

### ● General Description

The AGMH70N90H 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 2<sup>nd</sup> Synchronous Rectifier
- POL application
- BLDC Motor driver

### Product Summary

BVDSS	RDSON	ID
65V	4.3mΩ	91A

### TO-263 Pin Configuration

### Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGMH70N90H	AGMH70N90H	TO-263	330mm	25mm	800

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

Symbol	Parameter	Value	Unit
VDS	Drain-Source Voltage (VGS=0V)	65	V
VGS	Gate-Source Voltage (VDS=0V)	±20	V
ID	Drain Current-Continuous(Tc=25°C) <b>(Note 1)</b>	91	A
	Drain Current-Continuous(Tc=100°C)	64	A
IDM (pluse)	Drain Current-Pulsed <b>(Note 2)</b>	364	A
PD	Maximum Power Dissipation(Tc=25°C)	89	w
	Maximum Power Dissipation(Tc=100°C)	36	w
EAS	Avalanche energy <b>(Note 3)</b>	441	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) <sup>1</sup>	---	40	°C/W
RθJC	Thermal Resistance Junction-Case <sup>1</sup>	---	1.4	°C/W

**Table 3. Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)**

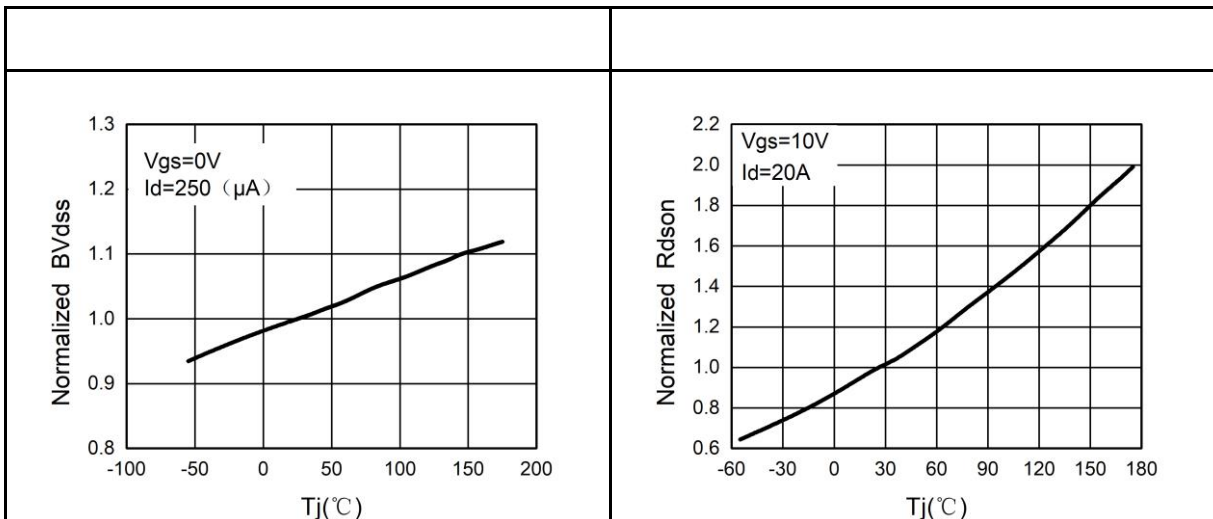
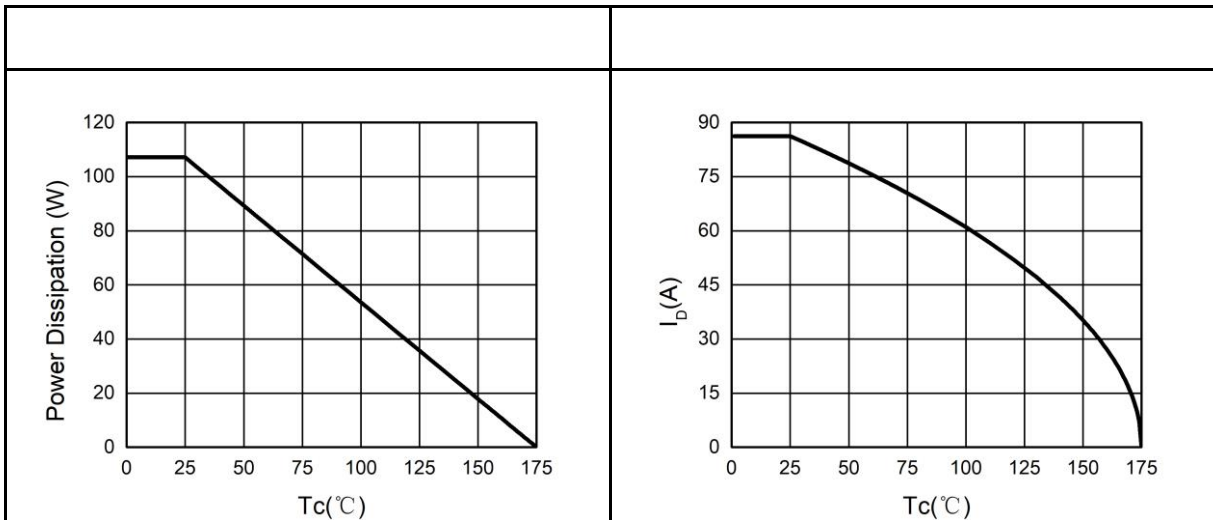
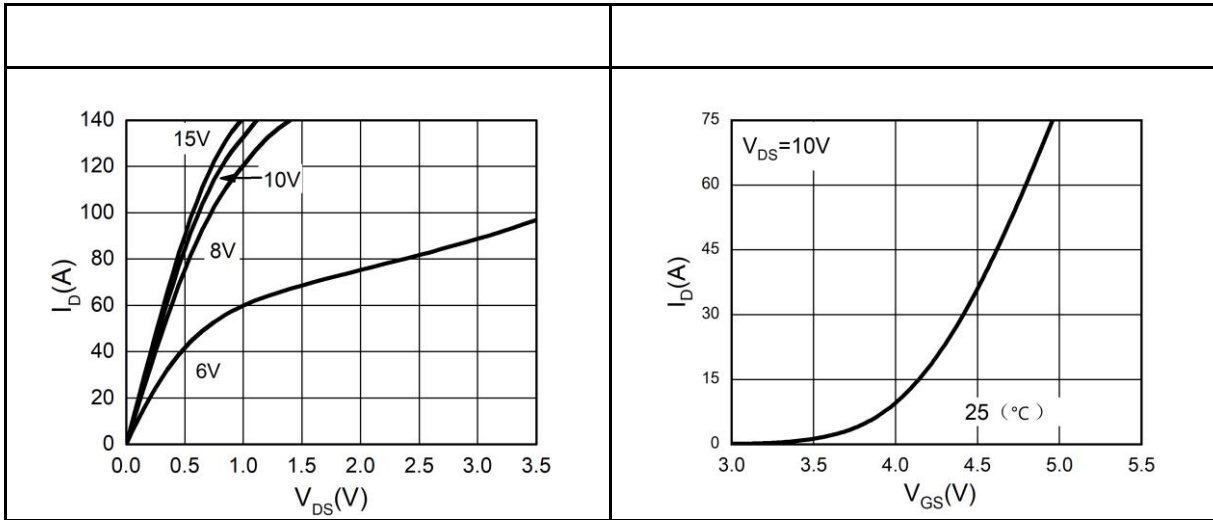
