

● General Description

The AGM60P30AP combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$

This device is ideal for load switch and battery protection applications.

● Features

- Advance high cell density Trench technology
- Low $R_{DS(ON)}$ to minimize conductive loss
- Low Gate Charge for fast switching
- Low Thermal resistance
- 100% Avalanche tested
- 100% DVDS tested

● Application

- MB/VGA Vcore
- SMPS 2nd Synchronous Rectifier
- POL application
- BLDC Motor driver

Product Summary

BVDSS	RDSON	ID
-60V	40mΩ	-30A

PDFN3.3*3.3 Pin Configuration

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM60P30AP	AGM60P30AP	PDFN3.3*3.3	330mm	12mm	5000

Table 1. Absolute Maximum Ratings (TA=25°C)

Symbol	Parameter	Value	Unit
VDS	Drain-Source Voltage (VGS=0V)	-60	V
VGS	Gate-Source Voltage (VDS=0V)	±20	V
ID	Drain Current-Continuous(Tc=25°C) (Note 1)	-30	A
	Drain Current-Continuous(Tc=100°C)	-18	A
IDM (pluse)	Drain Current-Pulsed (Note 2)	-120	A
PD	Maximum Power Dissipation(Tc=25°C)	35	w
	Maximum Power Dissipation(Tc=100°C)	13	w
EAS	Avalanche energy (Note 3)	64	mJ
TJ,TSTG	Operating Junction and Storage Temperature Range	-55 To 150	°C

Table 2. Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
RθJA	Thermal Resistance Junction-ambient (Steady State) ¹	---	50	°C/W
RθJC	Thermal Resistance Junction-Case ¹	---	3.6	°C/W

Table 3. Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V ID=-250μA	-60	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=-60V, VGS=0V	--	--	-1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=-250μA	-1.2	-1.6	-2.2	V
gFS	Forward Transconductance	VDS=-5V, ID=-5A	--	10	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=-10V, ID=-10A	--	40	60	mΩ
		VGS=-4.5V, ID=-5A	--	51	75	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=-30V, VGS=0V, F=1MHZ	--	740	--	pF
Coss	Output Capacitance		--	114	--	pF
Crss	Reverse Transfer Capacitance		--	11	--	pF
Rg	Gate resistance	f=1.0MHz	--	4.5	--	Ω
Switching Times						
td(on)	Turn-on Delay Time	VGS=-10V, VDS=-30V, ID=-12A, RGEN=2.5Ω	--	28	--	nS
tr	Turn-on Rise Time		--	19	--	nS
td(off)	Turn-Off Delay Time		--	60	--	nS
tf	Turn-Off Fall Time		--	7.2	--	nS
Qg	Total Gate Charge	VGS=-10V, VDS=-15V, ID=-12A	--	9.8	--	nC
Qgs	Gate-Source Charge		--	3.1	--	nC
Qgd	Gate-Drain Charge		--	2.9	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	-30	A
VSD	Forward on Voltage	VGS=0V, IS=-10A	--	--	-1.2	V
trr	Reverse Recovery Time	Isd=-10A ,	--	--	--	ns
Qrr	Reverse Recovery Charge	dI/dt=100A/μs , T _J =25°C	--	--	--	nc

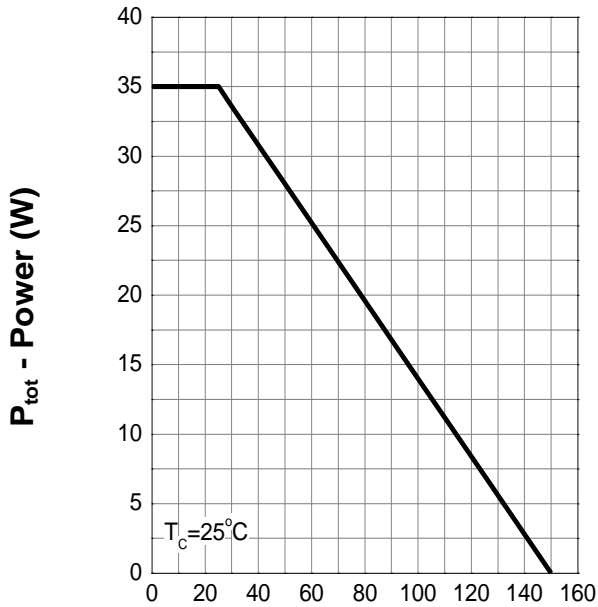
Notes 1.The maximum current rating is package limited.

