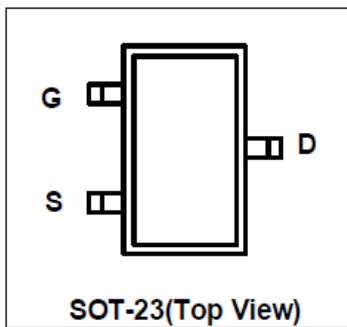
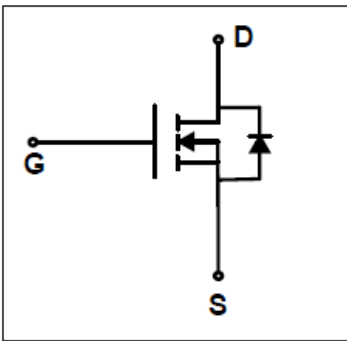


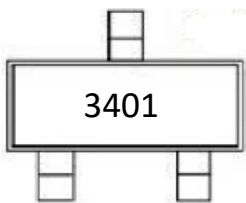
Features

- * $V_{DS} = -30V$, $I_D = -4.2A$
 $R_{DS(on)} < 60m\Omega @ V_{GS} = -10V$
 $R_{DS(on)} < 75m\Omega @ V_{GS} = -4.5V$
 $R_{DS(on)} < 90m\Omega @ V_{GS} = 2.5V$
- * High Dense Cell Design for Extremely Low $R_{DS(ON)}$
- * SOT-23 Package
- * Marking : Making Code
- * RoHS Compliant

Schematic & PIN Configuration



Package Outline

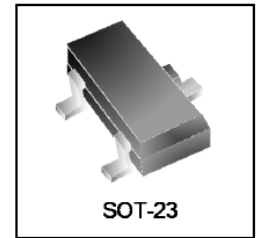


Transparent top view

3401:Device Marking Code

Description

The AO3401 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.



Applications

- * PWM applications
- * Load switch
- * Power management

Ordering Information

Part Number	Packaging	Reel Size
AO3401	3000/Tape & Reel	7 inch

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	-4.2	A
Pulsed Drain Current ¹	I_{DM}	-16	A
Power Dissipation ¹	P_D	1.2	W
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to +150	$^{\circ}\text{C}$
Thermal Resistance from Junction to Ambient ²	$R_{\theta JA}$	104	$^{\circ}\text{C}/\text{W}$

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0\text{ V}, I_D = -250\mu\text{A}$	-30	-	-	V
Zero Gate Voltage Drain Current	ID_{SS}	$V_{DS} = -30\text{V}, V_{GS} = 0\text{ V}$	-	-	-1	μA
Gate-body Leakage Current	IG_{SS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 12\text{V}$	-	-	± 100	nA
Drain-Source on-state Resistance ³	$R_{DS(on)}$	$V_{GS} = -10\text{V}, I_D = -4.2\text{A}$	-	42	60	m Ω
		$V_{GS} = -4.5\text{V}, I_D = -4\text{A}$	-	52	75	
		$V_{GS} = -2.5\text{V}, I_D = -1\text{A}$	-	60	90	
Gate Threshold Voltage ³	$V_{GS(th)}$	$V_{GS} = 0\text{V}, I_D = -250\mu\text{A}$	-0.7	-1.0	-1.3	V
Input Capacitance	C_{iss}	$V_{GS} = 0\text{V}, V_{DS} = -15\text{V},$ $f = 1\text{MHz}$	-	745	-	pF
Output Capacitance	C_{oss}		-	70	-	
Reverse Transfer Capacitance	C_{rss}		-	57	-	
Turn-on Delay Time ⁴	$t_{d(on)}$	$V_{DD} = -15\text{V}, V_{GS} = -10\text{V},$ $R_{GEN} = 6\Omega, I_D = -4.2\text{A}$	-	7	-	nS
Turn-on Rise Time ⁴	t_r		-	3	-	
Turn-off Delay Time ⁴	$t_{d(off)}$		-	30	-	
Turn-off Fall Time ⁴	t_f		-	12	-	
Body Diode Voltage ³	V_{SD}	$I_S = -4.2\text{A}, V_{GS} = 0\text{V}$	-	-	-1.2	V

Note:

1.Repetitive Rating : Pulse Width Limited by Maximum Junction Temperature 150 $^{\circ}\text{C}$.

