General Description

The AGM18N10S 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

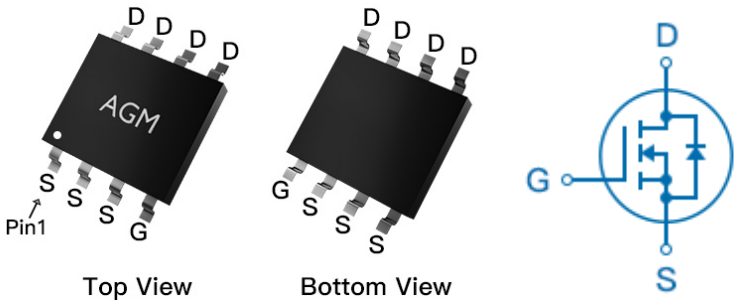
Application

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

Product Summary

BVDSS	RDSON	ID
100V	17mΩ	12A

SOP8 Pin Configuration



Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM18N10S	AGM18N10S	SOP8	330mm	12mm	3000

Table 1. Absolute Maximum Ratings (TA=25℃)

Symbol	Parameter	Value	Unit
VDS	Drain-Source Voltage (VGS=0V)	100	V
VGS	Gate-Source Voltage (VDS=0V)	±20	V
ID	Drain Current-Continuous(TA=25℃) **(Note 1)**	12	A
	Drain Current-Continuous(TA=100℃)	8.0	A
IDM (pluse)	Drain Current-Pulsed **(Note 2)**	48	A
PD	Maximum Power Dissipation(TA=25℃)	2.5	w
	Maximum Power Dissipation(TA=100℃)	1.0	w
EAS	Avalanche energy **(Note 3)**	56	mJ
TJ,TSTG	Operating Junction and Storage Temperature Range	-55 To 150	℃

Table 2. Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
RθJA	Thermal Resistance Junction-ambient (Steady State)[1]	--	50	℃/W

Table 3. Electrical Characteristics (TJ=25℃unless otherwise noted)

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	1.8	2.2	V
gFS	Forward Transconductance	VDS=5V,ID=8A	--	12	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=12A	--	17	21	mΩ
		VGS=4.5V, ID=8A	--	22	26	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=50V,VGS=0V, F=1MHZ	--	573	--	pF
Coss	Output Capacitance		--	166	--	pF
Crss	Reverse Transfer Capacitance		--	5.3	--	pF
Rg	Gate resistance	VGS=0V, VDS=0V,f=1.0MHz	--	4.5	--	Ω
Switching Times						
td(on)	Turn-on Delay Time	VGS=10V,VDS=50V, ID=10A,RGEN=4Ω	--	13	--	nS
tr	Turn-on Rise Time		--	16	--	nS
td(off)	Turn-Off Delay Time		--	23	--	nS
tf	Turn-Off Fall Time		--	6	--	nS
Qg	Total Gate Charge	VGS=10V, VDS=50V, ID=10A	--	12.5	--	nC
Qgs	Gate-Source Charge		--	1.9	--	nC
Qgd	Gate-Drain Charge		--	3.0	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	12	A
VSD	Forward on Voltage	VGS=0V,IS=12A	--	--	1.2	V
trr	Reverse Recovery Time	IF=12A , dI/dt=100A/μs , TJ=25℃	--	43	--	ns
Qrr	Reverse Recovery Charge		--	87	--	nc

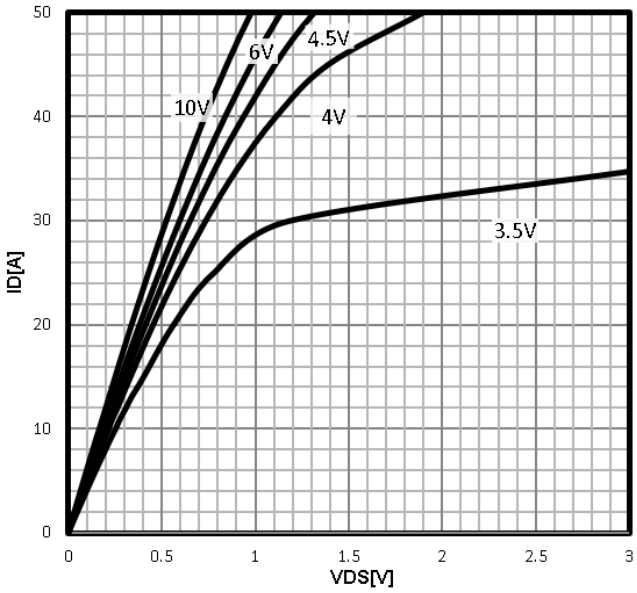
Notes 1.The maximum current rating is package limited.

