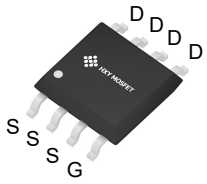
Description

The AO4411 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.

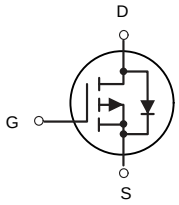


SOP-8
(SOIC-8)

General Features

V_{DS} =-30V I_D =-9A

$R_{DS(ON)}$ < 20mΩ @ V_{GS}=10V



P-Channel MOSFET

Application

Battery protection

Load switch

Uninterruptible power supply

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
AO4411	SOP-8(SOIC-8)	HXY MOSFET	3000

Absolute Maximum Ratings (Tc=25℃ unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	- 30	V
VGS	Gate-Source Voltage	± 20	V
I_D@T_A=25℃	Drain Current[3], V_{GS} @ 10V	-9	A
I_D@T_A=70℃	Drain Current[3], V_{GS} @ 10V	-7.3	A
IDM	Pulsed Drain Current[1]	-50	A
P_D@T_A=25℃	Total Power Dissipation	2.5	W
	Linear Derating Factor	0.02	W/℃
TSTG	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
Rthj-a	Maximum Thermal Resistance, Junction-ambient[3]	50	℃/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
RDS(ON)	Static Drain-Source On-Resistance[2]	V_{GS}=-10V, I_D=-7A	-	18	20	mΩ
		V_{GS}=-4.5V, I_D=-5A	-	32	36	mΩ
VGS(th)	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-1	-	-3	V
g_{fs}	Forward Transconductance	V_{DS}=-10V, I_D=-7A	-	16	-	S
IDSS	Drain-Source Leakage Current	V_{DS}=-24V, V_{GS}=0V	-	-	-30	uA
IGSS	Gate-Source Leakage	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Q_g	Total Gate Charge	I_D=-7A	-	18	29	nC
Q_{gs}	Gate-Source Charge	V_{DS}=-24V	-	3	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	V_{GS}=-4.5V	-	10	-	nC
td(on)	Turn-on Delay Time	V_{DS}=-15V	-	8	-	ns
t_r	Rise Time	I_D=-1A	-	6.6	-	ns
td(off)	Turn-off Delay Time	R_G=3.3Ω	-	44	-	ns
t_f	Fall Time	V_{GS}=-10V	-	34	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V	-	1175	1690	pF
C_{oss}	Output Capacitance	V_{DS}=-25V .	-	195	-	pF
C_{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	190	-	pF
V_{SD}	Forward On Voltage[2]	I_S=-2.1A, V_{GS}=0V	-	-	-1.2	V
trr	Reverse Recovery Time	I_S=-7A, V_{GS}=0V, dI/dt=100A/μs	-	28	-	ns
Q_{rr}	Reverse Recovery Charge		-	18	-	nC

Notes:

1.Pulse width limited by Max. junction temperature.

