● General Description

The AGM1095M 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

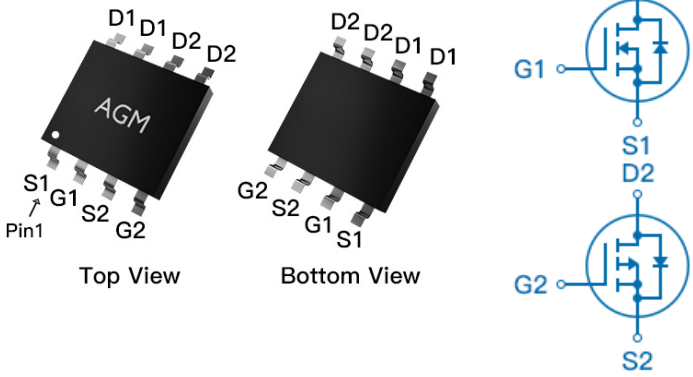
● Application

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

Product Summary

BVDSS	RDSON	ID
100V	100mΩ	7A
-100V	240mΩ	-6A

SOP8 Pin Configuration



Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM1095M	AGM1095M	SOP8	330mm	12mm	3000

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

Symbol	Parameter	Rating		Units
		N-Ch	P-Ch	
V_{DS}	Drain-Source Voltage (V_{GS}=0V)	100	-100	V
V_{GS}	Gate-Source Voltage (V_{DS}=0V)	±20	±20	V
ID	Drain Current-Continuous(T_A=25℃) (Note 1)	7.0	-6.0	A
	Drain Current-Continuous(TA=100℃)	4.2	-3.6	A
IDM (pluse)	Drain Current-Pulsed (Note 2)	28	-24	A
P_D	Total Power Dissipation(TA=25℃)	2.5	2.5	W
EAS	Avalanche energy (Note 3)	42	56	mJ
TJ,TSTG	Operating Junction and Storage Temperature Range	-55 To 150	-55 To 150	℃

Table 2. Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient (Steady State)[1]	--	50	℃/W

Table 3. N- Channel Electrical Characteristics (TJ=25℃unless otherwisenoted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V ID=250μA	100	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=100V,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	--	2.2	V
gFS	Forward Transconductance	VDS=5V,ID=3A	--	7	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=6A	--	100	120	mΩ
		VGS=4.5V, ID=3A	--	102	140	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=50V,VGS=0V, F=1MHZ	--	999	--	pF
Coss	Output Capacitance		--	46	--	pF
Crss	Reverse Transfer Capacitance		--	32	--	pF
Rg	Gate resistance	VGS=0V, VDS=0V,f=1.0MHz	--	--	--	Ω
Switching Times						
td(on)	Turn-on Delay Time	VGS=10V,VDS=30V, RL=15Ω,RGEN=2.5Ω	--	50	--	nS
tr	Turn-on Rise Time		--	2.9	--	nS
td(off)	Turn-Off Delay Time		--	17.3	--	nS
tf	Turn-Off Fall Time		--	2.8	--	nS
Qg	Total Gate Charge	VGS=10V, VDS=30V, ID=3A	--	25.4	--	nC
Qgs	Gate-Source Charge		--	4.2	--	nC
Qgd	Gate-Drain Charge		--	4.3	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	7.0	A
VSD	Forward on Voltage	VGS=0V,IS=6A	--	--	1.2	V
trr	Reverse Recovery Time	IF=3A , dI/dt=100A/μs , TJ=25℃	--	--	--	ns
Qrr	Reverse Recovery Charge		--	--	--	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: TJ=25℃,VDD=50V,Vgs=10V，ID=13A,L=0.5mH,RG=25ohm

Table 3. P-Channel Electrical Characteristics (TJ=25℃unless otherwisenoted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V ID=-250μA	-100	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=-100V,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=-3A	--	8	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=-10V, ID=-6A	--	240	250	mΩ
		VGS=-4.5V, ID=-3A	--	230	250	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=-50V,VGS=0V, F=1MHZ	--	1600	--	pF
Coss	Output Capacitance		--	86	--	pF
Crss	Reverse Transfer Capacitance		--	40	--	pF
Rg	Gate resistance	VGS=0V, VDS=0V,f=1.0MHz	--	1.2	--	Ω
Switching Times						
td(on)	Turn-on Delay Time	VGS=-10V,VDS=-50V, ID=-10A,RGEN=3.3Ω	--	12	--	nS
tr	Turn-on Rise Time		--	152	--	nS
td(off)	Turn-Off Delay Time		--	28	--	nS
tf	Turn-Off Fall Time		--	38	--	nS
Qg	Total Gate Charge	VGS=-10V, VDS=-50V, ID=-4A	--	33	--	nC
Qgs	Gate-Source Charge		--	4.3	--	nC
Qgd	Gate-Drain Charge		--	7.2	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	-6.0	A
VSD	Forward on Voltage	VGS=0V,IS=-6A	--	--	-1.2	V
trr	Reverse Recovery Time	IF=-4A , dI/dt=100A/μs , TJ=25℃	--	--	--	ns
Qrr	Reverse Recovery Charge		--	--	--	nc

Notes 1.The maximum current rating is packagelimited.

