

P-Channel -100V MOSFET

E18P100KH

V_{DS} (V)	$R_{DS(on),max}$ (m Ω)	I_D (A)
-100V	100 @ $V_{GS} = -10V$	-19

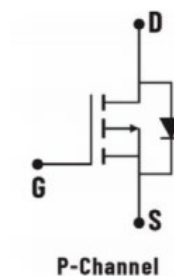
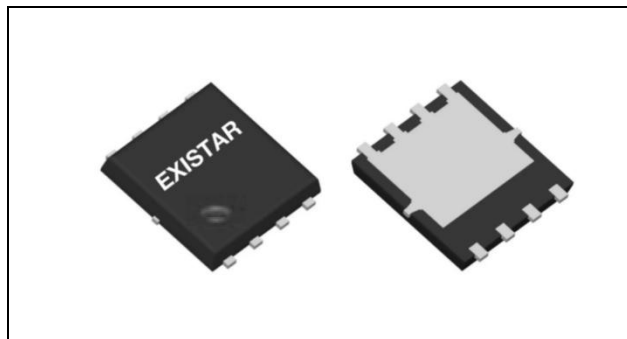
Features

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

Applications

- DC/DC conversion
- Power switch
- Moto driver

PDFN5*6



Package And Ordering Information

Ordering code	Package	Marking
E18P100KH	PDFN5*6	E18P100KH

Ordering Information

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

Key Performance Parameters

Parameter	Value	Unit
VDS, min @ Tj(max)	-100	V
ID, pulse	-76	A
RDS(ON), max @ VGS=-10V	100	mΩ
Qg	72	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	T _C =25°C	I _D	-19	A
	T _C =100°C		-13.5	
Pulsed drain current		I _{D,pulse}	-76	
Avalanche energy, single pulse		E _{AS}	156	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}	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	-121		V	V _{GS} = 0, I _D = -250 μA
Gate-source threshold voltage	V _{GS(th)}	-1	-1.8	-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} = -100 V, V _{GS} = 0 V
Drain-source on-resistance	R _{DS(on)}		80	100	mΩ	V _{GS} = -10 V, I _D = -6 A
Drain-source on-resistance	R _{DS(on)}		95	120	mΩ	V _{GS} = -4.5 V, I _D = -5 A

Forward transconductance	g _{fs}		150		S	V _{DS} = -5 V, I _D = -5 A
Gate Charge						
Total gate charge	Q _g		72		nC	V _{DS} = -50 V, I _D = -10 A, V _{GS} = -10 V
Gate-source charge	Q _{gs}		8.4			
Gate-drain charge	Q _{gd}		17.3			
Dynamic						
Turn-on delay time	t _{d(on)}		6		ns	V _{DS} = -50 V, V _{GS} = -10 V, R _L =5 Ω , R _{GEN} =9.1 Ω
Rise time	t _r		29			
Turn-off delay time	t _{d(off)}		17			
Fall time	t _f		24			
Input capacitance	C _{iss}		3690		pF	V _{DS} =-50 V, V _{GS} = 0 V, f = 1.0MHz
Output capacitance	C _{oss}		85			
Reverse transfer capacitance	C _{rss}		70			
Body Diode						
Diode forward voltage	V _{SD}			-1.4	V	V _{GS} = 0 V, I _s = -10 A
Reverse recovery time	t _{rr}		32		ns	I _F = -15 A, di/dt = 100 A/μs
Reverse recovery charge	Q _{rr}		53		nC	

