

P-Channel 60V MOSFET

E060P032HL1

V_{DS} (V)	$R_{DS(on),max}$ (m Ω)	I_D (A)
-60V	32 @ $V_{GS} = -10V$	-34

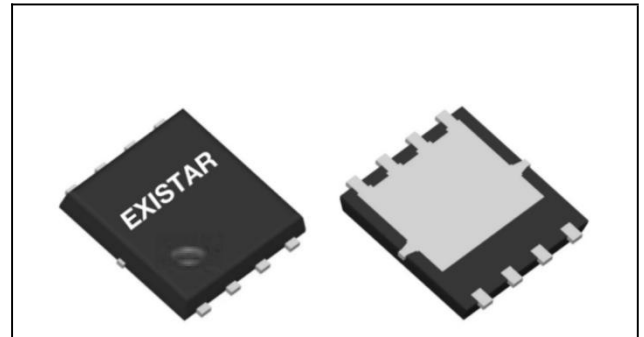
Features

- 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

PDFN5*6



RoHS
COMPLIANT
HALOGEN
FREE

Package And Ordering Information

Ordering code	Package	Marking
E060P032HL1	PDFN5*6	E060P032HL1

Ordering Information

Package	Units/ Reel	Reels/ Inner Box	Units/ Inner Box
PDFN5*6	5000	1	5000

Key Performance Parameters

Parameter	Value	Unit
V _{DS} , min @ T _j (max)	-60	V
I _D , pulse	-136	A
R _{DS(ON)} , max @ V _{GS} =-10V	32	mΩ
Q _g	68	nC

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

Parameter		Symbol	Limit	Unit
Drain-source voltage		V _{DS}	-60	V
Gate-source voltage		V _{GS}	±20	
Continuous drain current	T _C =25°C	I _D	-34	A
	T _C =100°C		-24	
Pulsed drain current		I _{D,pulse}	-136	
Avalanche energy, single pulse		E _{AS}	196	mJ
Power dissipation	T _C =25°C	P _D	79	W
	T _A =25°C		-	
Operating junction and storage temperature range		T _J , T _{stg}	-55 To 175	°C

Thermal Characteristics

Parameter		Symbol	Max.	Unit
Thermal resistance, junction-to-case	Steady state	R _{θJC}	1.9	°C/W
Thermal resistance, junction-to-ambient	Steady state	R _{θJA}	-	

Electrical Characteristics at T_j=25°C unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Static						
Drain to source breakdown voltage	V _{(BR)DSS}	-60			V	V _{GS} = 0, I _D = -250 μA
Gate-source threshold voltage	V _{GS(th)}	-1		-2.5	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} = -60 V, V _{GS} = 0 V
Drain-source on-resistance	R _{DS(on)}		25	32	mΩ	V _{GS} = -10 V, I _D = -15 A
Drain-source on-resistance	R _{DS(on)}		30	35	mΩ	V _{GS} = -4.5 V, I _D = -10 A
Forward transconductance	g _{fs}		30.5		S	V _{DS} = -5 V, I _D = -10 A

Gate resistance	Rg		4.8		Ω	f=1MHz
Gate Charge						
Total gate charge	Qg		68		nC	VDS = -30 V, ID = -20 A, VGS = -10 V
Gate-source charge	Qgs		10.5			
Gate-drain charge	Qgd		13			
Dynamic						
Turn-on delay time	td(on)		12.2		ns	VDS = -30 V, VGS = -10 V, RL=1.5Ω, RGEN = 3 Ω
Rise time	tr		10			
Turn-off delay time	td(off)		64			
Fall time	tf		14			
Input capacitance	Ciss		3670		pF	VDS = -25 V, VGS = 0 V, f = 1.0MHz
Output capacitance	Coss		151			
Reverse transfer capacitance	Crss		136			
Body Diode						
Diode forward voltage	VSD			-1.2	V	VGS = 0 V, IS = -15 A
Reverse recovery time	trr		26		ns	IF = -20 A, di/dt = -100 A/μs
Reverse recovery charge	Qrr		29		nC	