Notes 2.Repetitive Rating: Pulse width limited by maximum junction temperature

Notes 3.EAS condition: T_J=25°C, VDD=-30V, Vgs=-10V, ID=-16A, L=0.5mH, RG= 25ohm

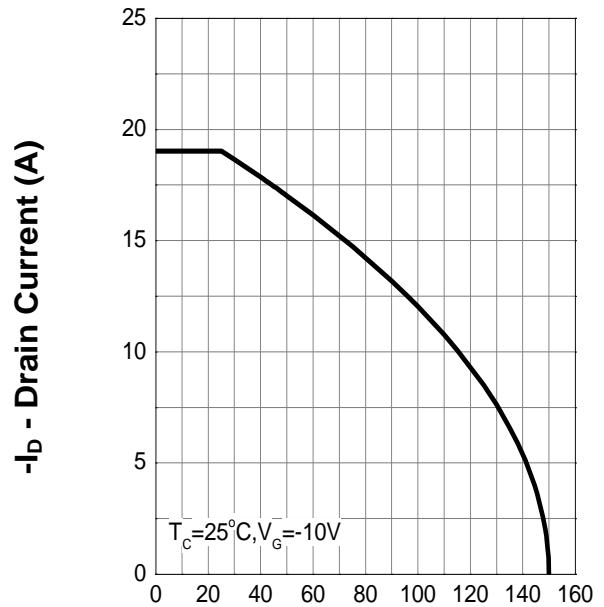
Typical Characteristics

Power Dissipation



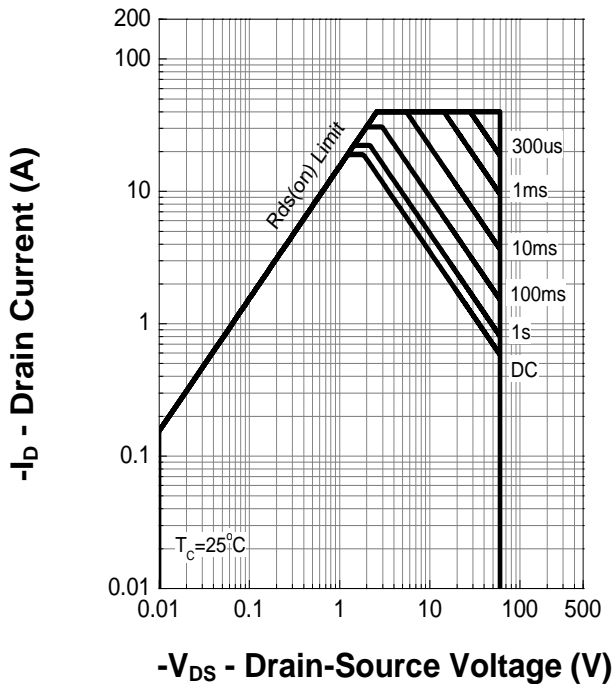
T_j - Junction Temperature (°C)

