

P-Channel 30V MOSFET

E030P4P0HL1

V_{DS} (V)	$R_{DS(on),max}$ (m Ω)	I_D (A)
-30V	4 @ $V_{GS} = -10V$	-99

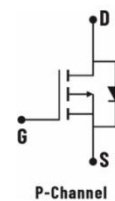
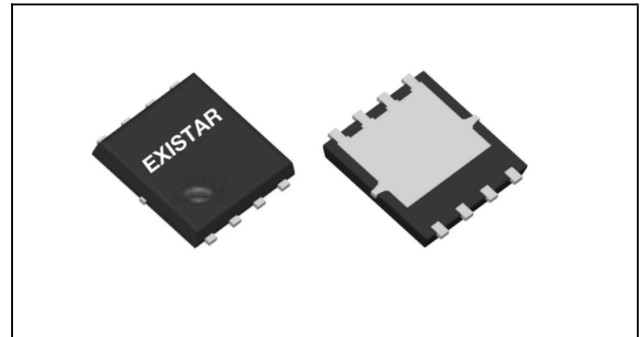
Features

- 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



Package And Ordering Information

Ordering code	Package	Marking
E030P4P0HL1	PDFN5x6	E030P4P0HL1

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)	-30	V
ID, pulse	-396	A
RDS(ON), max @ VGS=10V	4	mΩ
Qg	130	nC

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

Parameter		Symbol	Limit	Unit
Drain-source voltage		V _{DS}	-30	V
Gate-source voltage		V _{GS}	±20	
Continuous drain current	T _C =25°C	I _D	-99	A
	T _C =100°C		-62	
Pulsed drain current		I _{D,pulse}	-396	
Avalanche energy, single pulse		E _{AS}	576	mJ
Power dissipation	T _C =25°C	P _D	58	W
	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	Steady state	R _{θJC}	2.15	°C/W
Thermal resistance, junction-to-ambient	Steady state	R _{θJA}	-	

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}	-30			V	V _{GS} = 0, I _D = -250 μA
Gate-source threshold voltage	V _{GS(th)}	-1	-1.7	-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} = -30 V, V _{GS} = 0 V
Drain-source on-resistance	R _{DS(on)}		3	4	mΩ	V _{GS} = -10 V, I _D = -20 A
Drain-source on-resistance	R _{DS(on)}		4.9	6.1	mΩ	V _{GS} = -4.5 V, I _D = -20 A
Forward transconductance	g _{fs}		65		S	V _{DS} = -5 V, I _D = -20 A

Gate resistance	R _g		3.9		Ω	f=1MHz
Gate Charge						
Total gate charge	Q _g		130		nC	V _{DS} = -15 V, I _D = -20 A, V _{GS} = -10 V
Gate-source charge	Q _{gs}		12			
Gate-drain charge	Q _{gd}		31			
Dynamic						
Turn-on delay time	t _{d(on)}		13		ns	V _{DS} = -15 V, V _{GS} = -10 V, R _L =0.75Ω,R _{GEN} = 3 Ω
Rise time	t _r		32			
Turn-off delay time	t _{d(off)}		27			
Fall time	t _f		9			
Input capacitance	C _{iSS}		7000		pF	V _{DS} = -15 V, V _{GS} = 0 V, f = 1MHz
Output capacitance	C _{oSS}		820			
Reverse transfer capacitance	C _{rSS}		540			
Body Diode						
Diode forward voltage	V _{SD}			-1.2	V	V _{GS} = 0 V, I _S = -20 A
Reverse recovery time	t _{rr}		30		ns	I _F = -20 A, di/dt = -100 A/μs
Reverse recovery charge	Q _{rr}		40		nC	

