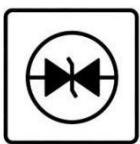




ESD



TVS



TSS



MOV



GDT



PLED

AO4435-MS
Product specification

Description

The AO4435-MS 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.

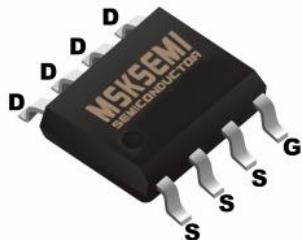
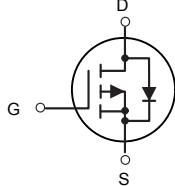
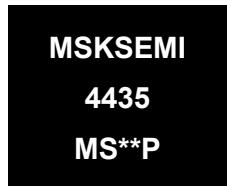
General Features

- $V_{DS} = 30V$ $I_D = 9A$
- $R_{DS(ON)} < 20m\Omega$ @ $V_{GS}=10V$

Applications

- Battery protection
- Load switch
- Uninterruptible power supply

Reference News

PACKAGE OUTLINE	P-Channel MOSFET	Marking
 SOP-8		

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	- 30	V
V_{GS}	Gate-Source Voltage	<u>+ 20</u>	V
$I_D @ T_A=25^\circ C$	Drain Current ³ , $V_{GS} @ 10V$	-9	A
$I_D @ T_A=70^\circ C$	Drain Current ³ , $V_{GS} @ 10V$	-7.3	A
IDM	Pulsed Drain Current ¹	-50	A
$P_D @ T_A=25^\circ C$	Total Power Dissipation	2.5	W
	Linear Derating Factor	0.02	W/ $^\circ C$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$
R_{thj-a}	Maximum Thermal Resistance, Junction-ambient ³	50	$^\circ C/W$

Electrical Characteristics@Tj=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	-	-	20	mΩ
		V _{GS} =-4.5V, I _D =-5A	-	-	32	mΩ
V _{GS(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 V _{DS} =-24V V _{GS} =-4.5V	-	18	29	nC
Q _{gs}	Gate-Source Charge		-	3	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge		-	10	-	nC
td(on)	Turn-on Delay Time	V _{DS} =-15V I _D =-1A R _G =3.3Ω V _{GS} =-10V	-	8	-	ns
t _r	Rise Time		-	6.6	-	ns
td(off)	Turn-off Delay Time		-	44	-	ns
t _f	Fall Time		-	34	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V V _{DS} =-25V f=1.0MHz	-	1175	1690	pF
C _{oss}	Output Capacitance		-	195	-	pF
C _{rss}	Reverse Transfer Capacitance		-	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 in² copper pad of FR4 board, t_≤10sec ; 125 °C/W when mounted on Min. cop

