



Product Specification

AON6236

N-Channel Enhancement Mode MOSFET

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Descriptions

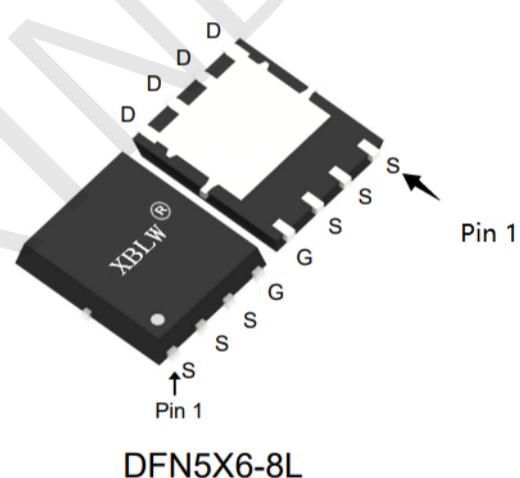
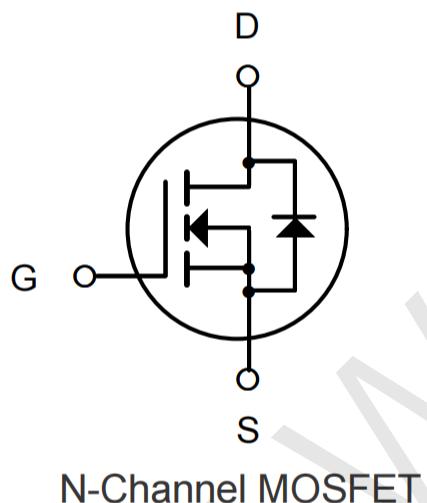
The AON6236 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

Features

- $V_{DS} = 40V, I_D = 55A$
- $R_{DS(ON)} < 8.5m\Omega$ @ $V_{GS} = 10V$

Applications

- Battery protection
- Load switch
- Uninterruptible power supply



Ordering Information

Product Model	Package Type	Marking	Packing	Packing Qty
AON6236	DFN5X6-8L	AON6236	Tape	5000Pcs/Reel

Absolute Maximum Ratings (T_c=25 °C unless otherwise specified)

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	40	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _c =25°C	Continuous Drain Current, V _{GS} @ 10V ¹	55	A
I _D @T _c =100°C	Continuous Drain Current, V _{GS} @ 10V ¹	41	A
I _{DM}	Pulsed Drain Current ²	280	A
EAS	Single Pulse Avalanche Energy ³	76	mJ
T _{STG}	Storage Temperature Range	-55 to 175	°C
T _J	Operating Junction Temperature Range	-55 to 175	°C

Electrical Characteristics ($T_c=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$\text{V}_{\text{GS}}=0\text{V}$, $\text{I}_D=250\text{uA}$	40	---	---	V
$\text{R}_{\text{DS(ON)}}$	Static Drain-Source On-Resistance ²	$\text{V}_{\text{GS}}=10\text{V}$, $\text{I}_D=15\text{A}$	---	6.5	8.5	$\text{m}\Omega$
		$\text{V}_{\text{GS}}=4.5\text{V}$, $\text{I}_D=8\text{A}$	---	9	12	
$\text{V}_{\text{GS(th)}}$	Gate Threshold Voltage	$\text{V}_{\text{GS}}=\text{V}_{\text{DS}}$, $\text{I}_D=250\text{uA}$	1.2	1.8	2.5	V
I_{DSS}	Drain-Source Leakage Current	$\text{V}_{\text{DS}}=40\text{V}$, $\text{V}_{\text{GS}}=0\text{V}$, $\text{T}_J=25^\circ\text{C}$	---	---	1	uA
		$\text{V}_{\text{DS}}=40\text{V}$, $\text{V}_{\text{GS}}=0\text{V}$, $\text{T}_J=55^\circ\text{C}$	---	---	5	
I_{GSS}	Gate-Source Leakage Current	$\text{V}_{\text{GS}}=\pm 20\text{V}$, $\text{V}_{\text{DS}}=0\text{V}$	---	---	± 100	nA
R_g	Gate Resistance	$\text{V}_{\text{DS}}=0\text{V}$, $\text{V}_{\text{GS}}=0\text{V}$, $f=1\text{MHz}$	---	2.0	---	Ω
Q_g	Total Gate Charge (4.5V)	$\text{V}_{\text{DS}}=20\text{V}$, $\text{V}_{\text{GS}}=10\text{V}$, $\text{I}_D=10\text{A}$	---	19.7	---	nC
Q_{gs}	Gate-Source Charge		---	2.8	---	
Q_{gd}	Gate-Drain Charge		---	5.1	---	
$\text{T}_{\text{d(on)}}$	Turn-On Delay Time	$\text{V}_{\text{DD}}=15\text{V}$, $\text{V}_{\text{GS}}=10\text{V}$, $\text{R}_g=3.3\Omega$, $\text{I}_D=1\text{A}$	---	13.2	---	ns
T_r	Rise Time		---	2.2	---	
$\text{T}_{\text{d(off)}}$	Turn-Off Delay Time		---	72	---	
T_f	Fall Time		---	4.5	---	
C_{iss}	Input Capacitance	$\text{V}_{\text{DS}}=15\text{V}$, $\text{V}_{\text{GS}}=0\text{V}$, $f=1\text{MHz}$	---	6000	---	pF
C_{oss}	Output Capacitance		---	1509	---	
C_{rss}	Reverse Transfer Capacitance		---	129	---	
I_s	Continuous Source Current ^{1,5}	$\text{V}_{\text{G}}=\text{V}_{\text{D}}=0\text{V}$, Force Current	---	---	140	A
V_{SD}	Diode Forward Voltage ²	$\text{V}_{\text{GS}}=0\text{V}$, $\text{I}_s=1\text{A}$, $\text{T}_J=25^\circ\text{C}$	---	---	1	V