Drain Current



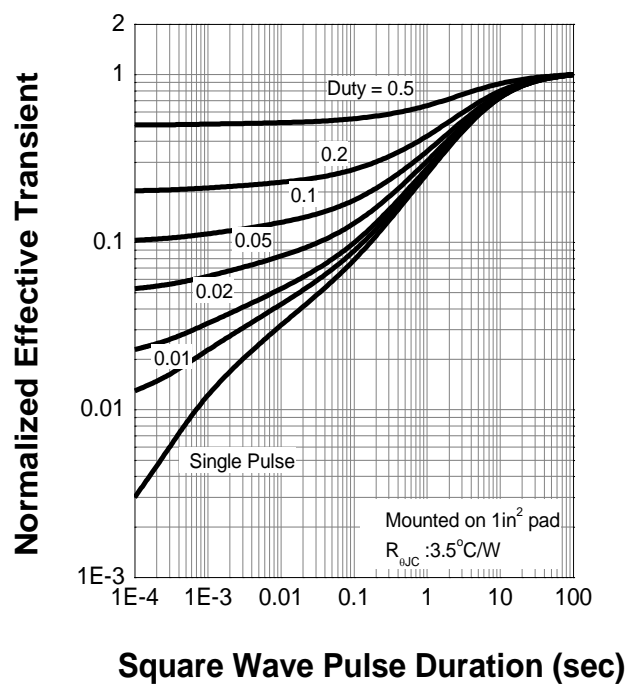
T_j - Junction Temperature (°C)

Safe Operation Area



-V_{DS} - Drain-Source Voltage (V)

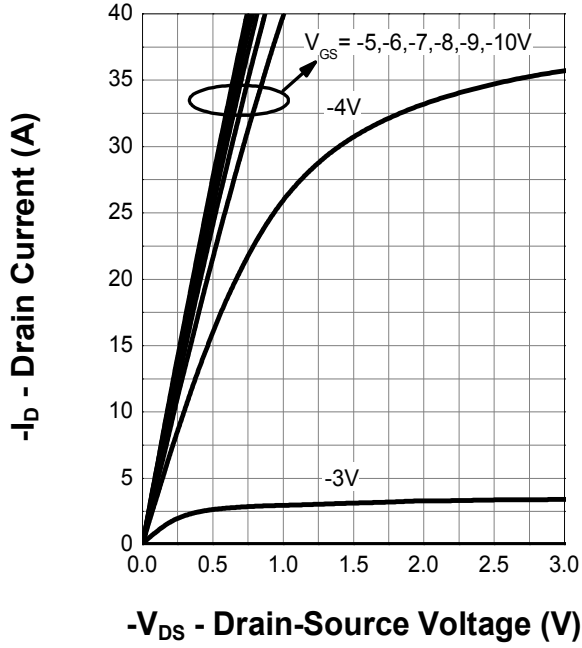
Thermal Transient Impedance



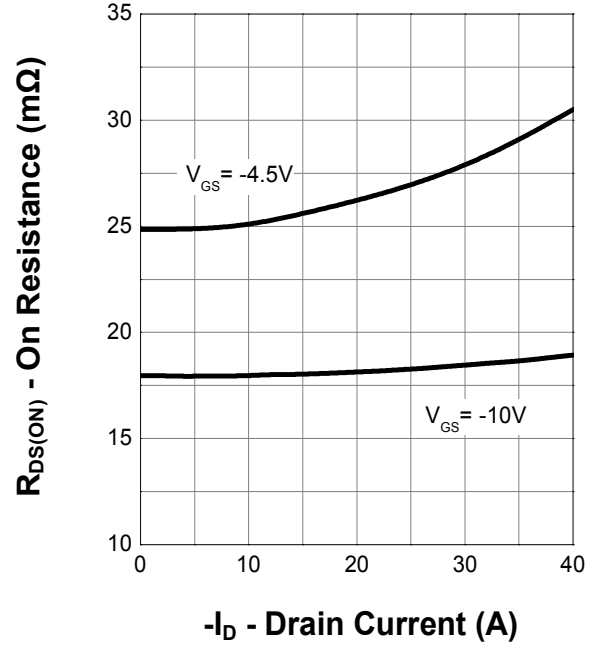
Square Wave Pulse Duration (sec)

Typical Characteristics (Cont.)

