

TDSEMIC

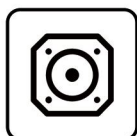
拓電半導體

自主封測 品質把控 售後保障

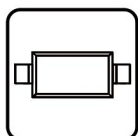
WEB | WWW.TDSEMIC.COM



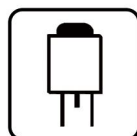
電源管理



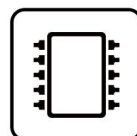
顯示驅動



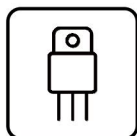
二三極管



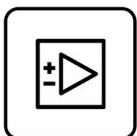
LDO穩壓器



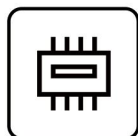
觸摸芯片



MOS管



運算放大器



存儲芯片



MCU



串口通信

A04435-TD

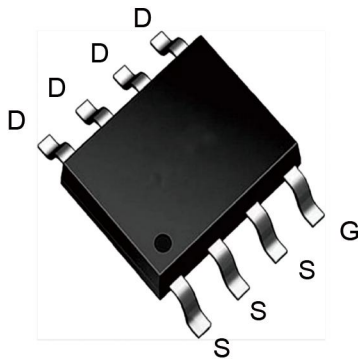
產品規格說明書

AO4435-TD -30V P-Channel Enhancement Mod3e0NM03OESFET

Description

The AO4435-TD 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-8L Pin Configuration



Package Marking and Ordering Information

Product ID	Package	Marking	QTY(PCS)	Packing method
AO4435-TD	SOP-8L	AO4435-TD	3000	Reel

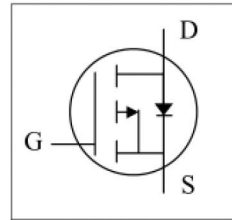
General Features

$V_{DS} = 30V$ $I_D = 15A$
 $R_{DS(ON)} = 13m\Omega @ V_{GS}=10V$
 $R_{DS(ON)} = 19m\Omega @ V_{GS}=4.5V$



Application

Battery protection
 Load switch
 Uninterruptible power supply



Absolute Maximum Ratings (Tc=25°C unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_A=25^\circ C$	Drain Current ³ , $V_{GS} @ 10V$	-15	A
$I_D @ T_A=70^\circ C$	Drain Current ³ , $V_{GS} @ 10V$	-11	A
I_{DM}	Pulsed Drain Current ¹	-40	A
$P_D @ T_A=25^\circ C$	Total Power Dissipation	2.5	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C
R_{thj-a}	Maximum Thermal Resistance, Junction-ambient ³	50	°C/W

A04435-TD -30V P-Channel Enhancement Mod3e0NM03OESFET

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
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =-10V, I _D =-20A	-	13	15	mΩ
		V _{GS} =-4.5V, I _D =-20A	-	19	26	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250uA	-1.2	-1.6	-2.0	V
g _{fs}	Forward Transconductance	V _{DS} =-10V, I _D =-10A	-	22	-	S
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-30V, V _{GS} =0V	-	-	-1	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =+20V, V _{DS} =0V	-	-	+100	nA
Q _g	Total Gate Charge	I _D =-6A	-	28	45	nC
Q _{gs}	Gate-Source Charge	V _{DS} =-15V	-	7	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =-4.5V	-	11	-	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =-15V	-	13	-	ns
t _r	Rise Time	I _D =-1A	-	10	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω	-	80	-	ns
t _f	Fall Time	V _{GS} =-10V	-	37	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V V _{DS} =-15V f=1.0MHz	-	2940	4700	pF
C _{oss}	Output Capacitance		-	290	-	pF
C _{rss}	Reverse Transfer Capacitance		-	210	-	pF
R _g	Gate Resistance	f=1.0MHz	-	6.2	12.4	Ω
V _{SD}	Forward On Voltage ²	I _S =-2.1A, V _{GS} =0V	-	-	-1.2	V
t _{rr}	Reverse Recovery Time	I _S =-10A, V _{GS} =0V, dI/dt=100A/μs	-	19	-	ns
Q _{rr}	Reverse Recovery Charge		-	6	-	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 ≤ 10s ; 125 °C/W when mounted on Min. copper pad.