Notes2.RepetitiveRating: Pulsewidthlimitedbymaximumjunctiontemperature Notes

3.EAS condition: TJ=25℃,VDD=-50V,Vgs=-10V，ID=-15A,L=0.5mH,RG=25ohm

N- Channel 100V MOSFET

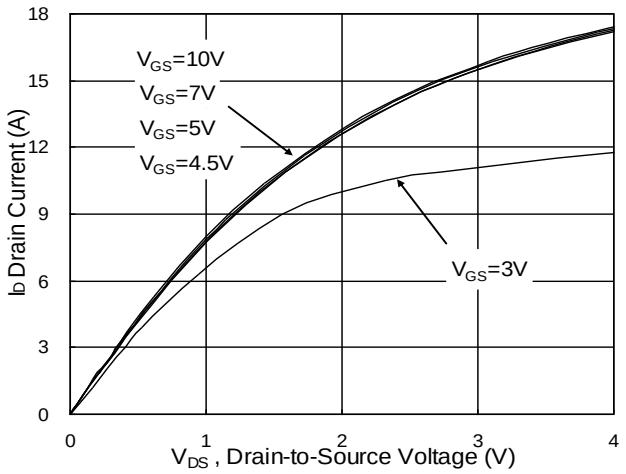


Fig.1 Typical Output Characteristics

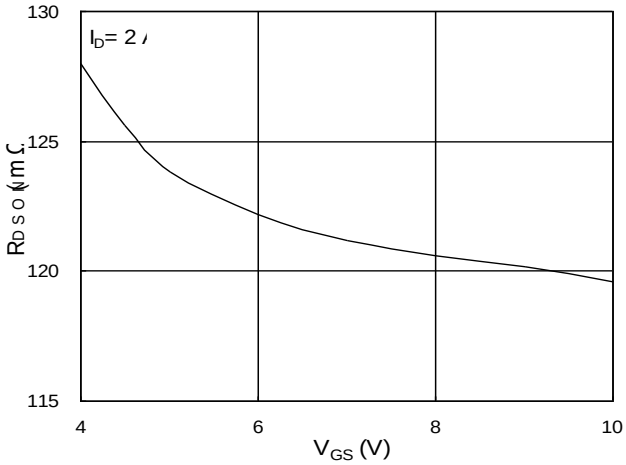


Fig.2 On-Resistance vs. Gate-Source

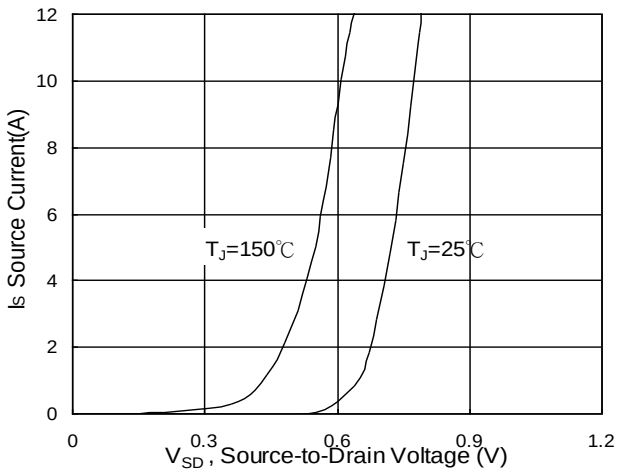


Fig.3 Forward Characteristics Of Reverse

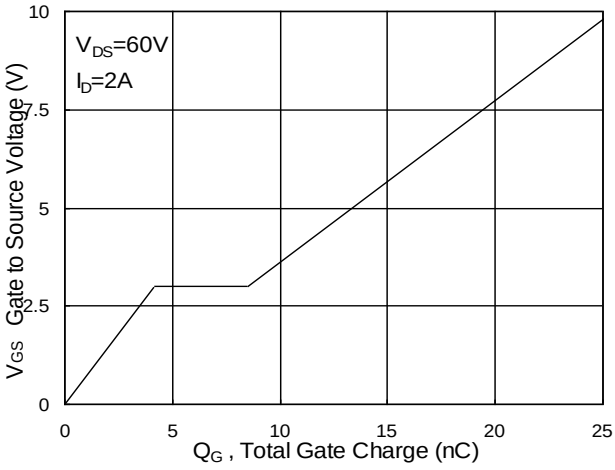
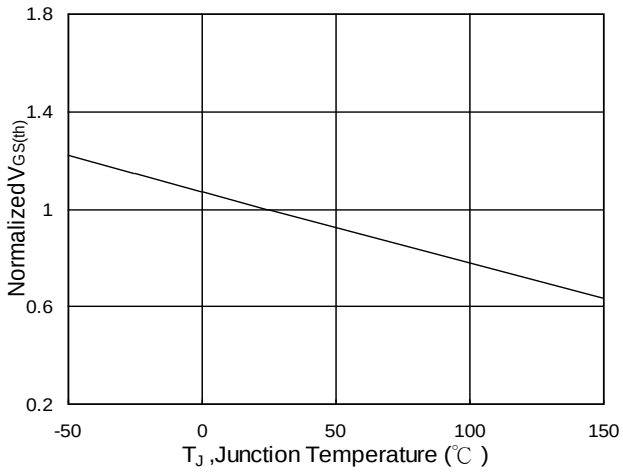
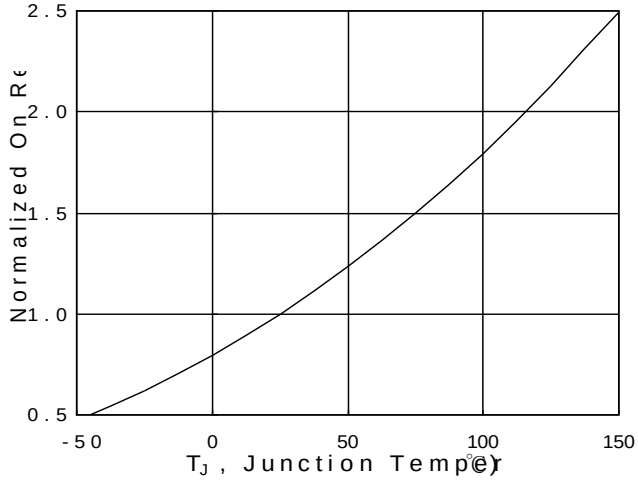
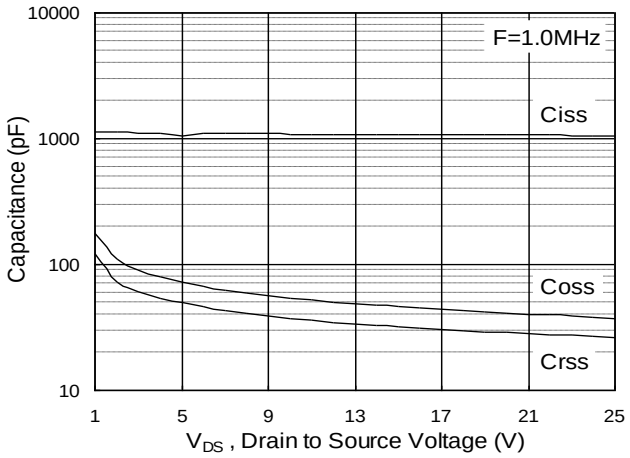