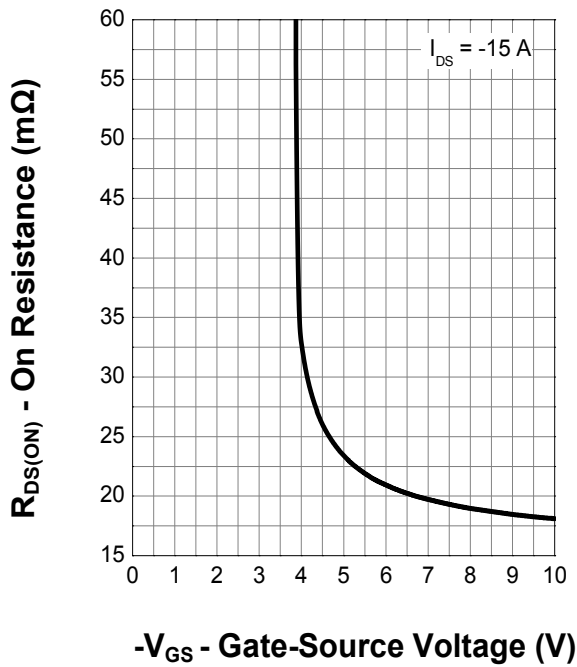
Output Characteristics



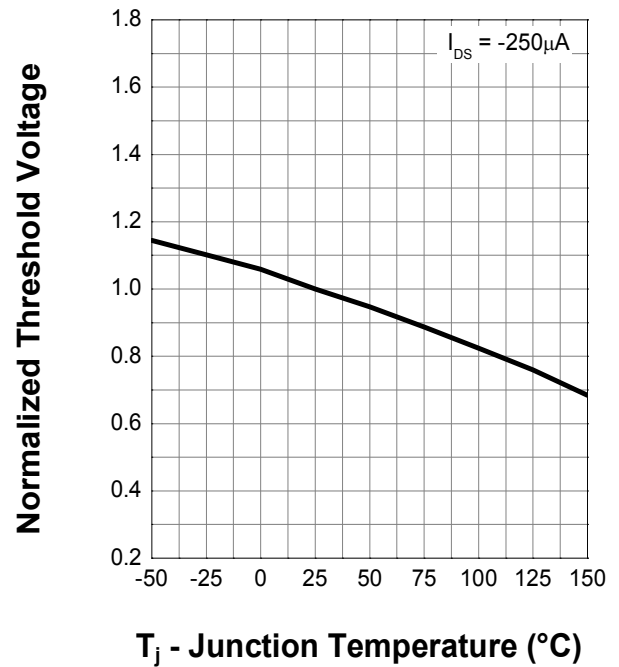
Drain-Source On Resistance



Transfer Characteristics

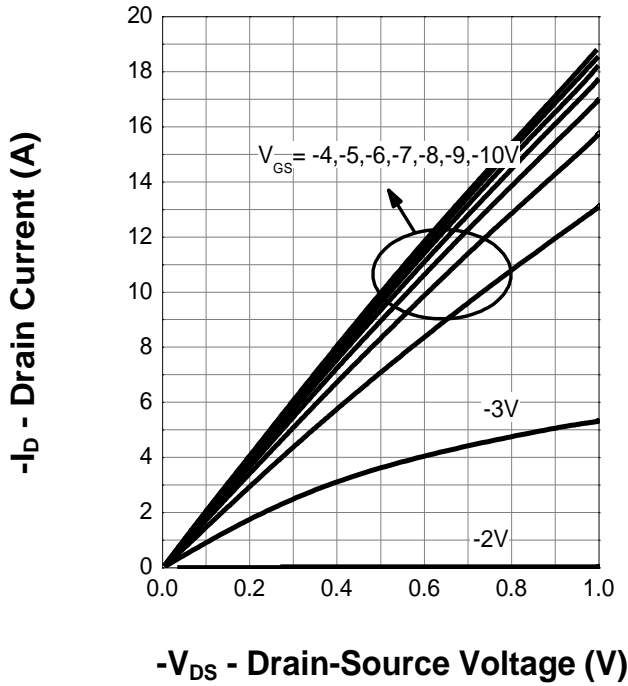


Normalized Threshold Voltage

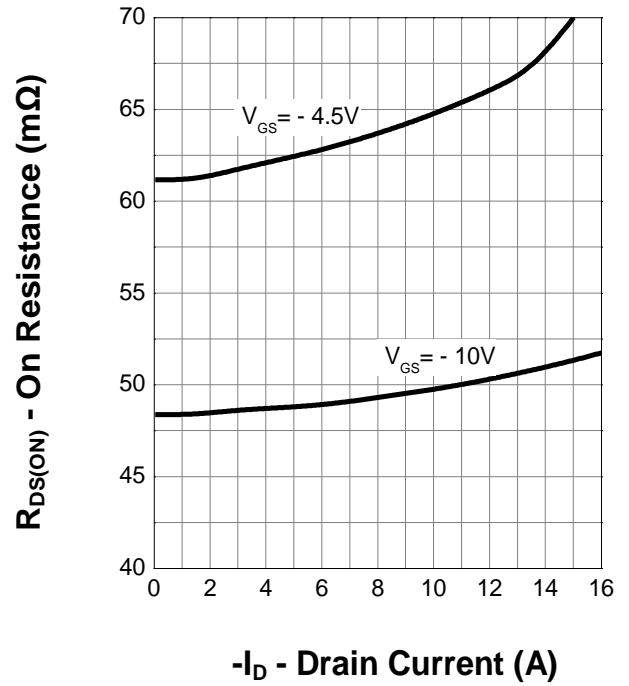


Typical Characteristics (cont.)

