

N-Channel 100V MOSFET

E100N010HL1

V_{DS} (V)	$R_{DS(on),max}$ (m Ω)	I_D (A)
100V	10 @ $V_{GS} = 10V$	54

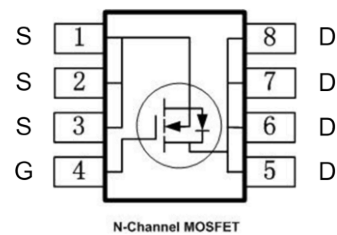
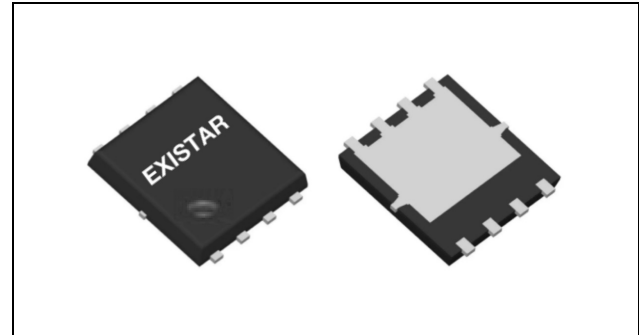
Features

- Low $R_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed
- 100% avalanche tested

Applications

- DC/DC conversion
- Power switch
- PD charger
- Moto driver

PDFN5X6



RoHS
COMPLIANT
HALOGEN
FREE

Package And Ordering Information

Ordering code	Package	Marking
E100N010HL1	PDFN5x6	E100N010HL1

Ordering Information

Package	Units/ Reel	Reels/ Inner Box	Units/ Inner Box
PDFN5x6	5000	1	5000

Key Performance Parameters

Parameter	Value	Unit
VDS, min @ Tj(max)	100	V
ID, pulse	216	A
RDS(ON), max @ VGS=10V	10	mΩ
Qg	30	nC

Absolute Maximum Ratings at Tj=25°C Unless Otherwise Noted

Parameter	Symbol	Limit	Unit
Drain-source voltage	V _{DS}	100	V
Gate-source voltage	V _{GS}	±20	
Continuous drain current	I _D	T _C =25°C	54
		T _C =100°C	24
Pulsed drain current	I _{D,pulse}	216	A
Avalanche energy, single pulse	E _{AS}	340	mJ
Power dissipation	P _D	T _C =25°C	52
		T _A =25°C	-
Operating junction and storage temperature range	T _J , T _{stg}	-55 to +150	°C

Thermal Characteristics

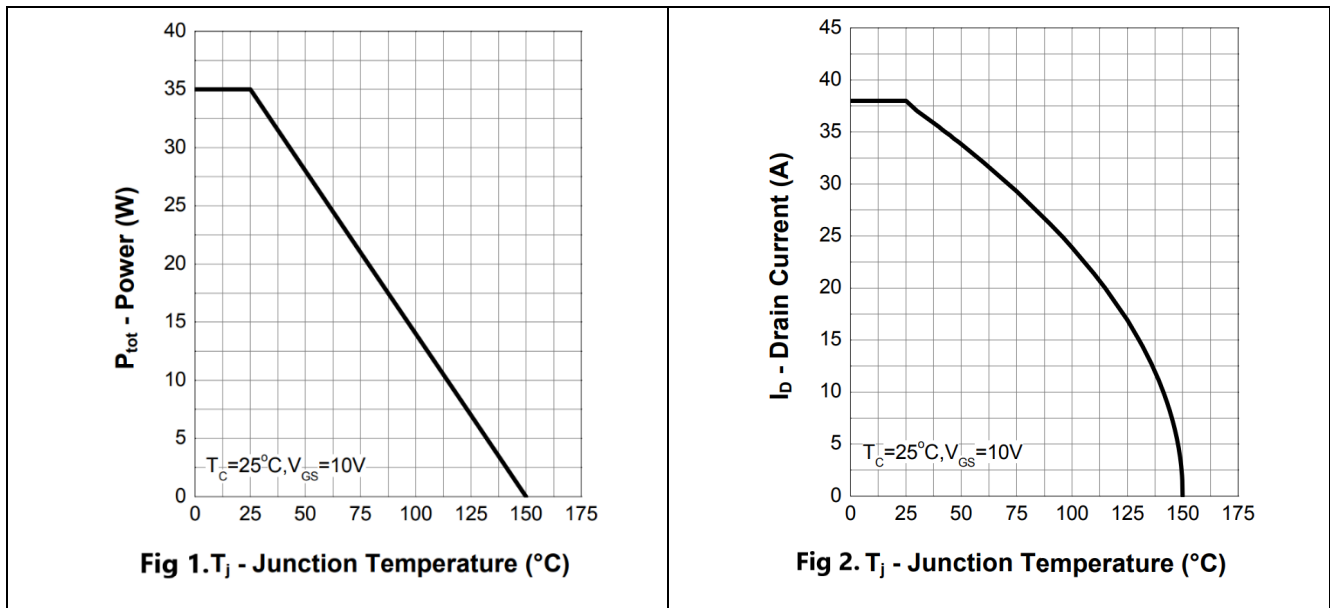
Parameter	Symbol	Max.	Unit
Thermal resistance, junction-to-case	R _{θJC}	2.4	°C/W
Thermal resistance, junction-to-ambient	R _{θJA}	62	

