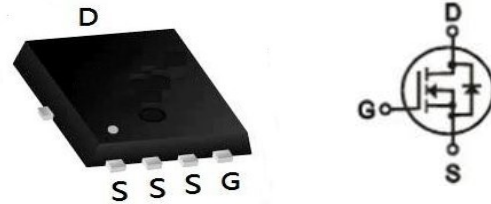


- ★ 100% EAS Guaranteed
- ★ Green Device Available
- ★ Super Low Gate Charge
- ★ Excellent CdV/dt effect decline
- ★ Advanced high cell density Trench technology

Product Summary

BVDSS	RDSON	ID
115V	9.8mΩ	65A

PRPAK5X6 Pin Configuration

Description

AGM12T10A is the high cell density trenched N-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM12T10A	AGM12T10A	DFN5*6	325mm	16mm	3000

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

Symbol	Parameter	Value	Unit
V _{DS}	Drain-Source Voltage (V _{GS} =0V)	115	V
V _{GS}	Gate-Source Voltage (V _{DS} =0V)	+20 / -12	V
I _D	Drain Current-Continuous(Tc=25°C) (Note 1)	65	A
	Drain Current-Continuous(Tc=100°C)	40	A
IDM (pluse)	Drain Current-Continuous@ Current-Pulsed (Note 2)	240	A
P _D	Power Dissipation (TC=25°C)	150	W
	Power Dissipation – Derate above 25°C	1	W/°C
EAS	Avalanche energy (Note 3)	151	mJ
T _J , T _{STG}	Operating Junction and Storage Temperature Range	-55 To 150	°C

Table 2. Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
R _{θJA}	Thermal Resistance Junction-ambient (Steady State) ¹	---	62	°C/W
R _{θJC}	Thermal Resistance Junction-Case ¹	---	1.1	°C/W

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =250μA	115			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =100V, V _{GS} =0V			1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = 20V, V _{DS} =0V			±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.2	1.6	2.5	v
g _{FS}	Forward Transconductance	V _{DS} =10V, I _D =2A		10		S
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =20A		9.8	12.5	mΩ
		V _{GS} =4.5V, I _D =15A		14	18	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, F=1MHZ		2500		pF
C _{oss}	Output Capacitance			400		pF
C _{rss}	Reverse Transfer Capacitance			11		pF
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, f=1.0MHz		1.4		Ω
Switching Times						
t _{d(on)}	Turn-on Delay Time	V _{GS} =10V, V _{DS} =50V, I _D =1A, R _{GEN} =3.3Ω		13.9		nS
t _r	Turn-on Rise Time			21		nS
t _{d(off)}	Turn-Off Delay Time			52		nS
t _f	Turn-Off Fall Time			84		nS
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =60V, I _D =30A		36		nC
Q _{gs}	Gate-Source Charge			11		nC
Q _{gd}	Gate-Drain Charge			6.5		nC
Source-Drain Diode Characteristics						
I _S	Continuous Source Current	V _G =V _D =0V , Force Current			65	A
V _{SD}	Forward on Voltage	V _{GS} =0V, I _S =20A			1.0	V
t _{rr}	Reverse Recovery Time	V _{GS} =0V, I _S =30A , dI/ dt=100A/μs , T _J =25°C			43	ns
Q _{rr}	Reverse Recovery Charge					88

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. V_{DD}=50V, V_{GS}=10V, L=0.1mH, I_{AS}=55A., R_G=25 Ω , Starting T_J=25°C.
3. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.
4. Essentially independent of operating temperature.