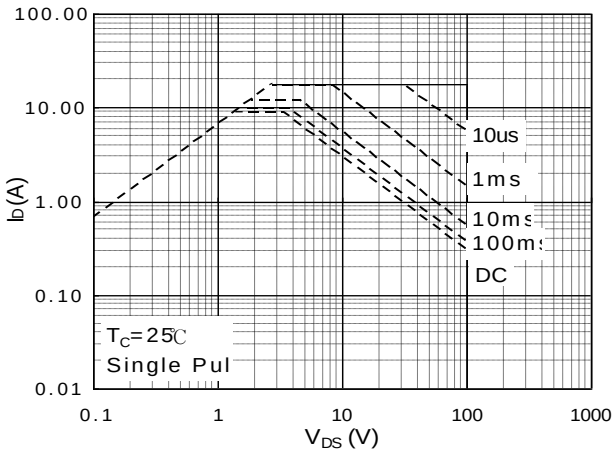
Fig.4 Gate-Charge Characteristics





N- Channel 100V MOSFET





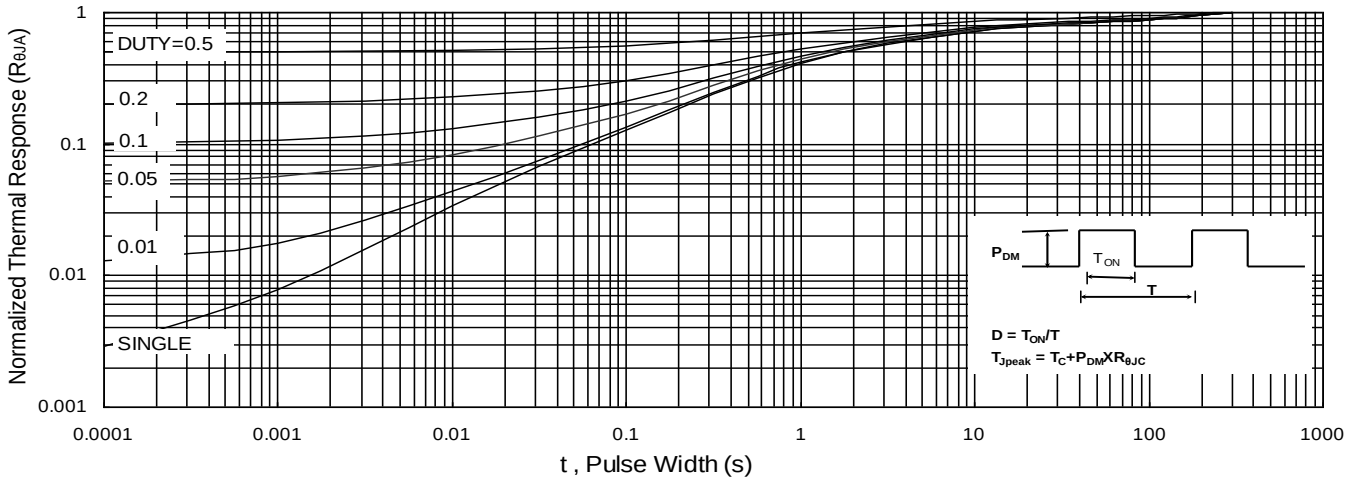
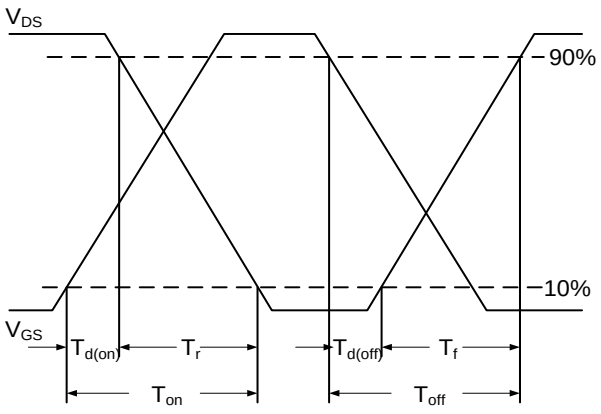
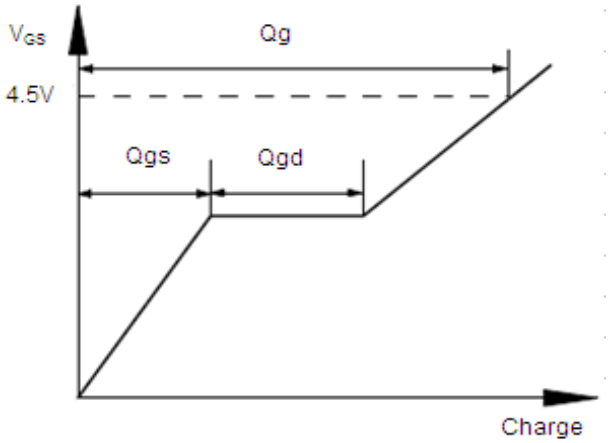