Electrical Characteristics Diagrams

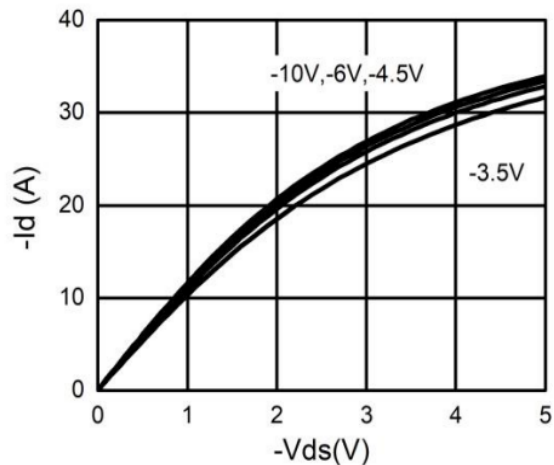
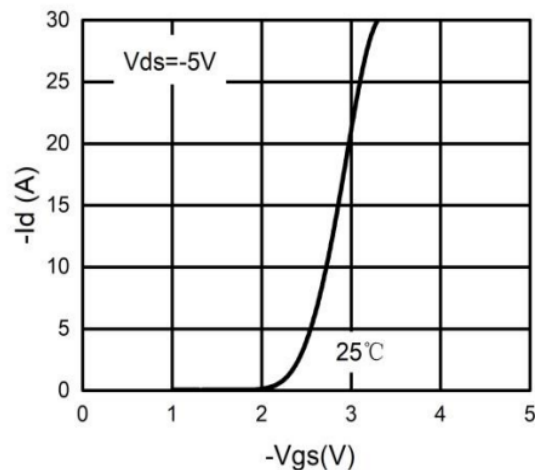
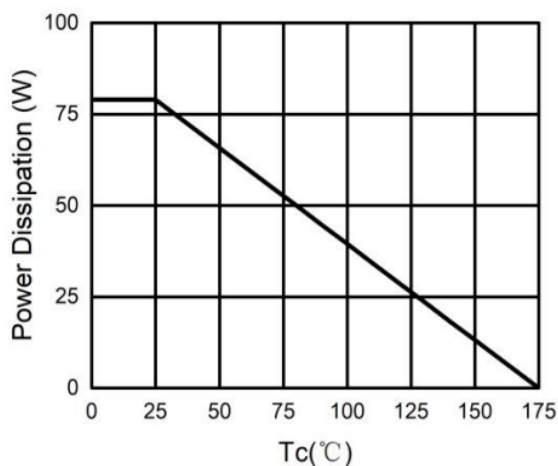
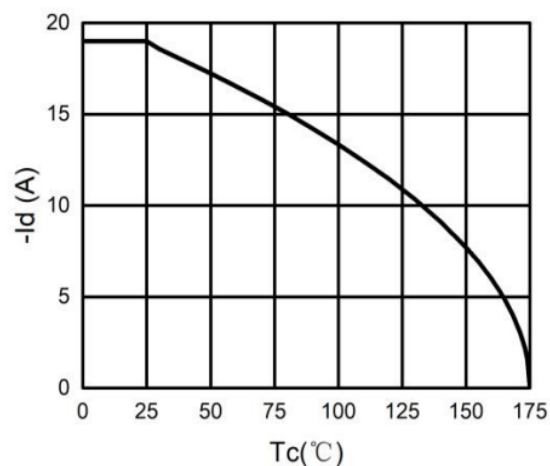
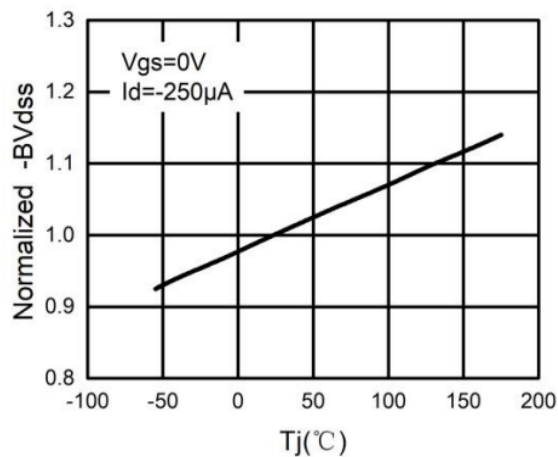
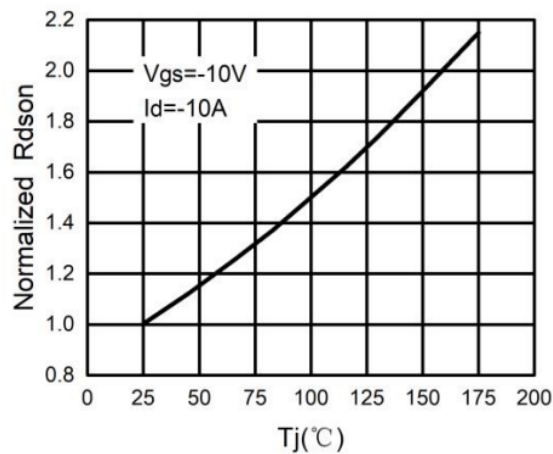