Typical Characteristics

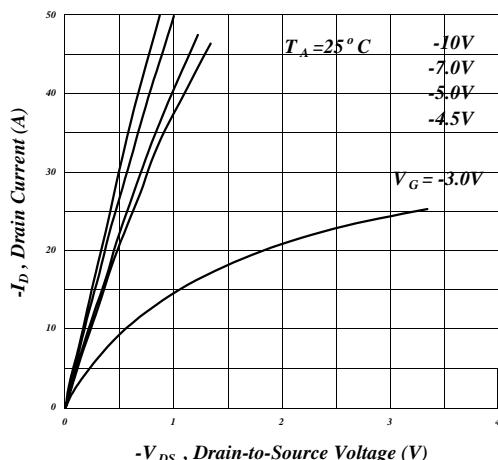


Fig 1. Typical Output Characteristics

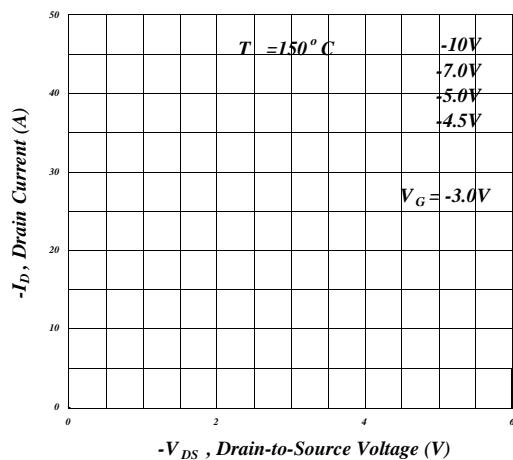


Fig 2. Typical Output Characteristics

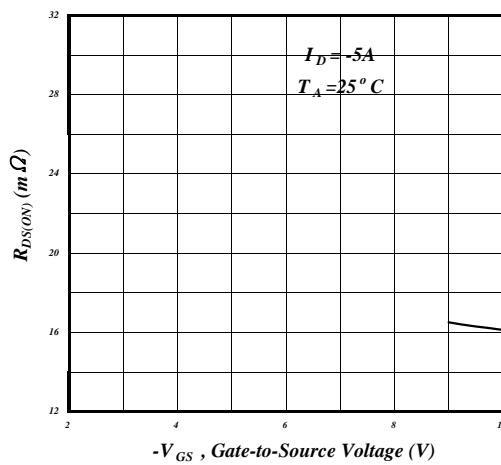


Fig 3. On-Resistance v.s. Gate Voltage

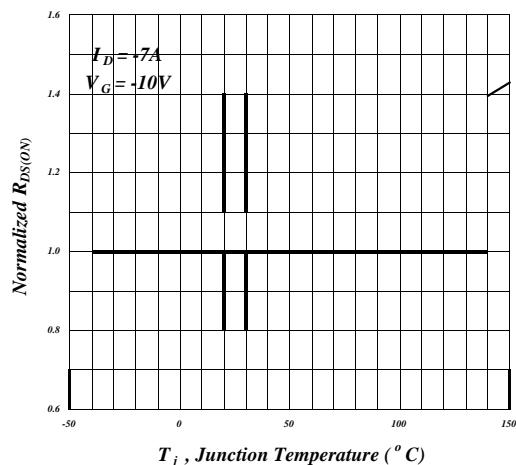


Fig 4. Normalized On-Resistance v.s. Junction Temperature

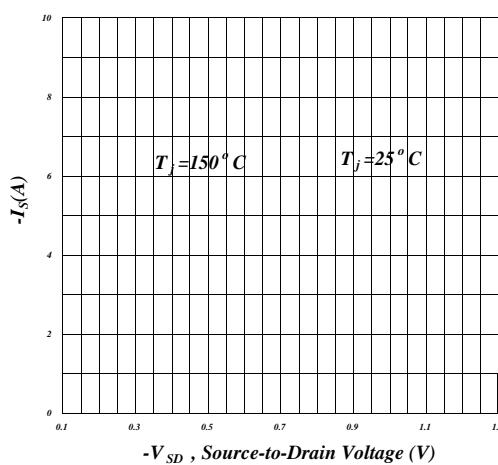


Fig 5. Forward Characteristic of Reverse Diode

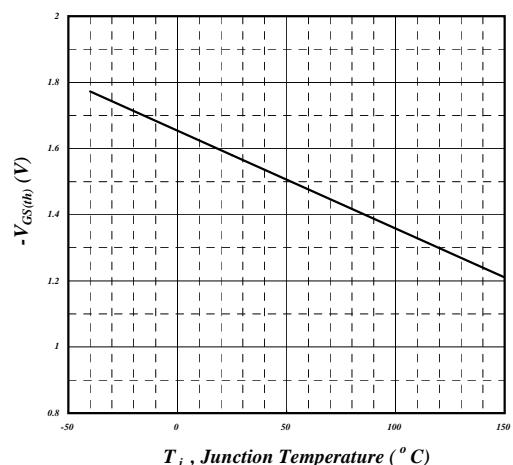


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

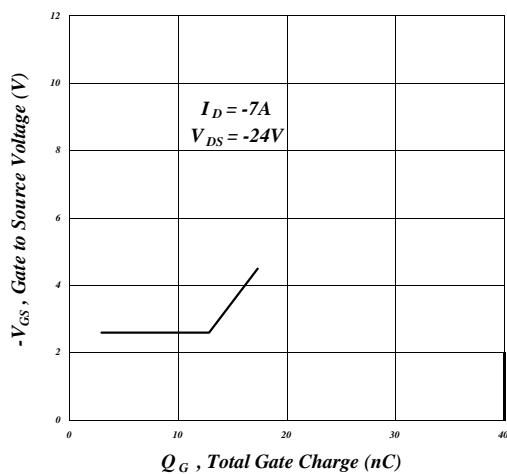


Fig 7. Gate Charge Characteristics

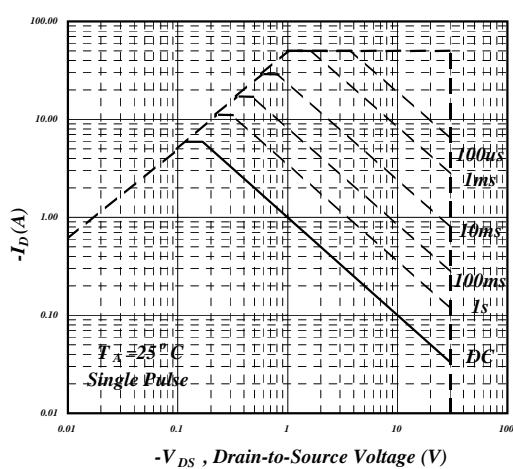
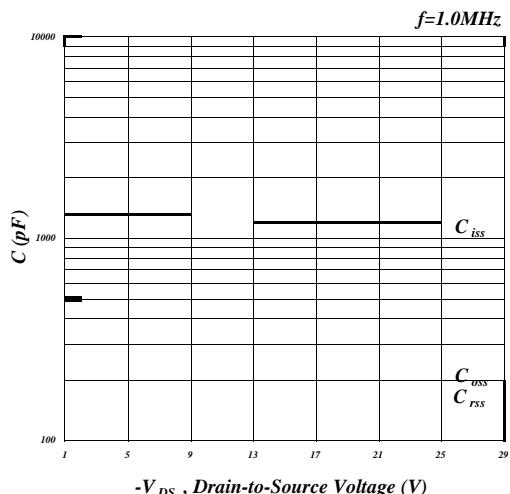


