UMW AO3407A

-30V P-Channel MOSFET

1.Description

The AO3407A uses advanced trench technology to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use as a load switch or in PWM applications. AO3407A are electrically identical. -RoHS Compliant -AO3407A is Halogen Free.

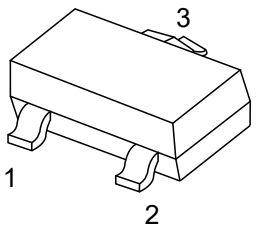
2.Features

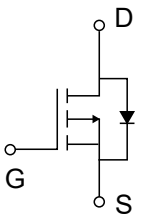
- $V_{DS\ (V)}$=-30V
- I_D=-4.2A(V_{GS}=-10V)
- $R_{DS(ON)}$=37mΩ(TYP.) @ V_{GS}=-10V
- $R_{DS(ON)}$=52mΩ(TYP.) @ V_{GS}=-4.5V

3.Pinning information

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

SOT-23





4.Absolute Maximum Ratings T_A= 25°C

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	T_A=25°C	I_D	-4.2	A
	T_A=70°C		-3.5	
Pulsed Drain Current		I_{DM}	-20	
Power Dissipation	T_A=25°C	P_D	1.4	W
	T_A=70°C		1	
Thermal Resistance.Junction- to-Ambient	t ≤ 10s	R_{thJA}	90	°C/W
	Steady State		125	
Thermal Resistance.Junction- to-Lead		R_{thJL}	60	
Junction Temperature		T_J	-55 to 150	°C
Storage Temperature Range		T_{STG}	-55 to 150	

5.Electrical Characteristics T_A= 25°C

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{DSS}	I_D=-250μA, V_{GS}=0V	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-24V, V_{GS}=0V			-1	μA
		V_{DS}=-24V, V_{GS}=0V, T_J=55°C			-5	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-1	-1.8	-3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-4.1A		37	48	mΩ
		V_{GS}=-4.5V, I_D=-3A		52	65	
On state drain current	$I_{D(ON)}$	V_{GS}=-4.5V, V_{DS}=-5V	-10			A
Forward Transconductance	g_{FS}	V_{DS}=-5V, I_D=-4A	5.5	8.2		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-15V, f=1MHz		700		pF
Output Capacitance	C_{oss}			120		
Reverse Transfer Capacitance	C_{rss}			75		
Gate resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		10		Ω
Total Gate Charge	Q_g	V_{GS}=-4.5V, V_{DS}=-15V I_D=-4A		14.3		nC
Gate Source Charge	Q_{gs}			7		
Gate Drain Charge	Q_{gd}			3.1		
Turn-On DelayTime	$t_{D(on)}$	V_{GS}=-10V, V_{DS}=-15V R_L=3.6Ω, R_{GEN}=3Ω		8.6		ns
Turn-On Rise Time	t_r			5		
Turn-Off DelayTime	$t_{D(off)}$			28.2		
Turn-Off Fall Time	t_f			13.5		
Body Diode Reverse Recovery Time	t_{rr}	I_F=-4A, dI/dt=100A/μs		27		
Body Diode Reverse Recovery Charge	Q_{rr}			15		nC
Maximum Body-Diode Continuous Current	I_S				-2.2	A
Diode Forward Voltage	V_{SD}	I_S=-1A, V_{GS}=0V		-0.77	-1	V