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>On/Off States</b>						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V ID=250μA	65	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=60V,VGS=0V	--	--	1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V,VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250μA	2.0	--	4.0	V
gFS	Forward Transconductance	VDS=5V, ID=20A	--	20	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=40A	--	4.3	6.5	mΩ
<b>Dynamic Characteristics</b>						
Ciss	Input Capacitance	VDS=30V,VGS=0V, F=1MHZ	--	5624	--	pF
Coss	Output Capacitance		--	303	--	pF
Crss	Reverse Transfer Capacitance		--	237	--	pF
Rg	Gate resistance	VGS=0V, VDS=0V,f=1.0MHz	--	0.9	--	Ω
<b>Switching Times</b>						
td(on)	Turn-on Delay Time	VGS=10V,VDS=30V, RL=0.75Ω,RGEN=3.0Ω	--	30	--	nS
tr	Turn-on Rise Time		--	101	--	nS
td(off)	Turn-Off Delay Time		--	50	--	nS
tf	Turn-Off Fall Time		--	11	--	nS
Qg	Total Gate Charge	VGS=10V, VDS=30V, ID=20A	--	91	--	nC
Qgs	Gate-Source Charge		--	26	--	nC
Qgd	Gate-Drain Charge		--	26.2	--	nC
<b>Source-Drain Diode Characteristics</b>						
ISD	Source-Drain Current(Body Diode)		--	--	91	A
VSD	Forward on Voltage	VGS=0V,IS=20A	--	--	1.2	V
trr	Reverse Recovery Time	IF=20A , dI/dt=100A/μs , TJ=25°C	--	34	--	ns
Qrr	Reverse Recovery Charge		--	40.3	--	nc

