [B]		162	mJ
P_D	Power Dissipation @T_C=25℃		62	W
T_J,T_{STG}	Junciton and Storage Temperature Range		-55 to +150	℃

Thermal Characteristics

Symbol	Parameter	Typical	Units
$R_{\theta JC}$	Thermal Resistance-Junction to case max	2.0	℃/W

Electrical Characteristics (at T_J =25℃ Unless Otherwise Noted)

Symbol	Parameter	Condition	Min.	Typ.	Max.	Units
Static Parameters						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250uA	100	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=100V,V_{GS}=0V	--	--	1	uA
I_{GSS}	Gate-Body Leakage Current	V_{DS}=0V,V_{GS}=±20V	--	--	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250uA	1.0	2.0	3.0	V
$R_{DS(ON)}$	Drain-Source On-State Resistance [C]	V_{GS}=10V,I_D=20A	--	7.8	9.5	mΩ
		V_{GS}=4.5V,I_D=10A	--	11.2	15	mΩ
V_{SD}	Diode Forward Voltage	I_S=20A,V_{GS}=0V	--	--	1.2	V
Dynamic Parameters [D]						
C_{iss}	Input Capacitance	V_{GS}=0V,V_{DS}=50V f=1MHZ	--	1620	--	pF
C_{oss}	Output Capacitance		--	290	--	pF
C_{rss}	Reverse Transfer Capacitance		--	7.5	--	pF
Rg	Gate Resistance	f=1MHZ	--	4.3	--	Ω
Q_g	Total Gate Charge	V_{DS}=50V,I_D=20A V_{GS}=10V	--	27.4	--	nC
Q_{gs}	Gate-Source Charge		--	4.8	--	nC
Q_{gd}	Gate-Drain Charge		--	6.5	--	nC
$t_{D(on)}$	Turn-on Delay Time	V_{DD}=50V ,R_G=3Ω, I_D=5A, V_{GS}=10V	--	9.5	--	ns
t_r	Turn-on Rise Time		--	6.1	--	ns
$t_{D(off)}$	Turn-off Delay Time		--	28	--	ns
t_f	Turn-off Fall Time		--	6.2	--	ns

A. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

B. EAS condition: T_J=25℃, R_G=25Ω,V_{DD}=15V, V_{GS}=10V, L=0.1mH,I_{AS}=57A.

C. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%.