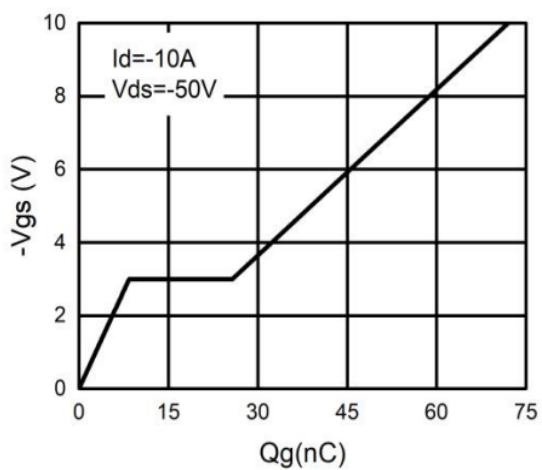
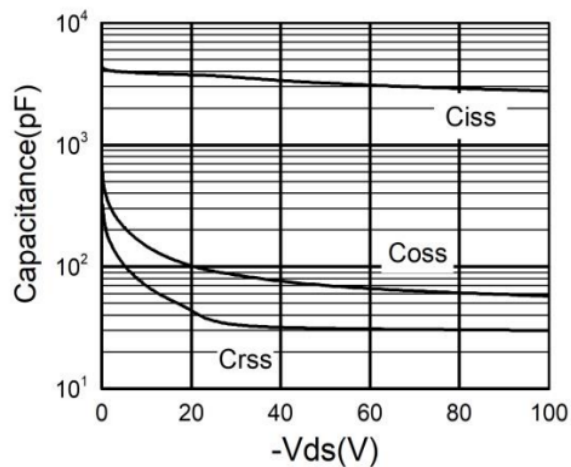
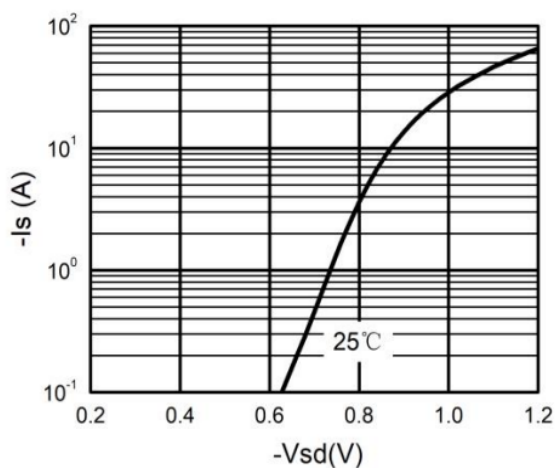
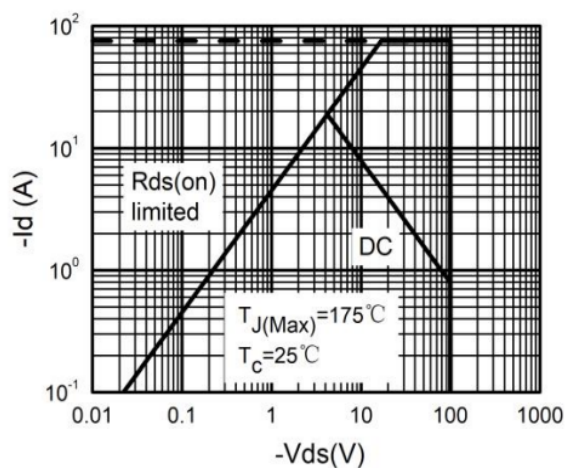
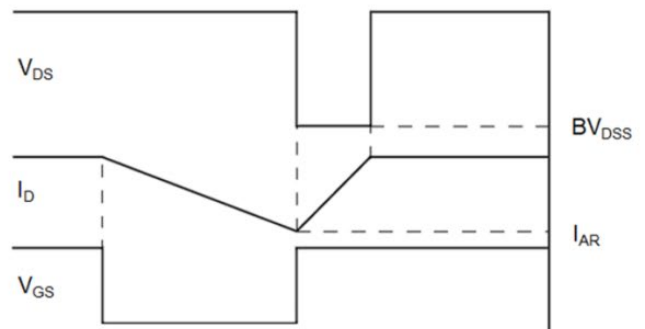
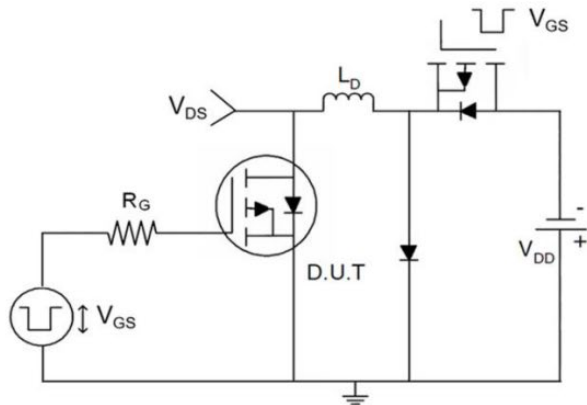
Figure 1. Output Characteristics

