- **General Description**

The AGM12T05A 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

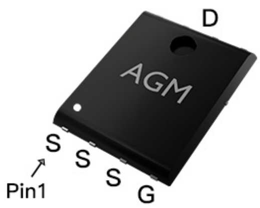
▪ POL application

▪ BLDC Motor driver

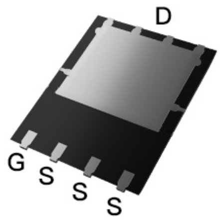
Product Summary

BVDSS	RDSON	ID
120V	4.8mΩ	100A

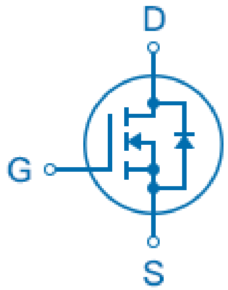
PDFN5*6 Pin Configuration



Top View



Bottom View



Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM12T05A	AGM12T05A	PDFN5*6	330mm	12mm	3000

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

Symbol	Parameter	Value	Unit
VDS	Drain-Source Voltage (VGS=0V）	120	V
VGS	Gate-Source Voltage (VDS=0V)	±20	V
ID	Drain Current-Continuous(Tc=25℃) **(Note 1)**	100	A
	Drain Current-Continuous(Tc=100℃)	63	A
IDM (pluse)	Drain Current-Pulsed **(Note 2)**	400	A
PD	Maximum Power Dissipation(Tc=25℃)	125	w
	Maximum Power Dissipation(Tc=100℃)	50	w
EAS	Avalanche energy **(Note 3)**	484	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]	---	20	℃/W
RθJC	Thermal Resistance Junction-Case[1]	---	1.0	℃/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	120	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=120V,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=15A	--	38	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=20A	--	4.8	7.0	mΩ
		VGS=4.5V, ID=15A	--	5.5	9.0	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=40V,VGS=0V ,F=1MHZ	--	4689	--	pF
Coss	Output Capacitance		--	1368	--	pF
Crss	Reverse Transfer Capacitance		--	82	--	pF
Rg	Gate resistance	VGS=0V, VDS=0V,f=1.0MHz	--	1.3	--	Ω
Switching Times						
td(on)	Turn-on Delay Time	VGS=10V,VDS=60V, ID=20A,RGEN=3.3Ω	--	20	--	nS
tr	Turn-on Rise Time		--	13	--	nS
td(off)	Turn-Off Delay Time		--	36	--	nS
tf	Turn-Off Fall Time		--	18	--	nS
Qg	Total Gate Charge	VGS=60V, VDS=10V, ID=20A	--	88	--	nC
Qgs	Gate-Source Charge		--	10	--	nC
Qgd	Gate-Drain Charge		--	24	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	100	A
VSD	Forward on Voltage	VGS=0V,IS=20A	--	--	1.2	V
trr	Reverse Recovery Time	IF=20A , dI/dt=100A/μs , TJ=25℃	--	--	43	ns
Qrr	Reverse Recovery Charge		--	--	88	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=40V,Vgs=10V， ID=44A,L=0.5mH,RG=25ohm