D. Guaranteed by design, not subject to production testing.

Typical Characteristics

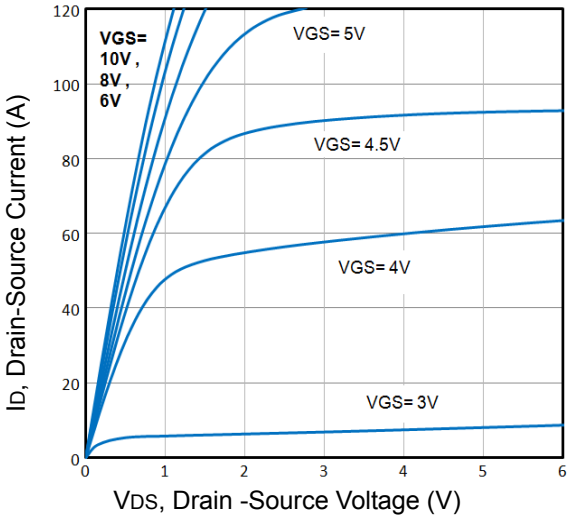


Fig1. Typical Output Characteristics

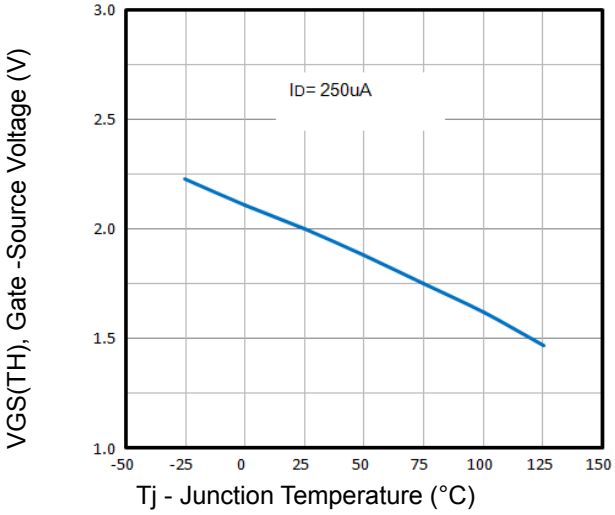


Fig2. VGS(TH) Voltage Vs. Temperature

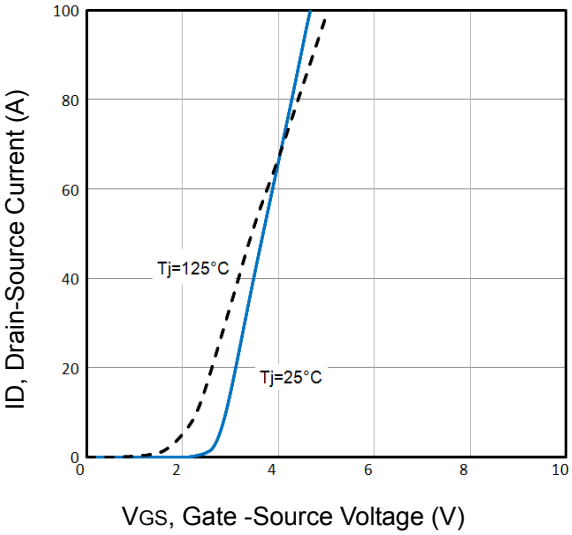


Fig3. Typical Transfer Characteristics

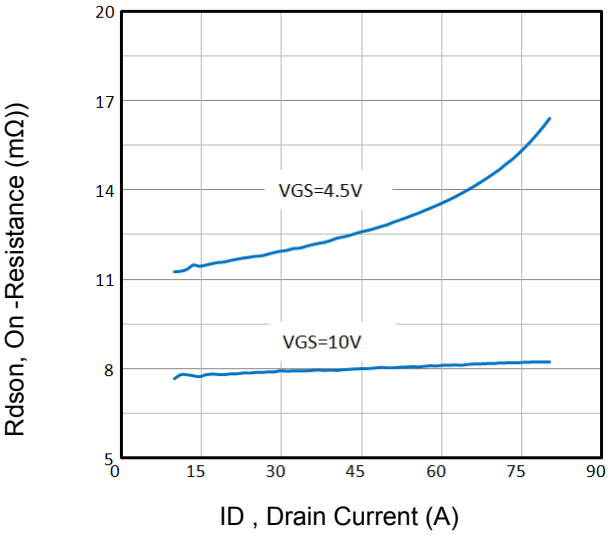


Fig4. On-Resistance vs. Drain Current and Gate Voltage

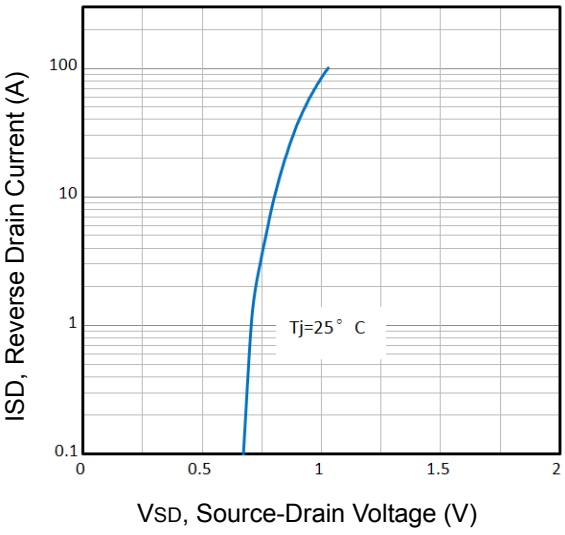


Fig5. Typical Source-Drain Diode Forward Voltage

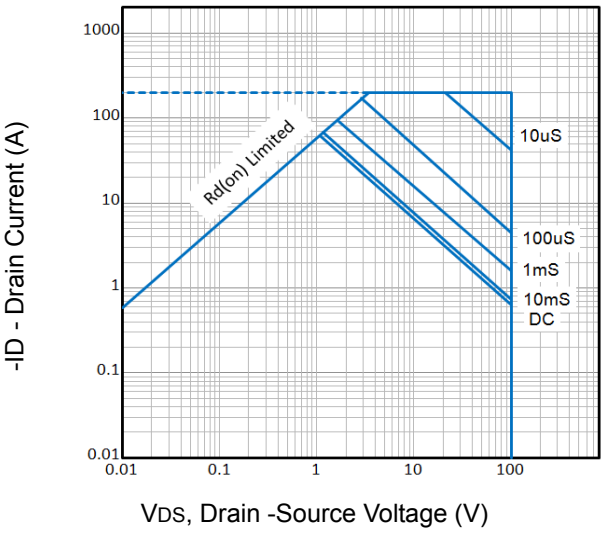


Fig6. Maximum Safe Operating Area