A04435-TD -30V P-Channel Enhancement Mod3e0NM03OESFET

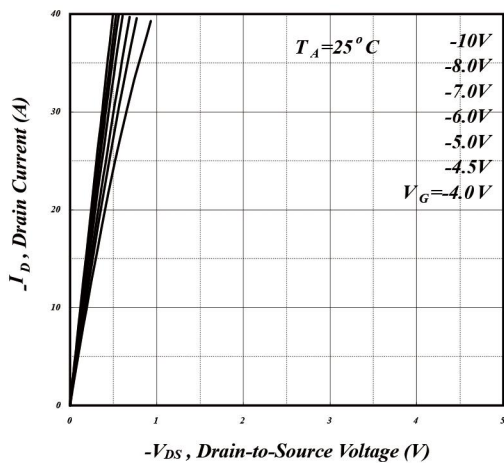


Fig 1. Typical Output Characteristics

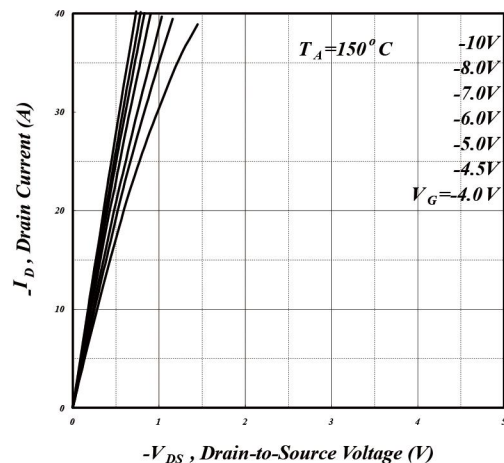


Fig 2. Typical Output Characteristics

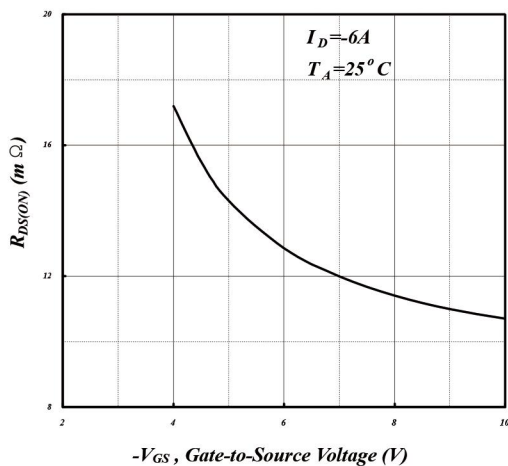


Fig 3. On-Resistance v.s. Gate Voltage

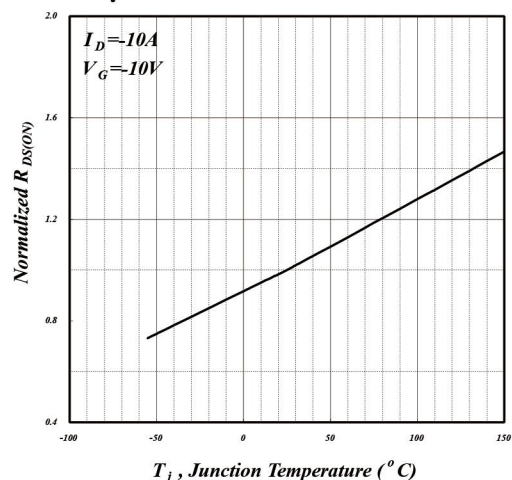
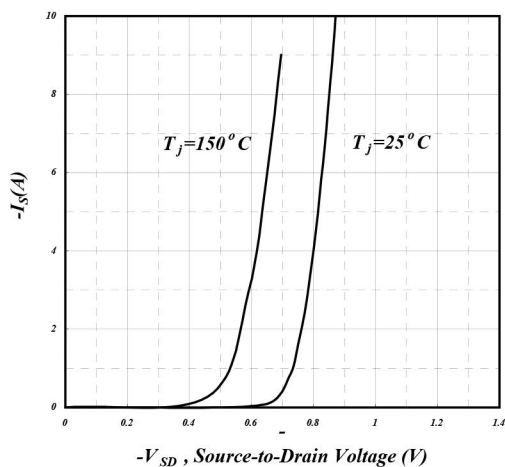