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

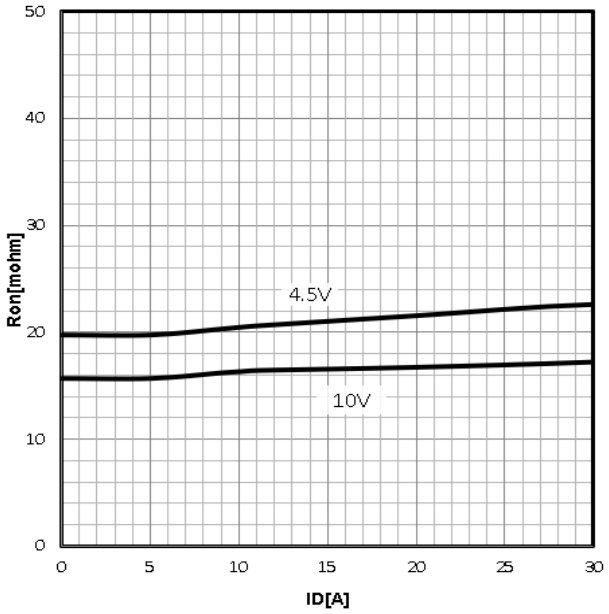
Notes 3.EAS condition: TJ=25℃,VDD=50V,Vgs=10V，ID=15A, L=0.5mH,RG=25ohm

Characteristics Curve:

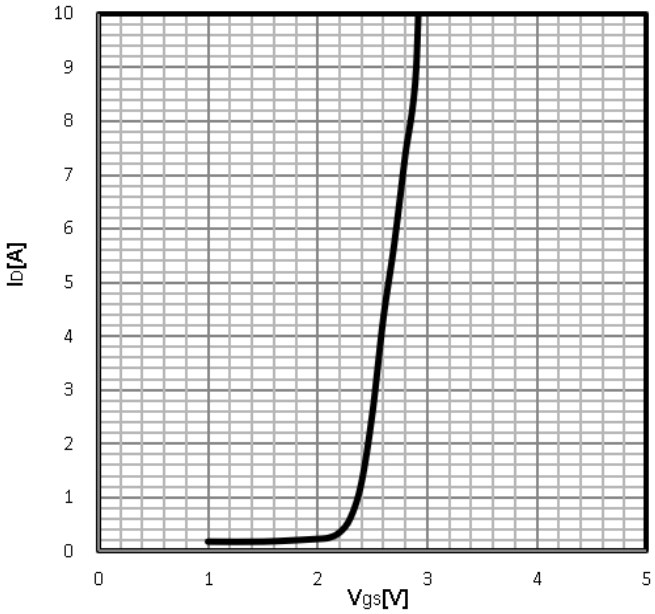
Typ. output characteristics
$I_D=f(V_{DS})$



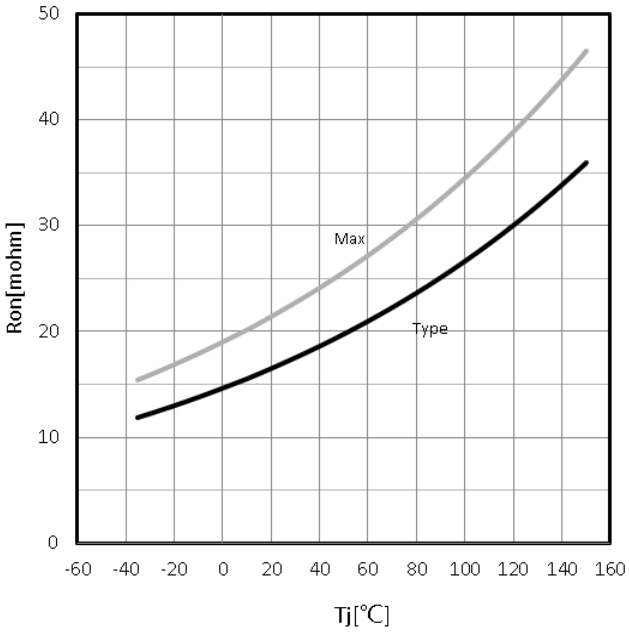
Typ. drain-source on resistance
$R_{DS(on)}=f(I_D)$