Fig 9. Maximum Safe Operating Area

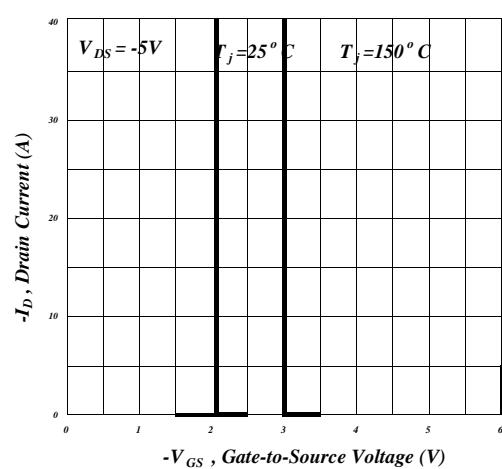
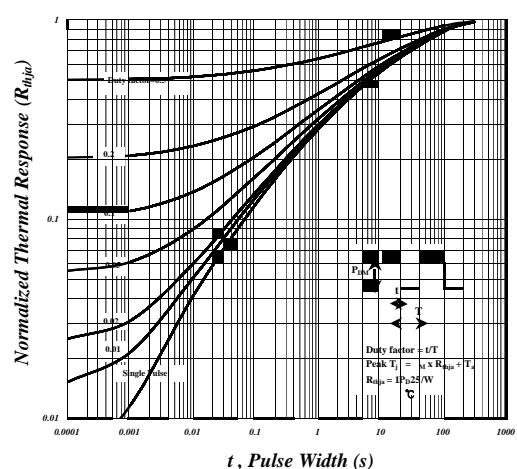


Fig 11. Transfer Characteristics

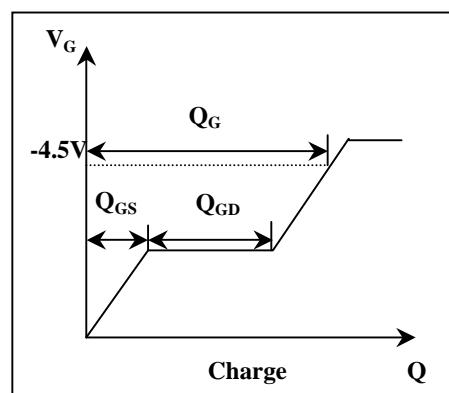
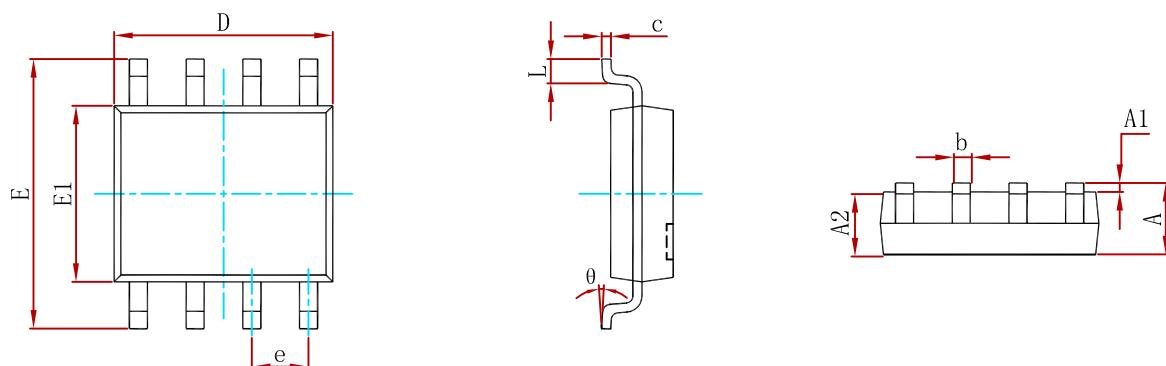
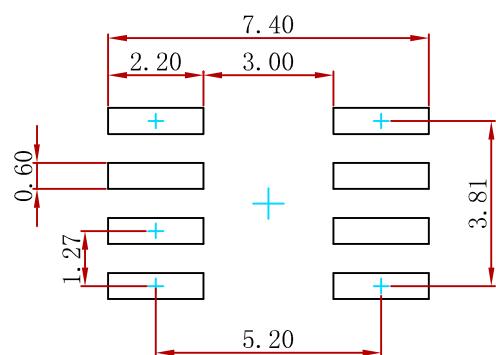


Fig 12. Gate Charge Circuit

PACKAGEMECHANICALDATA


Symbol	DimensionsInMillimeters		DimensionsInInches	
	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°

Suggested Pad Layout

Note:

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

REELSPECIFICATION

P/N	PKG	QTY
AO4435-MS	SOP-8	3000

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