2.Pulse test

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

Typical Characteristics

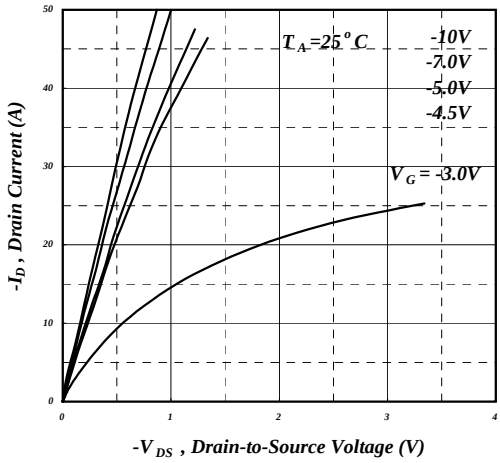


Fig 1. Typical Output Characteristics

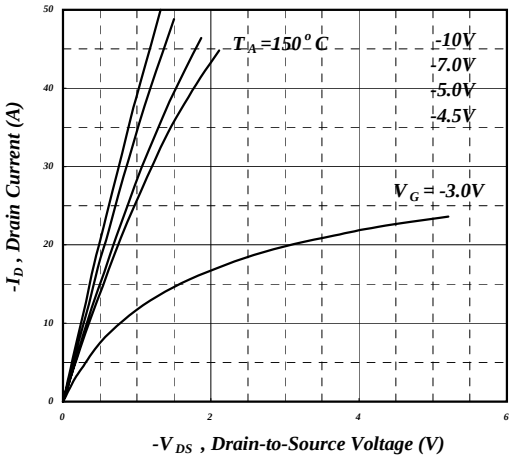


Fig 2. Typical Output Characteristics

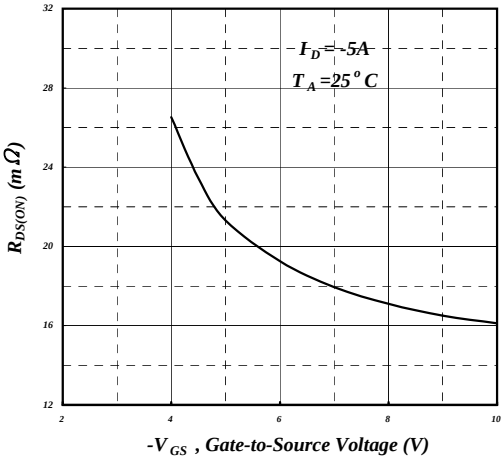


Fig 3. On-Resistance v.s. Gate Voltage

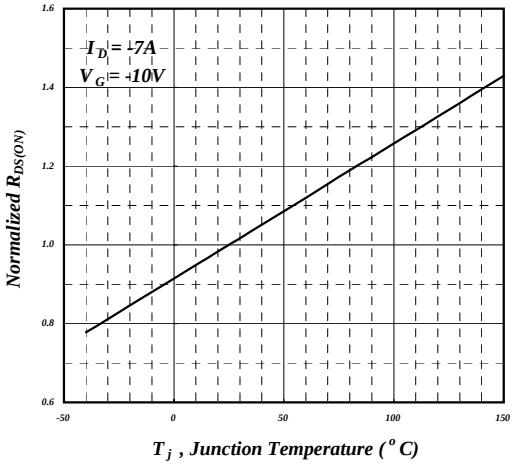


Fig 4. Normalized On-Resistance v.s. Junction Temperature

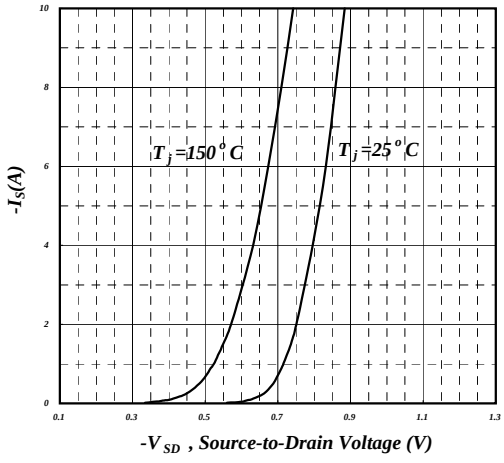


Fig 5. Forward Characteristic of Reverse Diode

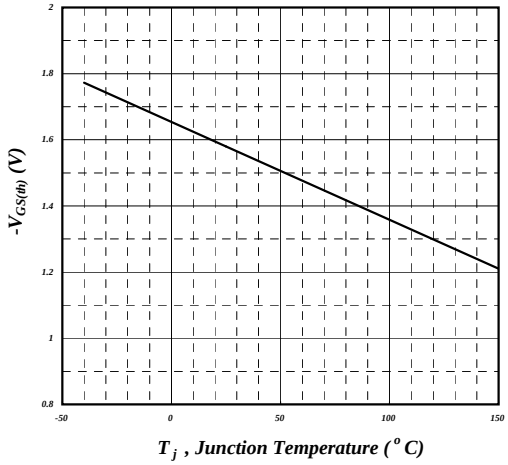


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

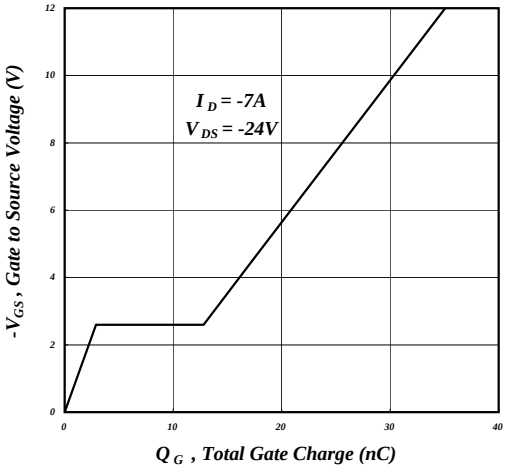


Fig 7. Gate Charge Characteristics

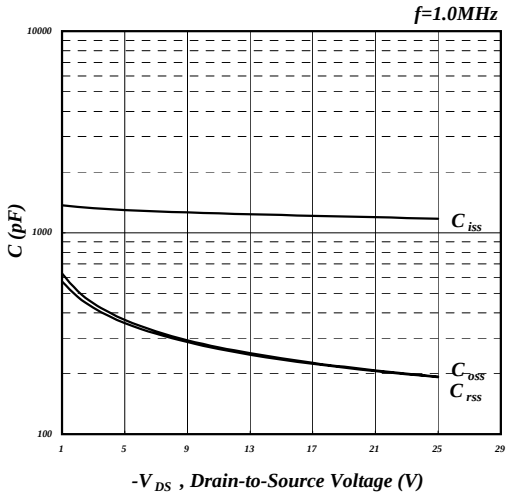


Fig 8. Typical Capacitance Characteristics

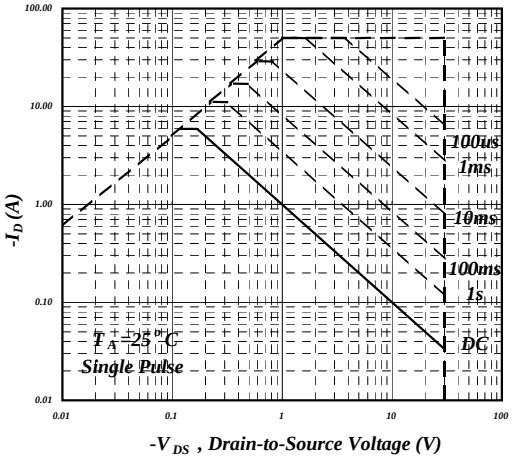


Fig 9. Maximum Safe Operating Area

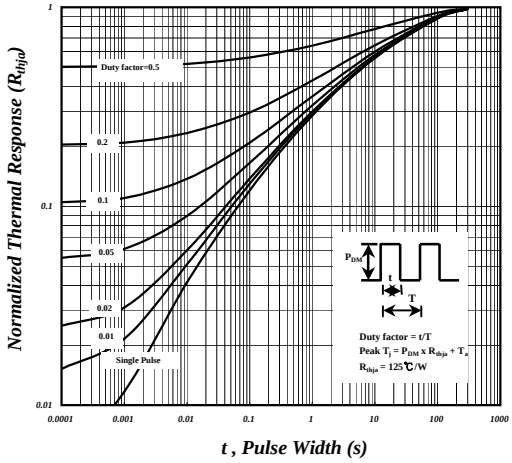


Fig 10. Effective Transient Thermal Impedance

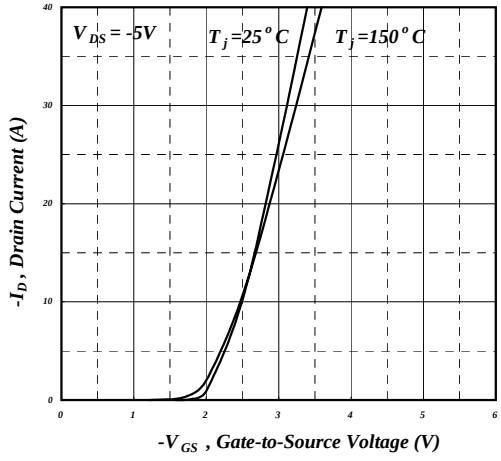