Fig 4. Normalized On-Resistance v.s. Junction Temperature



Reverse Diode

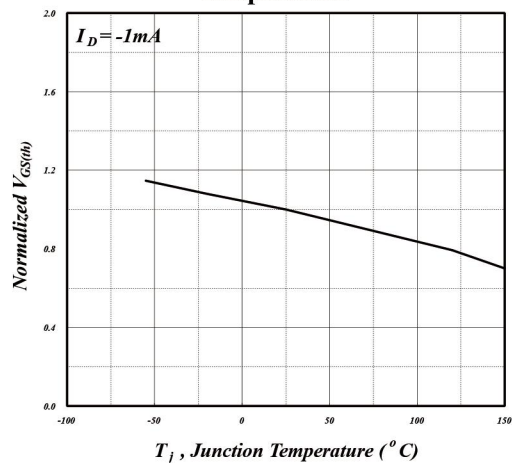


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

A04435-TD -30V P-Channel Enhancement Mod3e0NM03OESFET

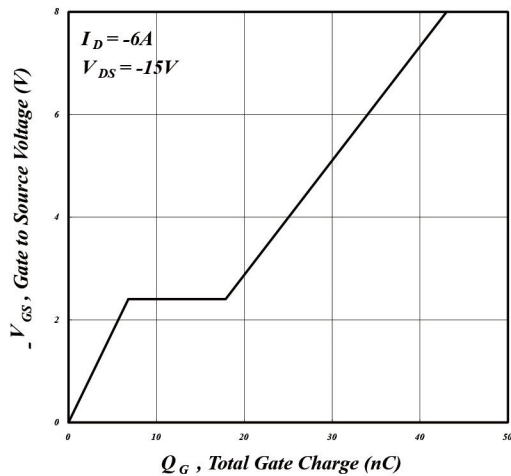


Fig 7. Gate Charge Characteristics

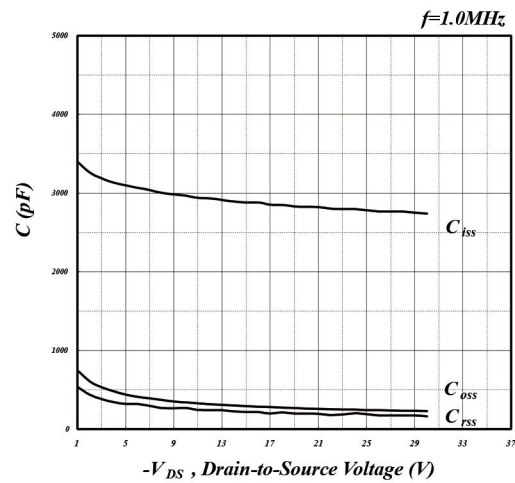


Fig 8. Typical Capacitance Characteristics

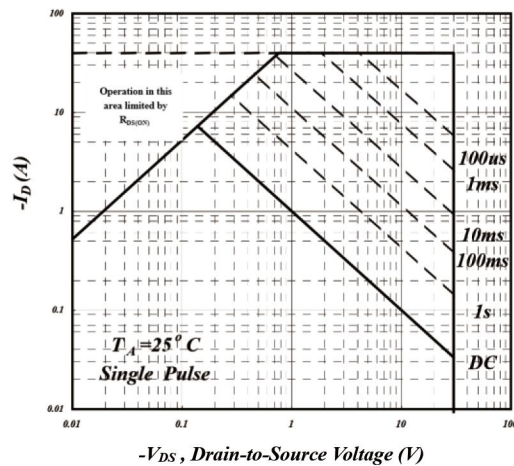


