AOSD32338C Datasheet

https://www.DiGi-Electronics.com

DiGi Electronics Part Number	AOSD32338C-DG
Manufacturer	Alpha & Omega Semiconductor Inc.
Manufacturer Product Number	AOSD32338C
Description	MOSFET 2N-CH 30V 6A 8SOIC
Detailed Description	Mosfet Array 30V 6A (Ta) 2W (Ta) Surface Mount 8-SOIC

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
AOSD32338C	Alpha & Omega Semiconductor Inc.
Series:	Product Status:
-	Active
Technology:	Configuration:
MOSFET (Metal Oxide)	2 N-Channel (Dual)
FET Feature:	Drain to Source Voltage (Vdss):
-	30V
Current - Continuous Drain (Id) @ 25°C:	Rds On (Max) @ Id, Vgs:
6A (Ta)	30mOhm @ 6A, 10V
Vgs(th) (Max) @ Id:	Gate Charge (Qg) (Max) @ Vgs:
2.4V @ 250µA	6.3nC @ 10V
Input Capacitance (Ciss) (Max) @ Vds:	Power - Max:
310pF @ 15V	2W (Ta)
Operating Temperature:	Mounting Type:
-55°C ~ 150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
8-SOIC (0.154", 3.90mm Width)	8-SOIC
Base Product Number:	
AOSD323	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.29.0095	

ALPHA & OMEGA SEMICONDUCTOR

AOSD32338C

30V Dual N-Channel MOSFET

General Description

- Trench Power MOSFET technology
- Low $R_{DS(ON)}$
- Low Gate Charge
- RoHS and Halogen-Free Compliant

Applications

- Ideal for Load Switching

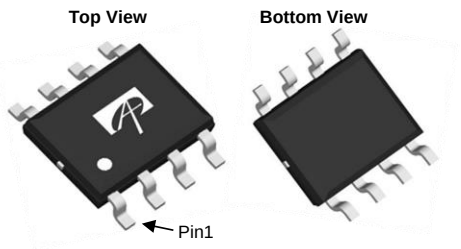
Product Summary

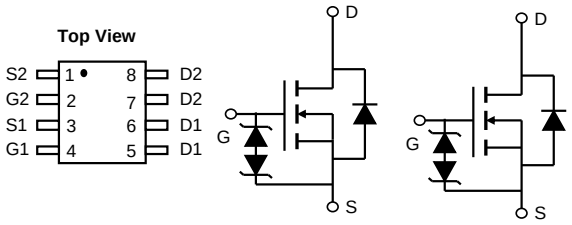
V_{DS}	30V
I_D (at V_{GS}=10V)	4A
$R_{DS(ON)}$ (at V_{GS}=10V)	< 50mΩ
$R_{DS(ON)}$ (at V_{GS}=4.5V)	< 57mΩ
$R_{DS(ON)}$ (at V_{GS}=2.5V)	< 72mΩ

ESD protection

Green Product

SO-8





Orderable Part Number	Package Type	Form	Minimum Order Quantity
AOSD32338C	SO-8	Tape & Reel	3000

Absolute Maximum Ratings T_A=25°C unless otherwise noted

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current	T_A=25°C	I_D	4	A
	T_A=70°C		3.1	
Pulsed Drain Current [C]		I_{DM}	16	
Avalanche Current [C]		I_{AS}	8	A
Avalanche energy	L=0.1mH [C]	E_{AS}	3	mJ
Power Dissipation [B]	T_A=25°C	P_D	1.7	W
	T_A=70°C		1.1	
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

Thermal Characteristics

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient [A]	t ≤ 10s	$R_{\theta JA}$	52	70	°C/W
Maximum Junction-to-Ambient [A D]	Steady-State		80	100	°C/W
Maximum Junction-to-Lead	Steady-State	$R_{\theta JL}$	35	45	°C/W