Figure 2. Transfer Characteristics

Figure 3. Power Dissipation

Figure 4. Drain Current

Figure 5. BV_{DSS} vs Junction Temperature

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


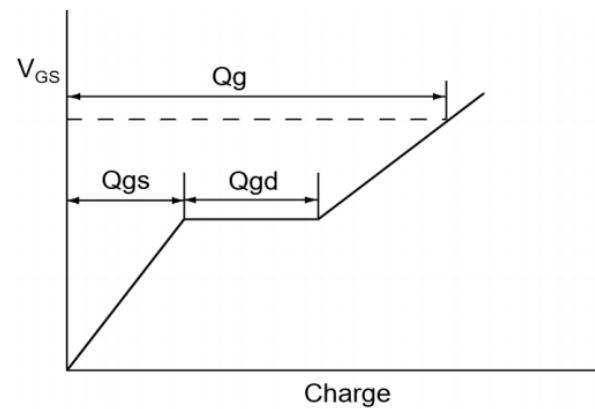
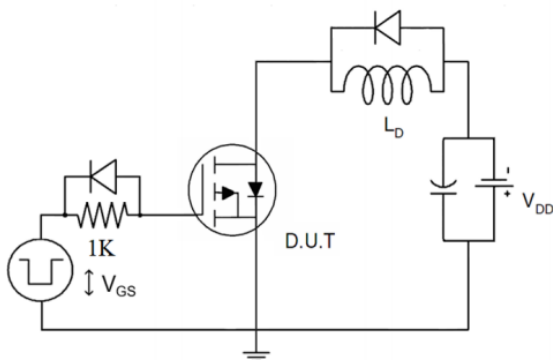
Figure 7. Gate Charge Waveforms

Figure 8. Capacitance

Figure 9. Body-Diode Characteristics

Figure 10. Maximum Safe Operating Area


Test circuits and waveforms

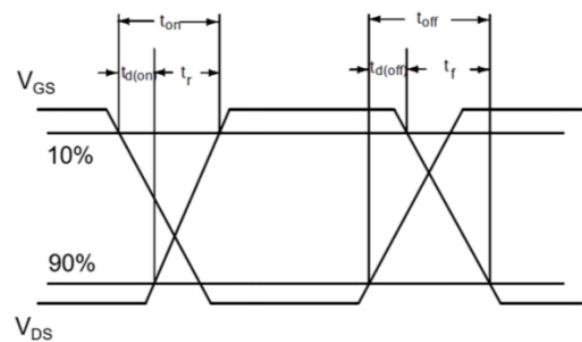
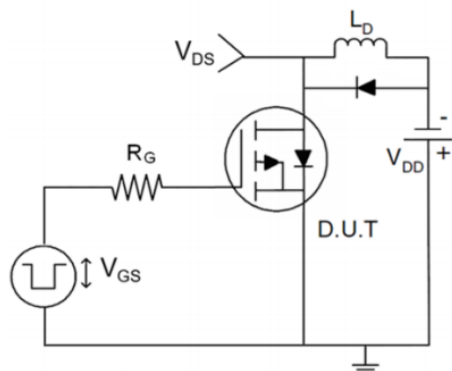
1) E_{AS} Test Circuits



