

N-Channel 100V MOSFET

E100N8P5HL1

V_{DS} (V)	$R_{DS(on),max}$ (m Ω)	I_D (A)
100V	8.5 @ $V_{GS} = 10V$	45

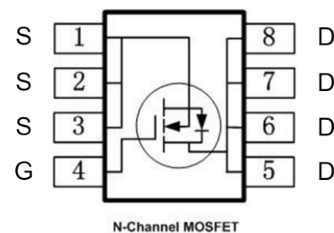
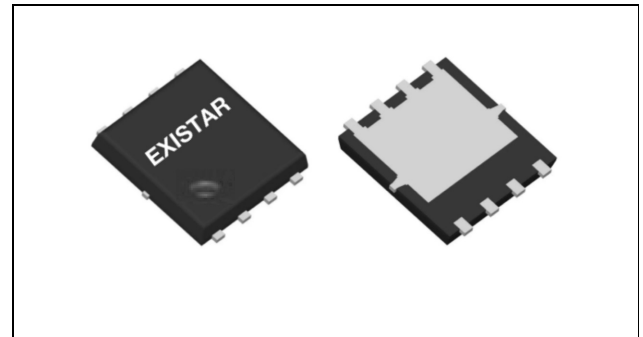
Features

- 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
E100N8P5HL1	PDFN5x6	E100N8P5HL1

Ordering Information

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

Key Performance Parameters

Parameter	Value	Unit
V _{DS} , min @ T _j (max)	100	V
I _D , pulse	180	A
R _{DS(ON)} , max @ V _{GS} =10V	8	mΩ
Q _g	37.8	nC

Absolute Maximum Ratings at T_j=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	45	A
	T _C =100°C		22	
Pulsed drain current		I _{D,pulse}	180	
Avalanche energy, single pulse		E _{AS}	240	mJ
Power dissipation	T _C =25°C	P _D	31	W
	T _A =25°C		-	
Operating junction and storage temperature range		T _J , T _{stg}	-55 to +150	°C

Thermal Characteristics

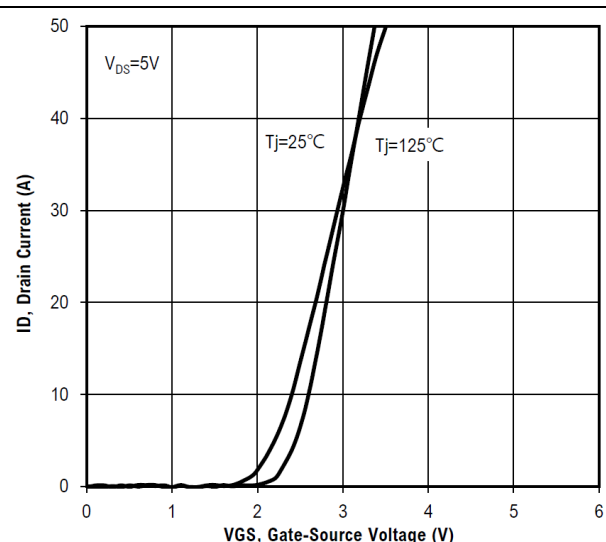
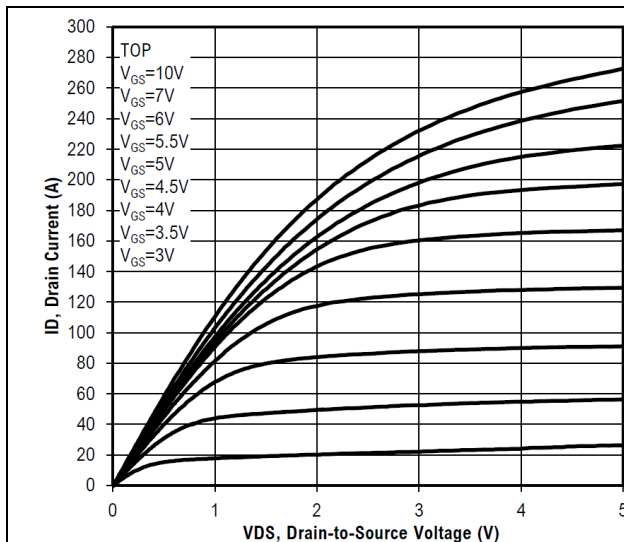
Parameter		Symbol	Max.	Unit
Thermal resistance, junction-to-case	Steady state	R _{θJC}	4	°C/W
Thermal resistance, junction-to-ambient	Steady state	R _{θJA}	62	