Fig 11. Transfer Characteristics

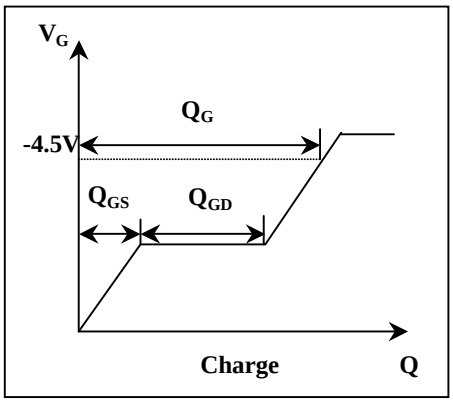
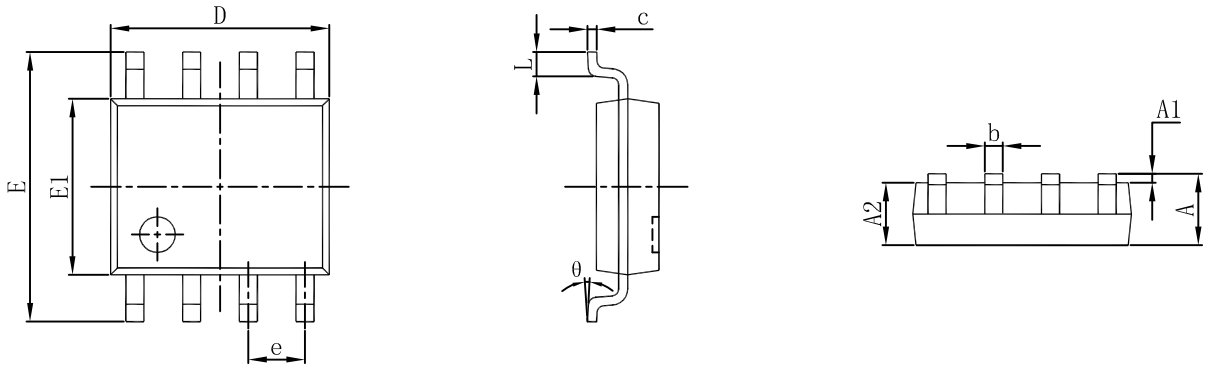
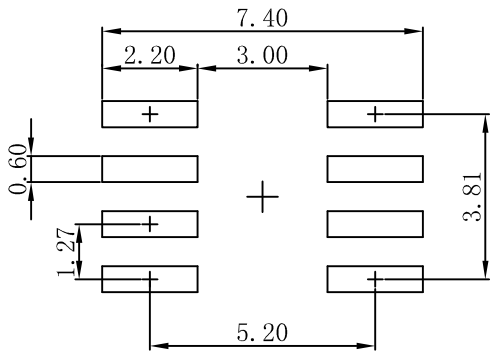


Fig 12. Gate Charge Circuit

SOP-8(SOIC-8) Package Outline Dimensions



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	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

Attention

■ Any and all HUA XUAN YANG ELECTRONICS products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your HUA XUAN YANG ELECTRONICS representative nearest you before using any HUA XUAN YANG ELECTRONICS products described or contained herein in such applications.

■ HUA XUAN YANG ELECTRONICS assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all HUA XUAN YANG ELECTRONICS products described or contained herein.

■ Specifications of any and all HUA XUAN YANG ELECTRONICS products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.

■ HUA XUAN YANG ELECTRONICS CO.,LTD. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could
give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.

■ In the event that any or all HUA XUAN YANG ELECTRONICS products(including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.

■ No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of HUA XUAN YANG ELECTRONICS CO.,LTD.

■ Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. HUA XUAN YANG ELECTRONICS believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

■ Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the HUA XUAN YANG ELECTRONICS product that you intend to use.

Unikeyic Electronics

Global Electronic Components Distributor

Click to view pricing, inventory, delivery, and lifecycle information:

HXY MOSFET:

BZT52C3V3S HMCP602-I/SN SD15C HC3D10170A HXY8205ES MAX487ESA TPSMB100CA-VR US2M DTC143ZE HESDNC5VB1AF-B HT7150 HT7540-1 BZT52C13 HXY2101EI HAD8542ARZ P6SMB200A P6SMB33CA HOPA2340UA MMBT3904T P6SMB36CA SQJA04EP-T1_BE3 SS10100 SS1045 SS5150B HC4D20120A HXY2300MI IRLML6246PBF PESD5V0S1BB SS510C TPSMB28A-VR