Electrical Characteristics at Tj=25°C unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Static						
Drain to source breakdown voltage	V _{(BR)DSS}	100			V	V _{GS} = 0, I _D = 250 μA
Gate-source threshold voltage	V _{GS(th)}	1.0	1.8	3.0	V	V _{DS} = V _{GS} , I _D = 250 μA
Gate-body leakage	I _{GSS}			±100	nA	V _{DS} = 0 V, V _{GS} = ±20 V
Zero gate voltage drain current	I _{DSS}			1	μA	V _{DS} = 80 V, V _{GS} = 0 V
Drain-source on-resistance	R _{DS(on)}		8.6	10	mΩ	V _{GS} = 10 V, I _D = 20 A
Drain-source on-resistance	R _{DS(on)}		12.5	15	mΩ	V _{GS} = 4.5 V, I _D = 15 A

Forward transconductance	g_{fs}		-		S	-
Gate resistance	R_g		2		Ω	$f=1\text{MHz}$
Gate Charge						
Total gate charge	Q_g		30		nC	$V_{DS} = 50\text{ V}, I_D = 20\text{ A}, V_{GS} = 10\text{ V}$
Gate-source charge	Q_{gs}		7.4			
Gate-drain charge	Q_{gd}		6			
Dynamic						
Turn-on delay time	$t_{d(on)}$		9		ns	$V_{DS} = 50\text{ V}, I_D = 20\text{ A}, V_{GS} = 10\text{ V}, R_{GEN} = 4.5\ \Omega$
Rise time	t_r		27			
Turn-off delay time	$t_{d(off)}$		25			
Fall time	t_f		23			
Input capacitance	C_{iss}		1520		pF	$V_{DS} = 25\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{MHz}$
Output capacitance	C_{oss}		835			
Reverse transfer capacitance	C_{rss}		103			
Body Diode						
Diode forward voltage	V_{SD}			1.2	V	$V_{GS} = 0\text{ V}, I_F = 20\text{ A}$
Reverse recovery time	t_{rr}		58		ns	$V_R = 20\text{ V}, di/dt = 100\text{ A}/\mu\text{s}$
Reverse recovery charge	Q_{rr}		75		nC	

Electrical Characteristics Diagrams



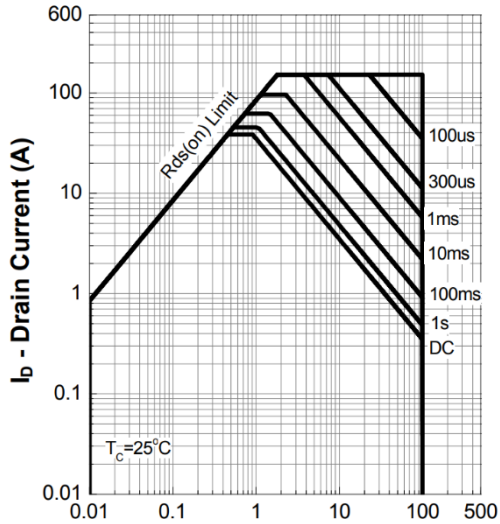


Fig 3. V_{DS} - Drain-Source Voltage (V)

