General Description

The AGM2N7002K3 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
- With ESD

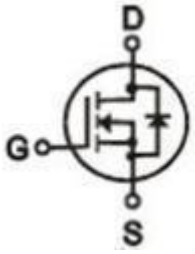
Application

- Electronic Ballast
- Electronic Transformer
- Switch Mode Power Supply

Product Summary

BVDSS	RDSON	ID
60V	1.9Ω	0.3A

SOT-23 Pin Configuration



Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
7002K	AGM2N7002K3	SOT-23	178mm	8mm	3000

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

Symbol	Parameter	Value	Unit
VDS	Drain-Source Voltage (VGS=0V)	60	V
VGS	Gate-Source Voltage (VDS=0V)	±20	V
ID	Drain Current-Continuous(TA=25℃) **(Note 1)**	0.3	A
	Drain Current-Continuous(TA=100℃)	0.18	A
IDM (pluse)	Drain Current-Continuous@ Current-Pulsed **(Note 2)**	1.2	A
PD	Maximum Power Dissipation(TA=25℃)	0.35	w
	Maximum Power Dissipation(TA=100℃)	0.14	w
EAS	Avalanche energy **(Note 3)**	--	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]	---	357	℃/W

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BV_{DSS}	Drain-Source Breakdown Voltage	VGS=0V ID=10μA	60	67	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=60V,VGS=0V	--	--	1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V,VDS=0V	--	--	±10	μA
$V_{GS(th)}$	Gate Threshold Voltage	VDS=VGS,ID=250μA	1.0	1.5	2.5	V
gFS	Forward Transconductance	VDS=2V,ID=0.2A	--	130	--	mS
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=0.3A	--	1.9	2.5	Ω
		VGS=4.5V, ID=0.2A	--	2.0	3.0	Ω
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=30V,VGS=0V, F=1MHZ	--	21	--	pF
Coss	Output Capacitance		--	9	--	pF
Crss	Reverse Transfer Capacitance		--	4	--	pF
Rg	Gate resistance	VGS=0V, VDS=0V,f=1.0MHz	--	--	--	Ω
Switching Times						
td(on)	Turn-on Delay Time	VDD=50V, VGS=10V ID=0.2A,RGEN=50Ω	--	2	--	nS
tr	Turn-on Rise Time		--	15	--	nS
td(off)	Turn-Off Delay Time		--	7	--	nS
tf	Turn-Off Fall Time		--	20	--	nS
Qg	Total Gate Charge	VGS=4.5V, VDS=10V, ID=0.3A	--	1.7	--	nC
Qgs	Gate-Source Charge		--	0.3	--	nC
Qgd	Gate-Drain Charge		--	0.6	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	0.3	A
VSD	Forward on Voltage	VGS=0V,ISD=0.3A	--	--	1.2	V
trr	Reverse Recovery Time	VDD=10V,IF=0.3A , dI/dt=100A/μs , TJ=25℃	--		--	ns
Qrr	Reverse Recovery Charge		--		--	nc

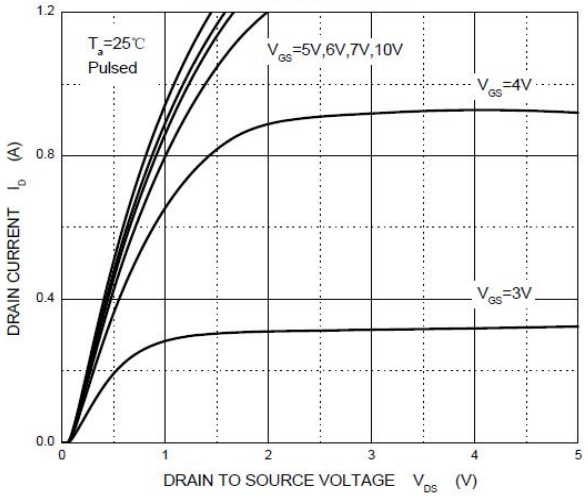
Notes 1.The maximum current rating is package limited.