Notes 1.The maximum current rating is package limited.

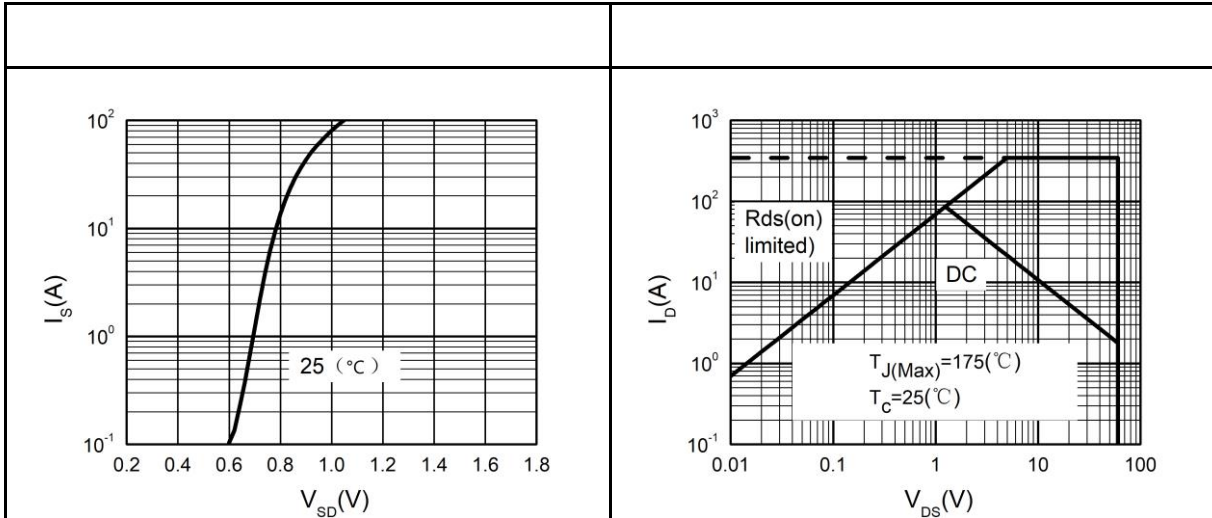
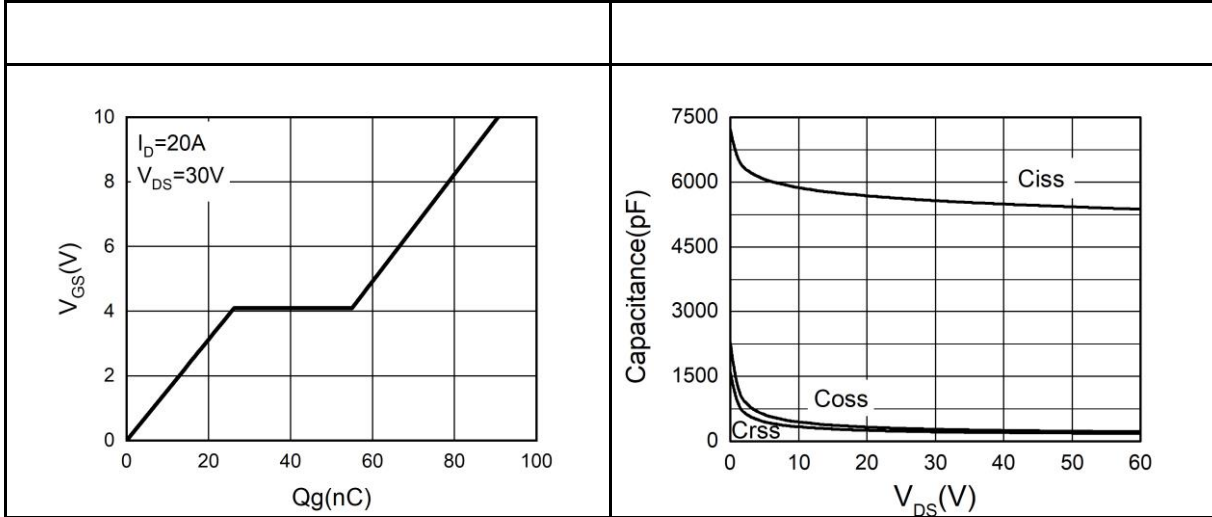
Notes 2.Repetitive Rating: Pulse width limited by maximum junction temperature