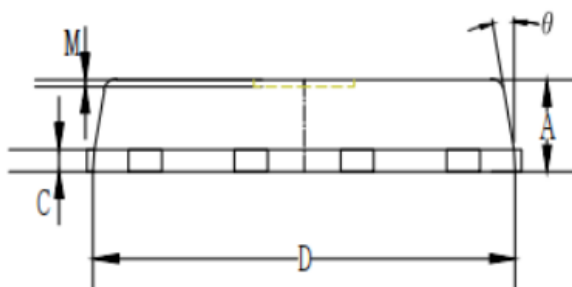
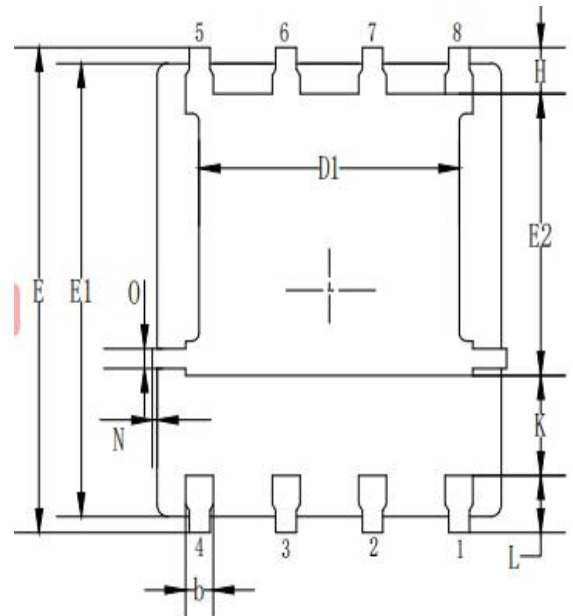
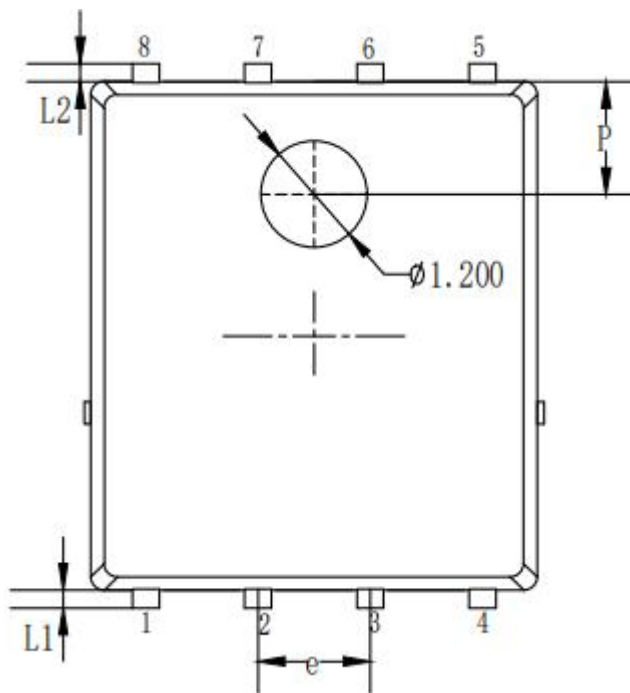
2) Gate Charge Test Circuit



3) Switch Time Test Circuit



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.		

Legal Disclaimer

The information given in this document shall be for illustrative purposes only and shall in no event be regarded as a guarantee of conditions or characteristics. Existar Technologies reserves the right to change any information herein. With respect to any examples, hints or any typical values stated herein and/or any information regarding the application of the product, Existar Technologies or its affiliates hereby make no representation or warranty of any kind, expressed or implied, as to any information provided hereunder, including without limitation as to the accuracy, completeness or non-infringement of intellectual property rights of any third party, and they assume no liability for the consequences of use of such information. In addition, any information given in this document is subject to customer's compliance with its obligations stated herein and any applicable legal requirements, norms and standards concerning customer's products and any use of the product of Existar Technologies in customer's applications. The information contained herein is exclusively intended for technically trained staff. No license is granted by implication under any patent right, copyright, mask work right, or other intellectual property right. It is customer's sole responsibility to evaluate the suitability of the product for the intended application and the completeness of the product information given herein with respect to such application. In no event shall Existar Technologies or its affiliates be liable to any party for any direct, indirect, special, punitive, incidental or consequential damages of any nature whatsoever, including but not limited to loss of profits and loss of goodwill, whether or not such damages are based on tort or negligence, warranty, breach of contract or any other legal theory.