Electrical Characteristics Diagrams

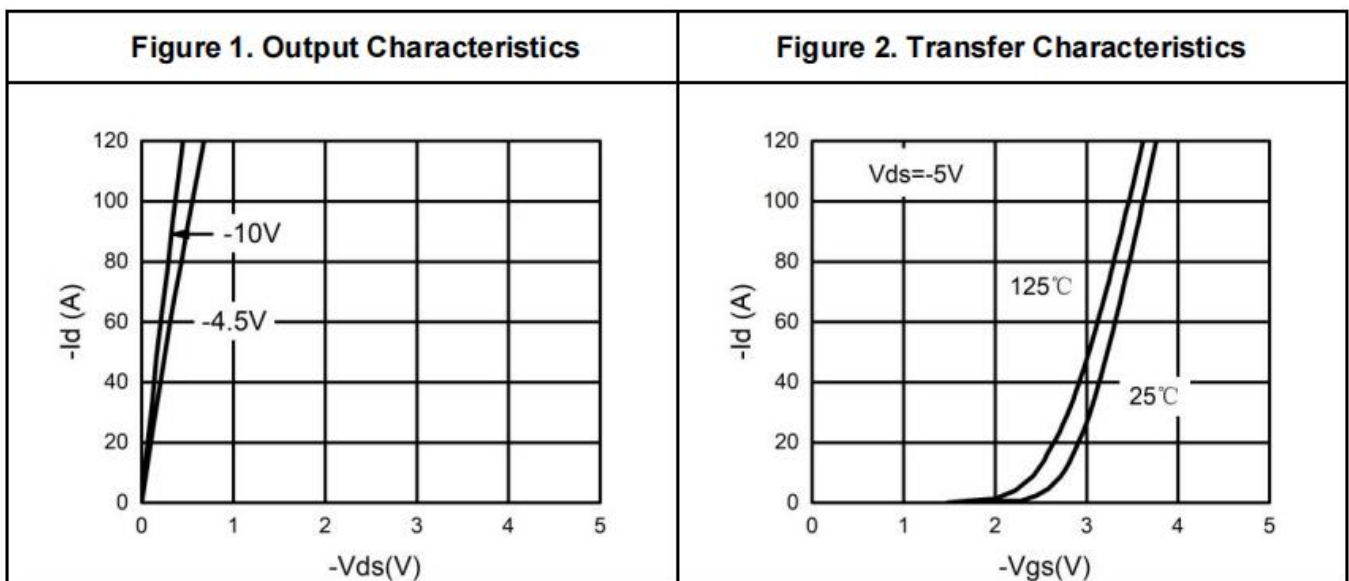


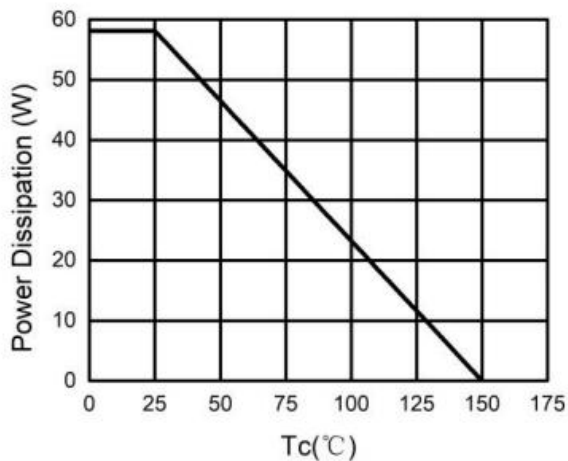
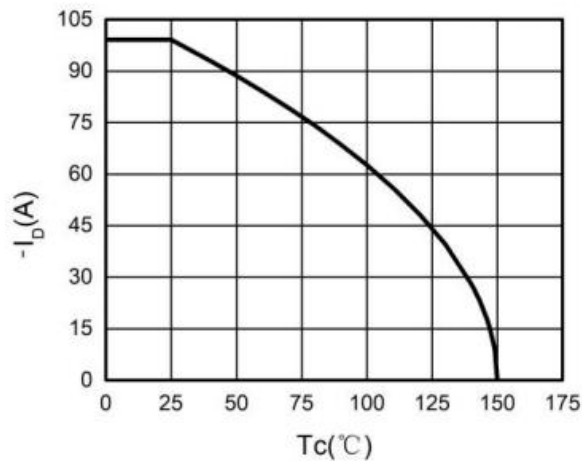
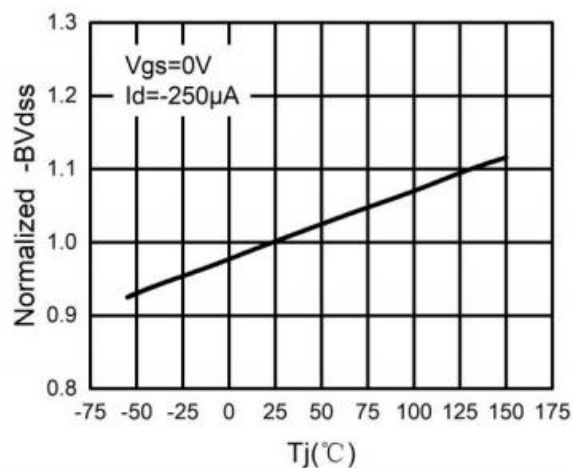
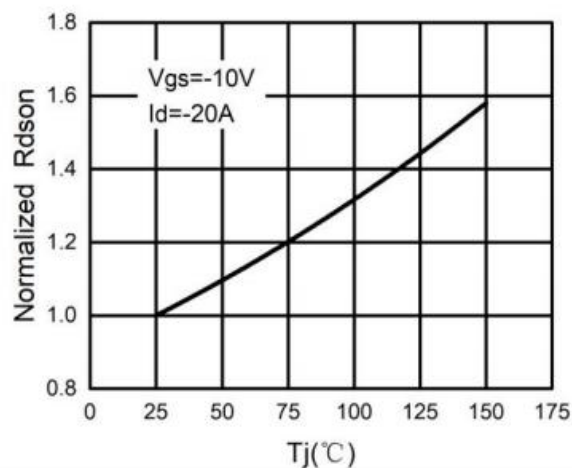
Figure 3. Power Dissipation