2.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.

3.Pulse Test : Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

4.Guaranteed by Design, not Subject to Production Testing.



Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

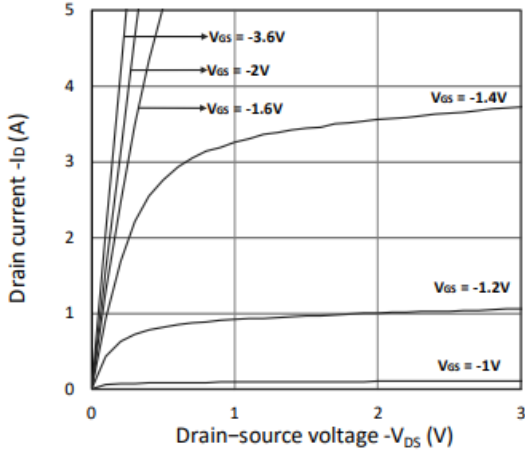


Figure 1. Output Characteristics

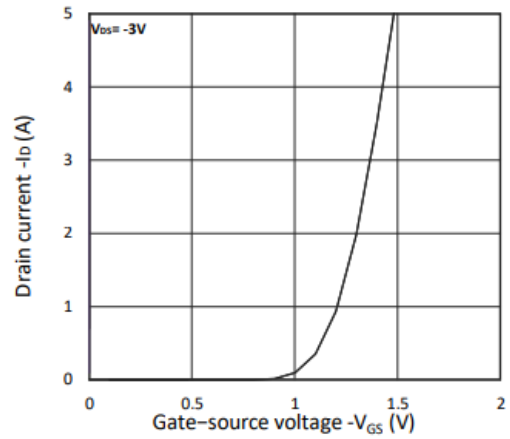


Figure 2. Transfer Characteristics

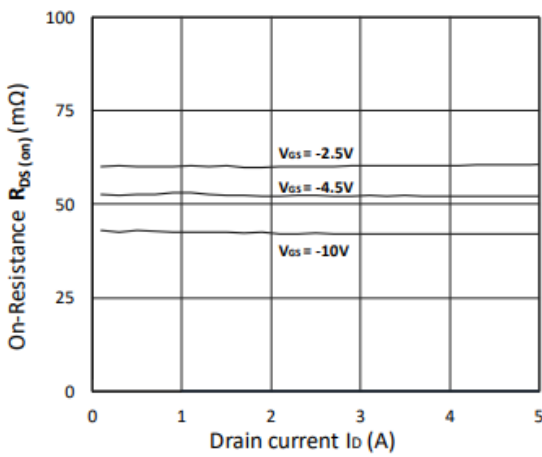


Figure 3. $R_{DS(on)}$ VS. I_D

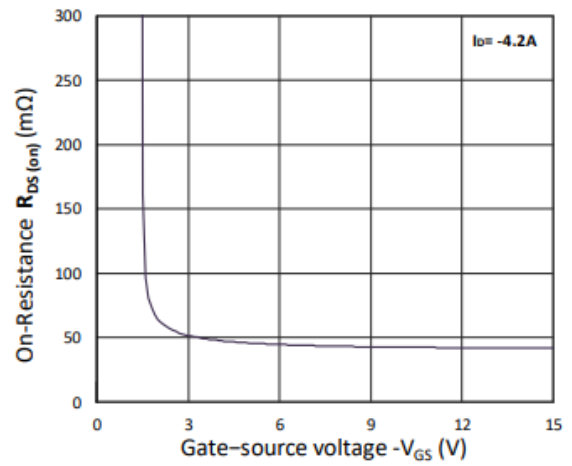


Figure 4. $R_{DS(on)}$ VS. V_{GS}

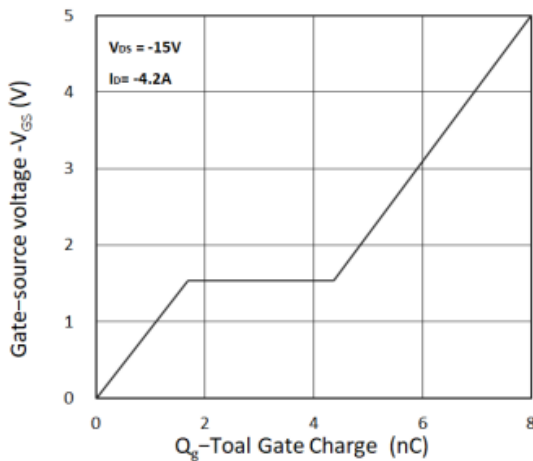


Figure 5. Gate Charge Characteristics

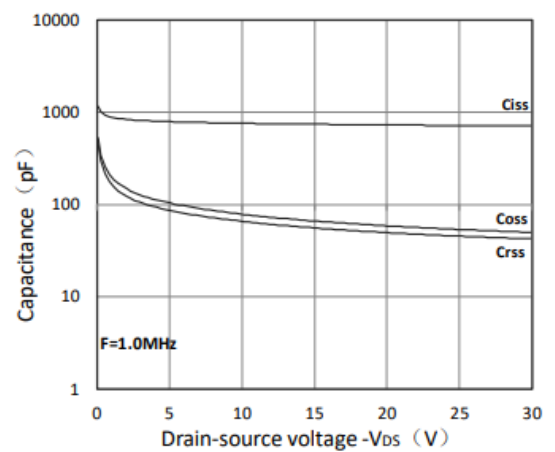