Electrical Characteristics Diagrams

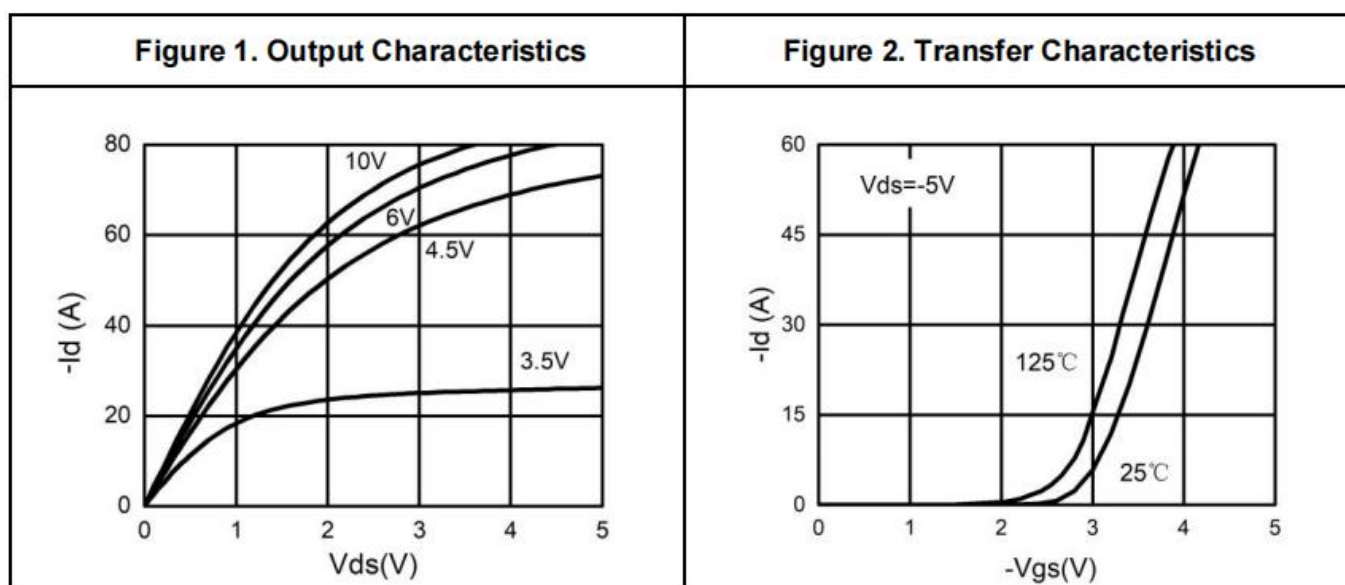


Figure 3. Power Dissipation

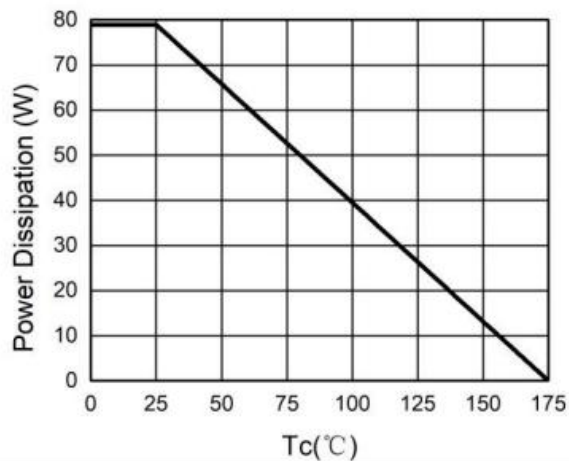


Figure 4. Drain Current

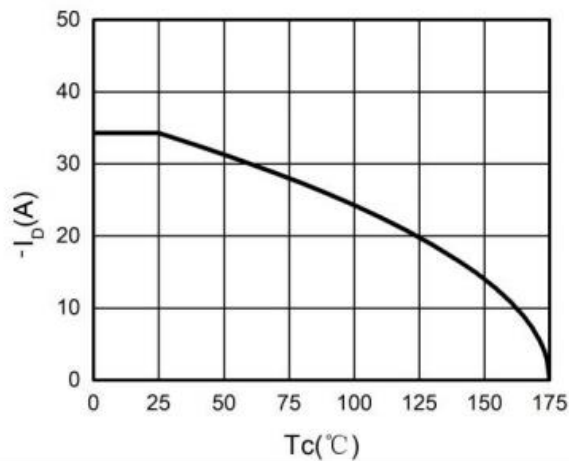


Figure 5. BV_{DSS} vs Junction Temperature

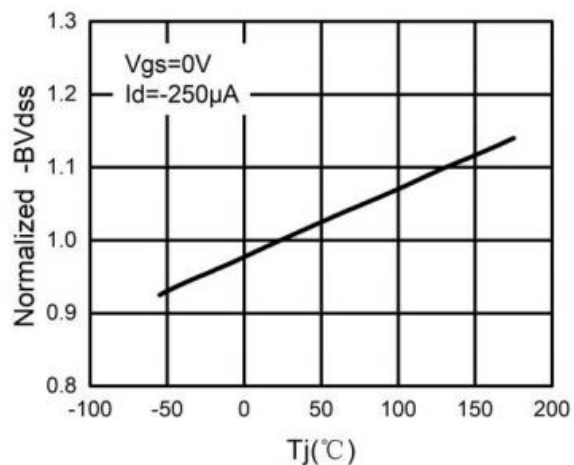


Figure 6. R_{DS(ON)} vs Junction Temperature