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

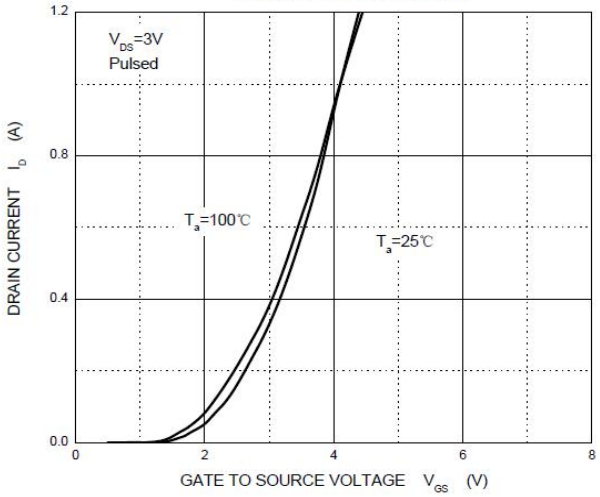
Notes 3.EAS condition: TJ=25℃

Typical Performance Characteristics

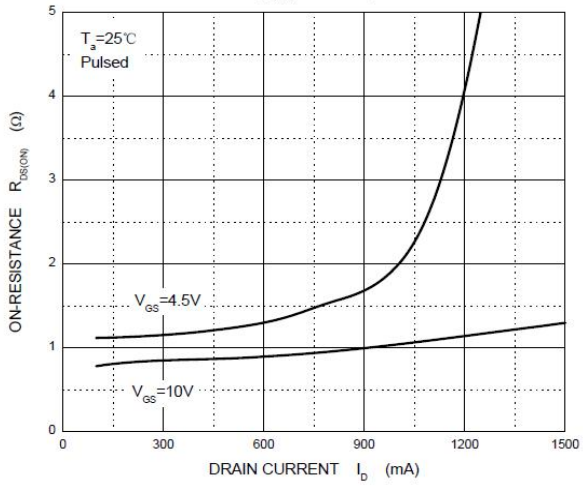
Output Characteristics



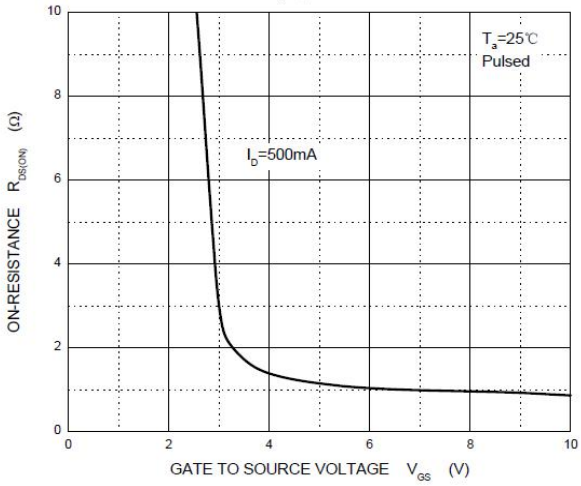
Transfer Characteristics



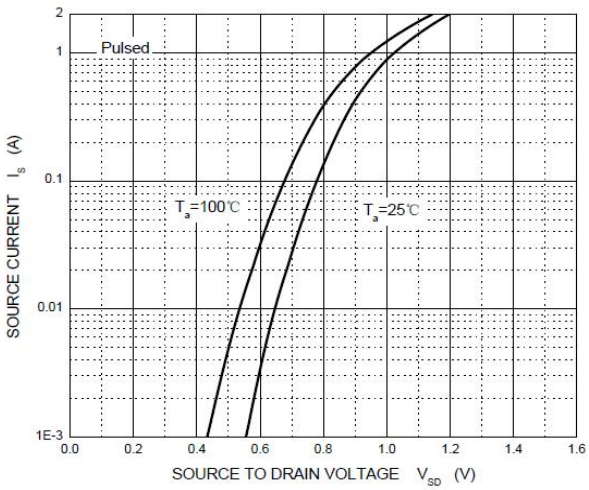
$R_{DS(ON)}$ —— I_D



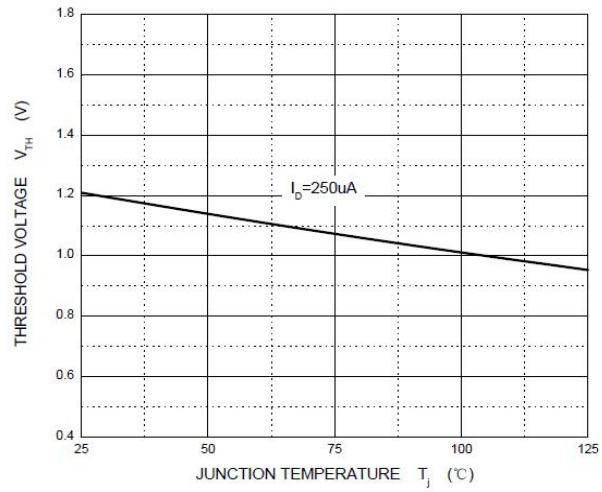
$R_{DS(ON)}$ —— V_{GS}



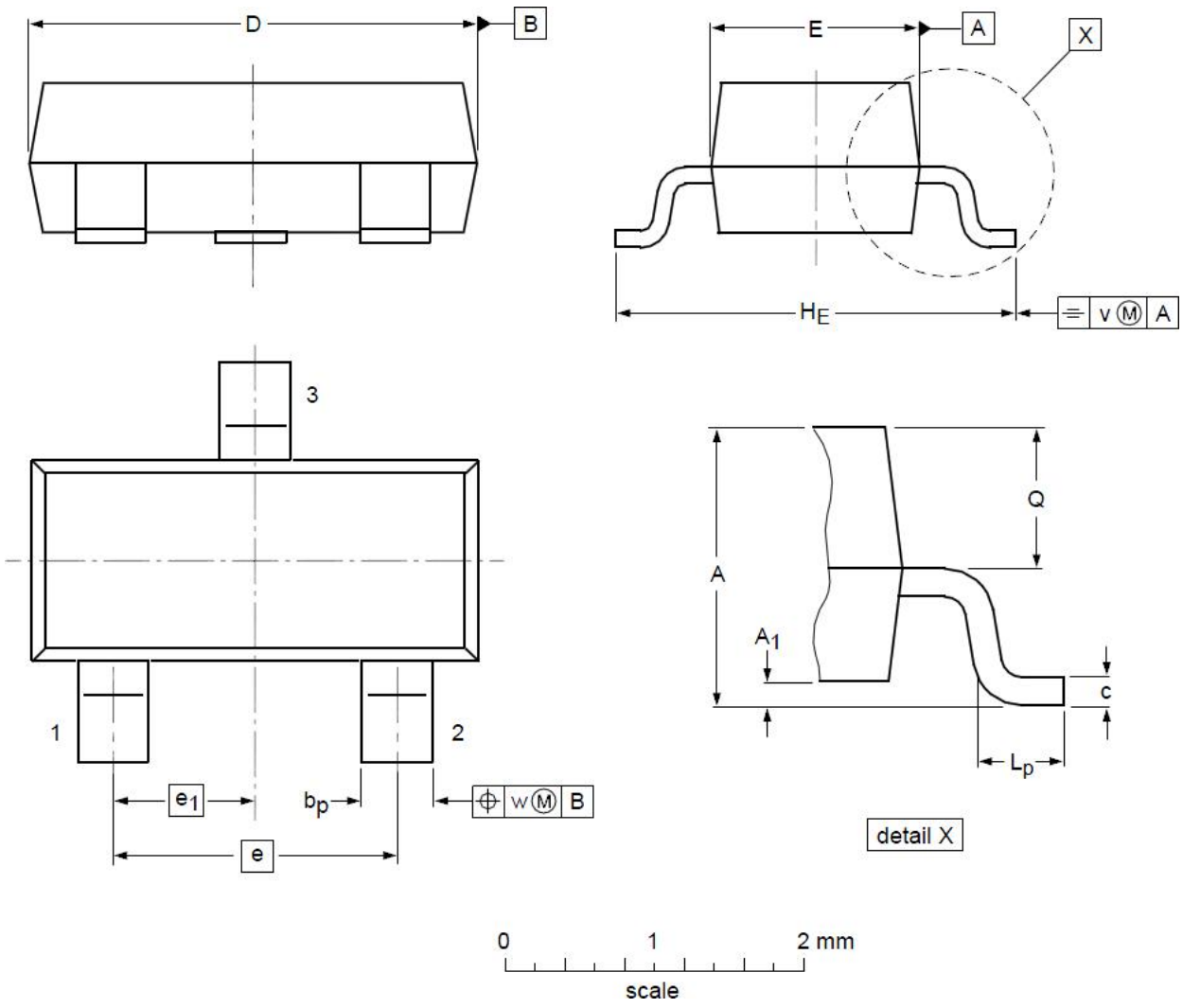
I_s —— V_{SD}



Threshold Voltage



Package Mechanical Data-SOT-23



DIMENSIONS (unit : mm)

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	0.90	1.01	1.15	**A_1**	0.01	0.05	0.10
b_p	0.30	0.42	0.50	**c**	0.08	0.13	0.15
D	2.80	2.92	3.00	**E**	1.20	1.33	1.40
e	--	1.90	--	**e_1**	--	0.95	--
H_E	2.25	2.40	2.55	**L_p**	0.30	0.42	0.50
Q	0.45	0.49	0.55	**v**	--	0.20	--
w	--	0.10	--				

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This document is the second version issued on August 11th, 2023. This document replaces all previously provided information.

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