ALPHA & OMEGA SEMICONDUCTOR

AOSD32338C

Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
STATIC PARAMETERS						
BV_{DSS}	Drain-Source Breakdown Voltage	I_D=250µA, V_{GS}=0V	30			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V, V_{GS}=0V			1	µA
		T_J=55°C			5	
I_{GSS}	Gate-Body leakage current	V_{DS}=0V, V_{GS}=±12V			±10	µA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250µA	0.5	1	1.5	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V, I_D=4A		40	50	mΩ
		T_J=125°C		58	73	
		V_{GS}=4.5V, I_D=4A		42	57	mΩ
		V_{GS}=2.5V, I_D=3.5A		50	72	mΩ
g_{FS}	Forward Transconductance	V_{DS}=5V, I_D=4A		20		S
V_{SD}	Diode Forward Voltage	I_S=1A, V_{GS}=0V		0.7	1	V
I_S	Maximum Body-Diode Continuous Current				2	A
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=15V, f=1MHz		340		pF
C_{oss}	Output Capacitance			30		pF
C_{rss}	Reverse Transfer Capacitance			25		pF
R_g	Gate resistance	f=1MHz	4	8	12	Ω
SWITCHING PARAMETERS						
Q_g(10V)	Total Gate Charge	V_{GS}=10V, V_{DS}=15V, I_D=4A		8	16	nC
Q_g(4.5V)	Total Gate Charge			4	8	nC
Q_{gs}	Gate Source Charge			1		nC
Q_{gd}	Gate Drain Charge			1.2		nC
$t_{D(on)}$	Turn-On DelayTime	V_{GS}=10V, V_{DS}=15V, R_L=3.75Ω, R_{GEN}=3Ω		2.5		ns
t_r	Turn-On Rise Time			3		ns
$t_{D(off)}$	Turn-Off DelayTime			30		ns
t_f	Turn-Off Fall Time			5		ns
t_{rr}	Body Diode Reverse Recovery Time	I_F=4A, di/dt=500A/µs		5.5		ns
Q_{rr}	Body Diode Reverse Recovery Charge	I_F=4A, di/dt=500A/µs		4		nC

A. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A =25° C. The value in any given application depends on the user's specific board design.
B. The power dissipation P_D is based on $T_{J(MAX)}$=150° C, using ≤ 10s junction-to-ambient thermal resistance.
C. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150° C. Ratings are based on low frequency and duty cycles to keep initialT_J=25° C.
D. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.
E. The static characteristics in Figures 1 to 6 are obtained using <300µs pulses, duty cycle 0.5% max.
F. These curves are based on the junction-to-ambient thermal impedance which is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, assuming a maximum junction temperature of $T_{J(MAX)}$=150° C. The SOA curve provides a single pulse rating.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

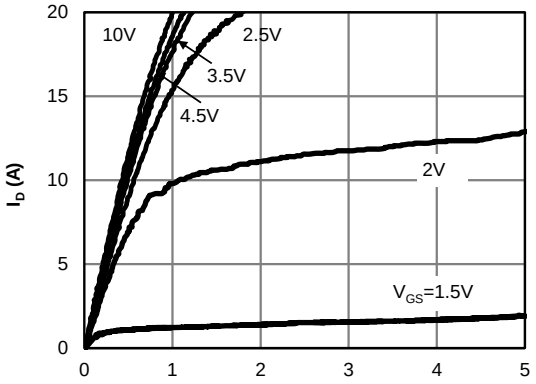


Figure 1: On-Region Characteristics (Note E)

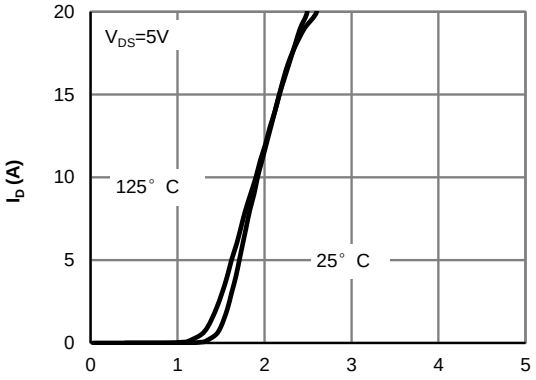


Figure 2: Transfer Characteristics (Note E)