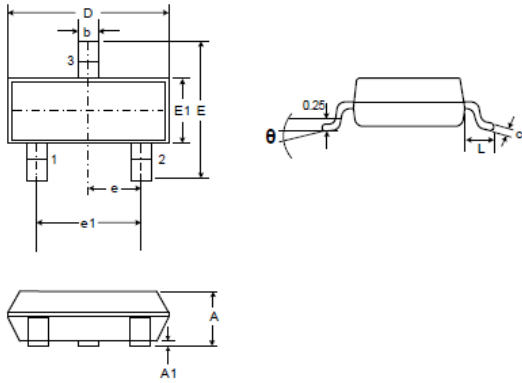


Figure 6. Capacitance Characteristics

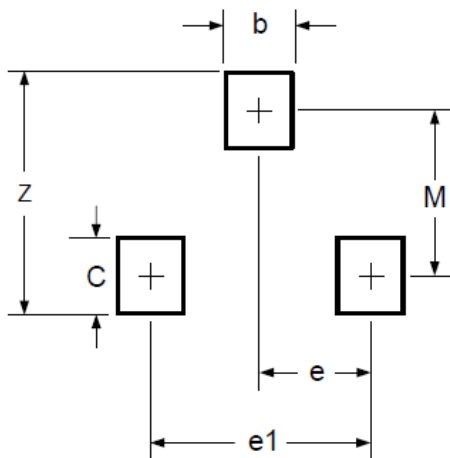


SOT-23 Package Outline Drawing



DIMENSIONS				
SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.90	1.15	0.035	0.045
A1	0.00	0.10	0.000	0.004
b	0.30	0.50	0.012	0.020
c	0.08	0.15	0.003	0.006
D	2.80	3.00	0.110	0.118
E	2.25	2.55	0.089	0.100
E1	1.20	1.40	0.047	0.055
e	0.95 BSC		0.0374 BSC	
e1	1.80	2.00	0.071	0.079
L	0.45	0.65	0.018	0.026
θ	0°	8°	0°	8°

Suggested Land Pattern



DIMENSIONS		
DIM	INCHES	MILLIMETERS
M	0.080	2.02
C	0.032	0.80
Z	0.111	2.82
e	0.037 BSC	0.95 BSC
e1	0.075 BSC	1.9 BSC
b	0.032	0.80

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