Fig 9. Maximum Safe Operating Area

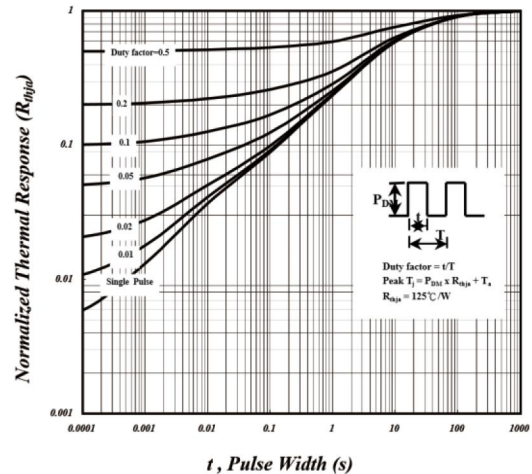


Fig 10. Effective Transient Thermal Impedance

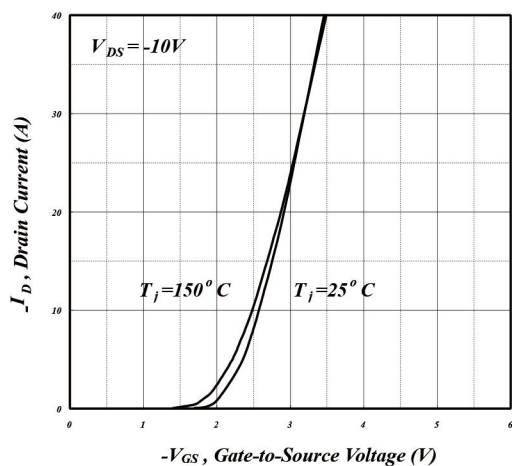


Fig 11. Transfer Characteristics

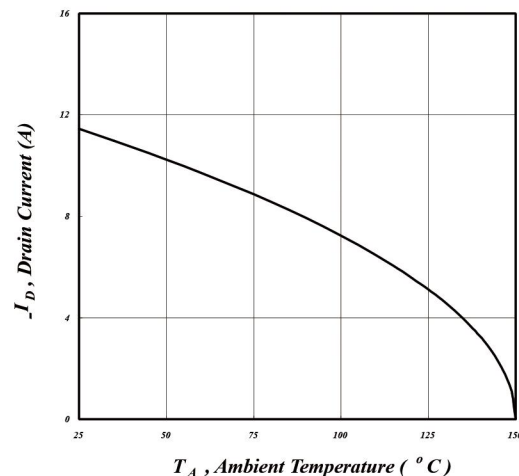


Fig 12. Drain Current v.s. Ambient Temperature

A04435-TD -30V P-Channel Enhancement Mod3e0NM03OESFET

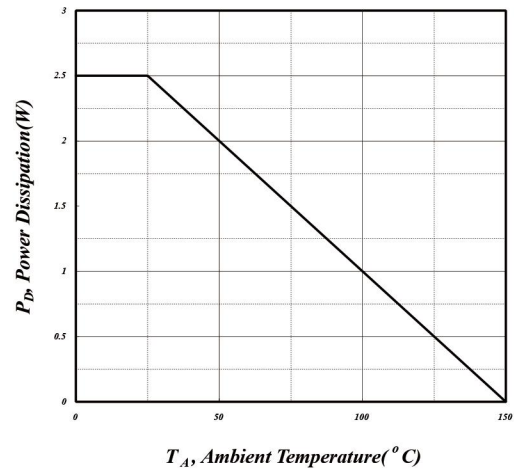
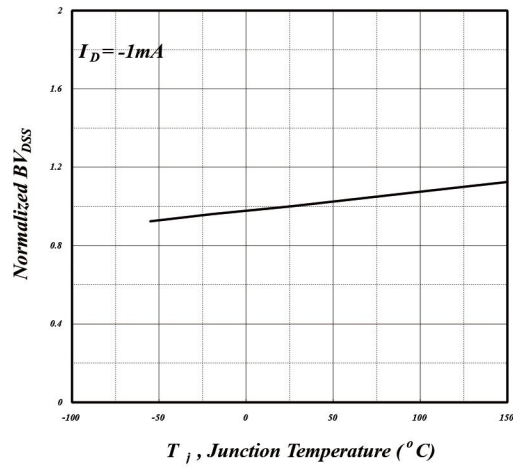


Fig 13. Normalized BV_{DSS} v.s. Junction Temperature