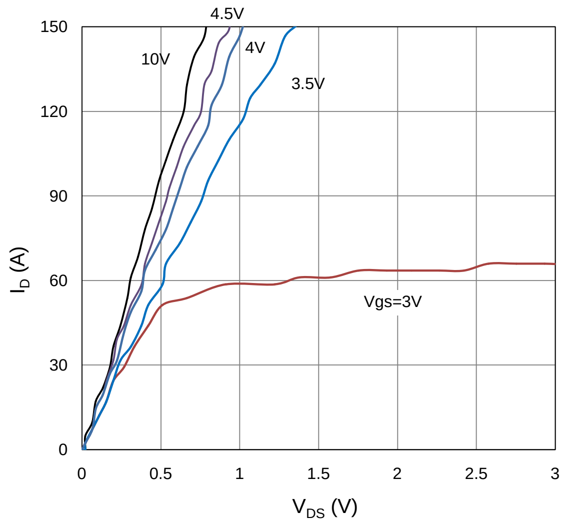


Fig.1 Typical Output Characteristics

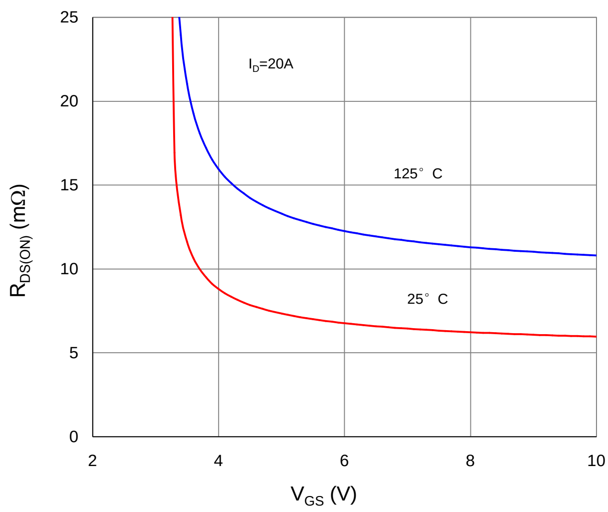


Fig.2 On-Resistance vs. Gate-Source Voltage

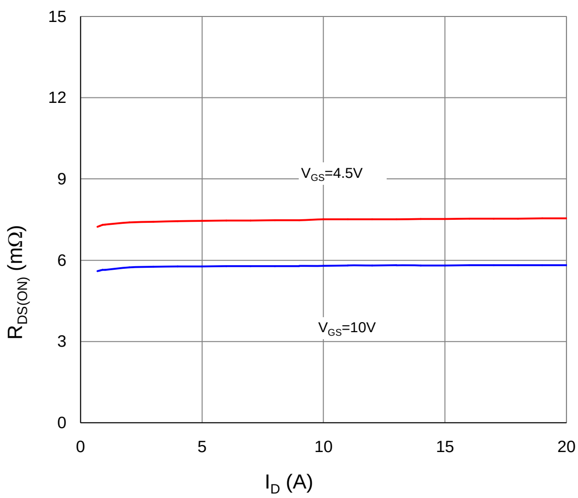


Fig.3 On-Resistance vs. Drain Current and Gate Voltage