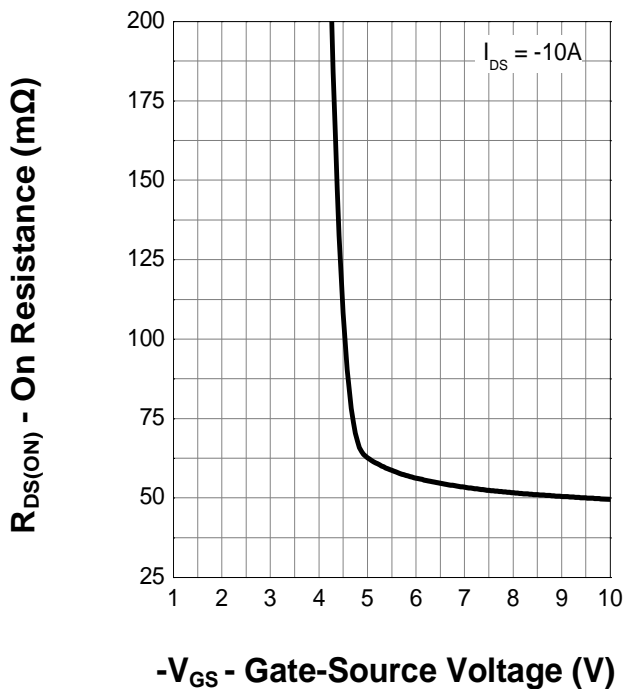
Output Characteristics



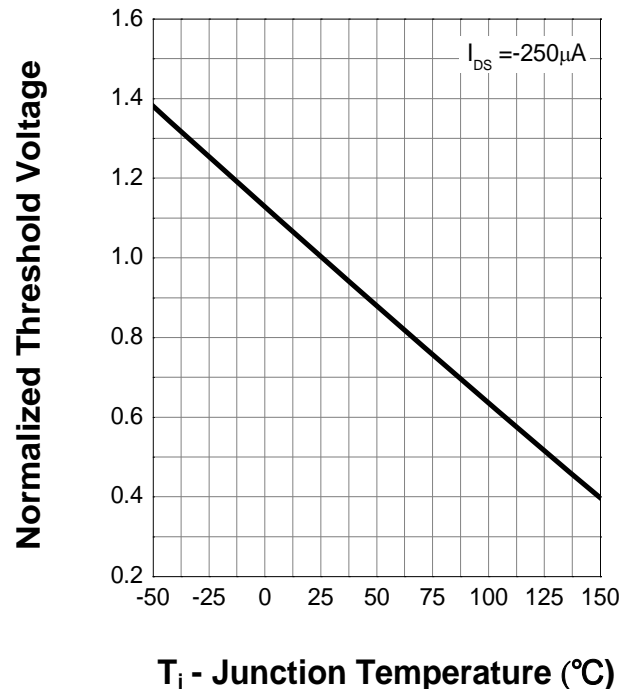
Drain-Source On Resistance



Transfer Characteristics