Fig.9 Normalized Maximum Transient Thermal Impedance

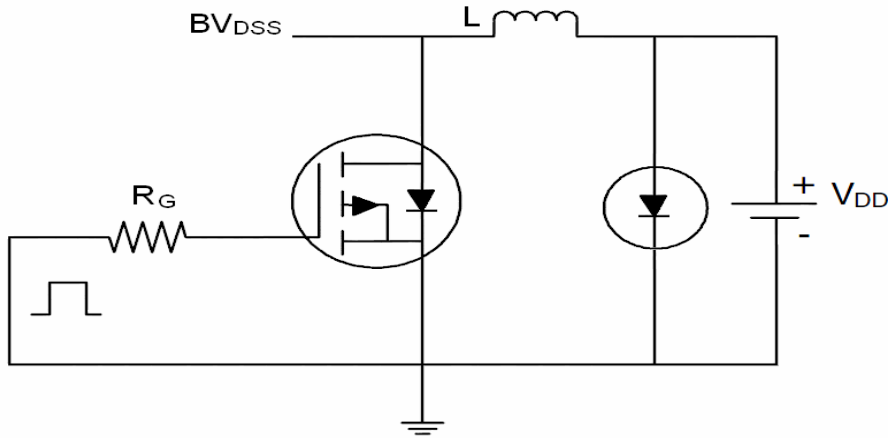




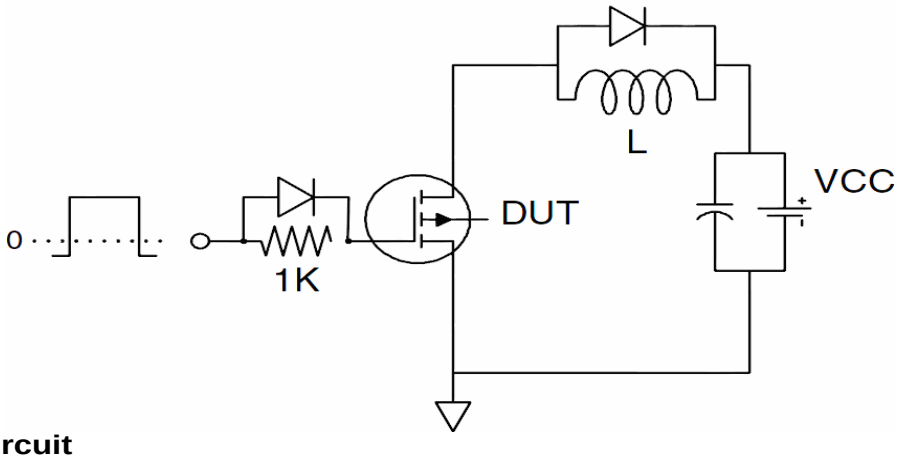
P- Channel 100V MOSFET

Test Circuit

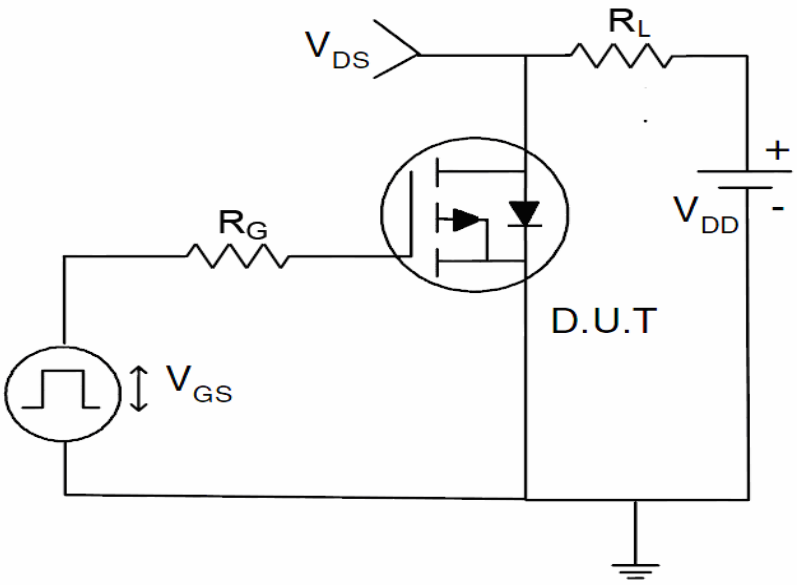
1) E_{AS} Test Circuit



2) Gate Charge Test Circuit



3) Switch Time Test Circuit



P- Channel 100V MOSFET

Typical Electrical and Thermal Characteristics (Curves)