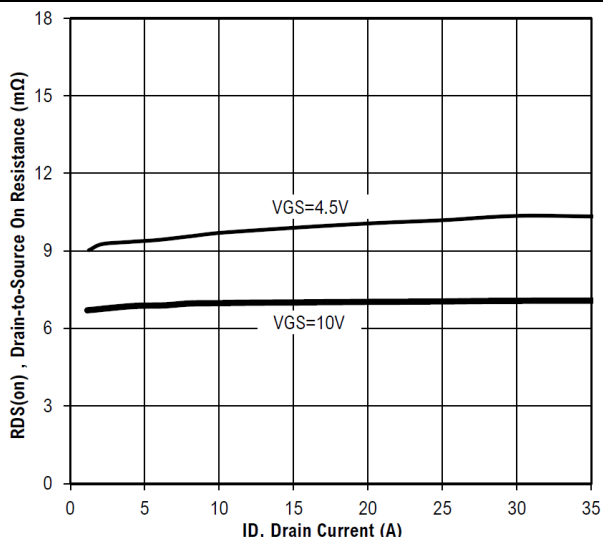
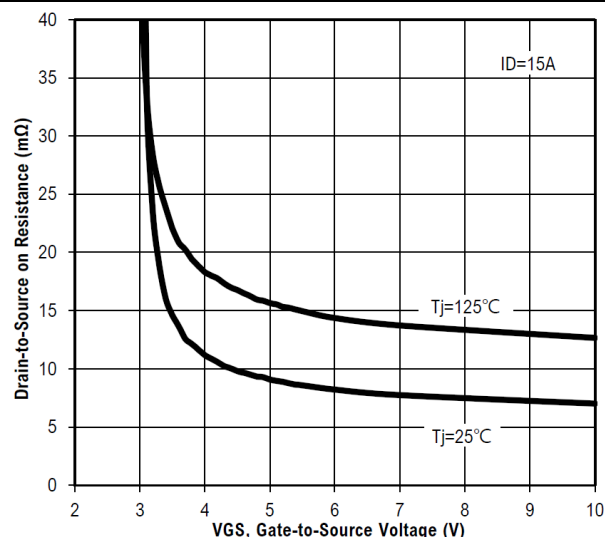
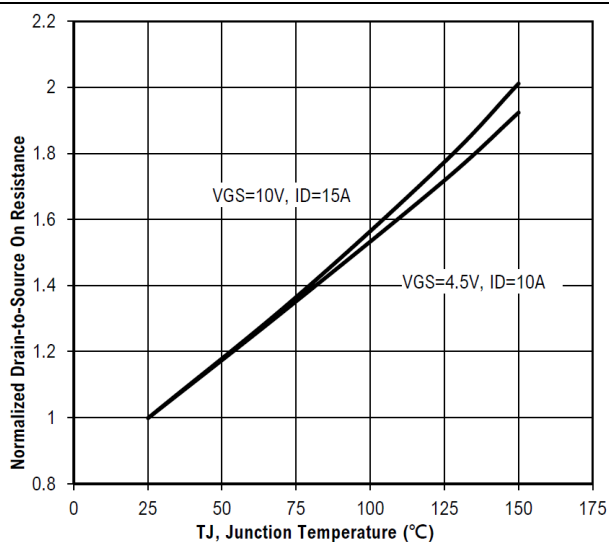
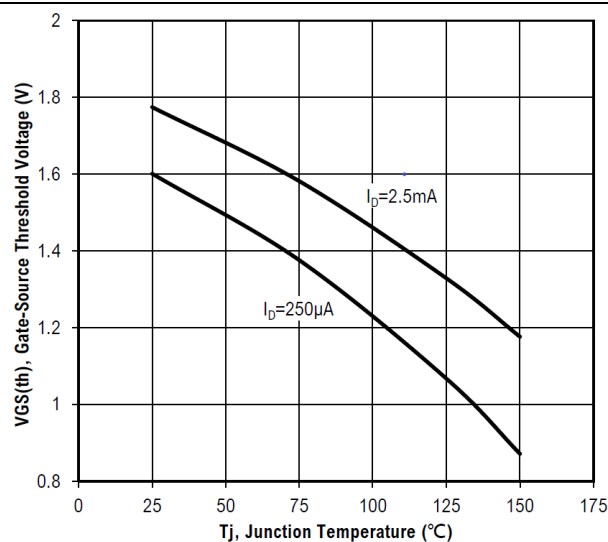
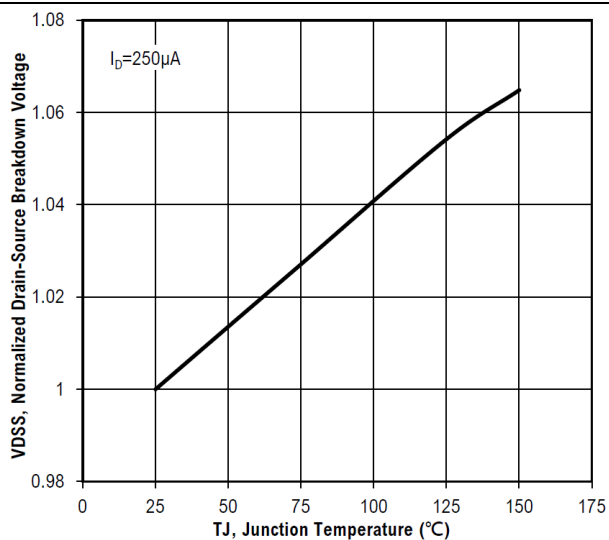
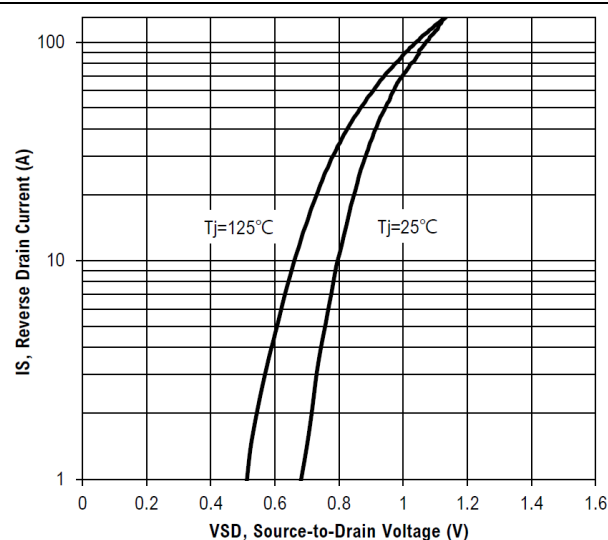
Electrical Characteristics at T_j=25°C unless otherwise specified

