



### Features

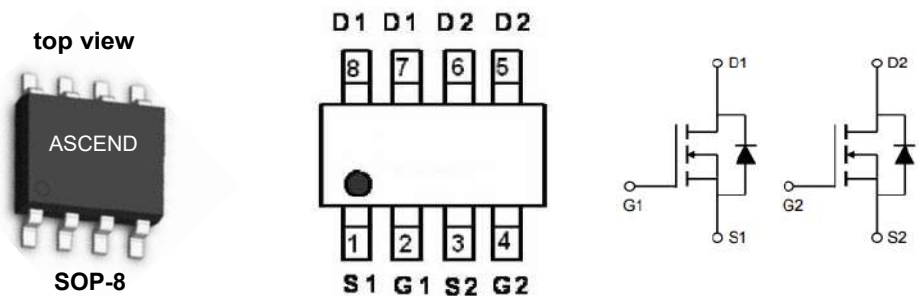
- Dual N-Channel, 5V Logic Level Control
- Enhancement mode
- Fast Switching
- High Effective

### Application

- Power Management in Inverter System
- Synchronous Rectification

### Product Summary

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



### Maximum ratings, at $T_j=25^\circ\text{C}$ , unless otherwise specified

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

### Thermal Characteristics

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

### Electrical Characteristics@T<sub>j</sub>=25°C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	30	-	-	V
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance <sup>2</sup>	V <sub>GS</sub> =10V, I <sub>D</sub> =8A		15.5	20	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =6A		21.5	26	mΩ
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	1	1.5	2.5	V
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =10V, I <sub>D</sub> =8A		15		S
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V	-	-	10	uA
I <sub>GSS</sub>	Gate-Source Leakage	V <sub>GS</sub> =±12V, V <sub>DS</sub> =0V	-	-	±100	nA
Q <sub>g</sub>	Total Gate Charge	I <sub>D</sub> =8A		4.1		nC
Q <sub>gs</sub>	Gate-Source Charge	V <sub>DS</sub> =15V	-	1.1	-	nC
Q <sub>gd</sub>	Gate-Drain ("Miller") Charge	V <sub>GS</sub> =4.5V	-	2.5	-	nC
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DS</sub> =15V	-	8	-	ns
t <sub>r</sub>	Rise Time	I <sub>D</sub> =1A	-	7	-	ns
t <sub>d(off)</sub>	Turn-off Delay Time	R <sub>G</sub> =3.3Ω, V <sub>GS</sub> =10V	-	15	-	ns
t <sub>f</sub>	Fall Time	R <sub>D</sub> =15Ω	-	5	-	ns
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V	-	685	-	pF
C <sub>oss</sub>	Output Capacitance	V <sub>DS</sub> =25V	-	95	-	pF
C <sub>rss</sub>	Reverse Transfer Capacitance	f=1.0MHz	-	75	-	pF
R <sub>g</sub>	Gate Resistance	f=1.0MHz	-	5.6	-	Ω

### Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V <sub>SD</sub>	Forward On Voltage <sup>2</sup>	I <sub>S</sub> =1.1A, V <sub>GS</sub> =0V	-	-	1.0	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>S</sub> = 8A, V <sub>GS</sub> =0V,	-	15	-	ns
Q <sub>rr</sub>	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<sup>2</sup> copper pad of FR4 board, t ≤10sec ; 125 °C/W when mounted on Min. copper pad.

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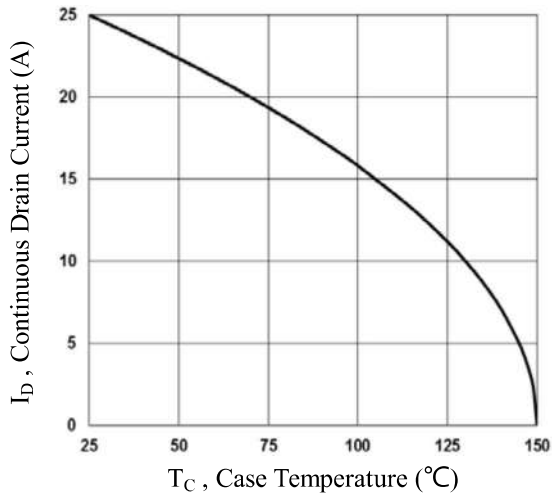