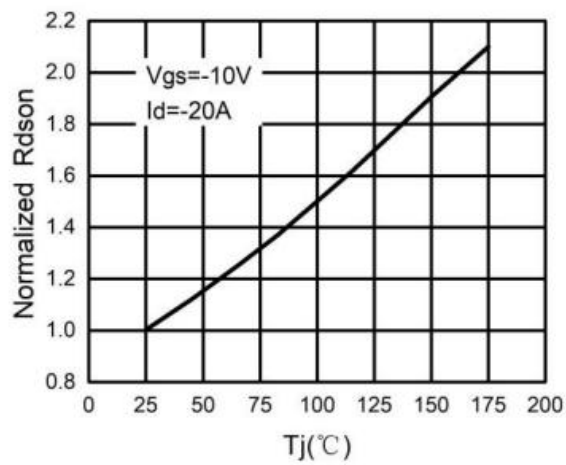
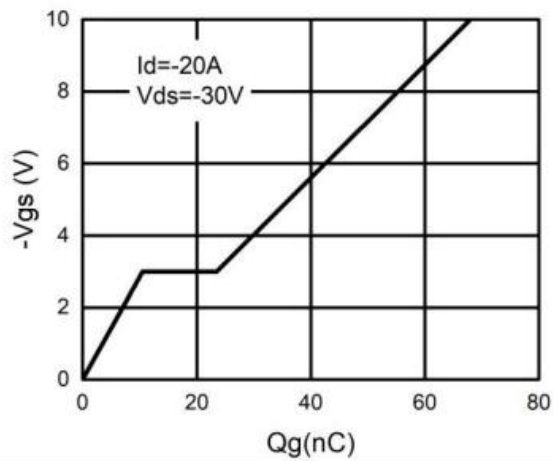
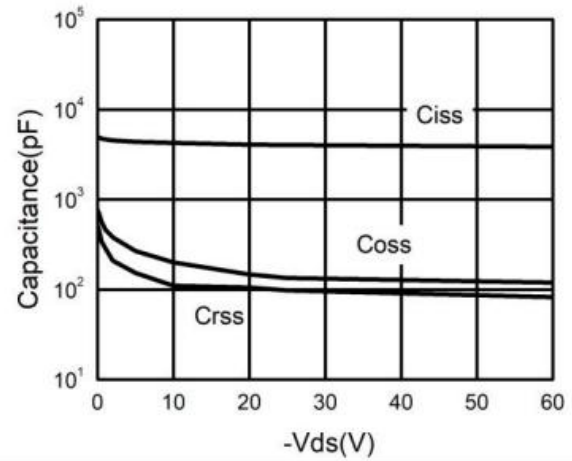
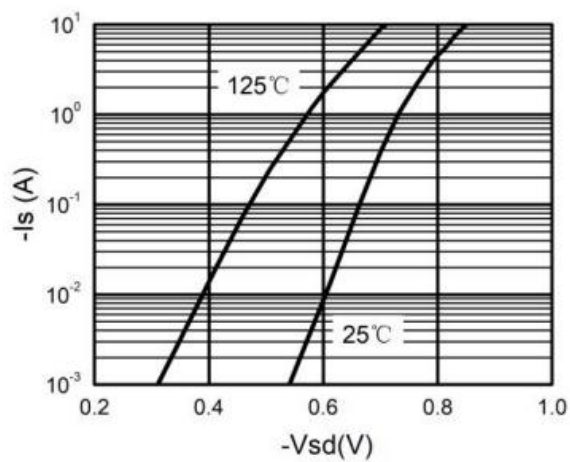
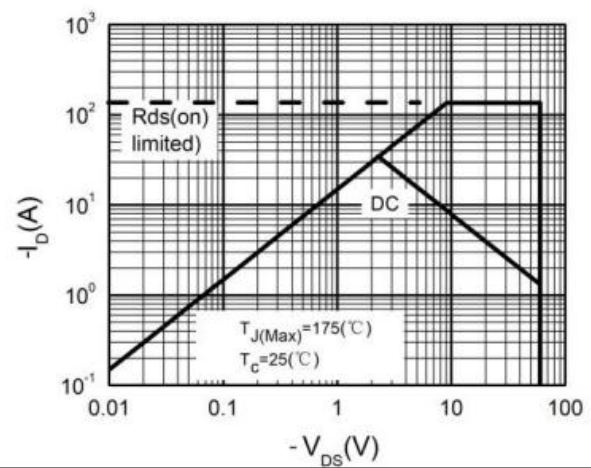
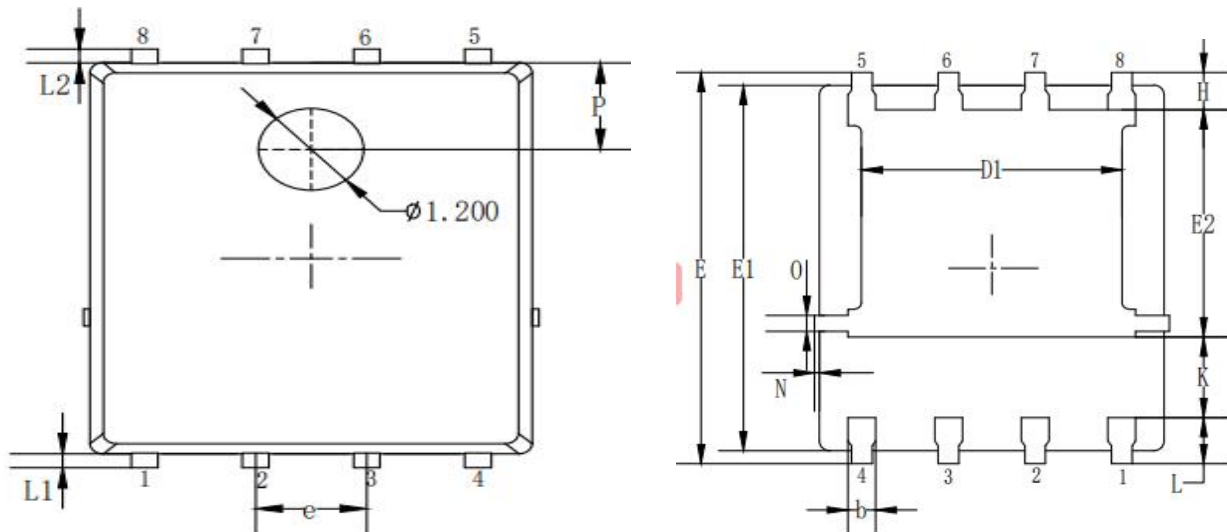


Figure 7. Gate Charge Waveforms

Figure 8. Capacitance

Figure 9. Body-Diode Characteristics

Figure 10. Maximum Safe Operating Area


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	5.10
D1	3.72	3.82	3.92
E	6.00	6.15	6.25
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	0.69	0.75
L1/L2	0.10 ~ 0.20		
θ	8°	10°	12°
M	0.08 REF.		
N	0	-	0.15
O	0.25 REF.		
P	1.28 REF.		

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