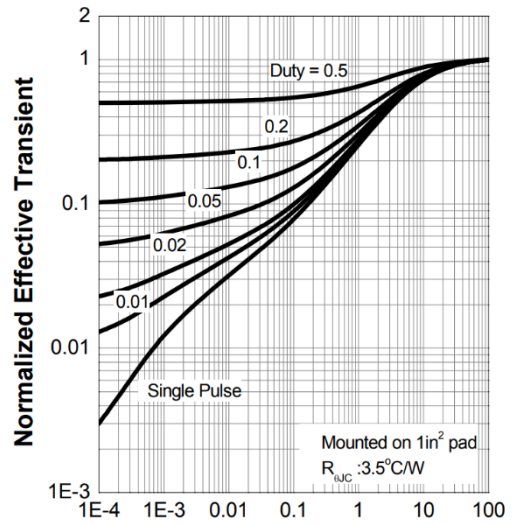


Fig 4. Square Wave Pulse Duration (sec)

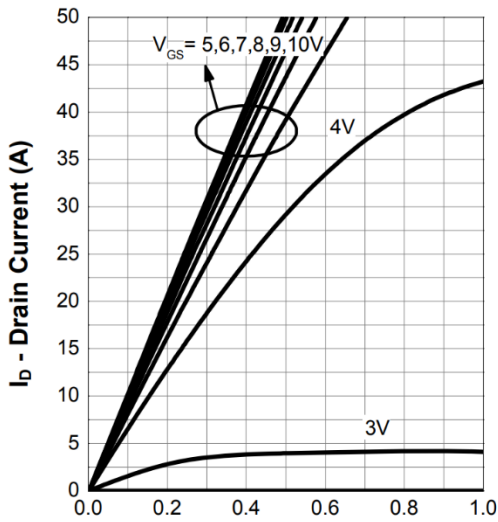


Fig 5. V_{DS} - Drain-Source Voltage (V)

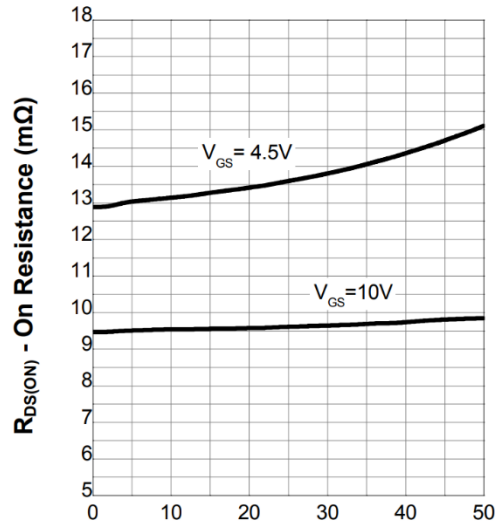


Fig 6. I_D - Drain Current (A)

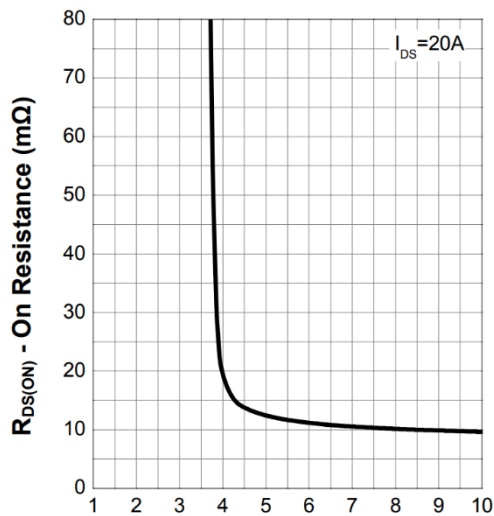


Fig 7. V_{GS} - Gate-Source Voltage (V)

