

1.Description

The AO3404A uses advanced trench technology to provide excellent $R_{DS(ON)}$, and low gate charge. This device is suitable for use as a load switch or in PWM applications.

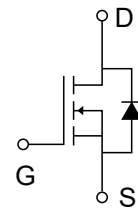
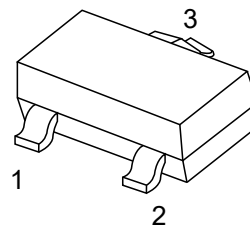
2.Features

- $V_{DS(V)}=30V$
- $I_D=5.8A$
- $R_{DS(ON)}=18m\Omega$ (TYP.) @ $V_{GS}=10V$
- $R_{DS(ON)}=24m\Omega$ (TYP.) @ $V_{GS}=4.5V$

3.Pinning information

Pin	Symbol	Description
1	G	GATE
2	S	SOURCE
3	D	DRAIN

SOT-23



4.Absolute Maximum Ratings $T_A=25^{\circ}C$

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current	$T_A=25^{\circ}C$	I_D	5.8	A
	$T_A=100^{\circ}C$		4.9	
Pulsed Drain Current		I_{DM}	20	
Power Dissipation	$T_A=25^{\circ}C$	P_D	1.4	W
	$T_A=70^{\circ}C$		1	
Thermal Resistance.Junction- to-Ambient	$t \leq 5sec$	R_{thJA}	90	$^{\circ}C/W$
	Steady State		125	
Thermal Resistance.Junction- to-Lead		R_{thJC}	60	
Junction Temperature		T_J	-55 to 150	$^{\circ}C$
Storage Temperature Range		T_{STG}	-55 to 150	



5. Electrical Characteristics $T_A = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{DSS}	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=24\text{V}$, $V_{GS}=0\text{V}$			1	μA
		$V_{DS}=24\text{V}$, $V_{GS}=0\text{V}$, $T_J=55^\circ\text{C}$			5	
Gate-Body leakage current	I_{GSS}	$V_{DS}=0\text{V}$, $V_{GS}=\pm 20\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	1	1.9	3	V
On state drain current	$I_{D(ON)}$	$V_{GS}=4.5\text{V}$, $V_{DS}=5\text{V}$	20			A
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}$, $I_D=5.8\text{A}$		18	25	$\text{m}\Omega$
		$V_{GS}=4.5\text{V}$, $I_D=5\text{A}$		24	36	$\text{m}\Omega$
Forward Transconductance	g_{FS}	$V_{DS}=5\text{V}$, $I_D=5.8\text{A}$	10			S
Diode Forward Voltage	V_{SD}	$I_S=1\text{A}$		0.76	1	V
Maximum Body-Diode Continuous Current	I_S				2.5	A
Reverse Transfer Capacitance	C_{iss}	$V_{GS}=0\text{V}$, $V_{DS}=15\text{V}$, $f=1\text{MHz}$		680	820	pF
Gate resistance	C_{oss}			102		pF
Input Capacitance	C_{rss}			77		pF
Output Capacitance	R_g	$V_{GS}=0\text{V}$, $V_{DS}=0\text{V}$, $f=1\text{MHz}$		3	3.6	Ω
Total Gate Charge (10V)	Q_g	$V_{GS}=10\text{V}$, $V_{DS}=15\text{V}$, $I_D=5.8\text{A}$		13.88	17	nC
Total Gate Charge (4.5V)	Q_g			6.78	8.1	nC
Gate Source Charge	Q_{gs}			1.8		nC
Gate Drain Charge	Q_{gd}			3.12		nC
Turn-On Rise Time	$t_{D(on)}$	$V_{GS}=10\text{V}$, $V_{DS}=15\text{V}$, $R_L=2.7\Omega$, $R_{GEN}=3\Omega$		4.6	6.5	ns
Turn-Off DelayTime	t_r			3.8	5.7	ns
Turn-Off Fall Time	$t_{D(off)}$			20.9	30	ns
Turn-On DelayTime	t_f			5	7.5	ns
Body Diode Reverse Recovery Time	t_{rr}	$I_F=5.8\text{A}$, $dI/dt=100\text{A}/\mu\text{s}$		16.1	21	ns
Body Diode Reverse Recovery Charge	Q_{rr}	$I_F=5.8\text{A}$, $dI/dt=100\text{A}/\mu\text{s}$		7.4	10	nC



