



## Description

The AON1606 uses advanced trench technology to provide excellent  $R_{DS(ON)}$ , low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.



DFN1006-3L

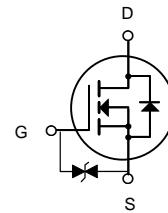
## General Features

$V_{DS} = 20V$   $I_D = 0.7A$

$R_{DS(ON)} < 350\text{ m}\Omega @ V_{GS}=4.5V$

$R_{DS(ON)} < 420\text{ m}\Omega @ V_{GS}=2.5V$

ESD=2500V HBM



N-Channel MOSFET

## Application

Load/Power Switching  
Interfacing Switching  
Battery Management for Ultra Small Portable Electronics

## Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
AON1606	DFN1006-3L	HXY MOSFET	10000

## Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Limit	Unit
$V_{DS}$	Drain-Source Voltage	20	V
$V_{GS}$	Gate-Source Voltage	$\pm 10$	V
$I_D$	Drain Current-Continuous	0.7	A
$P_D$	Maximum Power Dissipation	0.15	W
$T_J, T_{STG}$	Operating Junction and Storage Temperature Range	-55 To 150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient <sup>(Note 2)</sup>	1250	$^\circ\text{C/W}$



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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
<b>STATIC CHARACTERISTIC</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20	--	--	V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 20V, V_{GS} = 0V$	--	--	1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 10V, V_{DS} = 0V$	--	--	$\pm 10$	$\mu A$
Gate threshold voltage <small>(note2)</small>	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.45	0.7	1.1	V
Drain-source on-resistance <small>(note2)</small>	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 0.5A$	--	0.22	0.35	$\Omega$
		$V_{GS} = 2.5V, I_D = 0.5A$	--	0.28	0.42	$\Omega$
Forward tranconductance <small>(note2)</small>	$g_{fs}$	$V_{DS} = 5.0V, I_D = 0.5A$	--	1.6	--	S
Diode forward voltage	$V_{SD}$	$I_S = 0.8A, V_{GS} = 0V$	--	--	1.2	V
<b>DYNAMIC CHARACTERISTICS</b> <small>(note4)</small>						
Input capacitance	$C_{iss}$	$V_{DS} = 10V, V_{GS} = 0V,$ $f = 1MHz$	--	43.6	--	pF
Output capacitance	$C_{oss}$		--	6.8	--	pF
Reverse transfer capacitance	$C_{rss}$		--	4.6	--	pF
<b>SWITCHING CHARACTERISTICS</b> <small>(note4)</small>						
Turn-on delay time <small>(note3)</small>	$t_{d(on)}$	$V_{GS} = 4.5V, V_{DS} = 10V, R_L = 20\Omega$	--	1.4	--	nS
Turn-on rise time <small>(note3)</small>	$t_r$		--	27.8	--	nS
Turn-off delay time <small>(note3)</small>	$t_{d(off)}$		--	54.6	--	nS
Turn-off fall time <small>(note3)</small>	$t_f$		--	25.6	--	nS

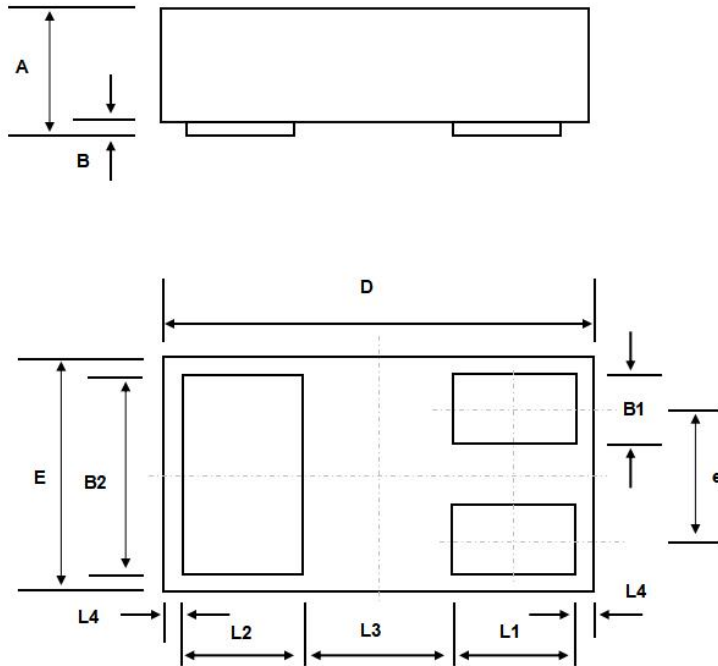
### Notes:

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse Width=300 $\mu$ s, Duty Cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.
4. Guaranteed by design, not subject to producing.



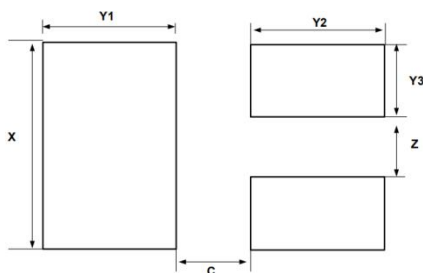
## Package Outline Dimensions

DFN1006-3L



Symbol	Dimensions In Millimet	
	Min	Max
A	0.33	0.50
B	0.00	0.05
B1	0.10	0.20
B2	0.45	0.55
D	0.90	1.05
E	0.50	0.65
e	0.35	
L1	0.20	0.30
L2	0.20	0.30
L3	0.39	
L4	0.05	

## Suggested Pad Layout (mm)



Symbol	Dimensions
C	0.25
X	0.65
Y1	0.50
Y2	0.50
Y3	0.25
Z	0.20



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