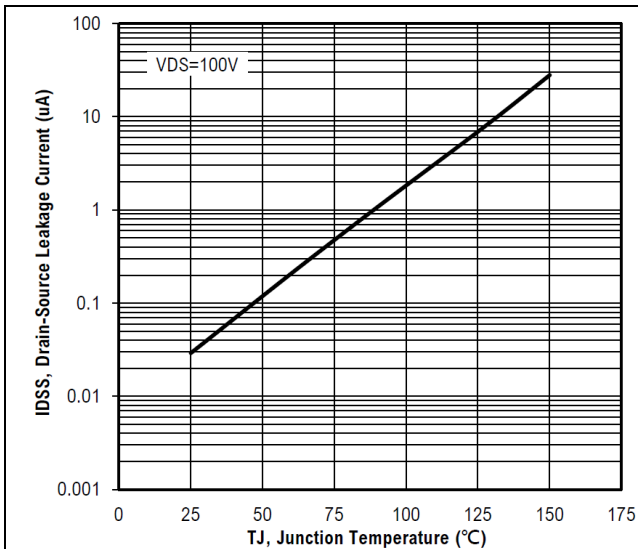
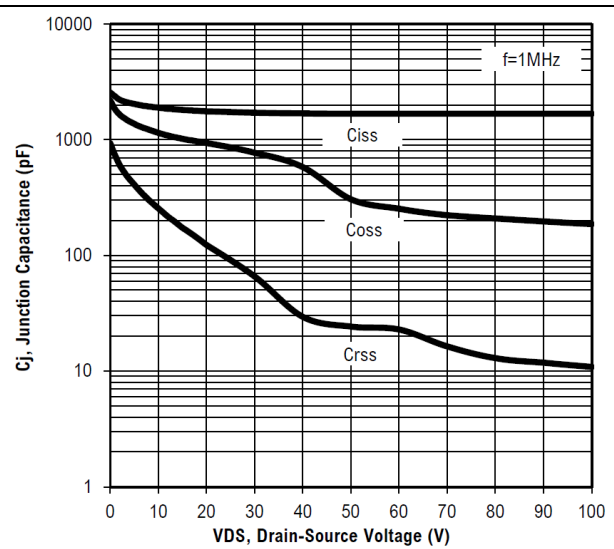
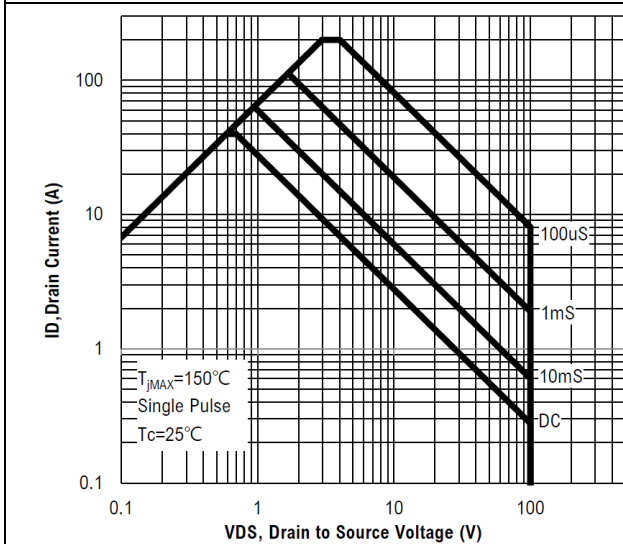
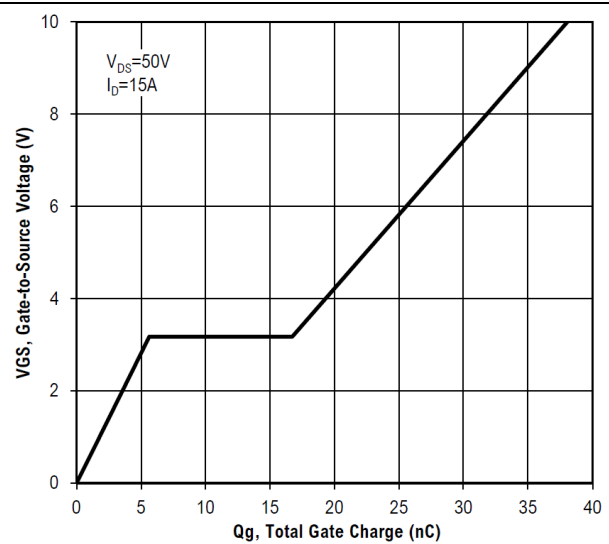
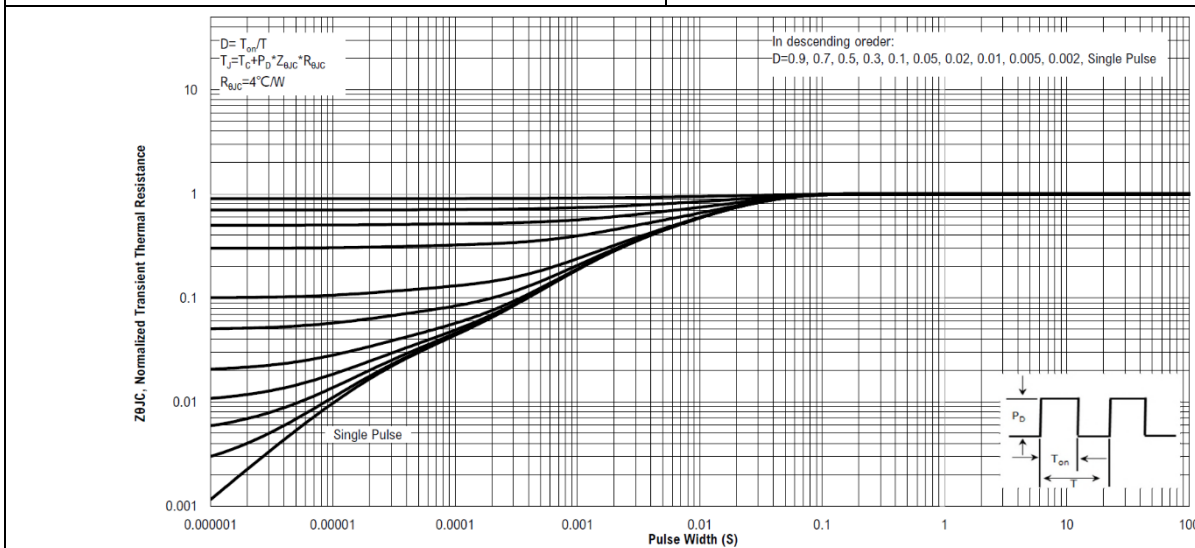
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Static						
Drain to source breakdown voltage	V _{(BR)DSS}	100			V	V _{GS} = 0, I _D = 250 μA
Gate-source threshold voltage	V _{GS(th)}	1.2		2.5	V	V _{DS} = V _{GS} , I _D = 250 μA
Gate-body leakage	I _{GSS}			±100	nA	V _{DS} = 0 V, V _{GS} = ±20 V
Zero gate voltage drain current	I _{DSS}			1	μA	V _{DS} = 80 V, V _{GS} = 0 V
Drain-source on-resistance	R _{DS(on)}		7.7	8.5	mΩ	V _{GS} = 10 V, I _D = 15 A
Drain-source on-resistance	R _{DS(on)}		10.1	11.5	mΩ	V _{GS} = 4.5 V, I _D = 10 A