Note :

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width $\leq 300\text{us}$, duty cycle $\leq 2\%$.
- 3.The EAS data shows Max. rating . The test condition is $\text{V}_{\text{DD}}=25\text{V}$, $\text{V}_{\text{GS}}=10\text{V}$, $\text{L}=0.1\text{mH}$, $\text{I}_{\text{AS}}=31\text{A}$.
- 4.The power dissipation is limited by 150°C junction temperature.
- 5.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics

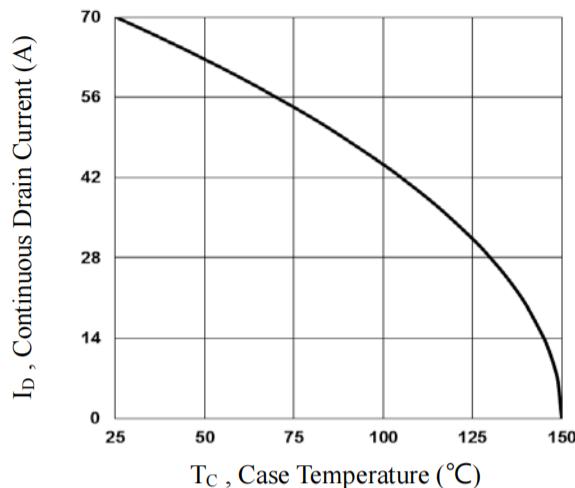


Fig 1. Continuous Drain Current vs. T_c

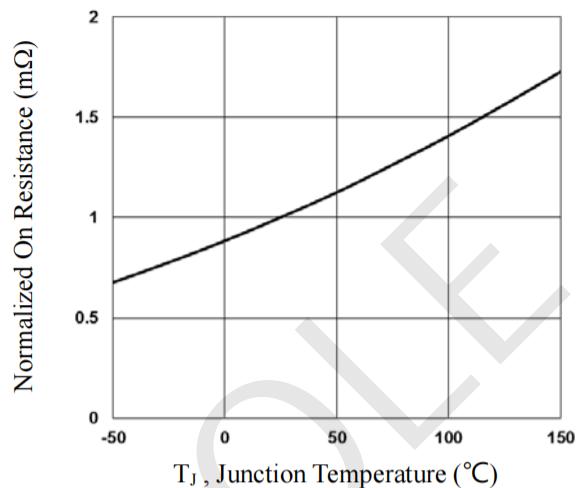