Typical Characteristics

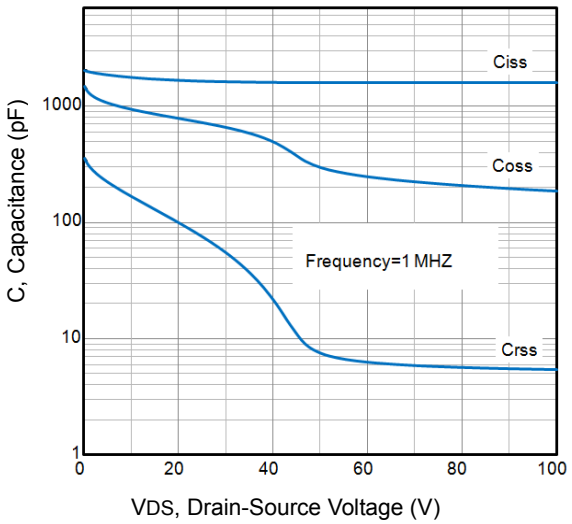


Fig7. Typical Capacitance Vs. Drain-Source Voltage

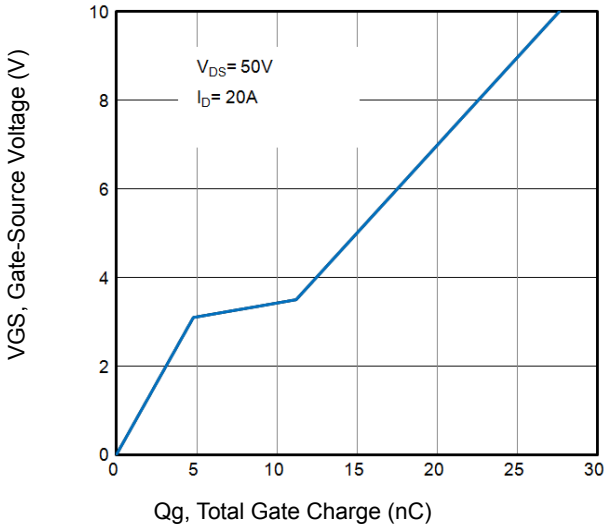


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

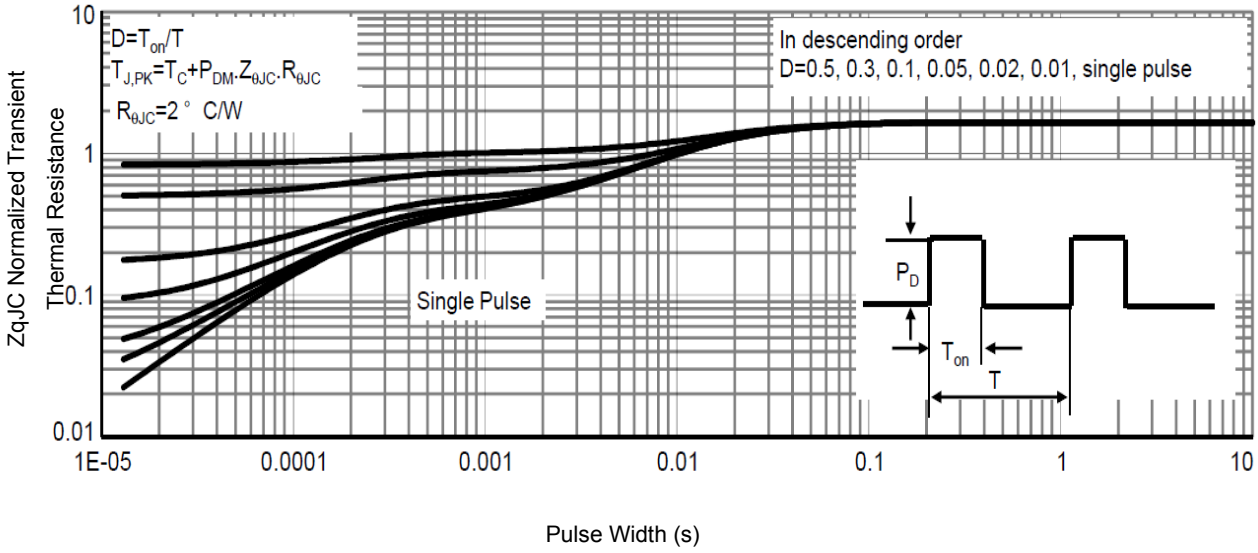


Fig9. Normalized Maximum Transient Thermal Impedance

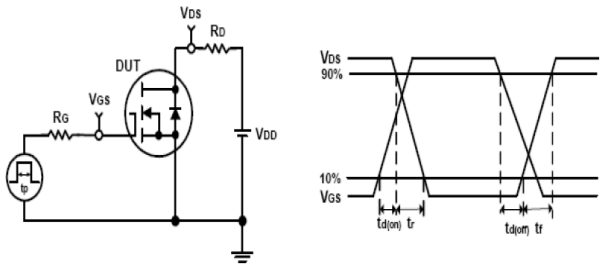


Fig10. Switching Time Test Circuit and waveforms

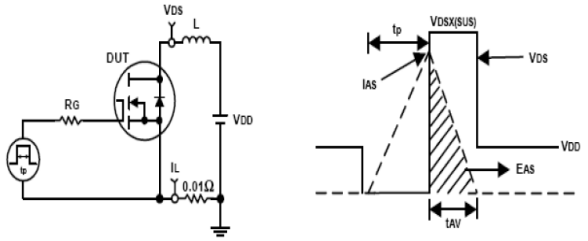
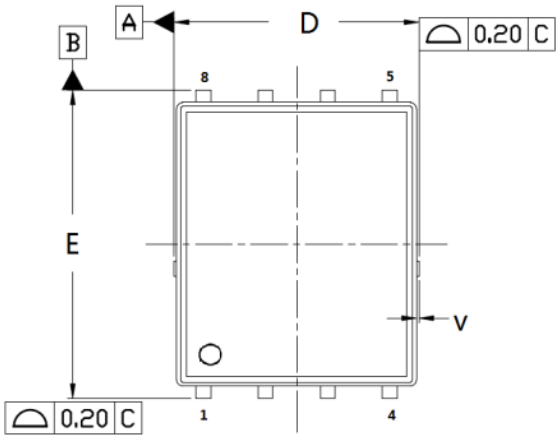
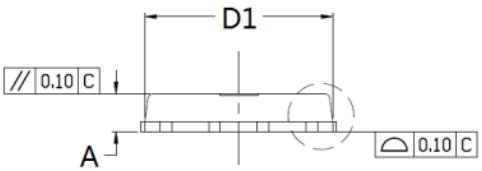


Fig11. Unclamped Inductive Test Circuit and waveforms