Fig.1 Continuous Drain Current vs. T<sub>c</sub>

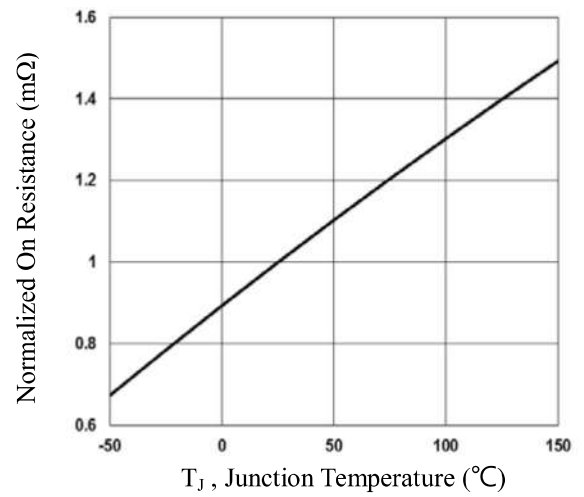


Fig.2 Normalized R<sub>DS(on)</sub> vs. T<sub>j</sub>

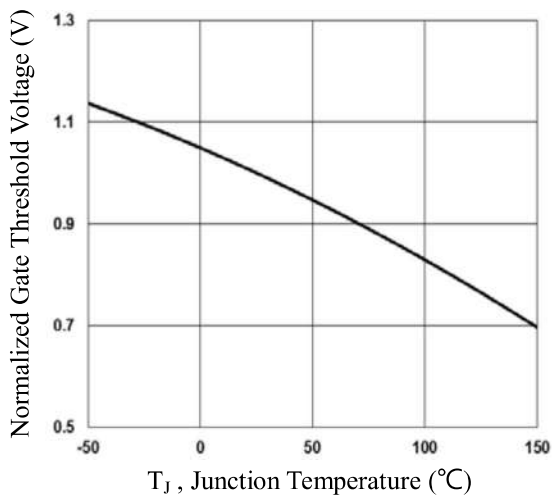


Fig.3 Normalized V<sub>th</sub> vs. T<sub>j</sub>

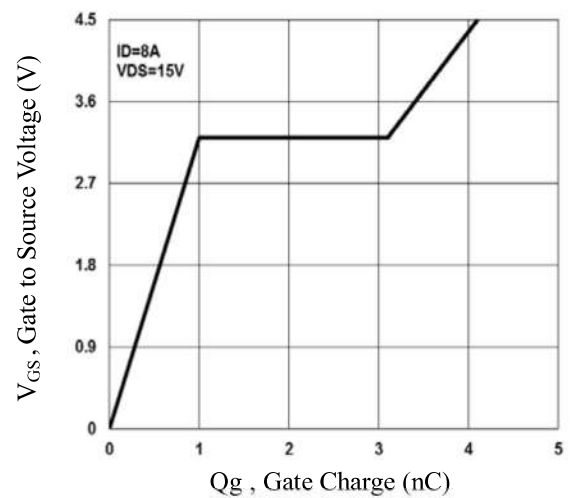


Fig.4 Gate Charge Waveform

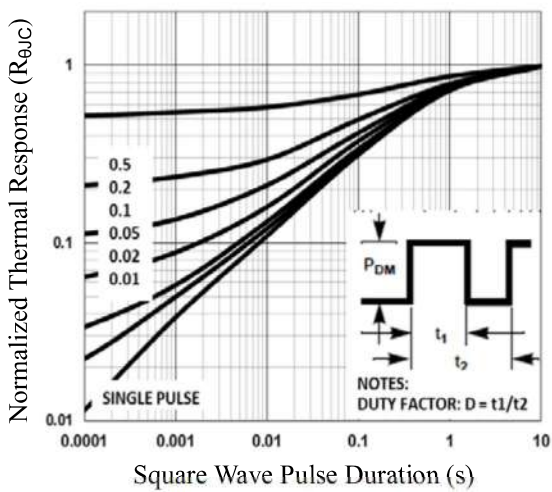


Fig.5 Normalized Transient Response

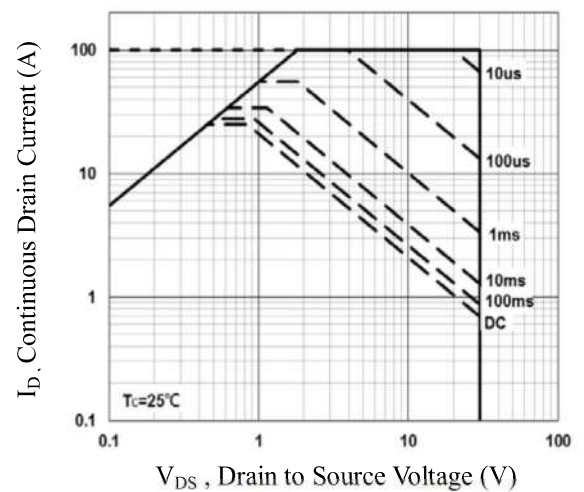
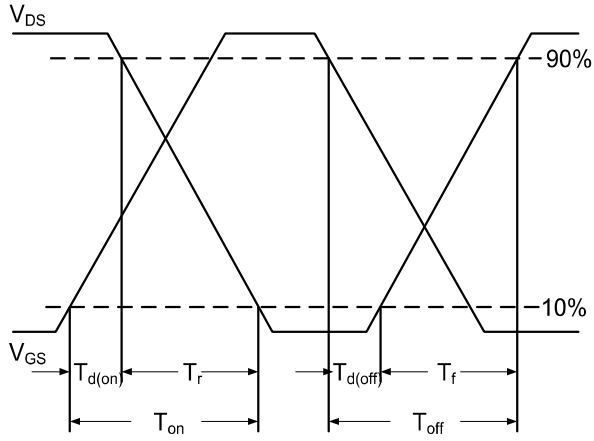
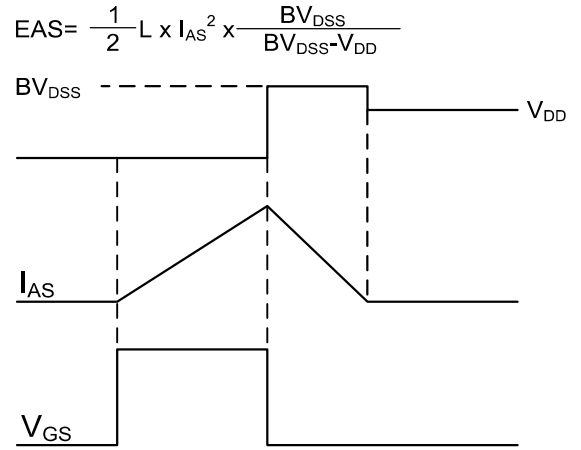


