

## SOT-23 Plastic-Encapsulate MOSFETS

### **AO3401A-ML** P-Channel Enhancement Mode Field Effect Transistor

#### DESCRIPTION

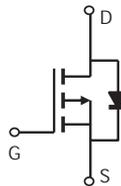
The AO3401A-ML uses advanced trench technology to provide excellent RDS(ON), low gate charge and operation with gate voltage as low as 2.5V. This device is suitable for use as a load switch or in PWM applications.

#### FEATURES

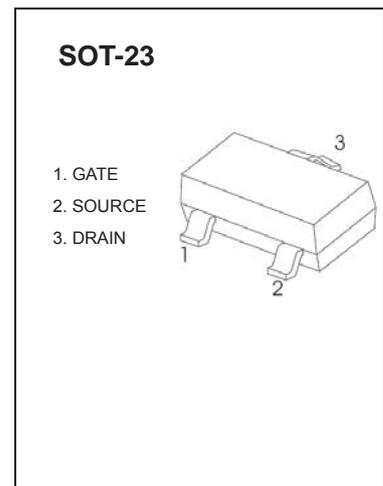
- Lead free product is acquired
- Surface mount package

#### APPLICATION

- Load Switch and in PWM applications



**Equivalent Circuit**



#### Maximum ratings ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current	$I_D$	-4.2	A
Power Dissipation	$P_D$	350	mW
Thermal Resistance from Junction to Ambient (t<5s)	$R_{\theta JA}$	357	$^{\circ}\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55~+150	$^{\circ}\text{C}$