Figure 4. Drain Current

Figure 5. BV_{DSS} vs Junction Temperature

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


Figure 7. Gate Charge Waveforms

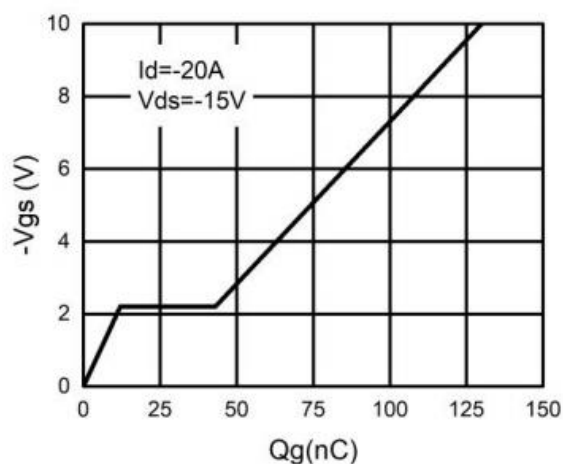


Figure 8. Capacitance

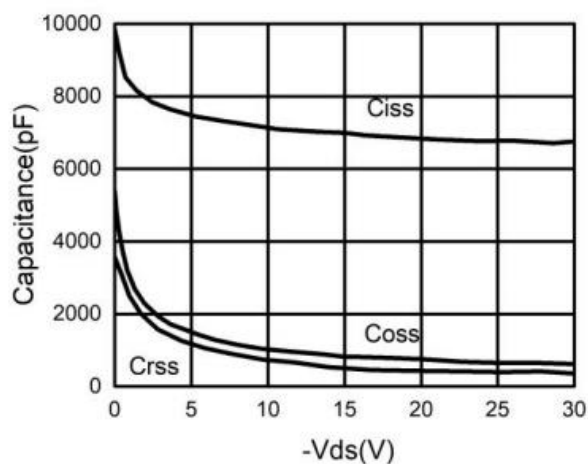


Figure 9. Body-Diode Characteristics

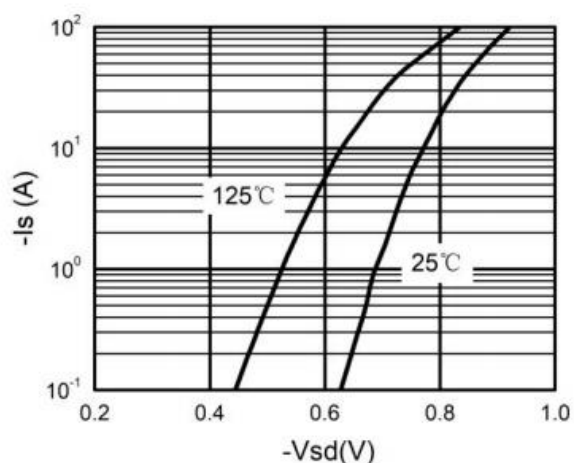