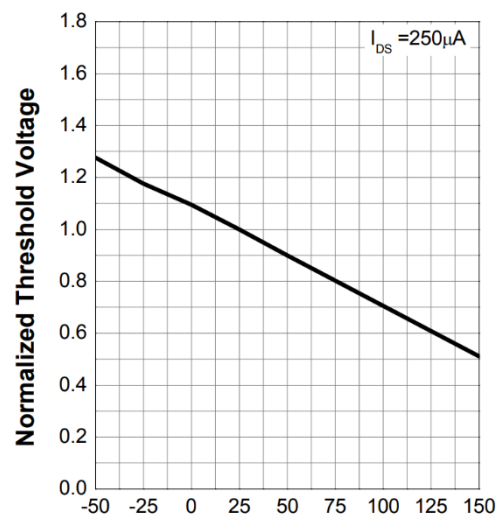


Fig 8. T_J - Junction Temperature ($^\circ\text{C}$)



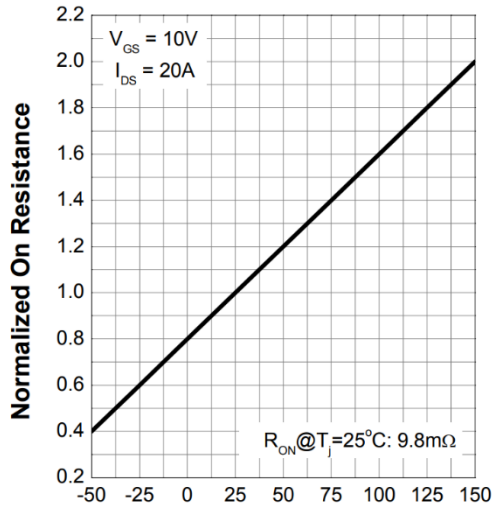


Fig 9. T_j - Junction Temperature (°C)

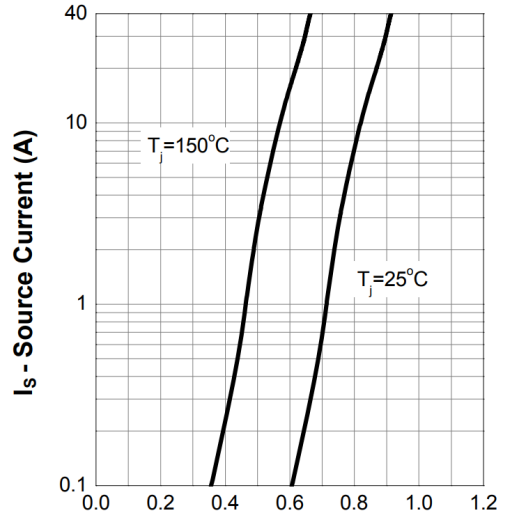


Fig 10. V_{SD} - Source-Drain Voltage (V)

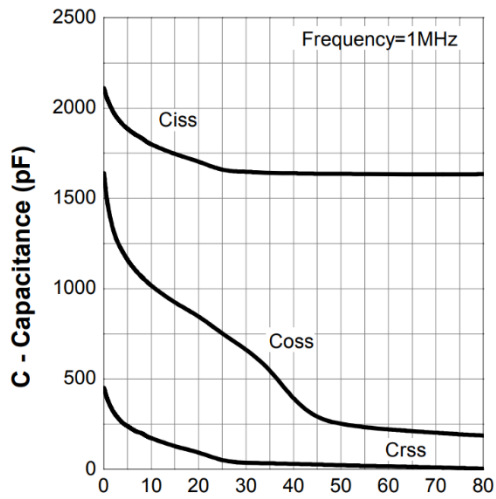


Fig 11. V_{DS} - Drain-Source Voltage (V)