Notes 3.EAS condition: T<sub>J</sub>=25°C ,VDD=30V,Vgs=10V,ID=42A, L=0.5mH,RG=25ohm

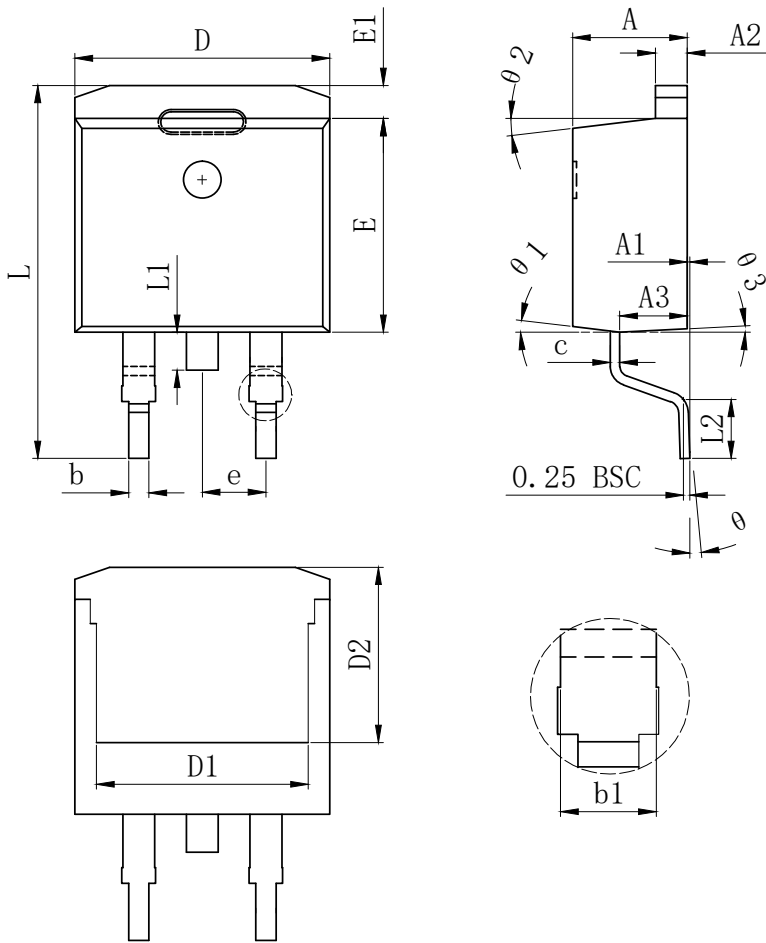
### Typical Electrical And Thermal Characteristics (Curves)