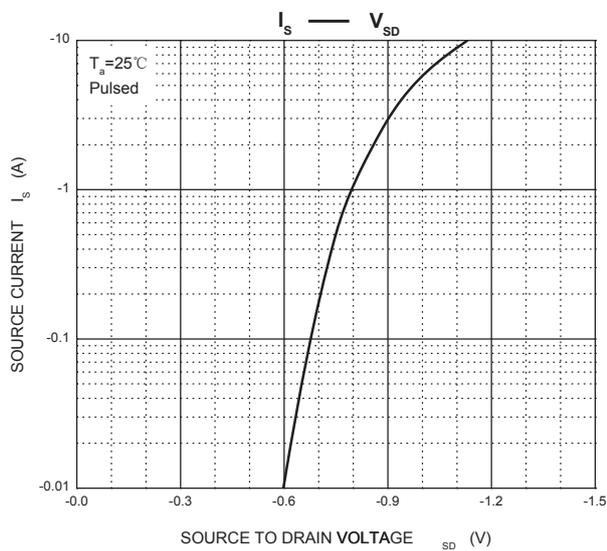
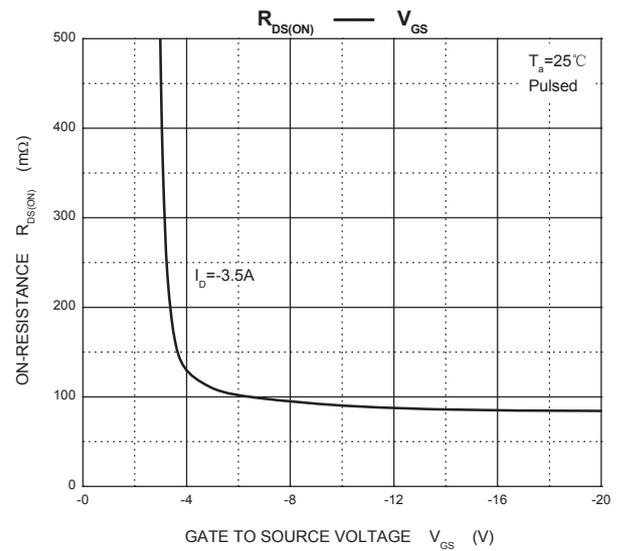
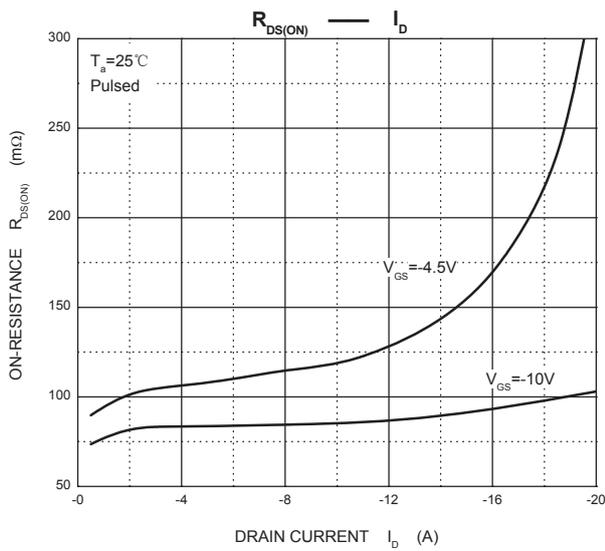
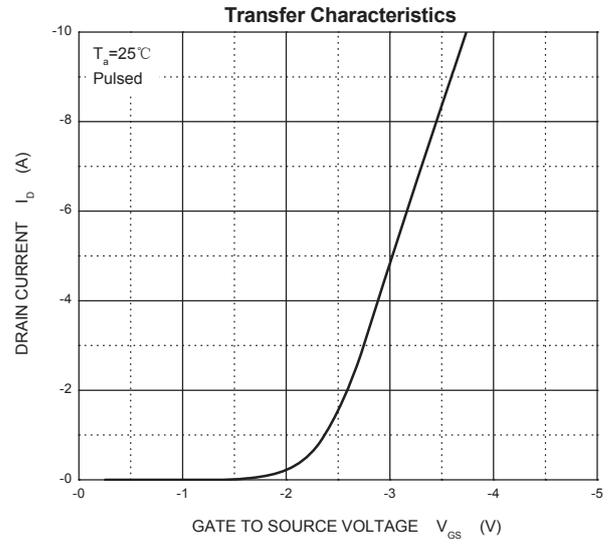
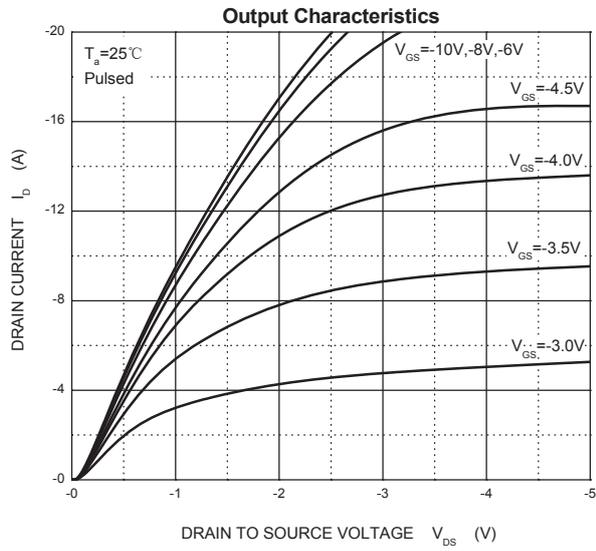
## MOSFET ELECTRICAL CHARACTERISTICS $T_a=25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Off characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = -24V, V_{GS} = 0V$			-1	$\mu A$
Gate-source leakage current	$I_{GSS}$	$V_{GS} = \pm 12V, V_{DS} = 0V$			$\pm 100$	nA
<b>On characteristics</b>						
Drain-source on-resistance (note 1)	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -4.2A$		50	65	m $\Omega$
		$V_{GS} = -4.5V, I_D = -4A$		60	75	m $\Omega$
		$V_{GS} = -2.5V, I_D = -1A$		75	90	m $\Omega$
Forward tranconductance (note 1)	$g_{FS}$	$V_{DS} = -5V, I_D = -5A$	7			S
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.6	-0.9	-1.3	V
<b>Dynamic characteristics (note 2)</b>						
Input capacitance	$C_{iss}$	$V_{DS} = -15V, V_{GS} = 0V, f = 1MHz$		954		pF
Output capacitance	$C_{oss}$			115		pF
Reverse transfer capacitance	$C_{rss}$			77		pF
<b>Switching characteristics (note 2)</b>						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = -10V, V_{DS} = -15V,$ $R_L = 3.6\Omega, R_{GEN} = 6\Omega$			6.3	ns
Turn-on rise time	$t_r$				3.2	ns
Turn-off delay time	$t_{d(off)}$				38.2	ns
Turn-off fall Time	$t_f$				12	ns
<b>Drain-source diode characteristics and maximum ratings</b>						
Diode forward voltage (note 1)	$V_{SD}$	$I_S = -1A, V_{GS} = 0V$			-1	V