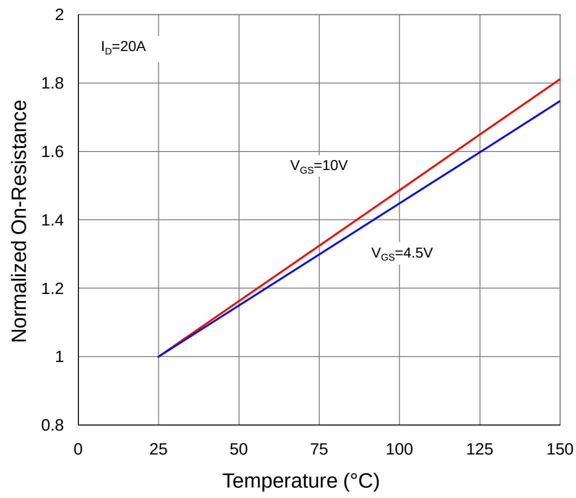


Fig.4 Normalized On-Resistance vs. Junction Temperature

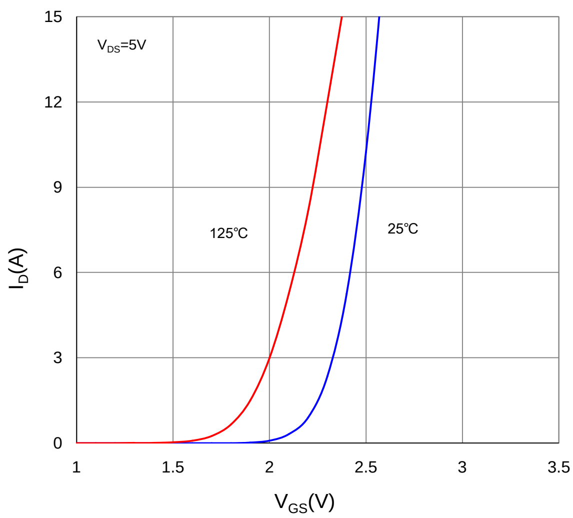


Fig.5 Typical Transfer Characteristics

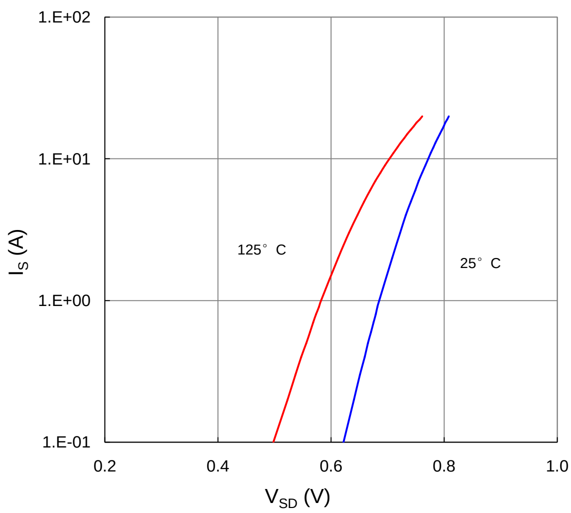