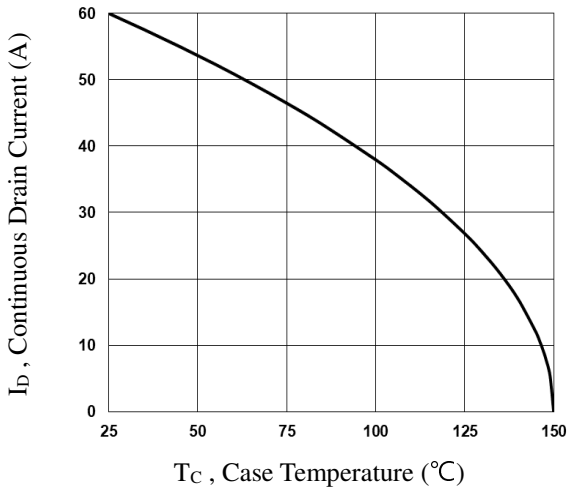


Fig.1 Continuous Drain Current vs. T_c

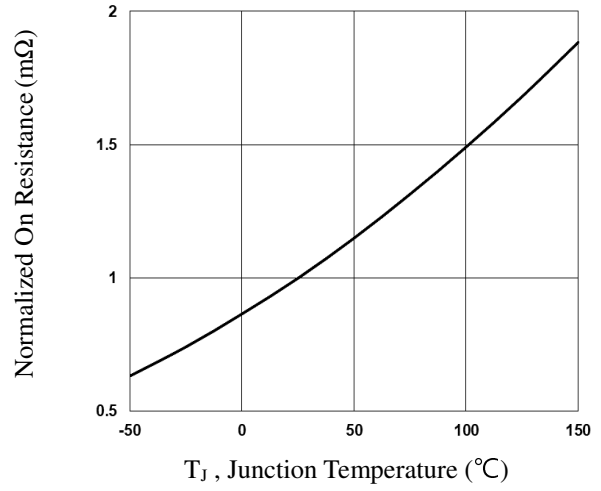


Fig.2 Normalized RD_{SON} vs. T_j

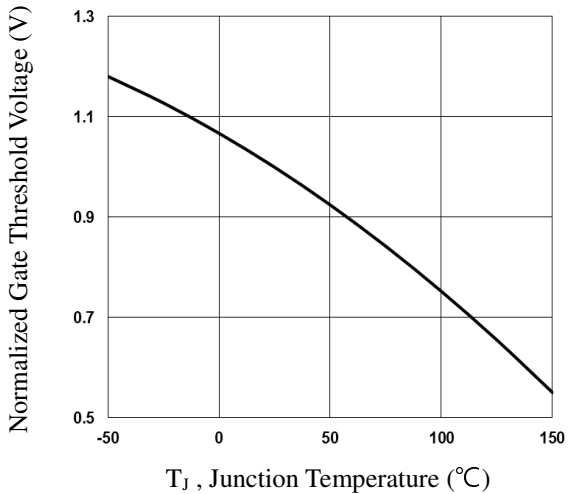


Fig.3 Normalized V_{th} vs. T_j

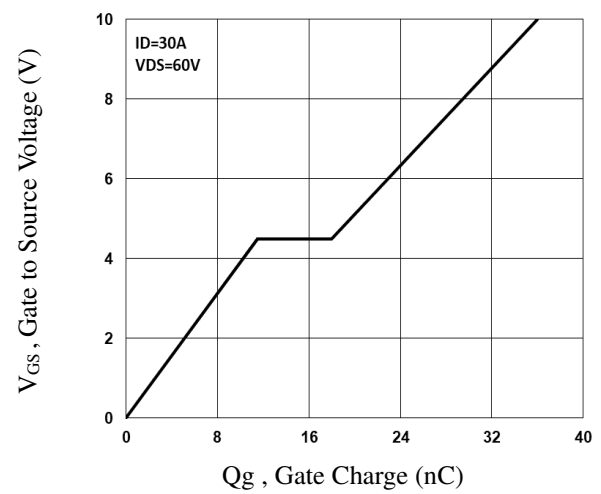


Fig.4 Gate Charge Characteristics

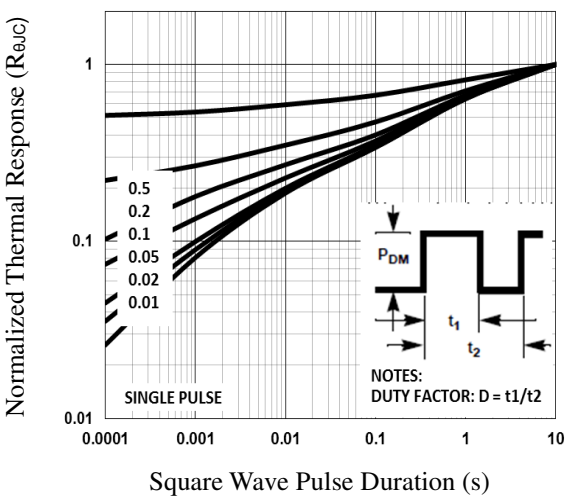


Fig.5 Normalized Transient Impedance

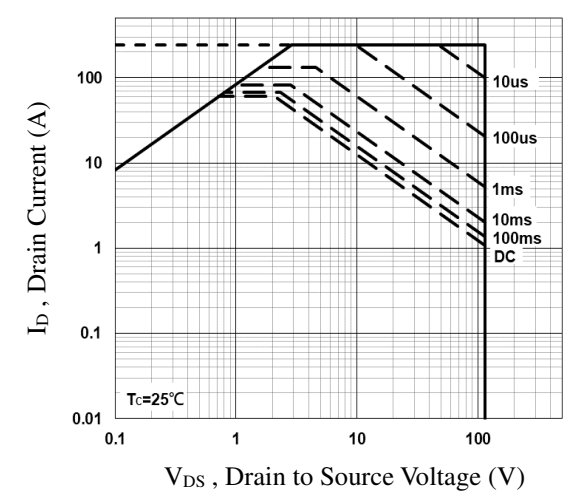


Fig.6 Maximum Safe Operation Area

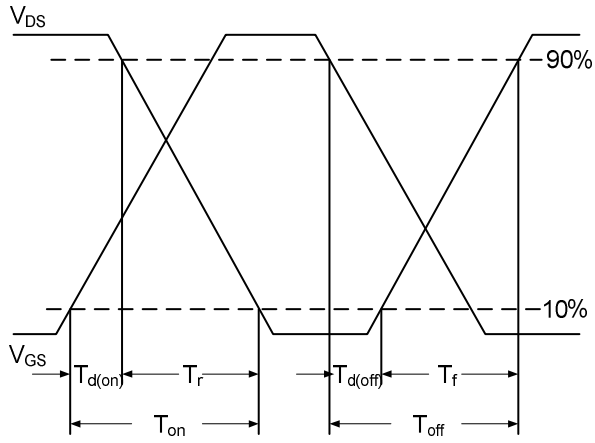