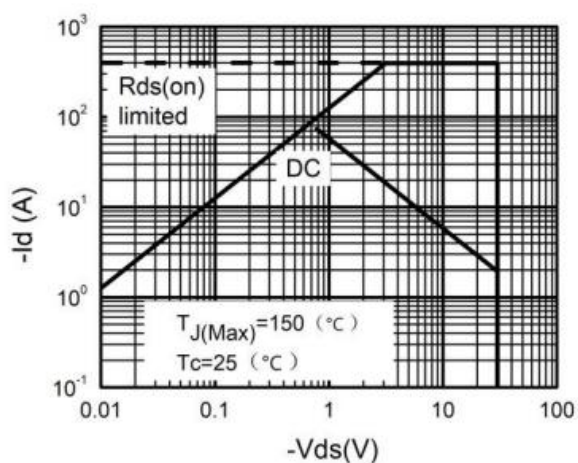
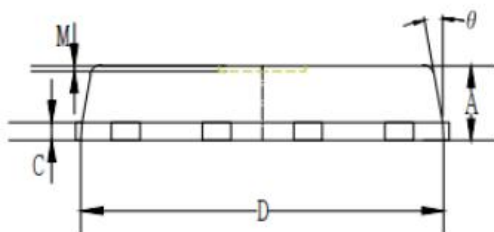
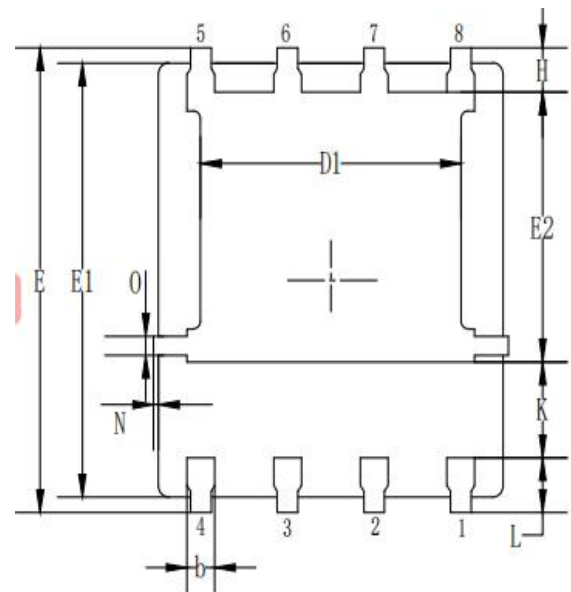
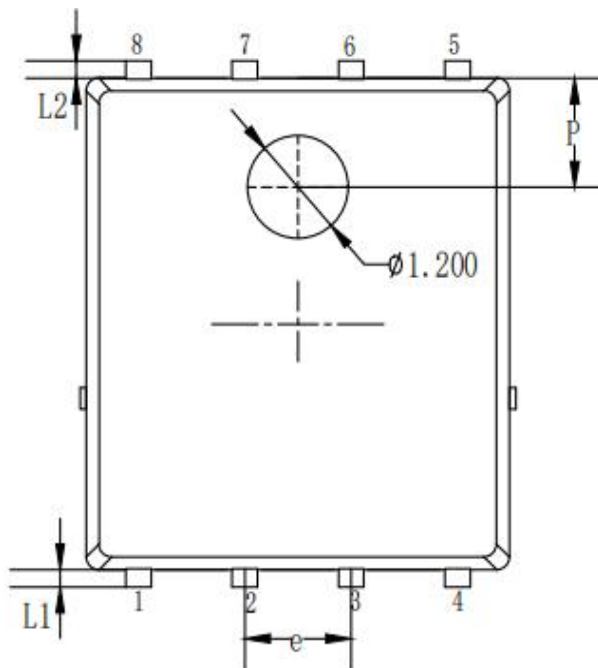


Figure 10. Maximum Safe Operating Area



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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