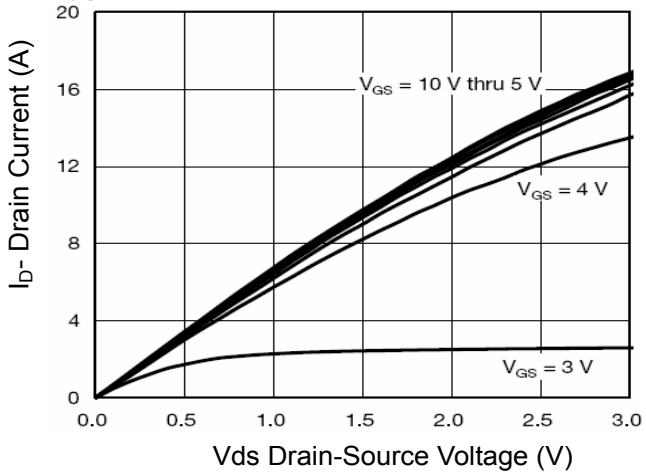


Figure 1 Output Characteristics

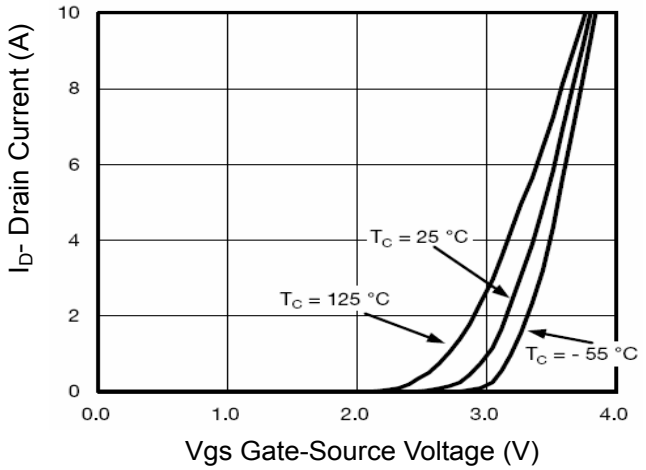


Figure 2 Transfer Characteristics

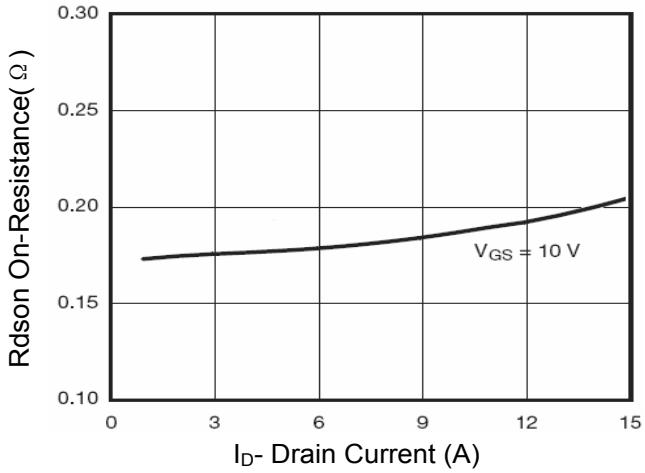


Figure 3 Rdson- Drain Current

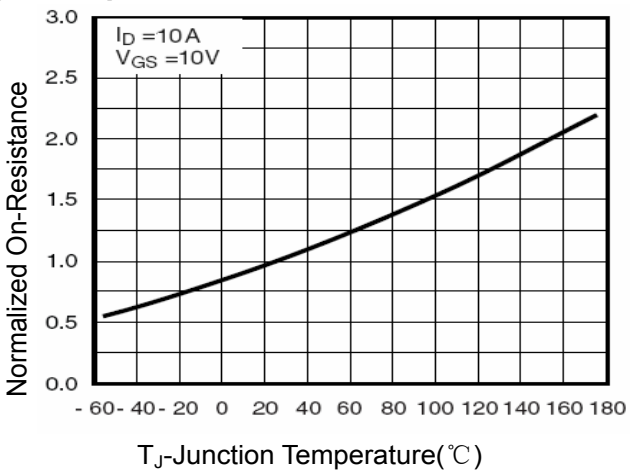


Figure 4 Rdson-JunctionTemperature