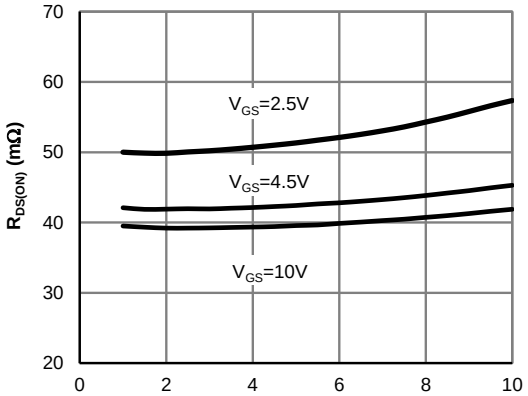


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

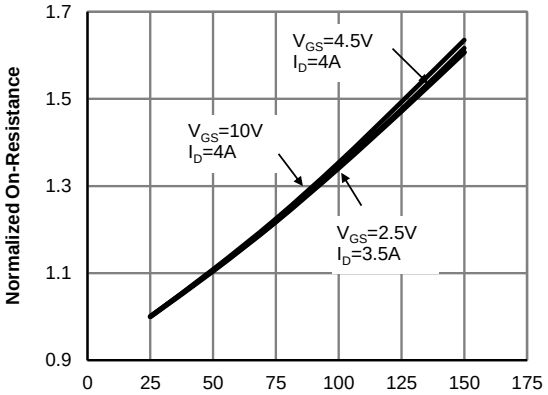


Figure 4: On-Resistance vs. Junction Temperature (Note E)

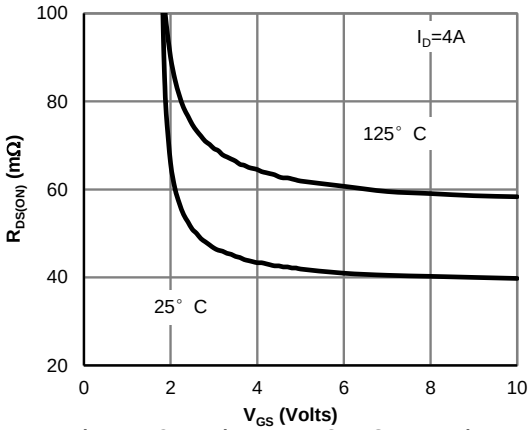


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

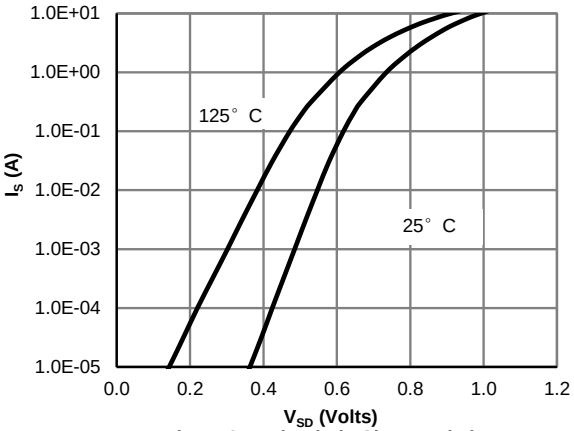


Figure 6: Body-Diode Characteristics (Note E)