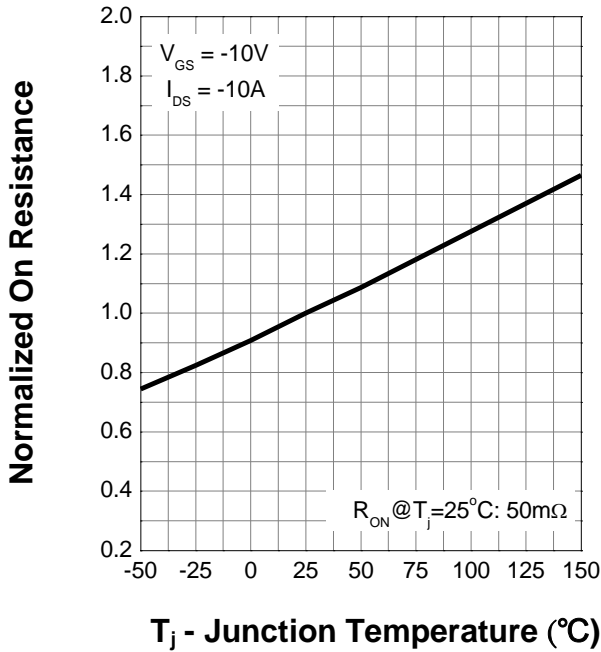


Gate Threshold Voltage

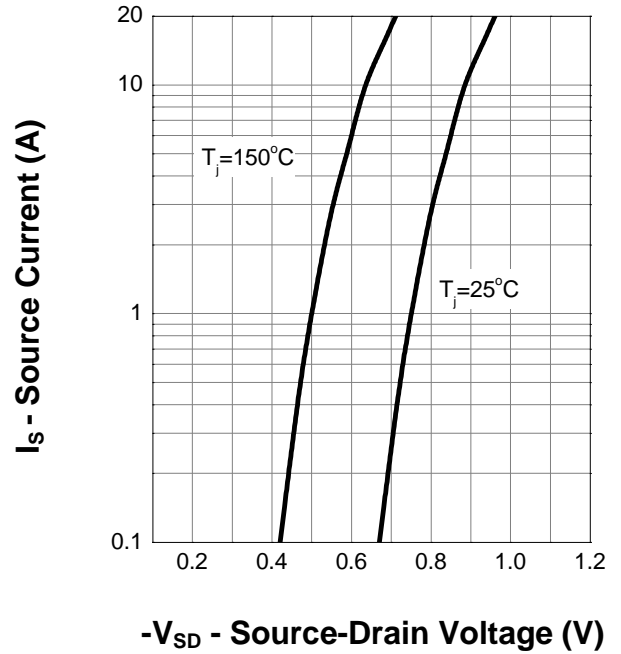


Typical Characteristics (cont.)