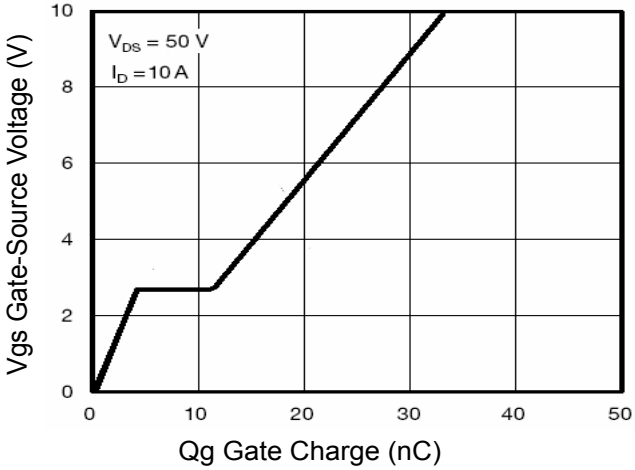


Figure 5 Gate Charge

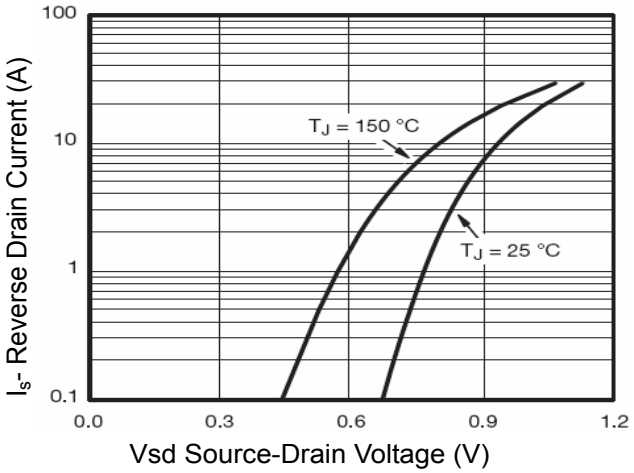


Figure 6 Source- Drain Diode Forward

P- Channel 100V MOSFET

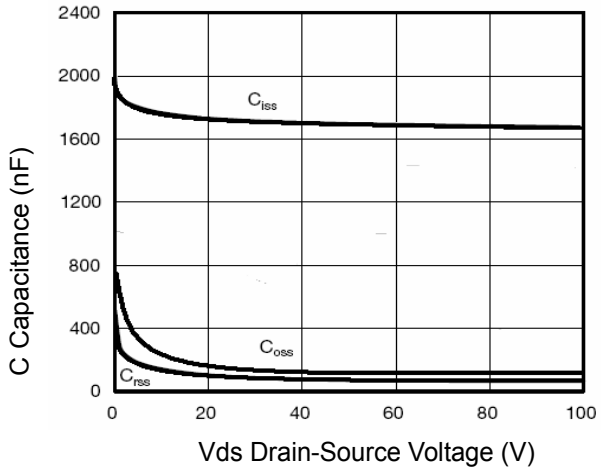


Figure 7 Capacitance vs Vds

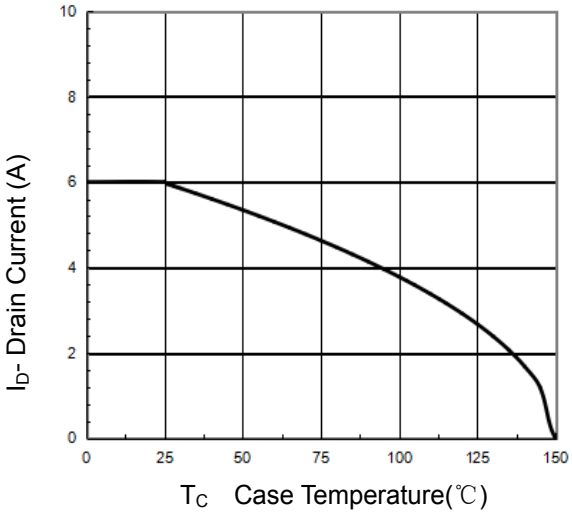