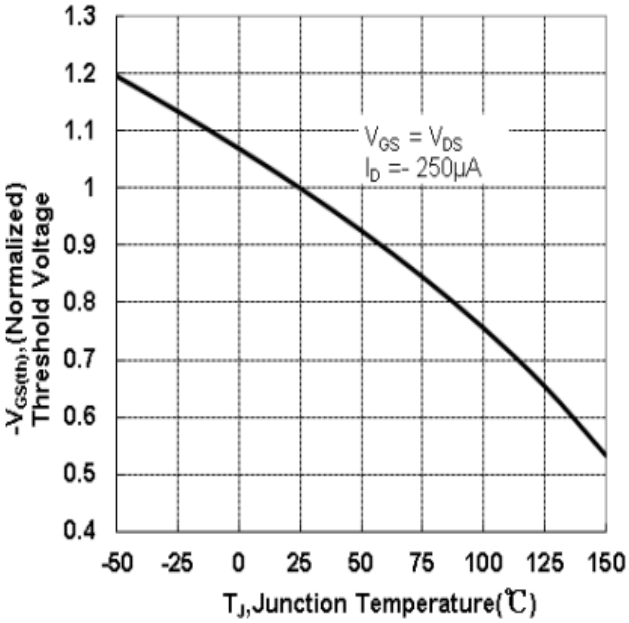
Typ. transfer characteristics
$I_D=f(V_{GS})$



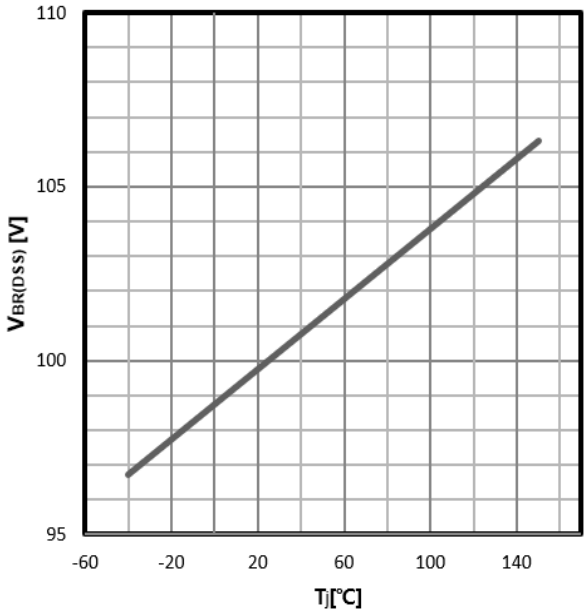
Drain-source on-state resistance
$R_{DS(on)}=f(T_j);I_D=10A;\ V_{GS}=10V$



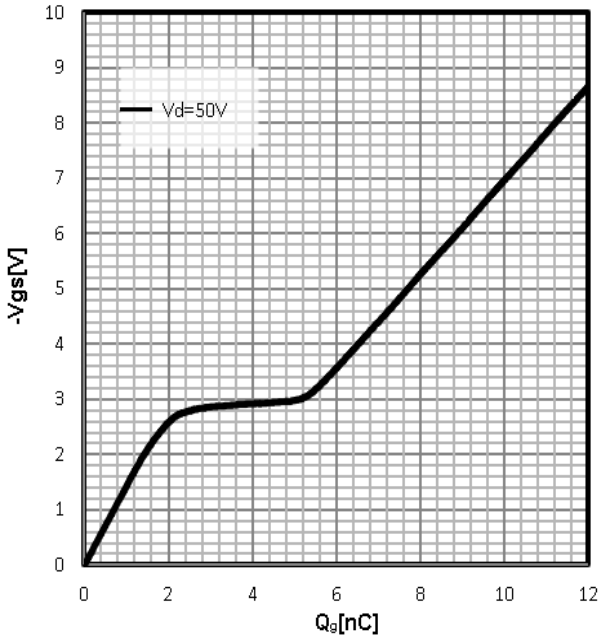
Gate Threshold Voltage
V_{TH}=f(T_j); I_D=250uA