**Note :**

1. Pulse Test : Pulse width  $\leq 300\mu s$ , duty cycles  $\leq 2\%$ .
2. These parameters have no way to verify.

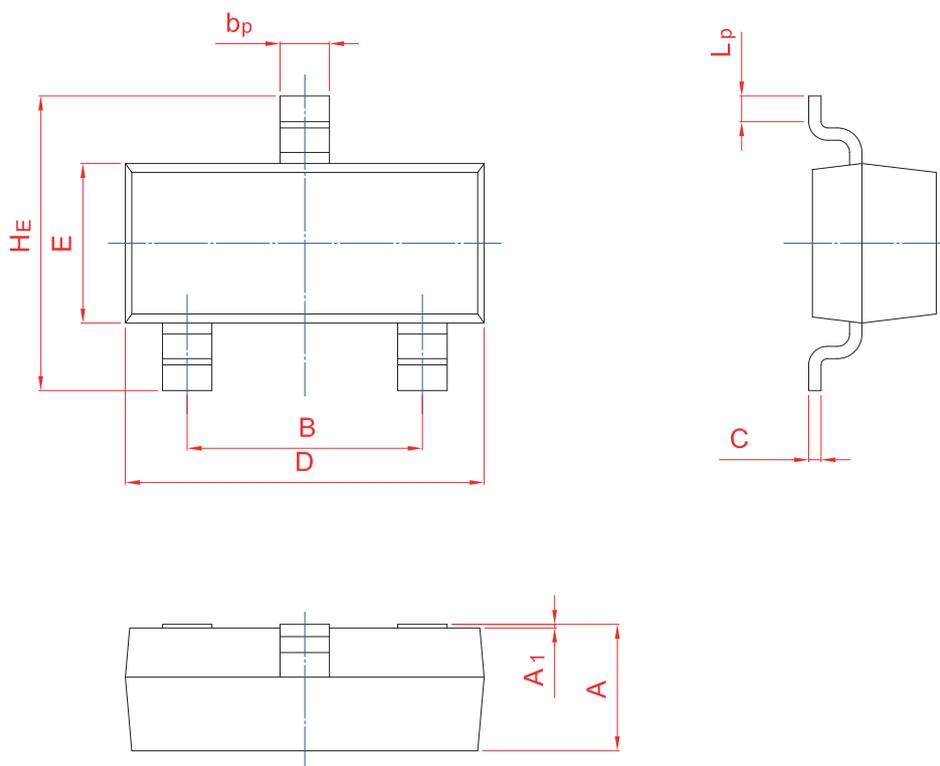
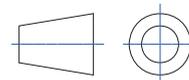
## Typical Characteristics



**PACKAGE OUTLINE**

Plastic surface mounted package; 3 leads

**SOT-23**



UNIT	A	B	b <sub>p</sub>	C	D	E	H <sub>E</sub>	A <sub>1</sub>	L <sub>p</sub>
mm	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50
	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20

**Disclaimer**

The information presented in this document is for reference only. MOSLEADER reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), MOSLEADER or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.