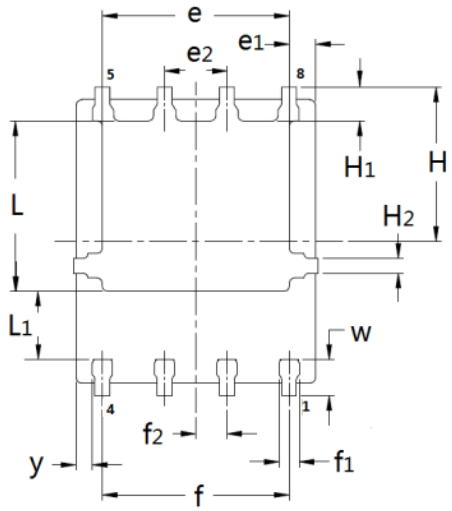
PDFN5X6-8L Package Information (unit:mm)



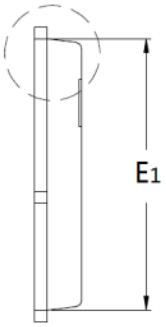
Top View



Front View



BottomView



Side View

DIMENSIONS

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	0.90	1.05	1.20	**D**	4.90	5.1	5.30
D_1	4.80	4.89	5.00	**E**	6.00	6.15	6.30
E_1	5.65	5.74	5.85	**e**	3.72	3.80	3.92
e_1	--	0.54	--	**e_2**	--	1.27	--
f	--	3.82	--	**f_1**	0.31	0.37	0.51
f_2	--	0.64	--	**H**	--	3.15	--
H_1	0.59	0.63	0.79	**H_2**	0.26	0.28	0.32
L	3.38	3.45	3.58	**L_1**	--	1.39	--
v	--	0.13	--	**w**	0.64	0.68	0.84
y	--	0.34	--		--		--