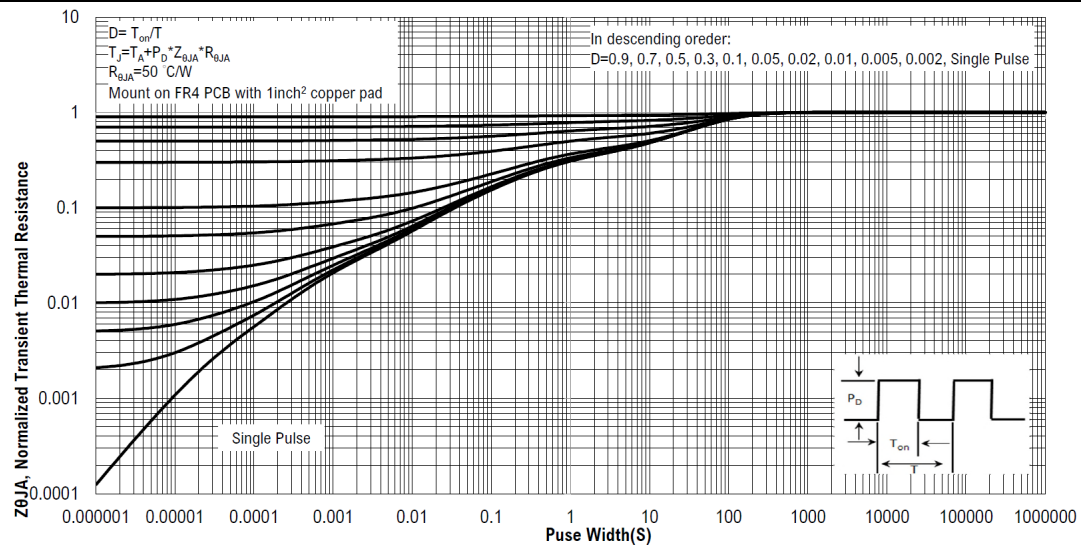
Forward transconductance	gfs		30		S	VDS = 5 V, ID = 10 A
Gate resistance	Rg		0.6		Ω	f=1MHz
Gate Charge						
Total gate charge	Qg		37.8		nC	VDS = 50 V, ID = 15 A, VGS = 10 V
Gate-source charge	Qgs		5.5			
Gate-drain charge	Qgd		10.9			
Dynamic						
Turn-on delay time	td(on)		14.4		ns	VDS = 50 V, ID =15 A, VGS = 10 V, RGEN =3.3 Ω
Rise time	tr		15.6			
Turn-off delay time	td(off)		15.2			
Fall time	tf		3.8			
Input capacitance	Ciss		1684		pF	VDS =50 V, VGS = 0 V, f = 1MHz
Output capacitance	Coss		306			
Reverse transfer capacitance	Crss		24			
Body Diode						
Diode forward voltage	VSD			1.2	V	VGS = 0 V, IF = 20 A
Reverse recovery time	trr		40		ns	VR= 50 V, IS =15 A, di/dt = 100 A/μs
Reverse recovery charge	Qrr		39		nC	