Figure 9 Drain Current vs Case Temperature

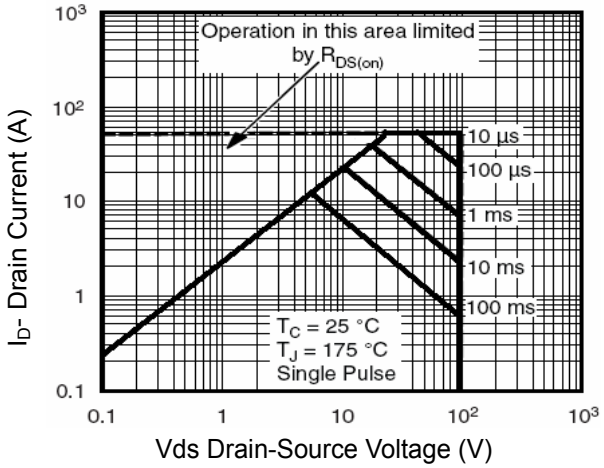


Figure 8 Safe Operation Area

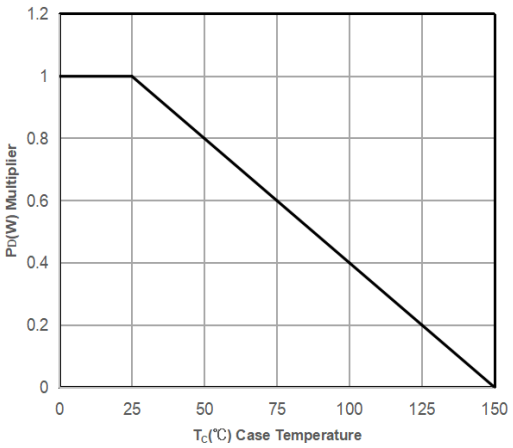


Figure 10 Power De-rating

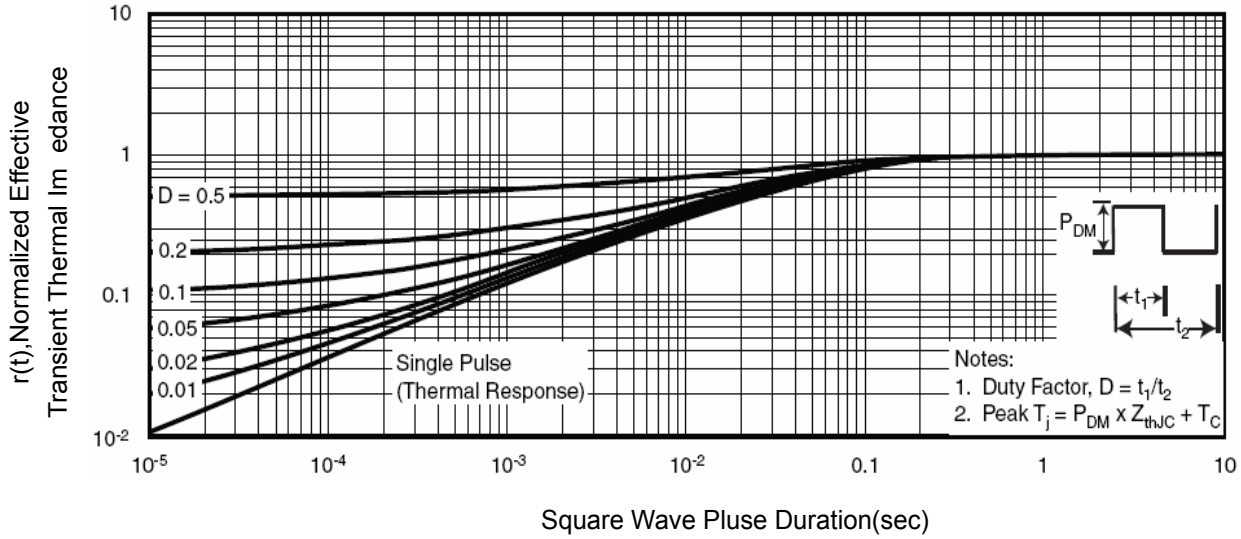
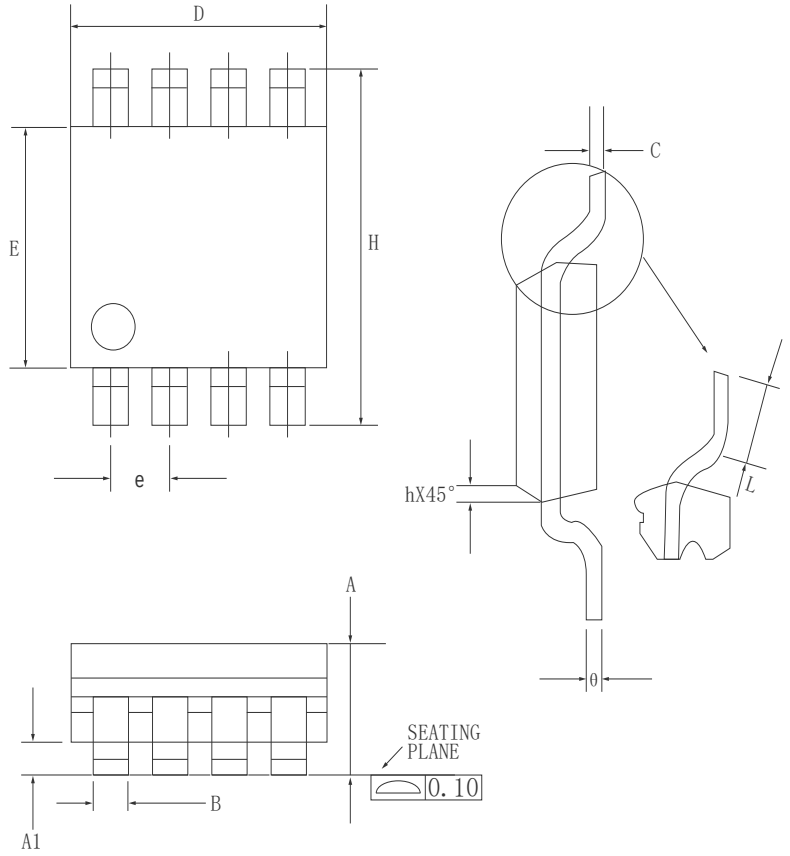
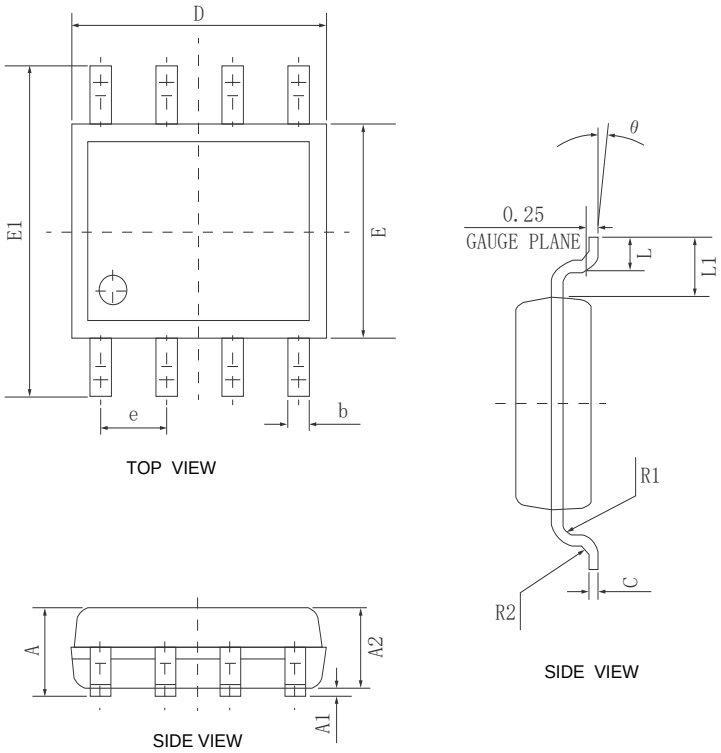