Fig.6 Typical Source-Drain Diode Forward Voltage

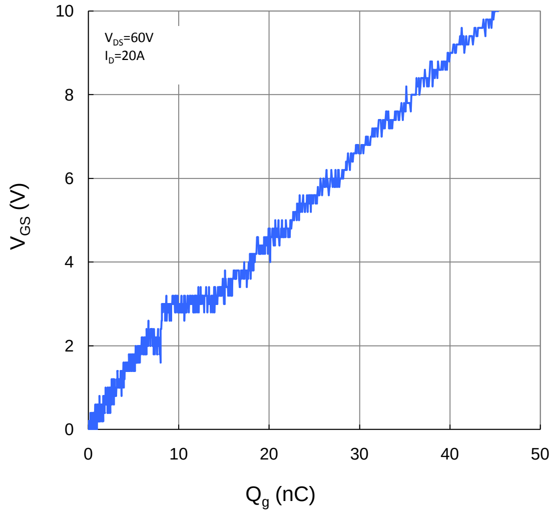


Fig.7 Typical Gate-Charge vs. Gate-to-Source Voltage

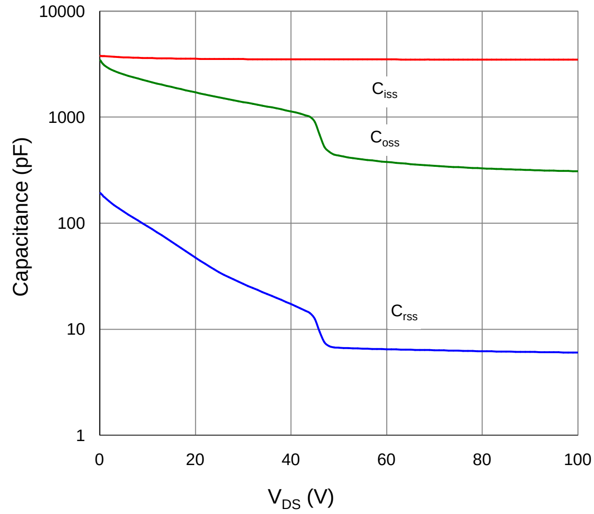


Fig.8 Typical Capacitance vs. Drain-to-Source Voltage

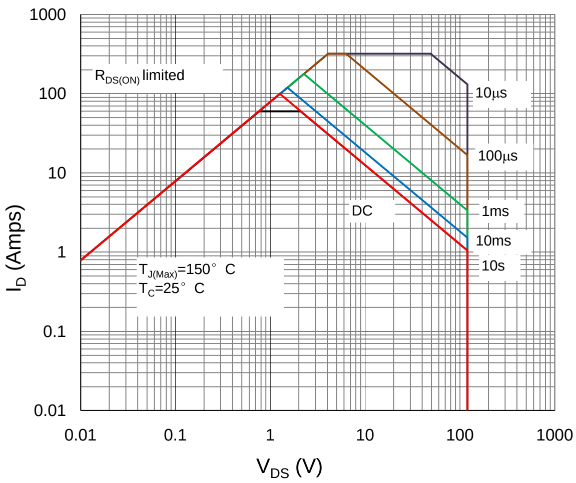