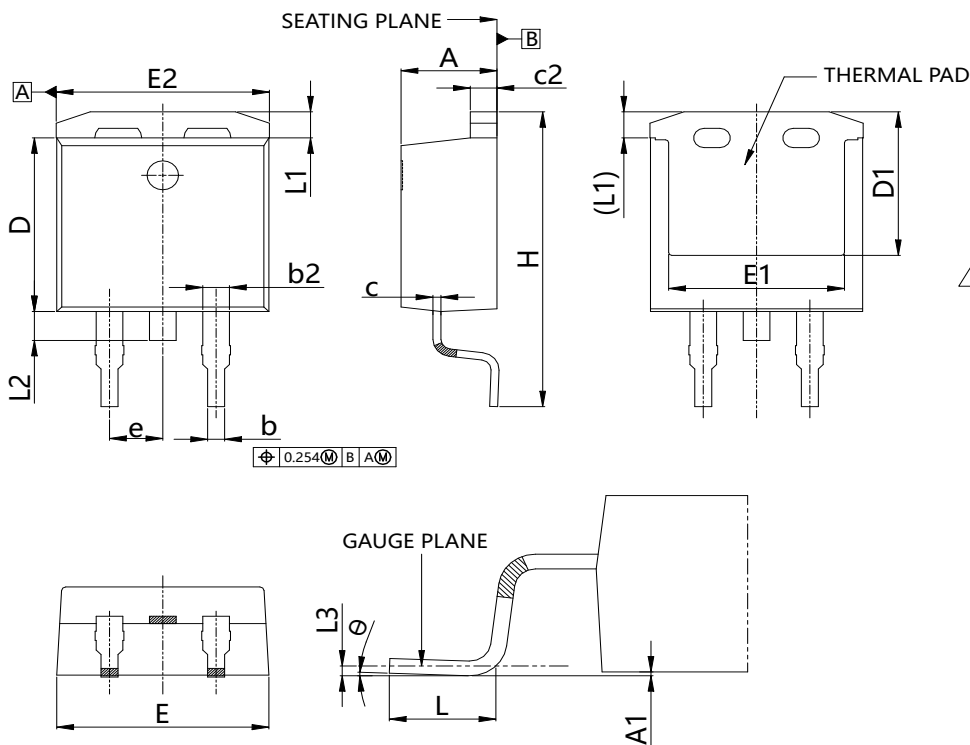
### Typical Electrical And Thermal Characteristics (Curves)



# TO-263 PACKAGE INFORMATION



SYMBOL	MILLIMETER		
	MIN	Typ.	MAX
A	4.370	4.570	4.770
A1	0.000		0.250
A2	1.220	1.270	1.420
A3	2.490	2.690	2.890
b	0.700	0.810	0.960
b1	1.170	1.270	1.470
c	0.300	0.380	0.530
D	9.860	10.160	10.360
D1	8.400 REF		
D2	7.073 REF		
E	8.500	8.700	8.900
E1	1.070	1.270	1.470
e	2.540 TYP		
L	14.700	15.100	15.500
L1	1.400	1.550	1.700
L2	2.000	2.300	2.600
$\theta$	0°		9°
$\theta_1$	7° TYP		
$\theta_2$	7° TYP		
$\theta_3$	3° TYP		



SYMBOL	MILLIMETER		
	MIN.	NOMINAL	MAX.
A	4.47	4.57	4.67
A1	0.00	0.10	0.25
b	0.71	0.81	0.91
b2	1.17	1.27	1.37
c	0.360	0.381	0.500
c2	1.17	1.27	1.37
D	8.70	9.00	9.30
D1	7.10	7.44	7.80
E	9.90	10.11	10.30
E1	8.08	8.38	8.68
E2	10.00	10.16	10.30
e	2.44	2.54	2.64
H	15.00	15.28	15.60
L	2.25	2.54	2.80
L1	1.10	1.35	1.60
L2	---	---	1.78
L3	0.254 BSC		
$\theta$	0°	---	8°


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