

General Description

The AGM628EY 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

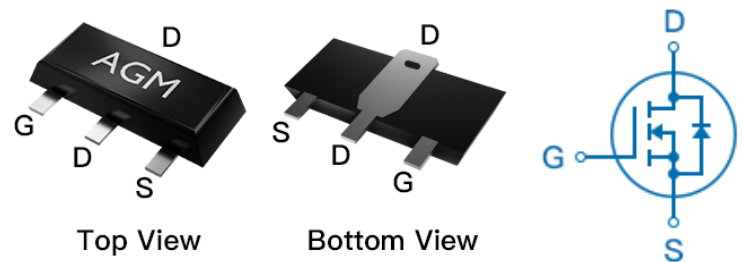
Application

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

Product Summary

BVDSS	RDSON	ID
60V	26mΩ	15A

SOT89-3 Pin Configuration



Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM628EY	AGM628EY	SOT89-3	330mm	12mm	3000

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

Symbol	Parameter	Value	Unit
VDS	Drain-Source Voltage (VGS=0V)	60	V
VGS	Gate-Source Voltage (VDS=0V)	±20	V
ID	Drain Current-Continuous(Tc=25°C) (Note 1)	15	A
	Drain Current-Continuous(Tc=100°C)	10	A
IDM (pluse)	Drain Current-Pulsed (Note 2)	60	A
PD	Maximum Power Dissipation(Tc=25°C)	10	w
	Maximum Power Dissipation(Tc=100°C)	4.0	w
EAS	Avalanche energy (Note 3)	31	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) ¹	---	62	°C/W
RθJC	Thermal Resistance Junction-Case ¹	---	12.5	°C/W

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V ID=250μA	60	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=60V,VGS=0V	--	--	1.0	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=5A	--	9	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=10A	--	26	31	mΩ
		VGS=4.5V, ID=5A	--	31	36	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=30V,VGS=0V, F=1.0MHz	--	850	--	pF
Coss	Output Capacitance		--	55	--	pF
Crss	Reverse Transfer Capacitance		--	45	--	pF
Rg	Gate resistance	VGS=0V, VDS=0V,f=1.0MHz	--	1.5	--	Ω
Switching Times						
td(on)	Turn-on Delay Time	VGS=10V,VDS=30V ID=20A,RGEN=1.8Ω	--	7.6	--	nS
tr	Turn-on Rise Time		--	20	--	nS
td(off)	Turn-Off Delay Time		--	15	--	nS
tf	Turn-Off Fall Time		--	24	--	nS
Qg	Total Gate Charge	VGS=10V, VDS=30V, ID=10A	--	20	--	nC
Qgs	Gate-Source Charge		--	3.7	--	nC
Qgd	Gate-Drain Charge		--	5.3	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	15	A
VSD	Forward on Voltage	VGS=0V,IS=10A	--	--	1.2	V
trr	Reverse Recovery Time	Is=10A , 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°C, VDD=30V,Vgs=10V,ID=25A,L=0.1mH,RG=25ohm

Typical Performance Characteristics

Figure 1: Output Characteristics

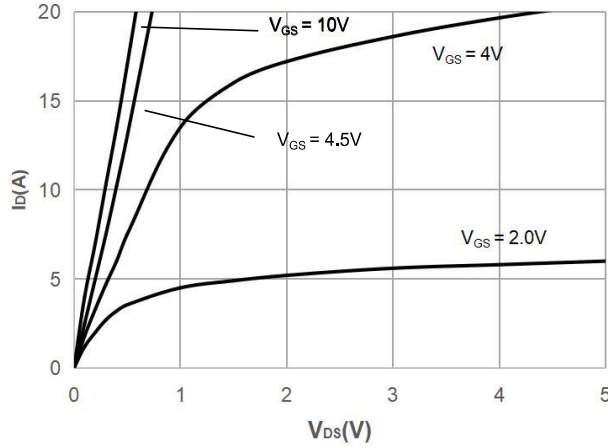


Figure 2: Typical Transfer Characteristics

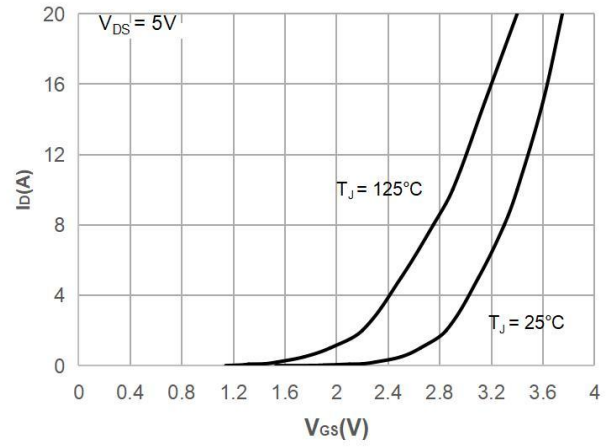


Figure 3: On-resistance vs. Drain Current

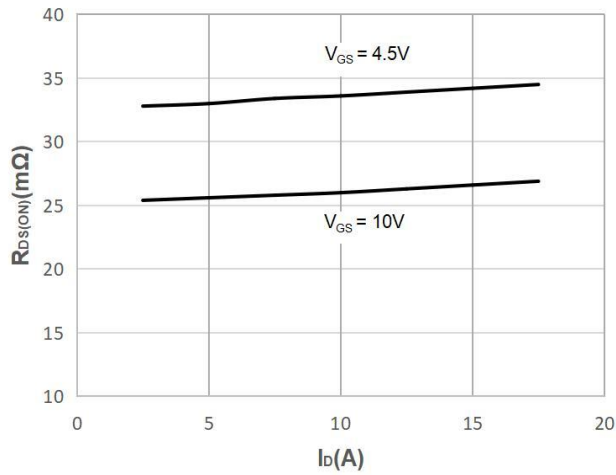


Figure 4: Body Diode Characteristics

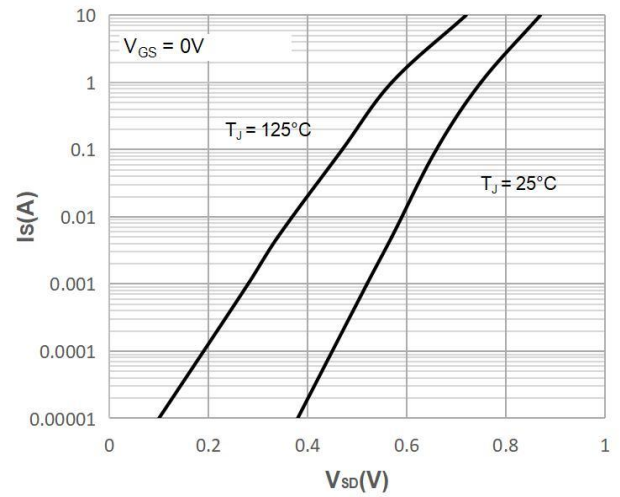


Figure 5: Gate Charge Characteristics

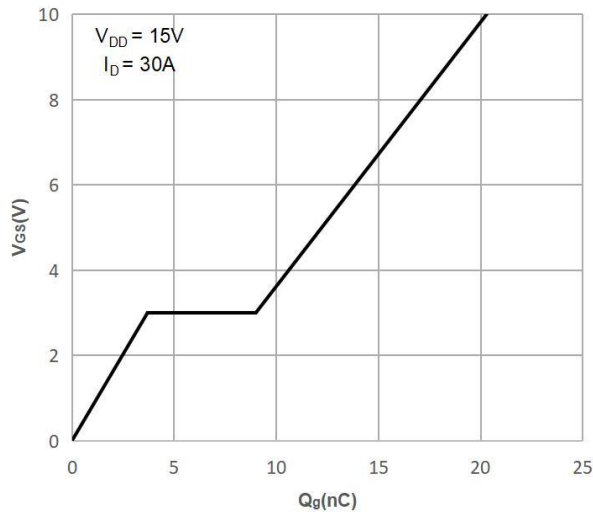
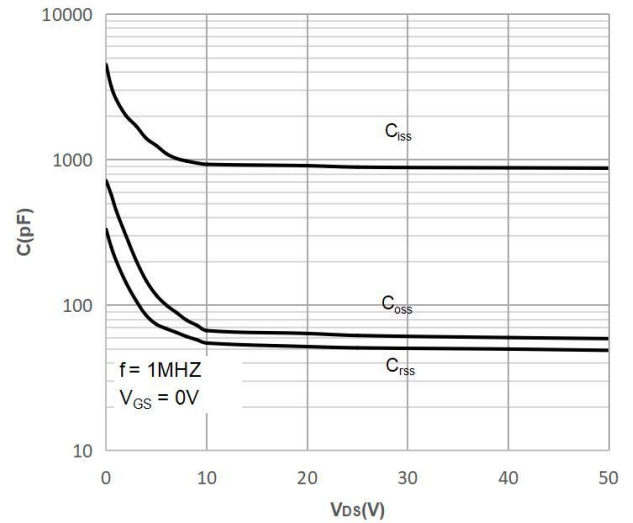


Figure 6: Capacitance Characteristics



Typical Performance Characteristics

Figure 7: Normalized Breakdown voltage vs. Junction Temperature

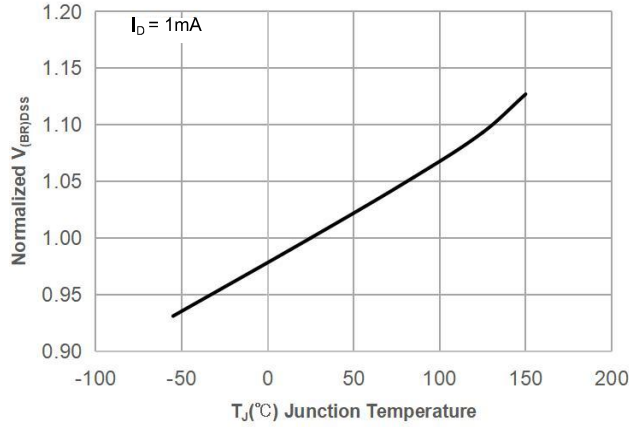


Figure 8: Normalized on Resistance vs. Junction Temperature

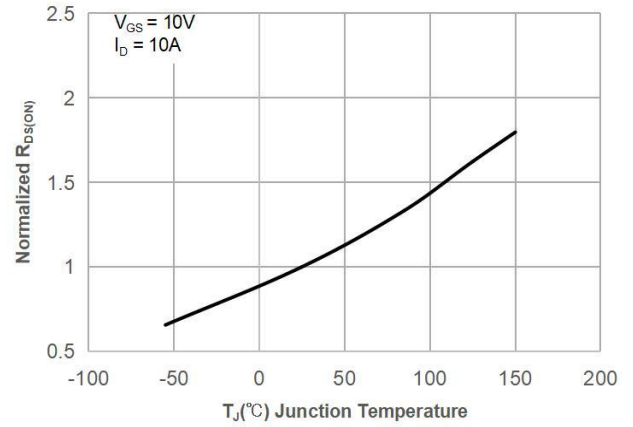


Figure 9: Maximum Safe Operating Area

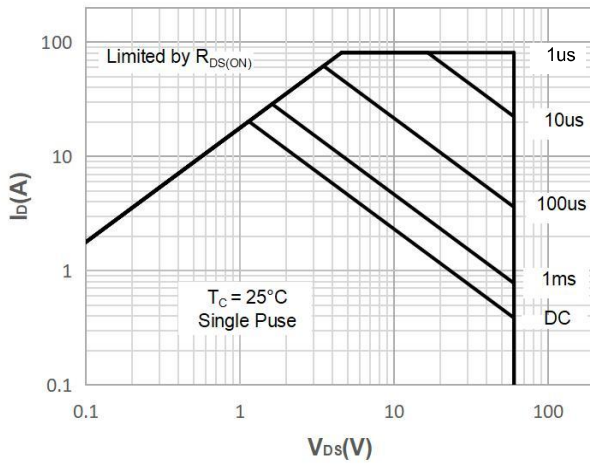


Figure 10: Maximum Continuous Drian Current vs. Case Temperature

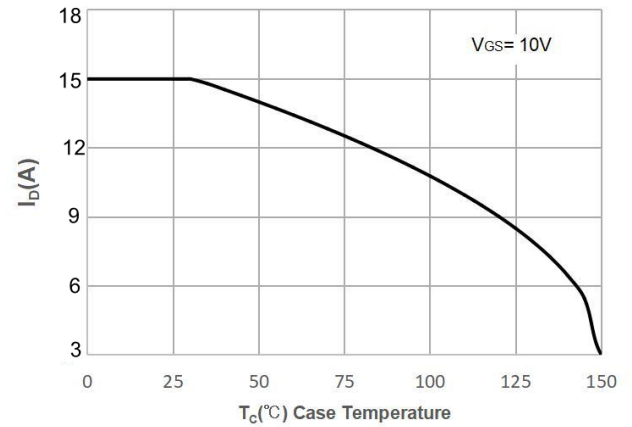


Figure 11: Normalized Maximum Transient Thermal Impedance

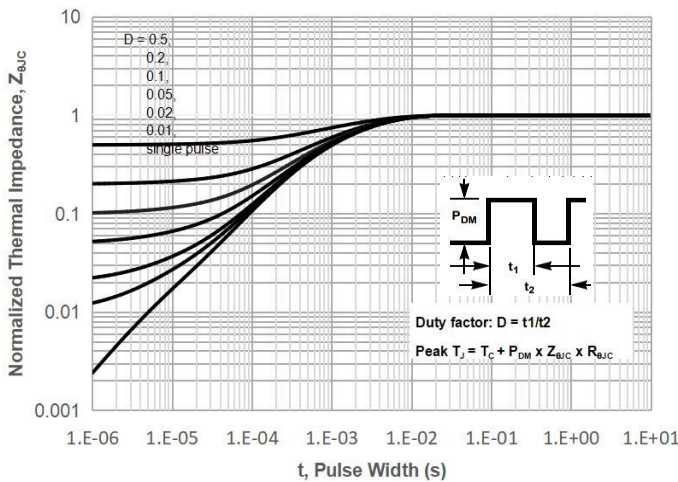
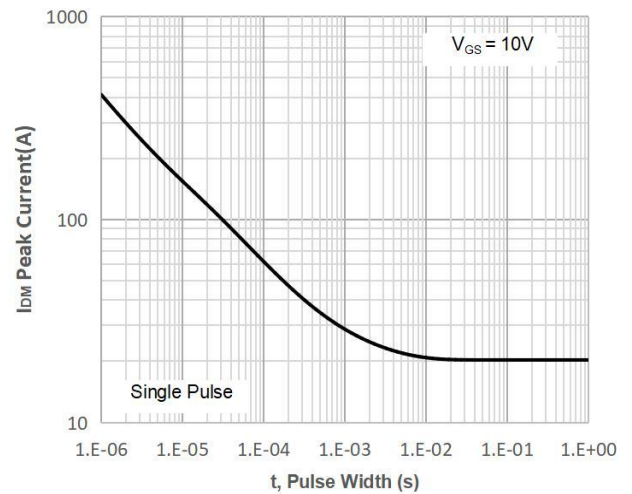


Figure 12: Peak Current Capacity



Test Circuit

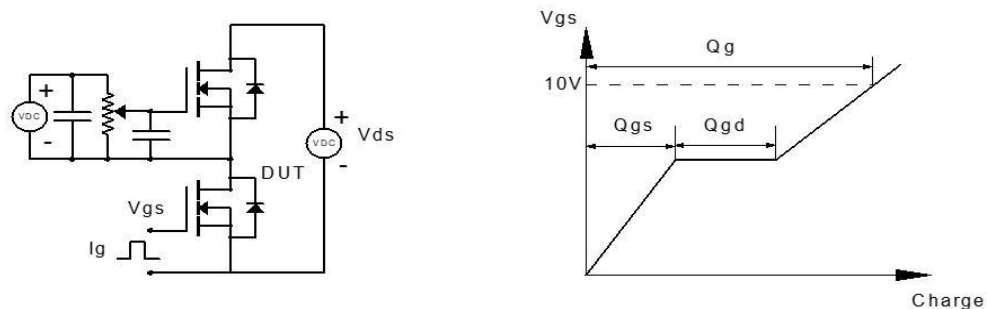


Figure 1: Gate Charge Test Circuit & Waveform

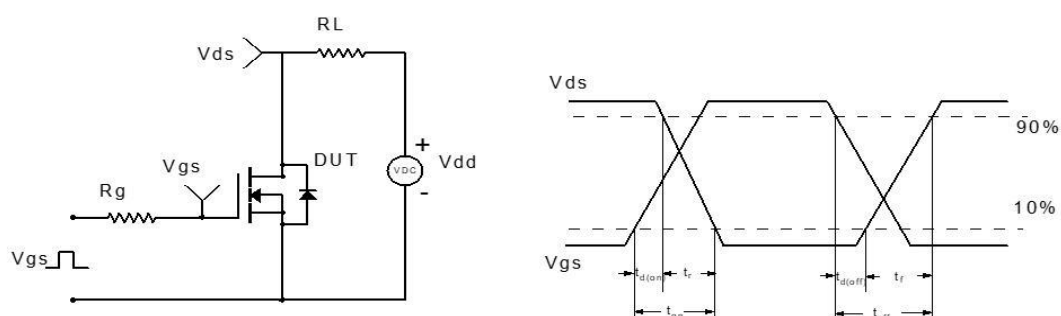


Figure 2: Resistive Switching Test Circuit & Waveform

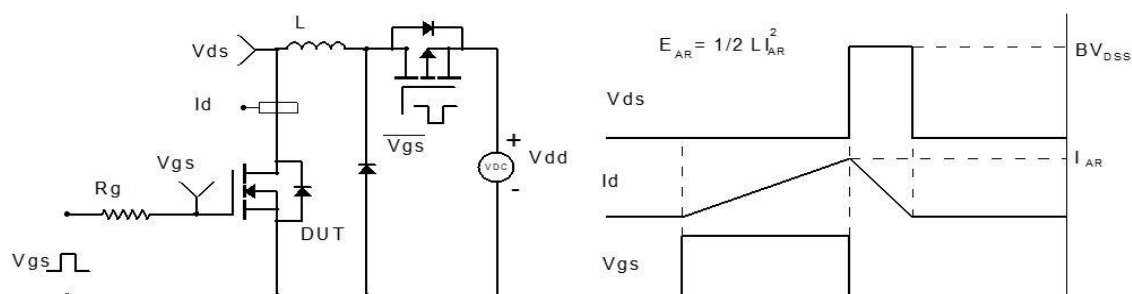


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

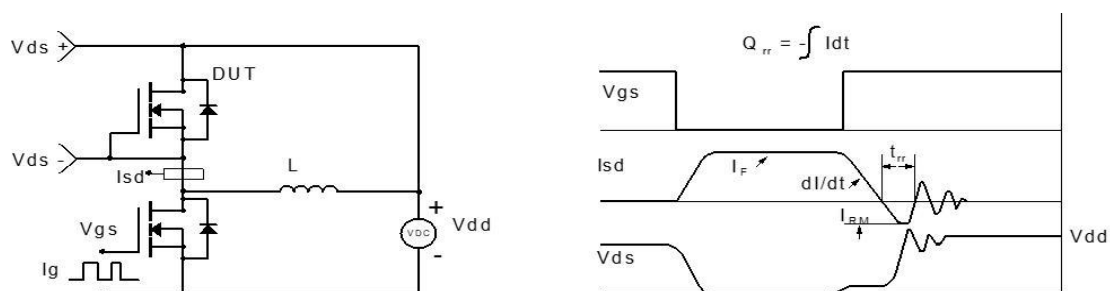
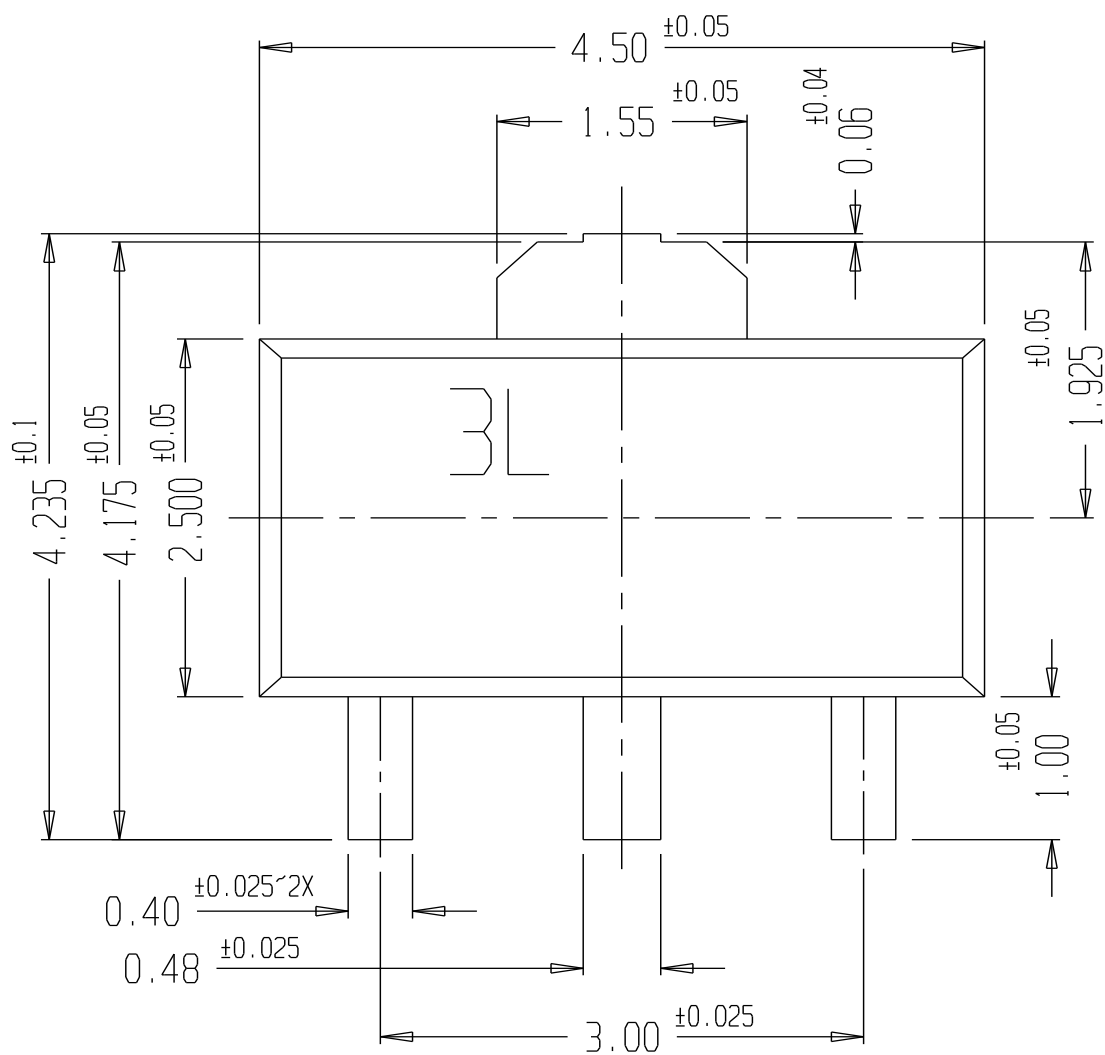


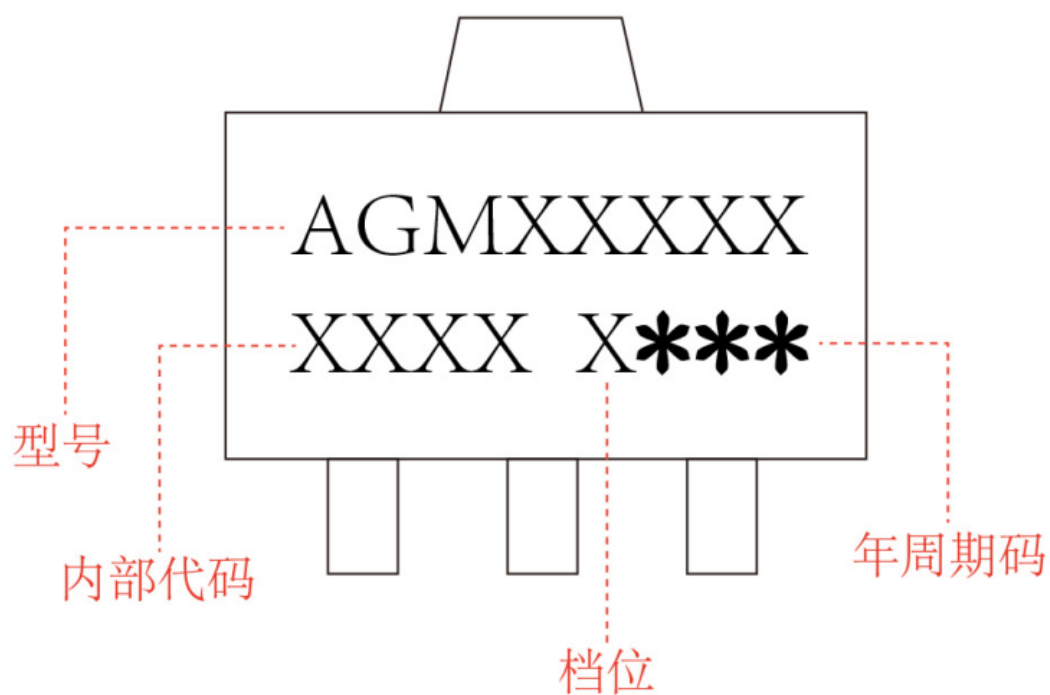
Figure 4: Diode Recovery Test Circuit & Waveform

●Dimensions (SOT89-3)



SOT89-3

Marking Instructions:



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