6.1 Typical Characteristics

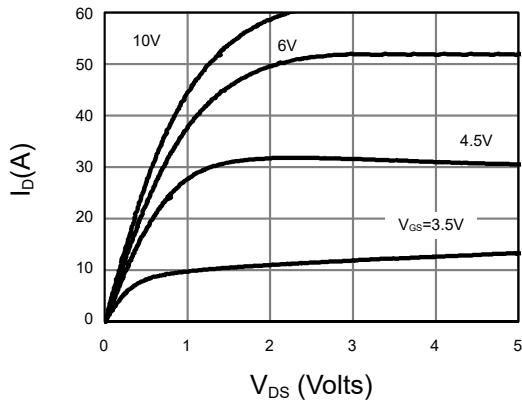


Fig 1: On-Region Characteristics

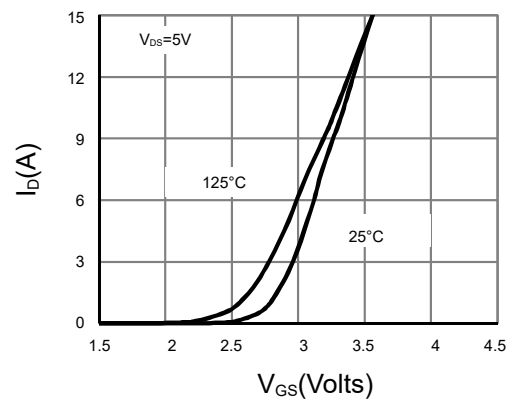


Figure 2: Transfer Characteristics

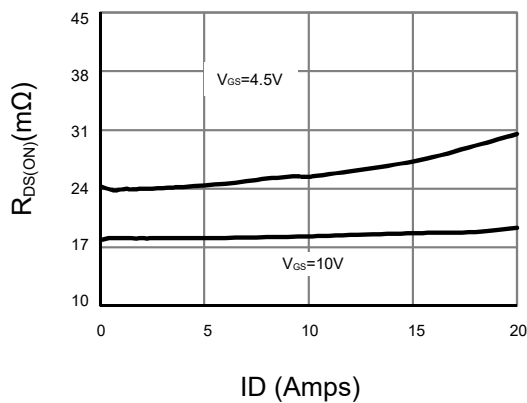


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