Fig.9 Maximum Safe Operating Area

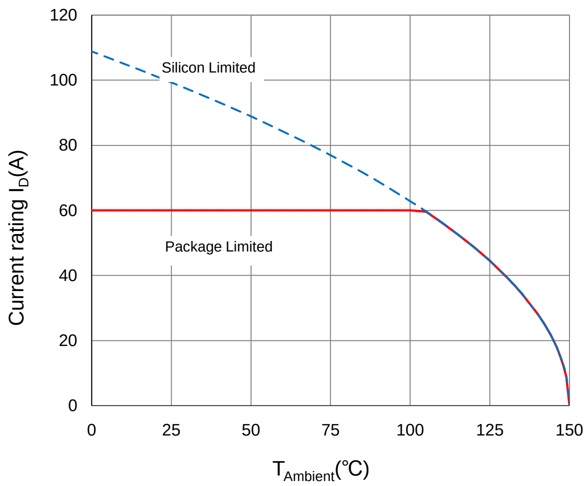


Fig.10 Maximun Drain Current vs. Case Temperature

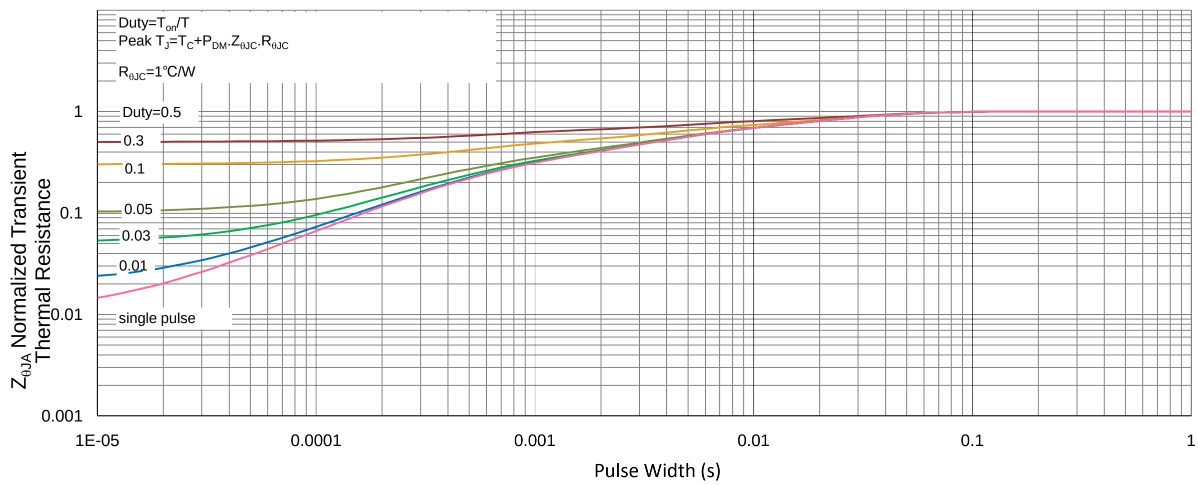
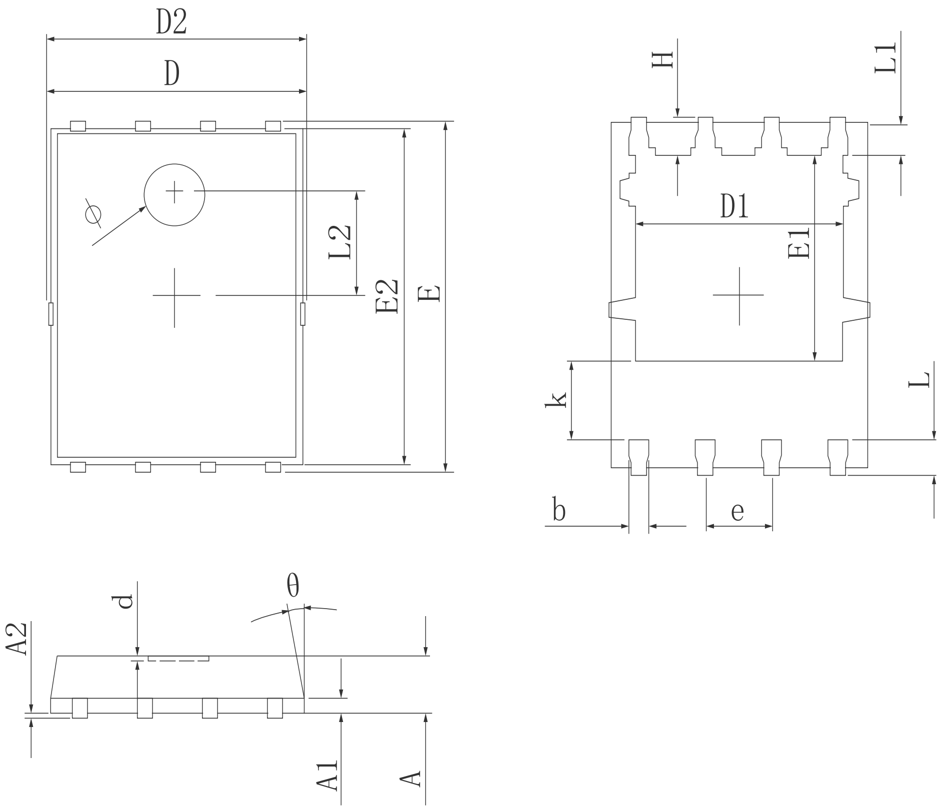
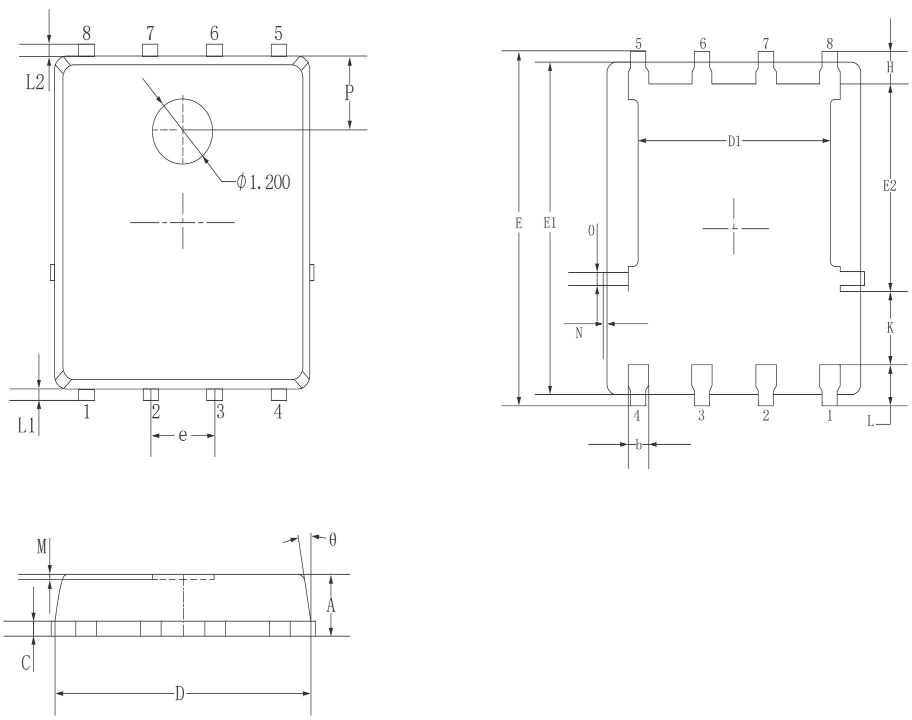