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

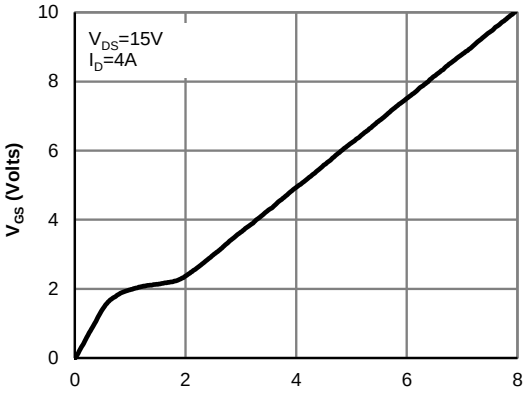


Figure 7: Gate-Charge Characteristics

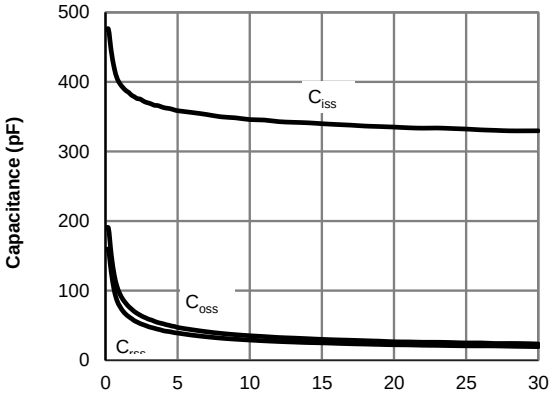
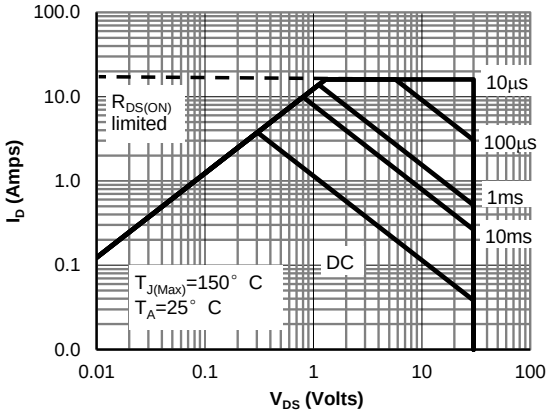