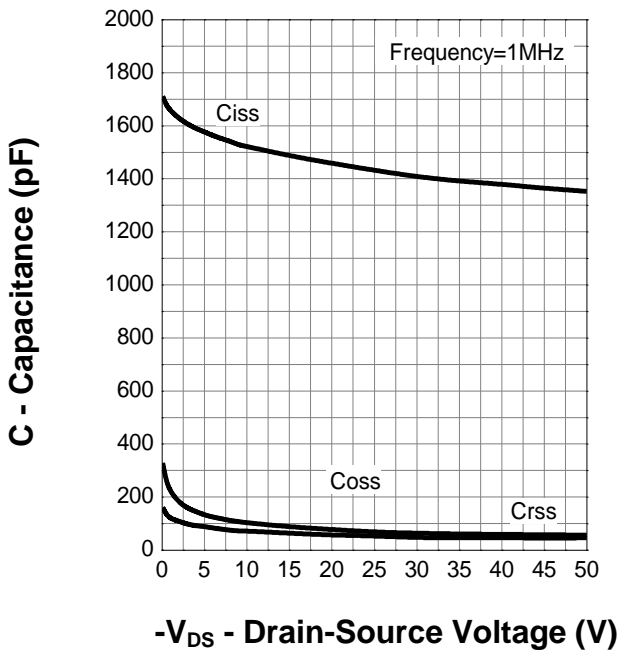
Drain-Source On Resistance



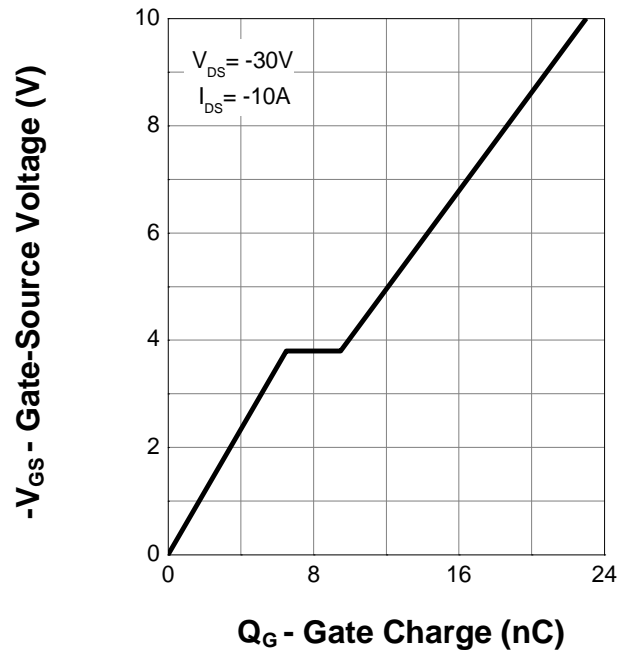
Source-Drain Diode Forward

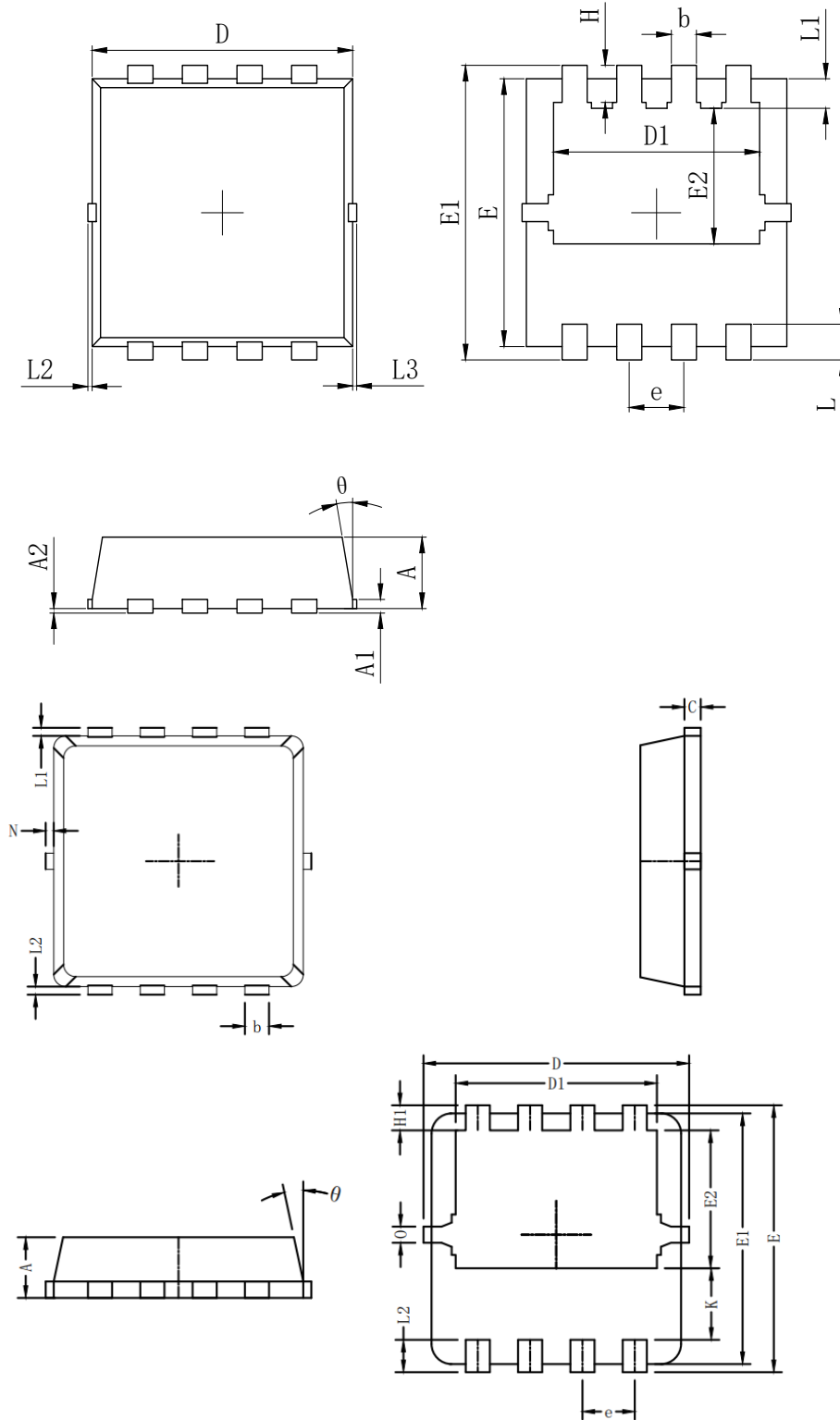


Capacitance



Gate Charge



●Dimensions (PDFN3.3×3.3)


SYMBOL	MILLIMETER		
	MIN	Typ.	MAX
A	0.700	0.800	0.900
A1	0.152 REF.		
A2	0 [~] 0.05		
D	3.000	3.100	3.200
D1	2.300	2.450	2.600
E	2.900	3.000	3.100
E1	3.150	3.300	3.450
E2	1.320	1.520	1.720
b	0.200	0.300	0.400
e	0.550	0.650	0.750
L	0.300	0.400	0.500
L1	0.180	0.330	0.480
L2	0 [~] 0.100		
L3	0 [~] 0.100		
H	0.315	0.415	0.515
θ	8°	10°	12°

Symbols	Millimeters		
	MIN.	NOM.	MAX.
A	0.65	0.75	0.85
b	0.25	0.30	0.35
C	0.15	0.20	0.25
D	3.00	3.10	3.20
D1	2.40	2.50	2.60
E	3.20	3.30	3.40
E1	3.00	3.10	3.20
E2	1.60	1.70	1.80
e	0.65 BSC.		
H1	0.21	0.31	0.41
H2	0.30	0.40	0.50
K	0.78	0.88	0.98
L1/L2	0.10 REF.		
θ	11°	12°	13°
N	0	-	0.15
0	0.2 REF.		


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