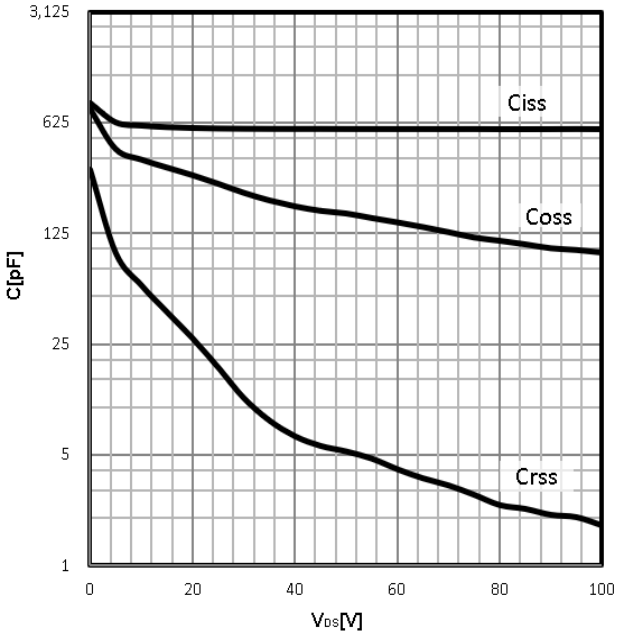
Drain-source breakdown voltage
$V_{BR(DSS)}$=f(T_j); I_D=250uA