Figure 8: Capacitance Characteristics



V_{GS}> or equal to 4.5V

Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

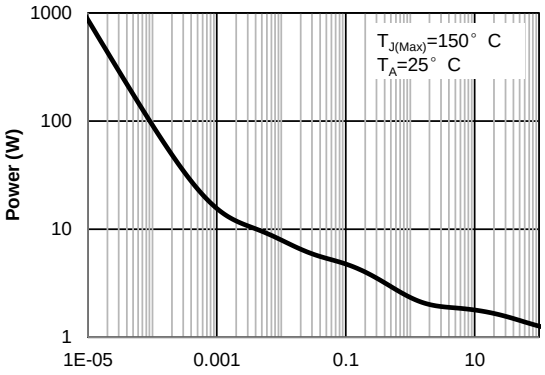


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

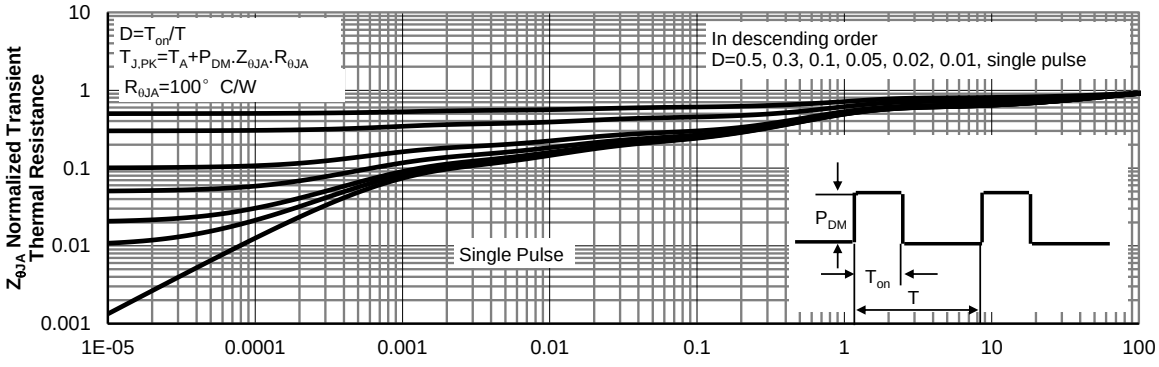


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

Figure A: Gate Charge Test Circuit & Waveforms

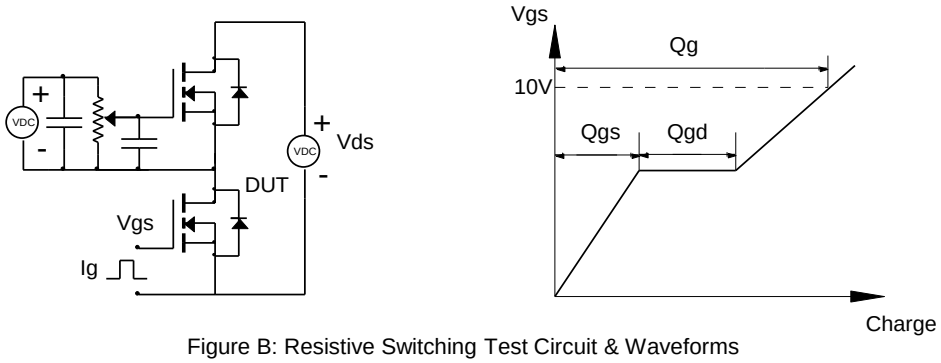


Figure B: Resistive Switching Test Circuit & Waveforms

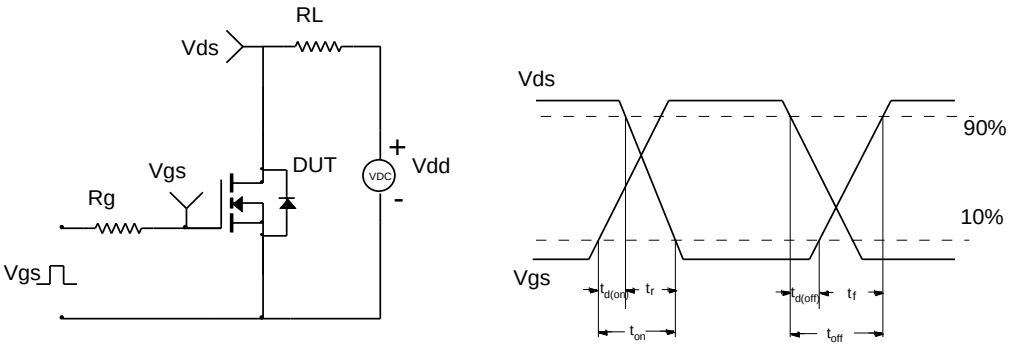


Figure C: Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

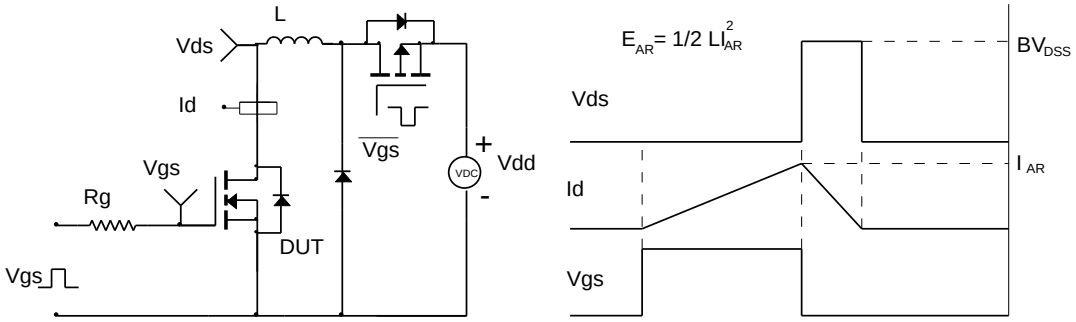
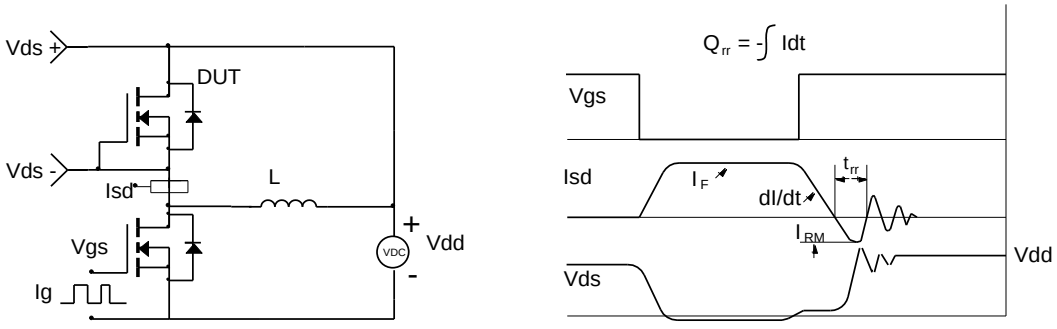


Figure D: Diode Recovery Test Circuit & Waveforms



OUR CERTIFICATE

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement. DiGi through third-party certification, we striciy control the quality of products and services. Welcome your RFQ to Email: Info@DiGi-Electronics.com

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.