Figure 11 Normalized Maximum Transient Thermal Impedance

●Dimensions（SOP8）



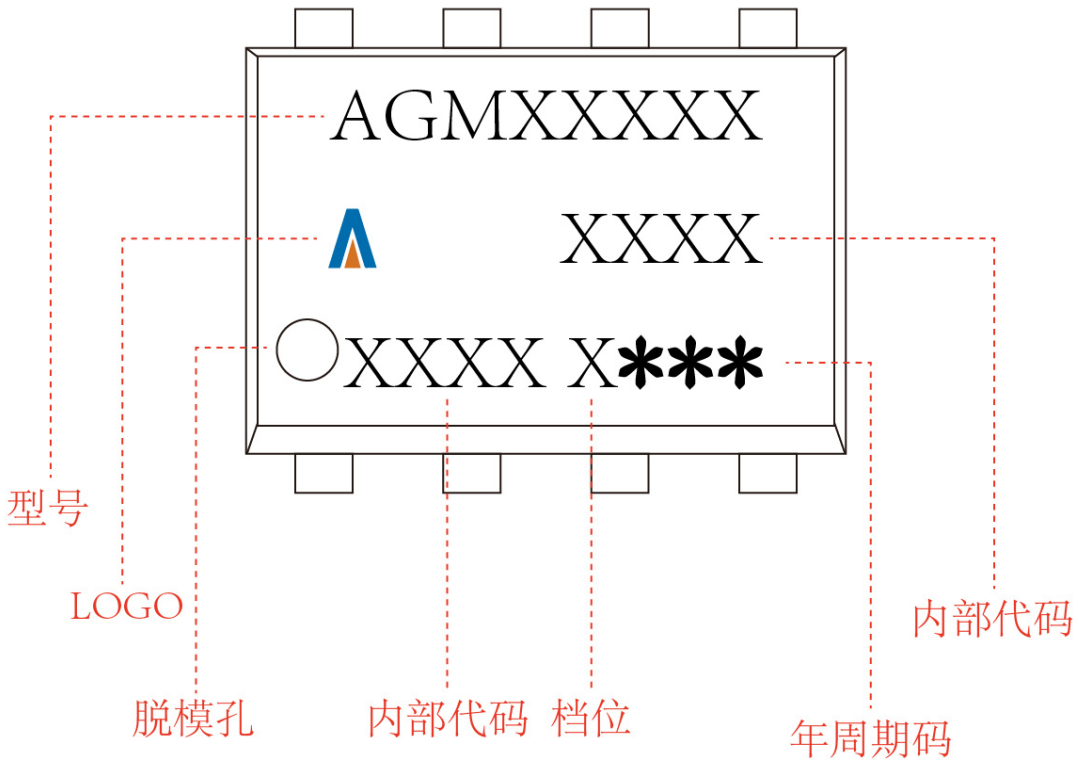
DIM	MILLIMETERRS	
	MIN	MAX
A	1.35	1.75
A1	0.02	0.15
B	0.33	0.5
C	0.1	0.25
D	4.8	5
E	3.8	4
e	1.27(BSC)	
H	5.8	6.2
h	0.25	0.5
I	0.4	1.25
θ	0°	7°



SYMBOL	MIN	NOM	MAX
A	1.40	1.60	1.80
A1	0.05	0.15	0.25
A2	1.35	1.45	1.55
b	0.30	0.40	0.50
c	0.153	0.203	0.253
D	4.80	4.90	5.00
E	3.80	3.90	4.00
E1	5.80	6.00	6.20
L	0.45	0.70	1.00
θ	2°	4°	6°
L1	1.04 REF		
e	1.27 BSC		
R1	0.07 TYP		
R2	0.07 TYP		

SOP8

Marking Instructions:



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