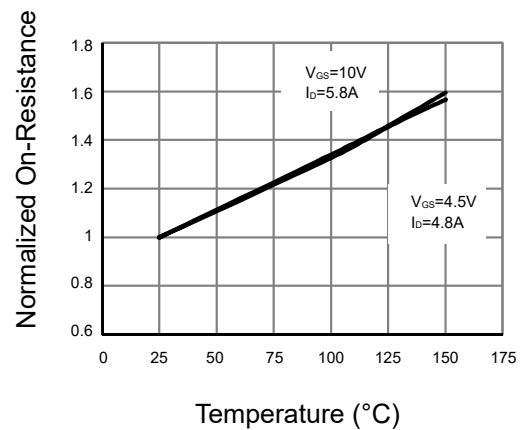


Figure 4: On-Resistance vs. Junction Temperature

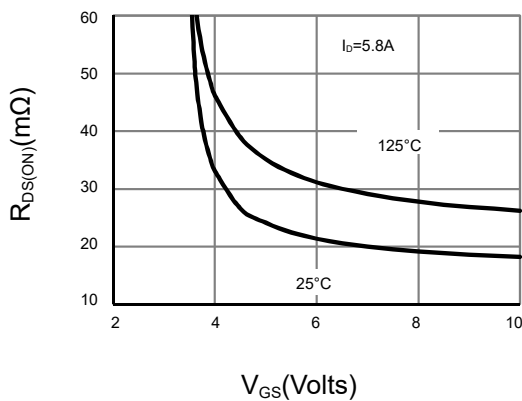


Figure 5: On-Resistance vs. Gate-Source Voltage

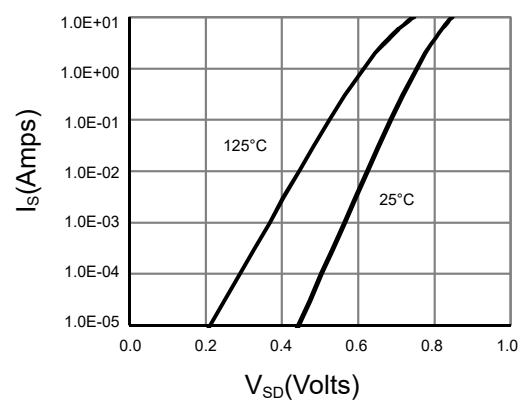
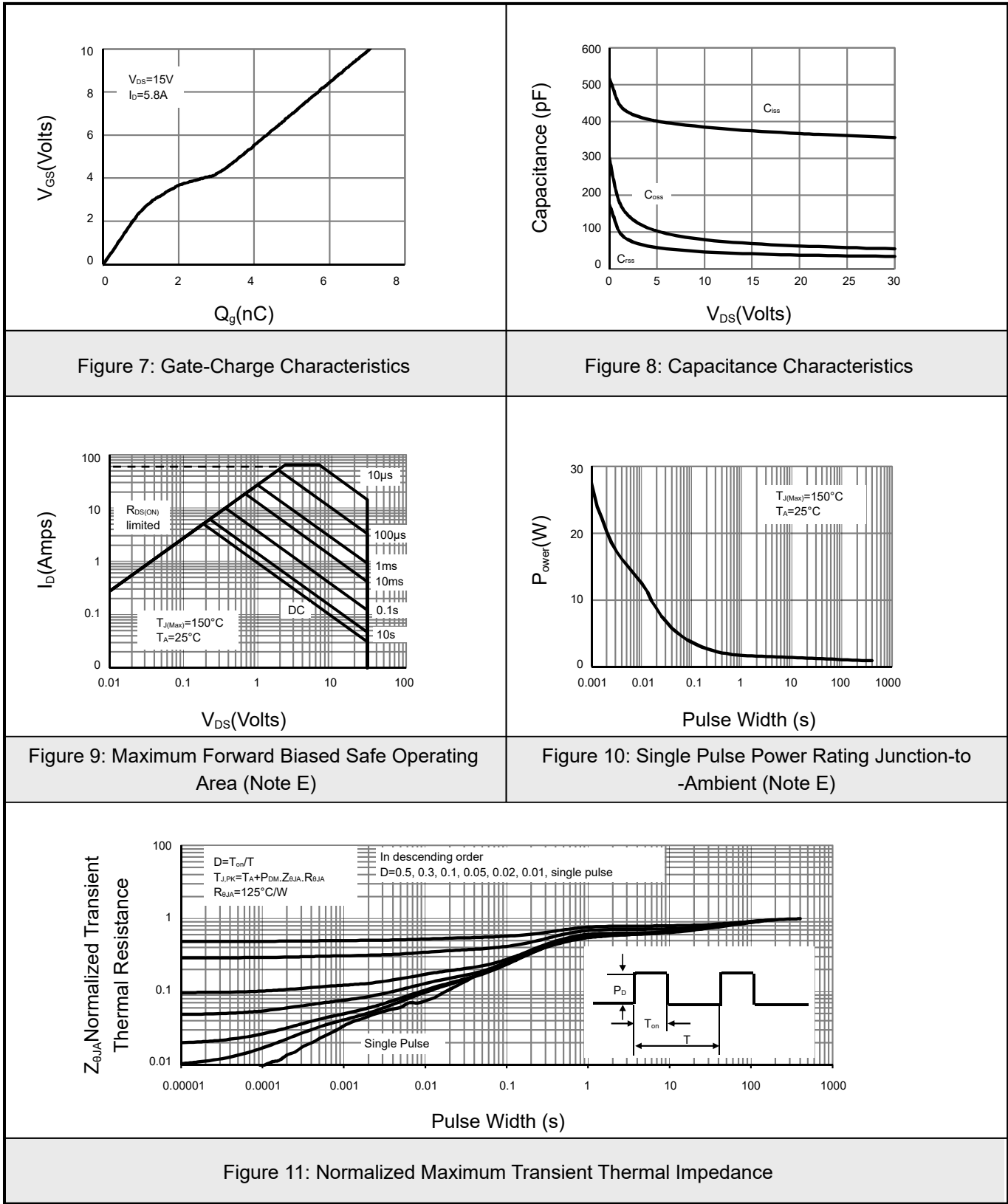