Fig.6 Maximum Safe Operation Area



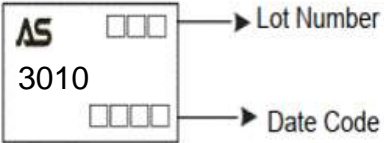
**Fig.7 Switching Time Waveform**



**Fig.8 EAS Waveform**

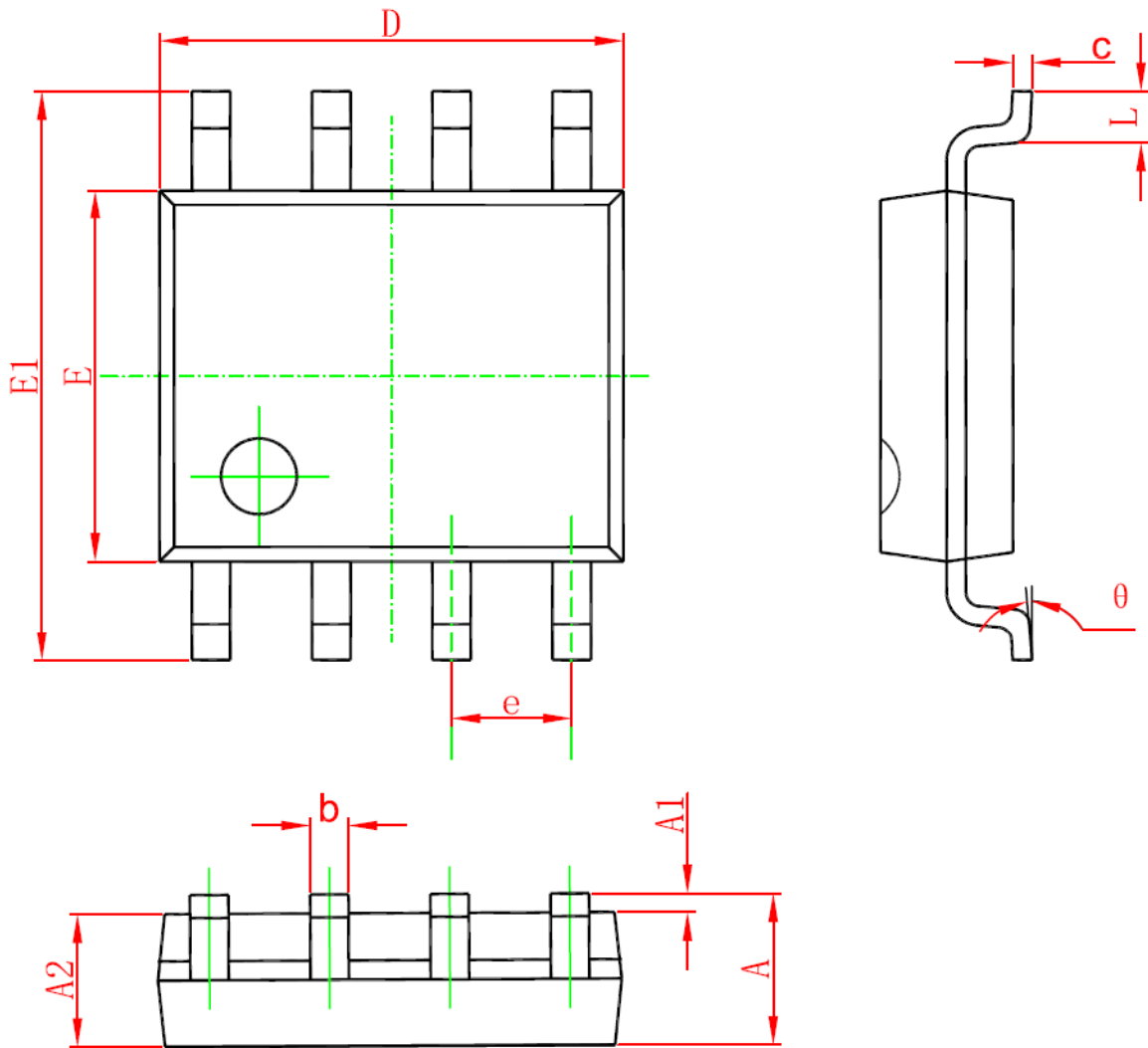
### Ordering and Marking Information

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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