Electrical Characteristics Diagrams

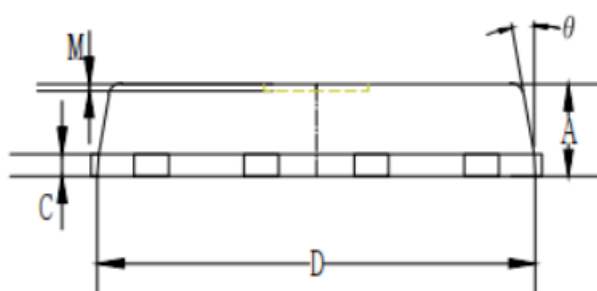
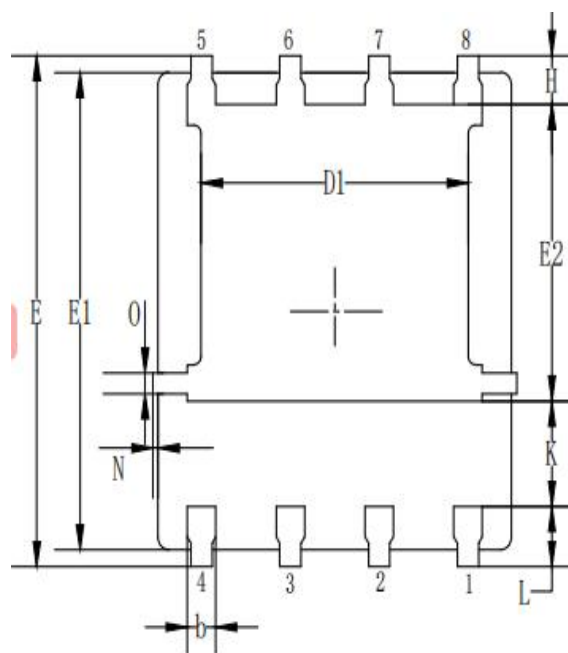
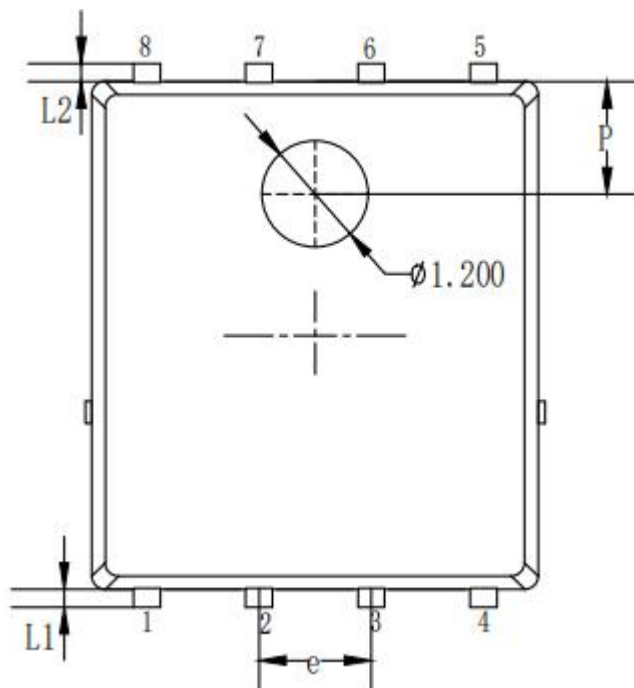



Figure 3. On-Resistance vs. Drain Current and Gate

Figure 4. On-Resistance vs. Gate-Source Voltage

Figure 5. On-Resistance vs. Junction Temperature

Figure 6. Gate Threshold Voltage

Figure 7. Drain-source breakdown voltage vs. Junction Temperature

Figure 8. Body-Diode Characteristics


Figure 9. Zero Gate Voltage Drain Current vs. Junction Temperature

Figure 10. Capacitance vs. Drain to Source Voltage

Figure 11. Maximum Forward Biased Safe Operating Area

Figure 12. Gate-Charge Characteristics

Figure 13. Transient Thermal Resistance


Figure 14. Transient Thermal Resistance

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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