Typ. gate charge
V_{GS}=f(Q_g) ; I_D=10A

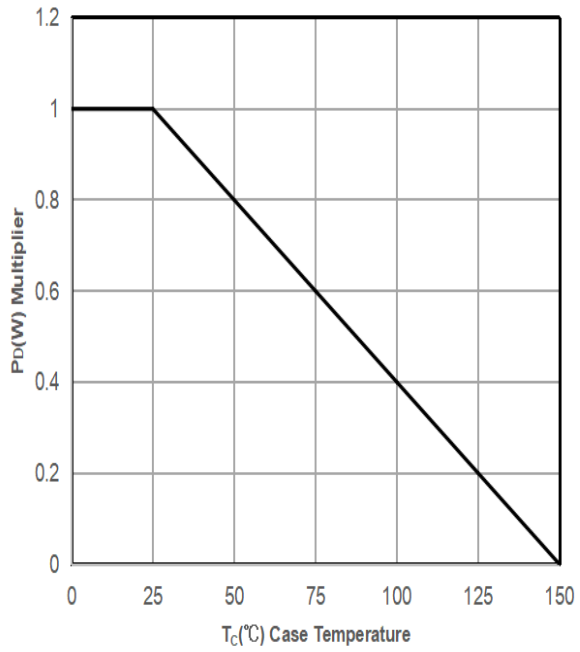


Typ. capacitances
C =f(V_{DS}); V_{GS}=0V; f =1MHz



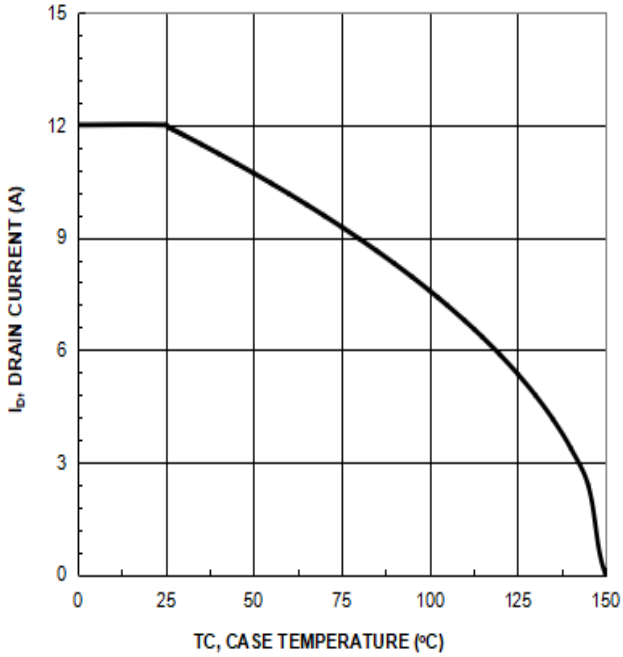
Power Dissipation

$P_{tot}=f(T_C)$



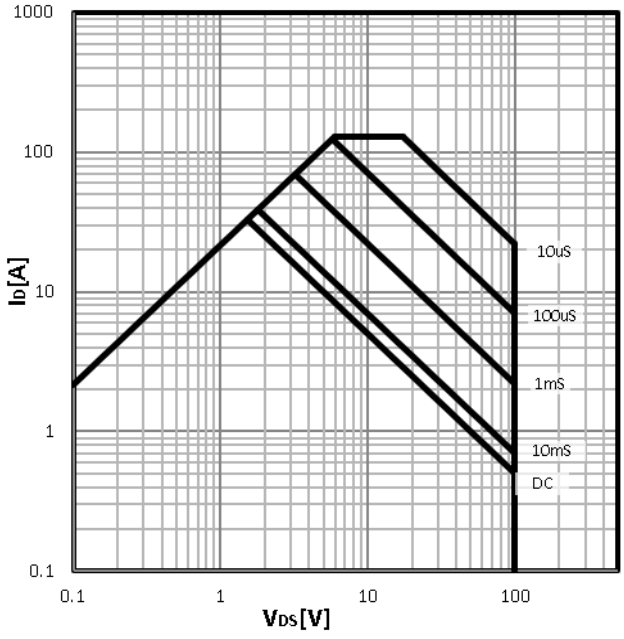
Maximum Drain Current

$I_D=f(T_C)$



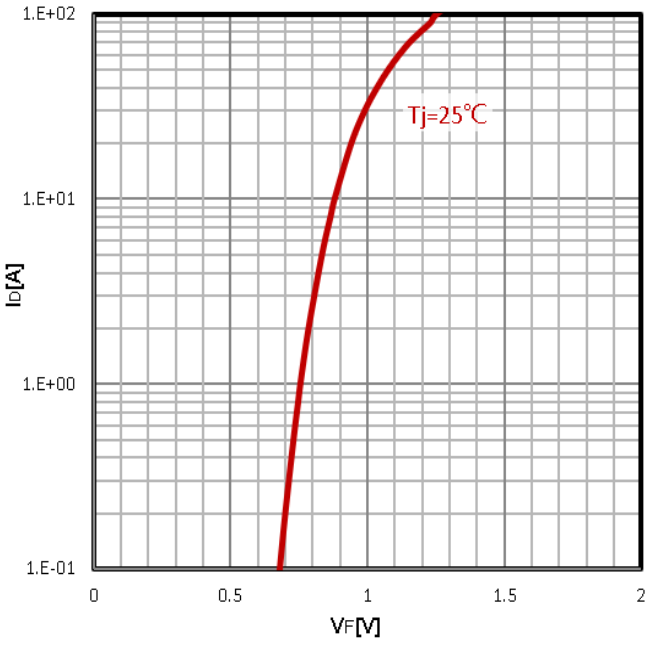