Fig.11 Normalized Maximum Transient Thermal Impedance, Junction-to-Ambient

●Dimensions（PDFN5*6）



SYMBOL	MILLIMETER		
	MIN	Typ.	MAX
A	0.900	1.000	1.100
A1	0.254 REF.		
A2	0~0.05		
D	4.824	4.900	4.976
D1	3.910	4.010	4.110
D2	4.924	5.000	5.076
E	5.924	6.000	6.076
E1	3.375	3.475	3.575
E2	5.674	5.750	5.826
b	0.350	0.400	0.450
e	1.270 TYP.		
L	0.534	0.610	0.686
L1	0.424	0.500	0.576
L2	1.800 REF.		
k	1.190	1.290	1.390
H	0.549	0.625	0.701
θ	8°	10°	12°
Φ	1.100	1.200	1.300
d			0.100

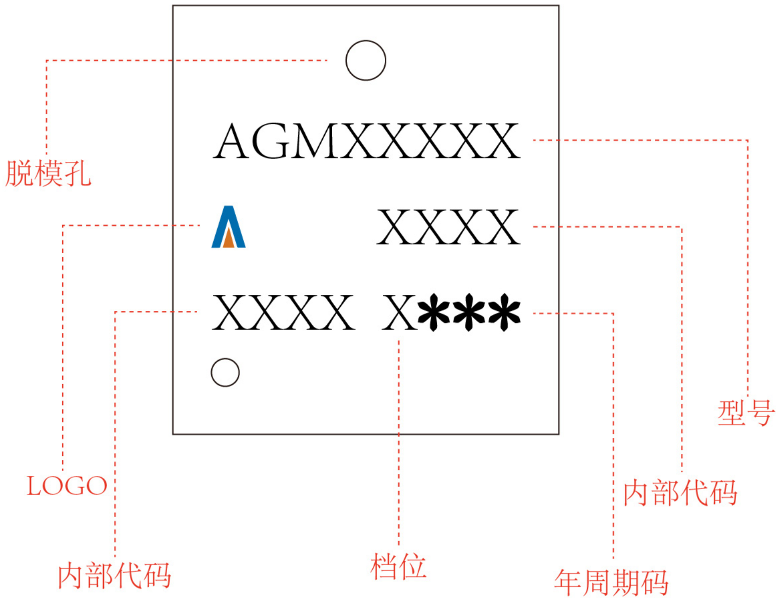


Symbol	Millimeters		
	MIN.	NOM.	MAX.
A	0.90	1.05	1.20
B	0.35	0.40	0.50
C	0.20	0.25	0.35
D	4.90	5.05	5.20
D1	3.72	3.82	3.92
E	6.00	6.15	6.30
E1	5.60	5.75	5.90
E2	3.47	3.57	3.67
e	1.27 BSC.		
H	0.48	0.58	0.68
K	1.17	1.27	1.37
L	0.64	0.74	0.84
L1/L2	0.20 REF.		
θ	8°	10°	12°
M	0.08 REF.		
N	0	-	0.15
O	0.25 REF.		
P	1.28 REF.		

PDFN5*6

Marking Instructions:

Model1:



Model2: