Features

- Dual N-Channel,5V Logic Level Control
- Enhancement mode
- Fast Switching
- High Effective

Application

- Power Management in Inverter System
- Synchronous Rectification

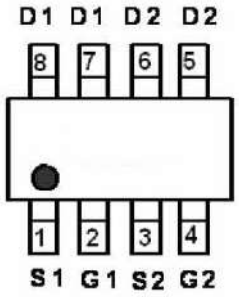
Product Summary

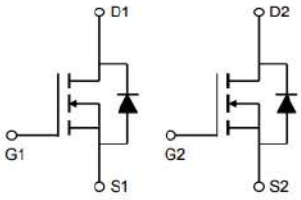
RoHs

V_{DS}	30	V
$R_{DS(on),TYP}$@ V_{GS}=10 V	15.5	mΩ
I_D	9	A

top view

SOP-8





Maximum ratings, at T_j=25 °C, unless otherwise specified

Symbol	Parameter		Rating	Unit
$V_{(BR)DSS}$	Drain-Source breakdown voltage		30	V
I_S	Diode continuous forward current	T_A=25°C	2.3	A
I_D	Continuous drain current @V_{GS}=10V	T_A=25°C	9	A
		T_A=70°C	5.0	A
I_{DM}	Pulse drain current tested ①	T_A=25°C	30	A
EAS	Avalanche energy, single pulsed ②		9	mJ
P_D	Maximum power dissipation	T_A=25°C	2.5	W
V_{GS}	Gate-Source voltage		±20	V
MSL			Level 3	
T_{STG}	Storage temperature range		-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typical	Unit
$R_{\theta JL}$	Thermal Resistance-Junction to Lead	40	°C/W
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	50	°C/W

Electrical Characteristics@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	30	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=10V, I_D=8A		15.5	20	mΩ
		V_{GS}=4.5V, I_D=6A		21.5	26	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	1	1.5	2.5	V
g_{fs}	Forward Transconductance	V_{DS}=10V, I_D=8A		15		S
I_{DSS}	Drain-Source Leakage Current	V_{DS}=30V, V_{GS}=0V	-	-	10	uA
I_{GSS}	Gate-Source Leakage	V_{GS}=±12V, V_{DS}=0V	-	-	±100	nA
Q_g	Total Gate Charge	I_D=8A		4.1		nC
Q_{gs}	Gate-Source Charge	V_{DS}=15V	-	1.1	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	V_{GS}=4.5V	-	2.5	-	nC
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=15V	-	8	-	ns
t_r	Rise Time	I_D=1A	-	7	-	ns
$t_{d(off)}$	Turn-off Delay Time	R_G=3.3Ω,V_{GS}=10V	-	15	-	ns
t_f	Fall Time	R_D=15Ω	-	5	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V	-	685	-	pF
C_{oss}	Output Capacitance	V_{DS}=25V	-	95	-	pF
C_{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	75	-	pF
R_g	Gate Resistance	f=1.0MHz	-	5.6	-	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage[2]	I_S=1.1A, V_{GS}=0V	-	-	1.0	V
t_{rr}	Reverse Recovery Time	I_S= 8A, V_{GS}=0V,	-	15	-	ns
Q_{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	14	-	nC

Notes:

1.Pulse width limited by Max. junction temperature.

2.Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%

3.Surface mounted on 1 in^2 copper pad of FR4 board, t ≤10sec ; 125 ℃/W when mounted on Min. copper pad.

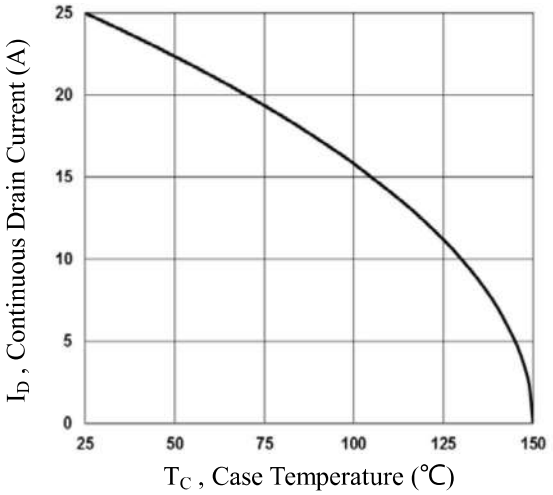


Fig.1 Continuous Drain Current vs. T_C

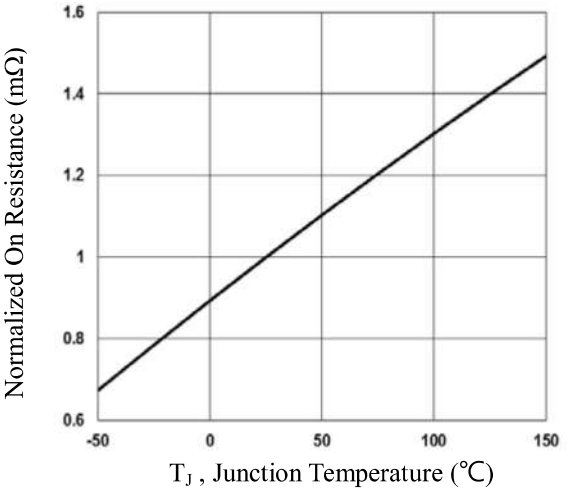


Fig.2 Normalized RDSON vs. T_J

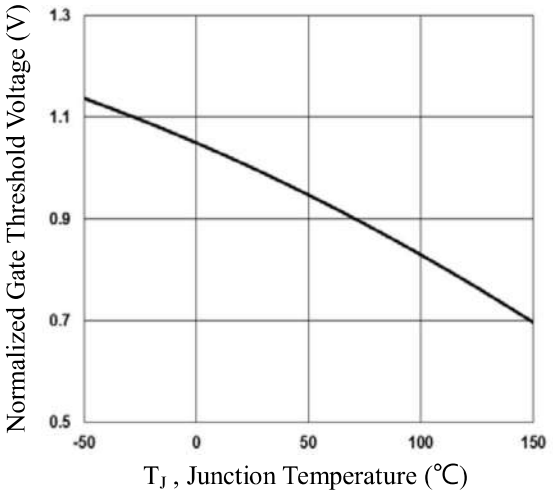


Fig.3 Normalized V_{th} vs. T_J

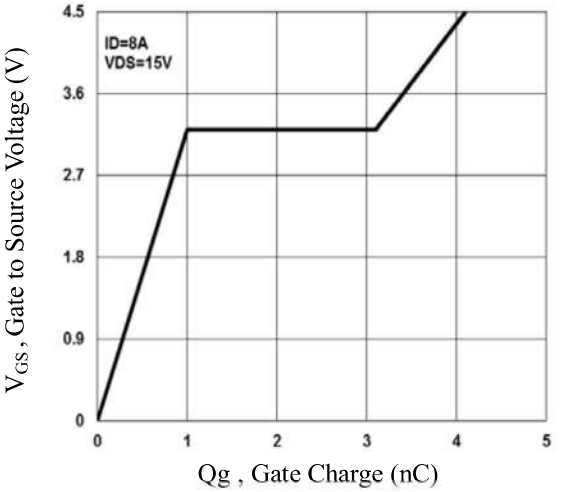


Fig.4 Gate Charge Waveform

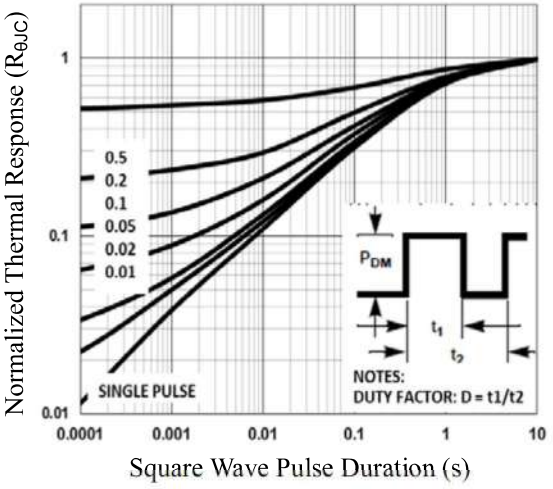


Fig.5 Normalized Transient Response

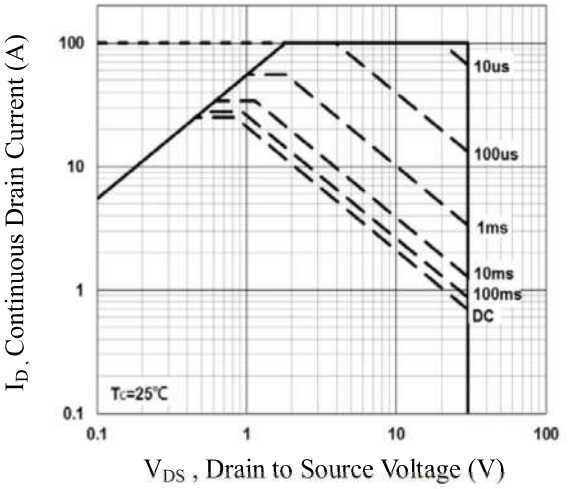


Fig.6 Maximum Safe Operation Area

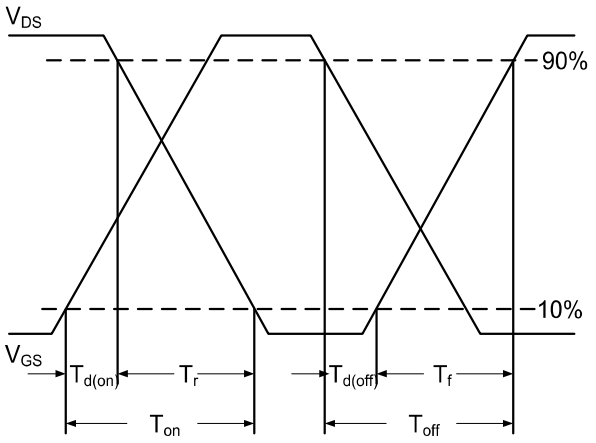


Fig.7 Switching Time Waveform

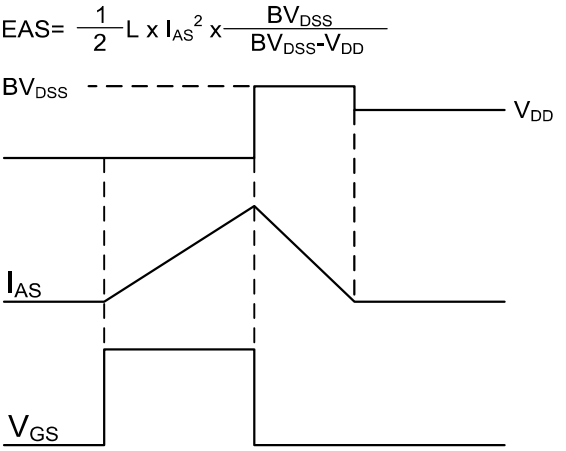
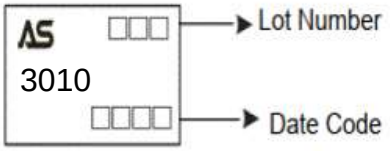


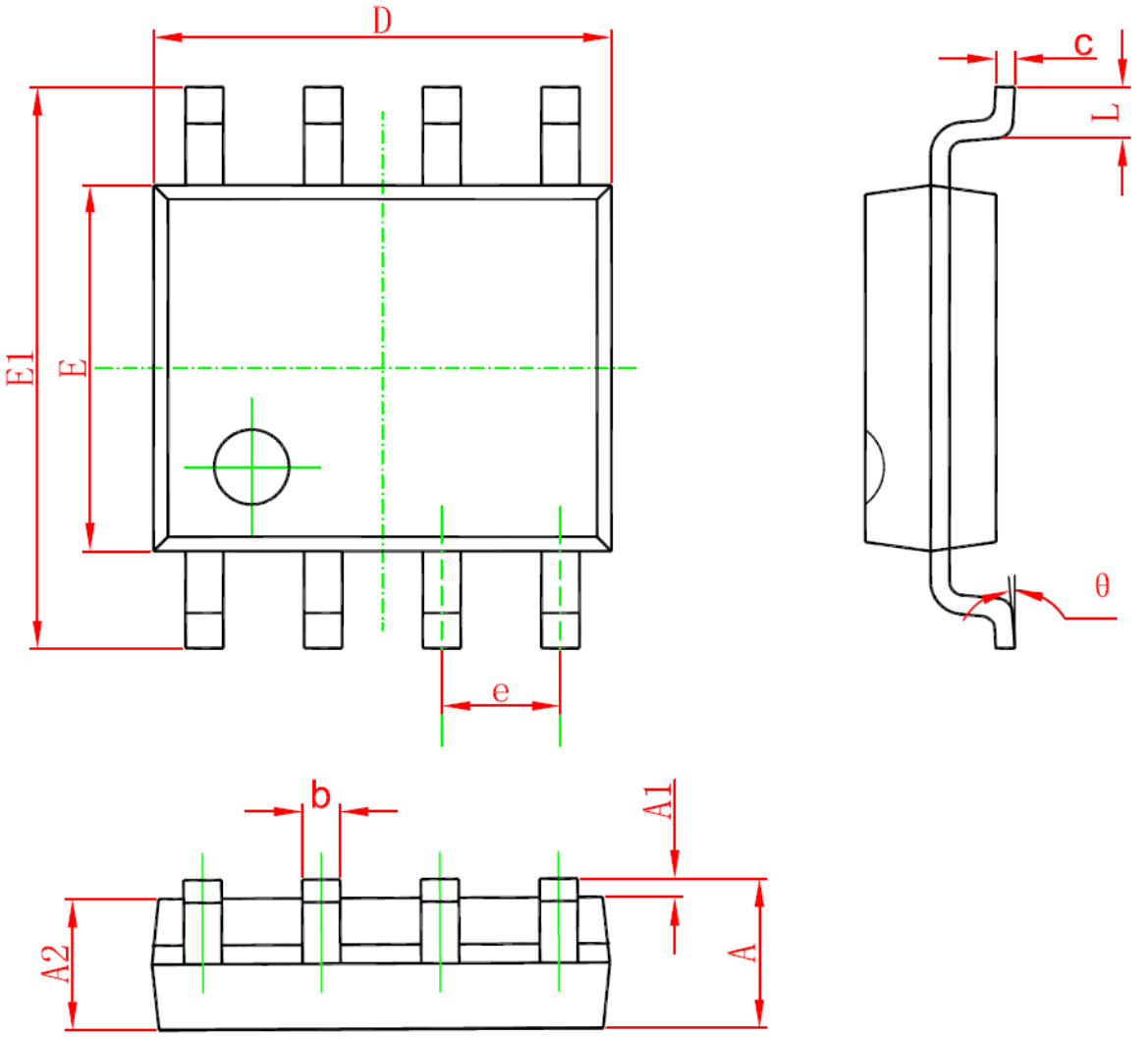
Fig.8 EAS Waveform

Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM3010S-R	3010	SOP-8	Tape&Reel	4000

PACKAGE	MARKING
SOP-8	

SOP-8 PACKAGE IN FORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

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