Fig.7 Switching Time Waveform

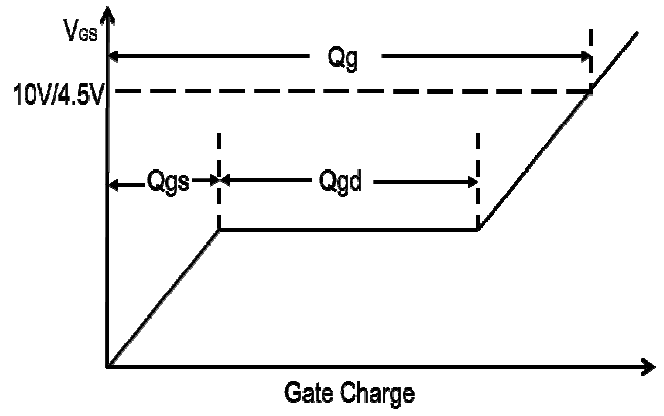
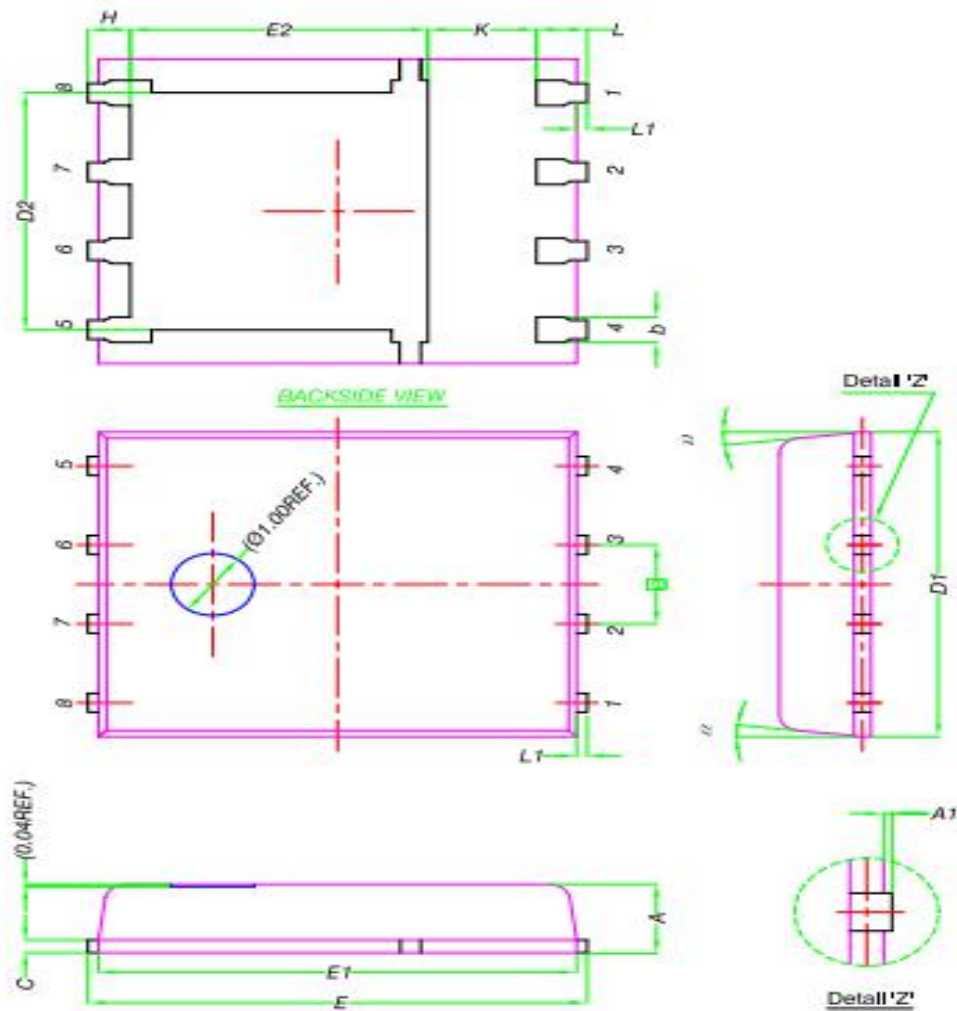


Fig.8 Gate Charge Waveform

•Dimensions (DFN5×6)


DIM.	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.90	1.00	1.10
A1	0	-	0.05
b	0.33	0.41	0.51
C	0.20	0.25	0.30
D1	4.80	4.90	5.00
D2	3.61	3.81	3.96
E	5.90	6.00	6.10
E1	5.70	5.75	5.80
E2	3.38	3.58	3.78
e	1.27 BSC		
H	0.41	0.51	0.61
K	1.10	-	-
L	0.51	0.61	0.71
L1	0.06	0.13	0.20
α	0°	-	12°


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