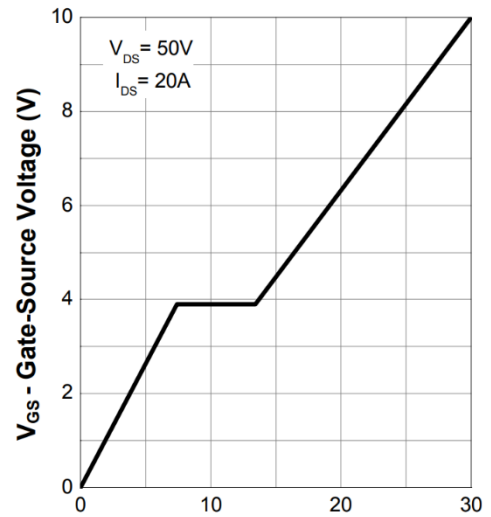
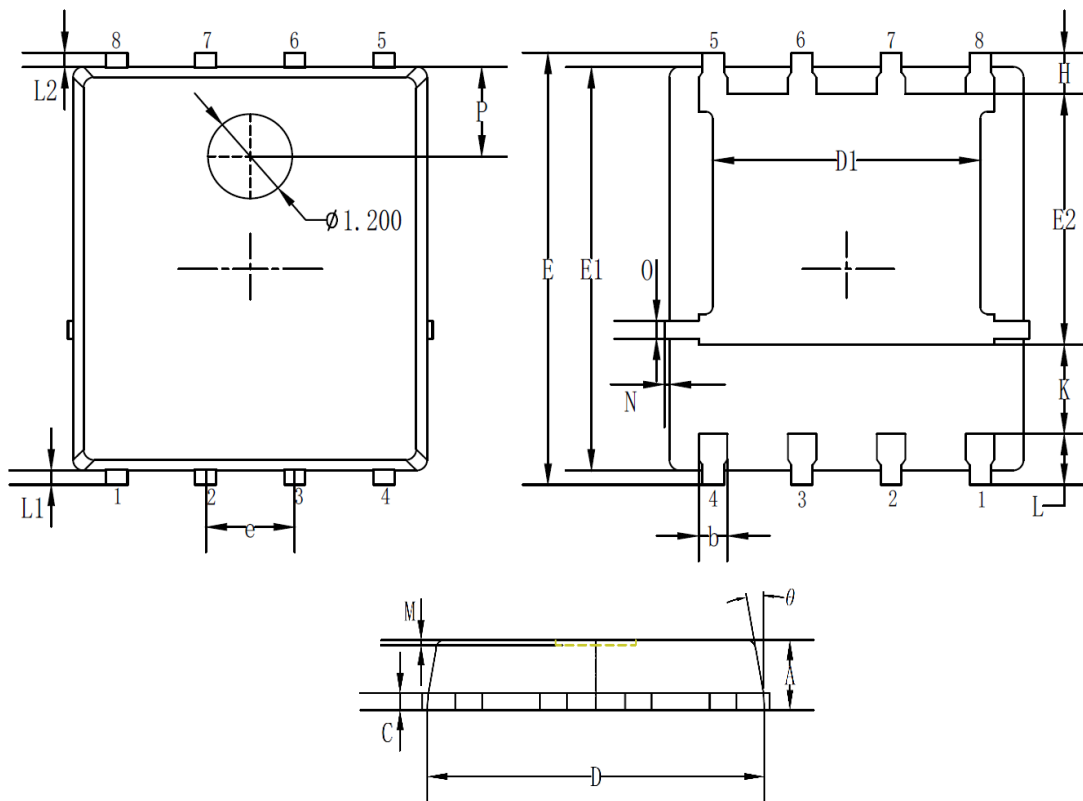


Fig 12. Q_G - Gate Charge (nC)

Package Outline Dimensions


Symbols	Millimeters		
	MIN.	NOM.	MAX.
A	0.90	1.05	1.20
b	0.35	0.40	0.50
C	0.20	0.25	0.35
D	4.90	5.05	5.20
D1	3.72	3.82	3.92
E	0.60	6.15	6.30
E1	5.60	5.75	5.90
E2	3.47	3.57	3.67
e	1.27 BSC.		
H	0.48	0.58	0.68
K	1.17	1.27	1.37
L	0.64	0.74	0.84
L1/L2	0.20 REF.		
θ	8°	10°	12°
M	0.08 REF.		
N	0	-	0.15
O	0.25 REF.		
P	1.28 REF.		

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