Safe operating area

$I_D=f(V_{DS})$



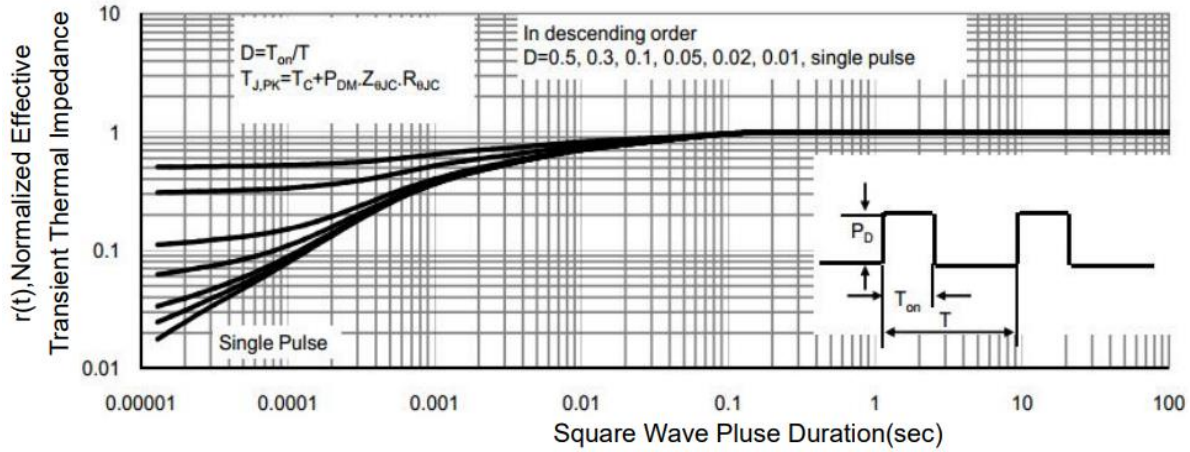
Body Diode Forward Voltage Variation

$I_F=f(V_{GS})$

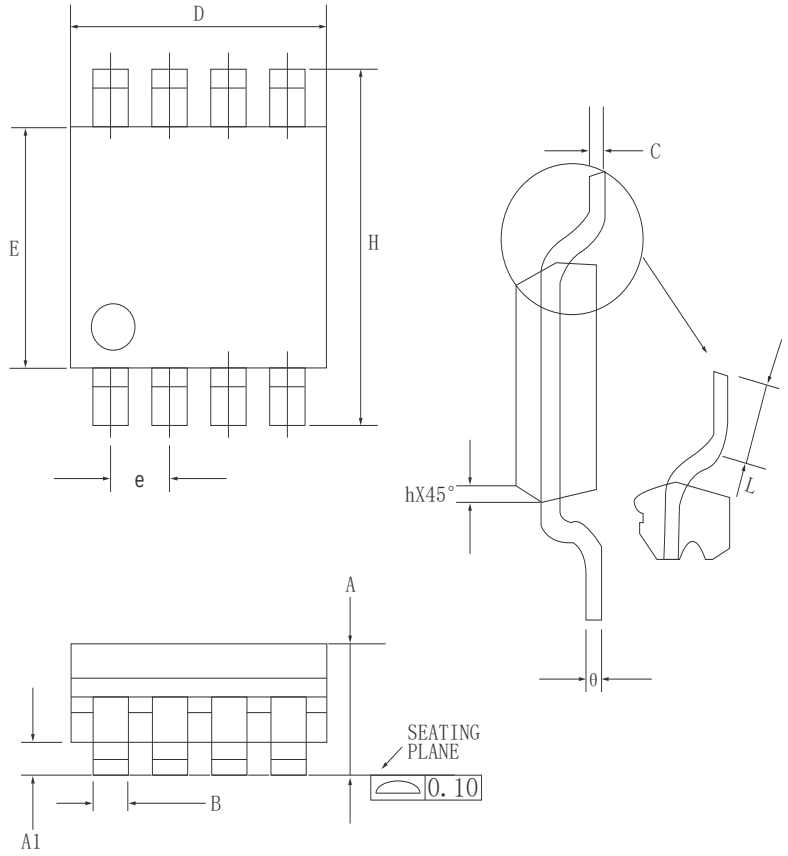


Max. transient thermal impedance

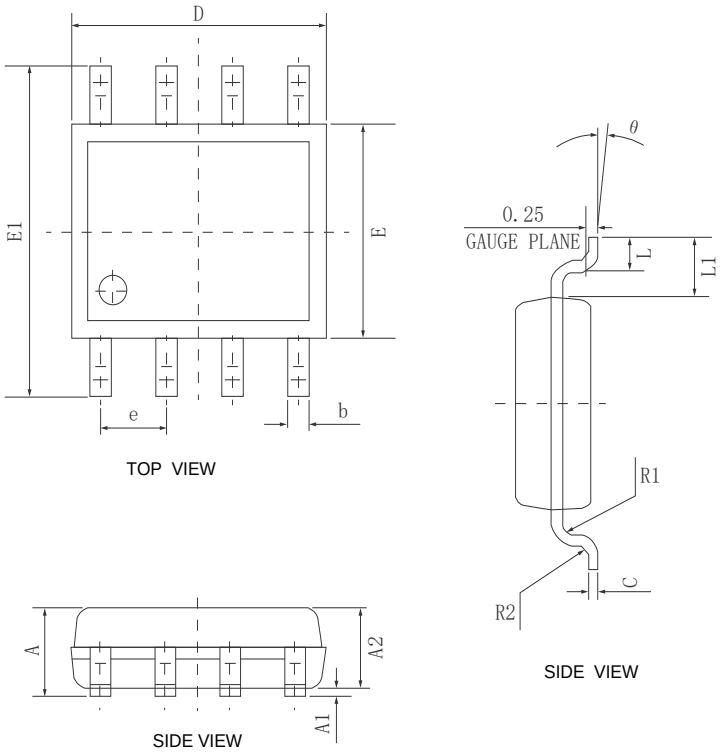
$Z_{thJC}=f(t_p)$



●Dimensions（SOP8）

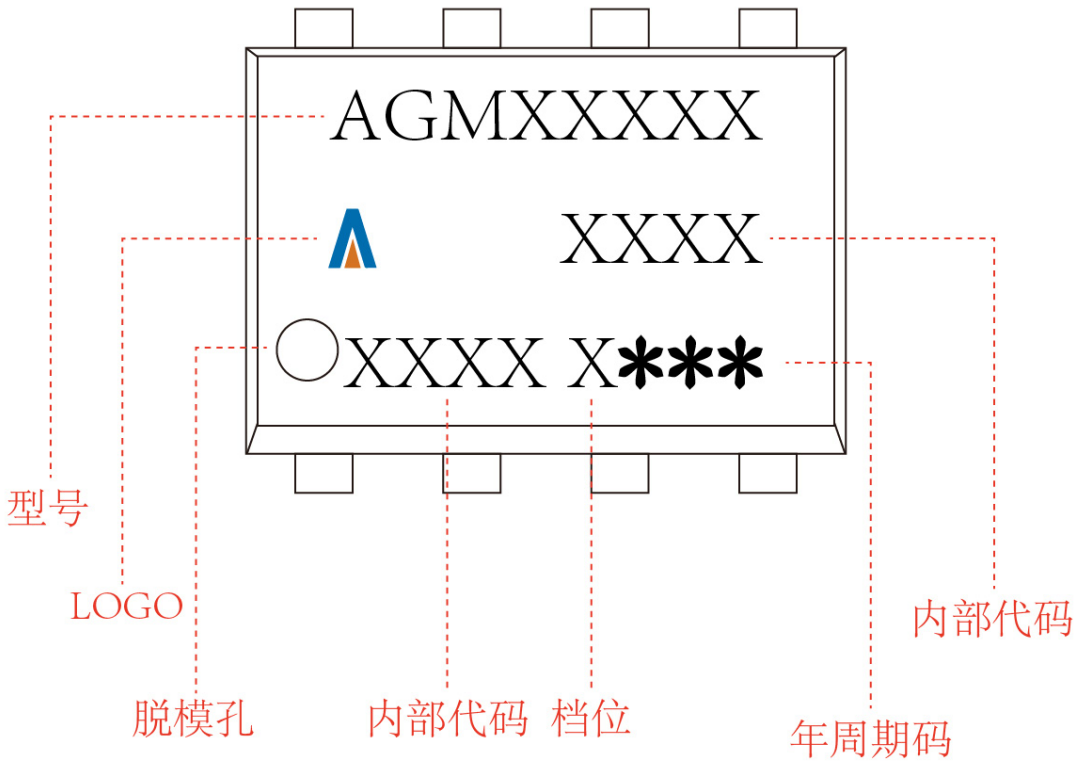


DIM	MILLIMETERRS	
	MIN	MAX
A	1.35	1.75
A1	0.02	0.15
B	0.33	0.5
C	0.1	0.25
D	4.8	5
E	3.8	4
e	1.27(BSC)	
H	5.8	6.2
h	0.25	0.5
I	0.4	1.25
θ	0°	7°



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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This document is the third version issued on April 10th, 2024. This document replaces all previously provided information.