Figure 6: Body-Diode Characteristics

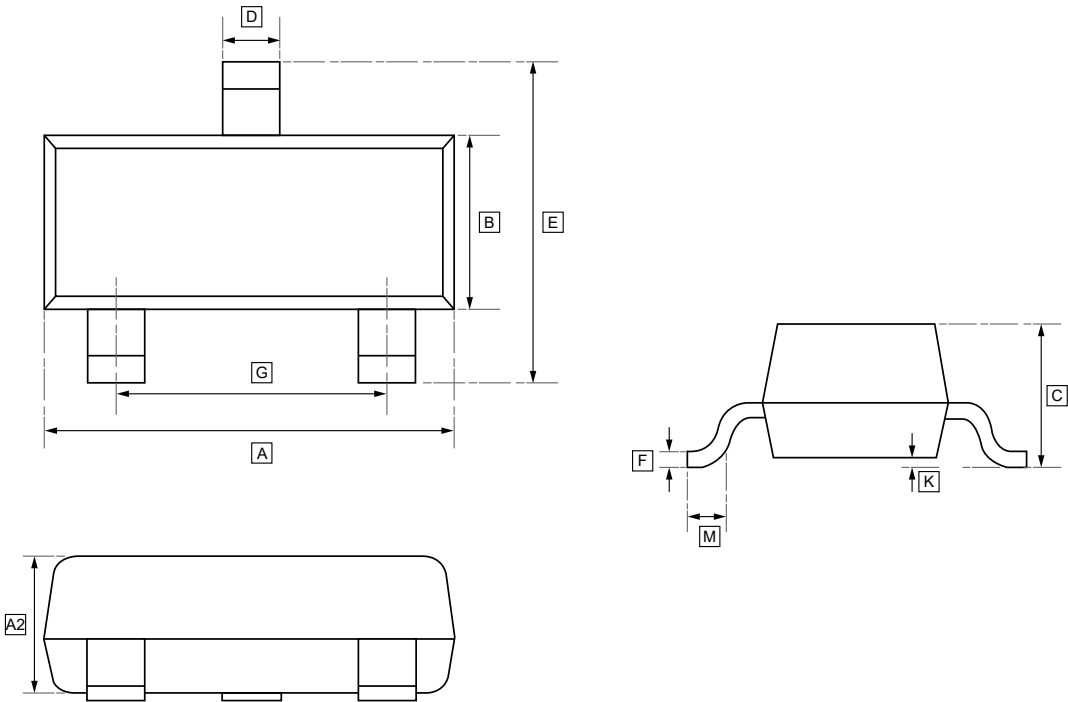


6.2Typical Characteristics





7.SOT-23 Package Outline Dimensions

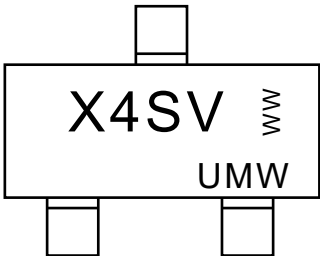


DIMENSIONS (mm are the original dimensions)

Symbol	A	B	C	D	E	G	K	M	A2	F
Min	2.85	1.20	0.90	0.40	2.25	1.80	0.00	0.30	0.95	0.095
Max	3.04	1.40	1.10	0.50	2.55	2.00	0.10	-	1.05	0.115



8.Ordering information



WW: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW AO3404A	SOT-23	3000	Tape and reel



9.Disclaimer

UMW reserves the right to make changes to all products, specifications. Customers should obtain the latest version of product documentation and verify the completeness and currency of the information before placing an order.

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