Fig 14. Total Power Dissipation

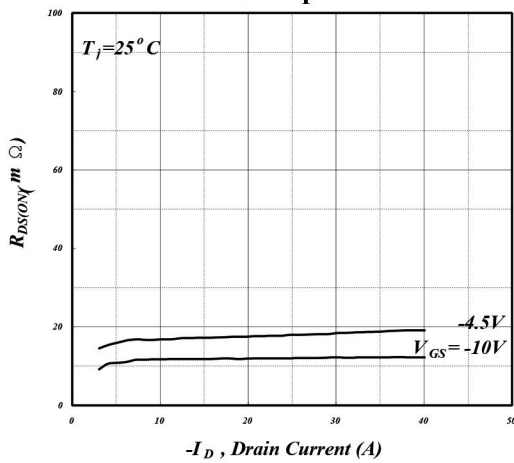
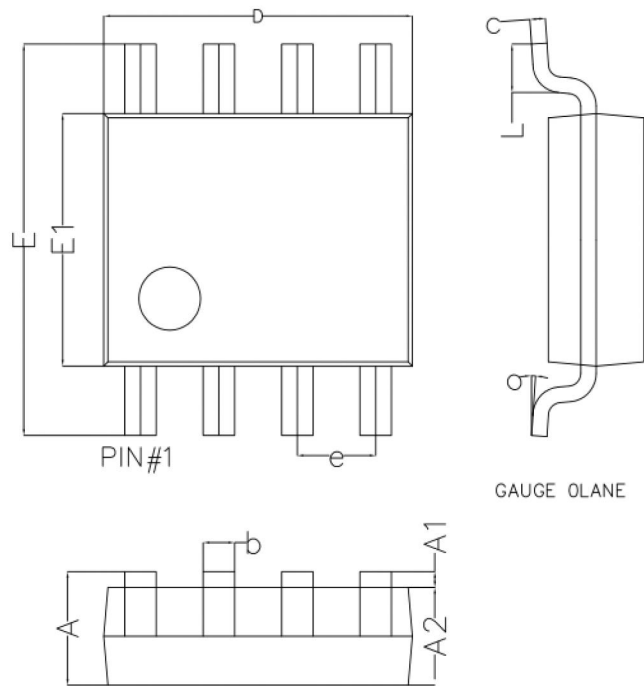


Fig 15. Typ. Drain-Source on State Resistance

PACK SOP-8

SOP8 Package outline



Symbol	Dim in mm		
	Min	Nor	Max
A	1.350	1.550	1.750
A1	0.100	0.175	0.250
A2	1.350	1.450	1.550
b	0.330	0.420	0.510
c	0.170	0.210	0.250
D	4.800	4.900	5.000
e	1.270 (BSC)		
E	5.800	6.000	6.200
E1	3.800	3.900	4.000
L	0.400	0.835	1.2700
o	0°	4°	8°