Fig 2. Normalized RDS(on) vs. T_j

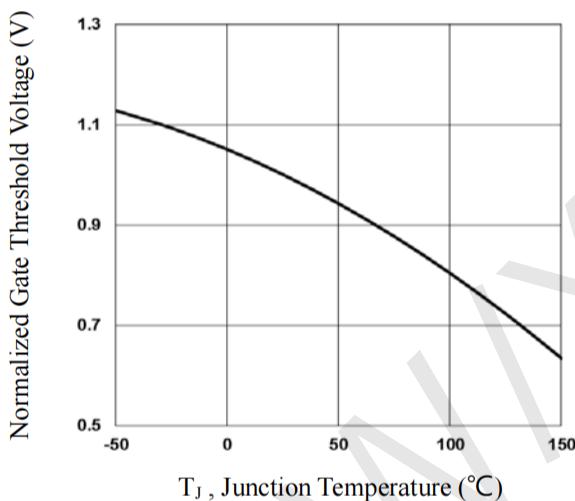


Fig 3. Normalized V_{th} vs. T_j

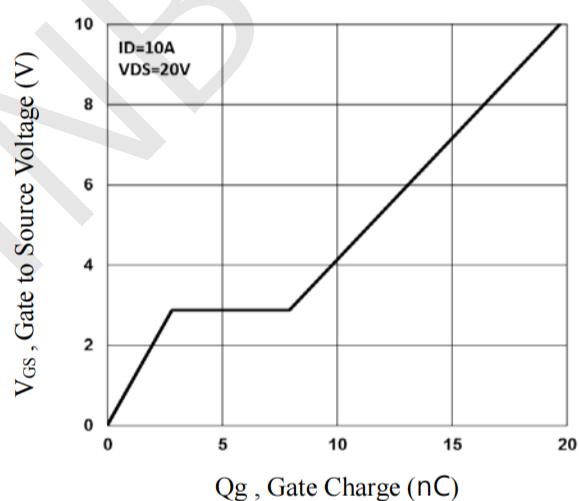


Fig 4. Gate Charge Waveform

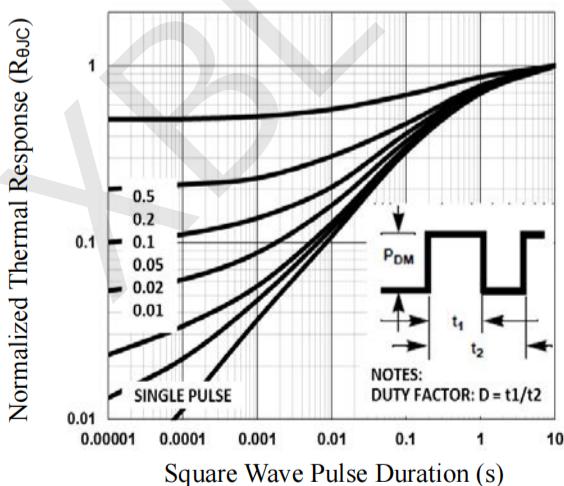


Fig 5. Normalized Transient Impedance

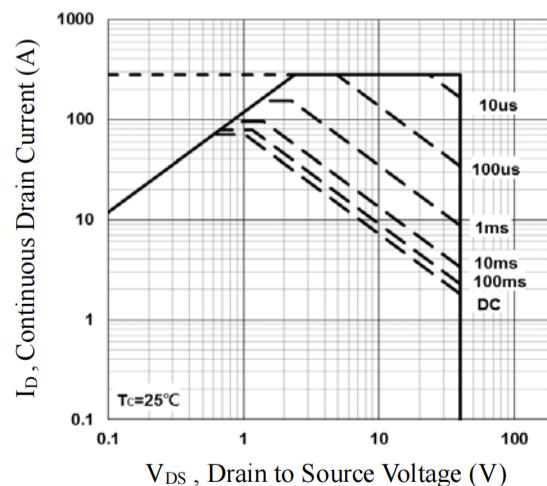


Fig 6. Maximum Safe Operation Area

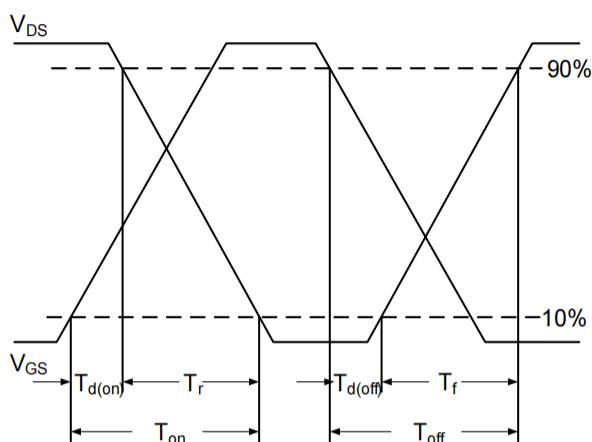


Fig 7. Switching Time Waveform

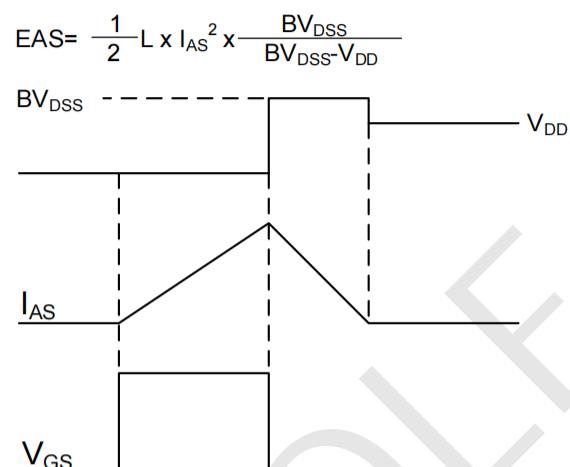
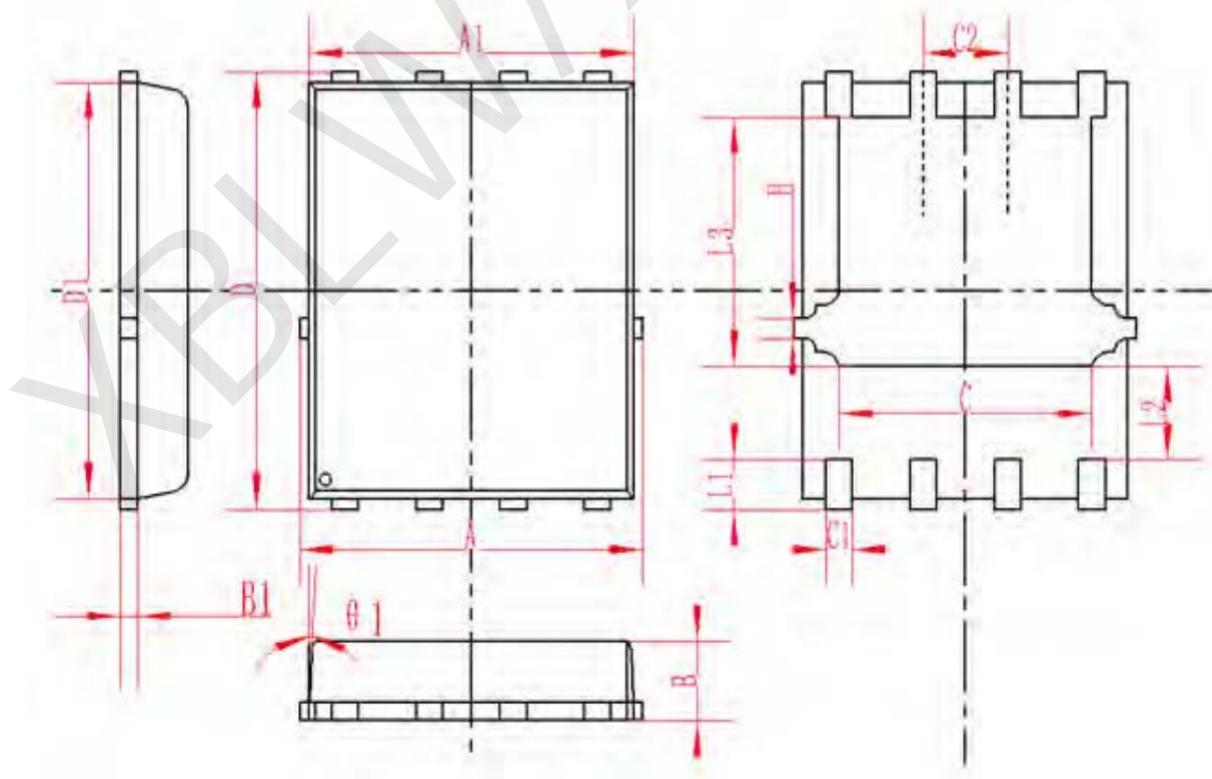


Fig 8. EAS Waveform

Package Information

DFN5X6-8L

SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	4.95	5	5.05	0.195	0.197	0.199
A1	4.82	4.9	4.98	0.190	0.193	0.196
D	5.98	6	6.02	0.235	0.236	0.237
D1	5.67	5.75	5.83	0.223	0.226	0.230
B	0.9	0.95	1	0.035	0.037	0.039
B1	0.254REF			0.010REF		
C	3.95	4	4.05	0.156	0.157	0.159
C1	0.35	0.4	0.45	0.014	0.016	0.018
C2	1.27TYP			0.5TYP		
θ1	8°	10°	12°	8°	10°	12°
L1	0.63	0.64	0.65	0.025	0.025	0.026
L2	1.2	1.3	1.4	0.047	0.051	0.055
L3	3.415	3.42	3.425	0.134	0.135	0.135
H	0.24	0.25	0.26	0.009	0.010	0.010



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