6.1Typical Characterisitics

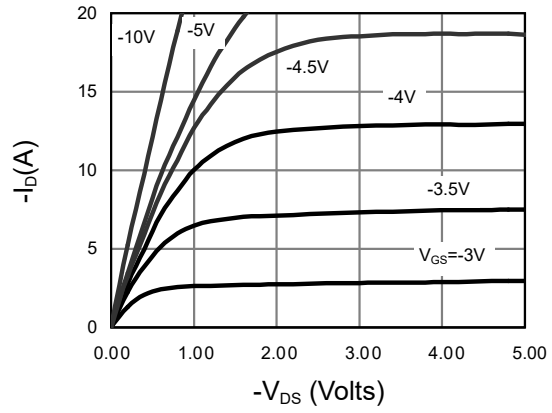


Fig 1: On-Region Characteristics

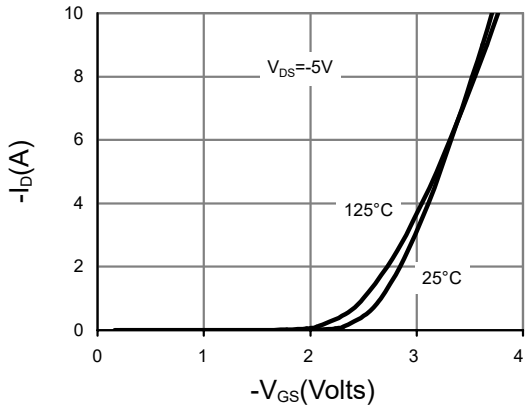


Figure 2: Transfer Characteristics

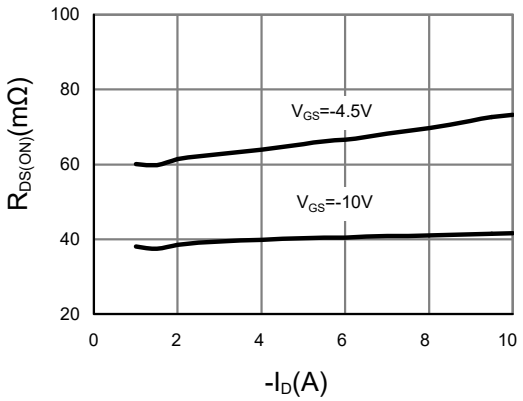


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

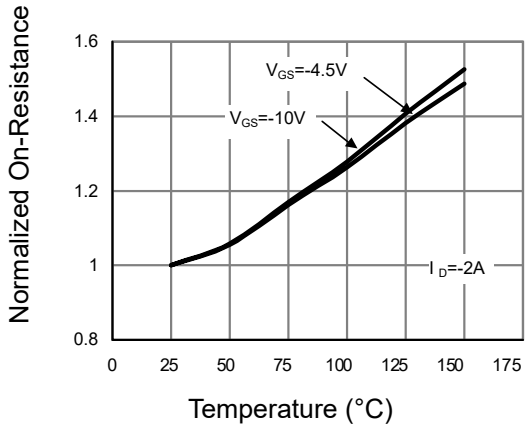


Figure 4: On-Resistance vs. Junction Temperature

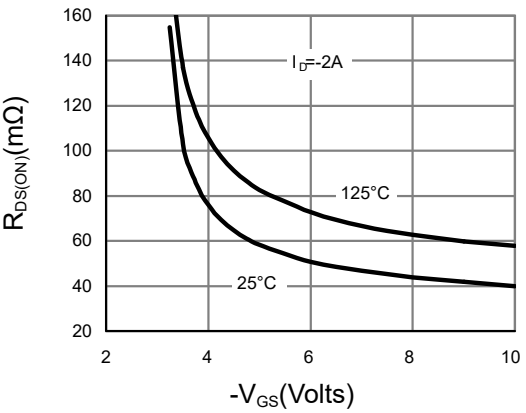


Figure 5: On-Resistance vs. Gate-Source Voltage

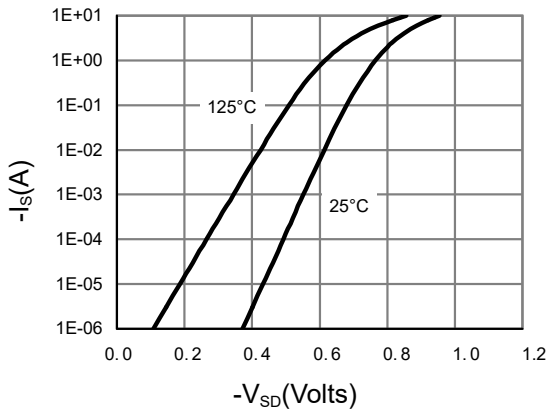


Figure 6: Body-Diode Characteristics

6.2Typical Characterisitics

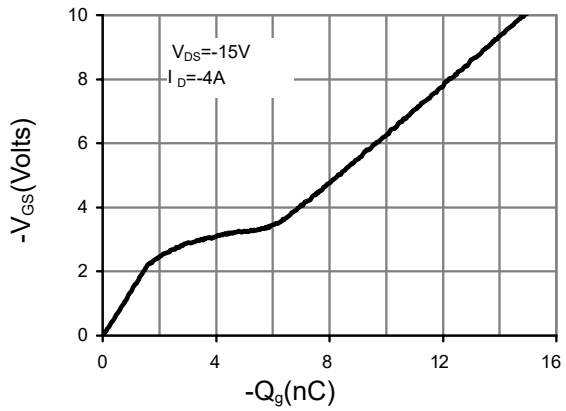


Figure 7: Gate-Charge Characteristics

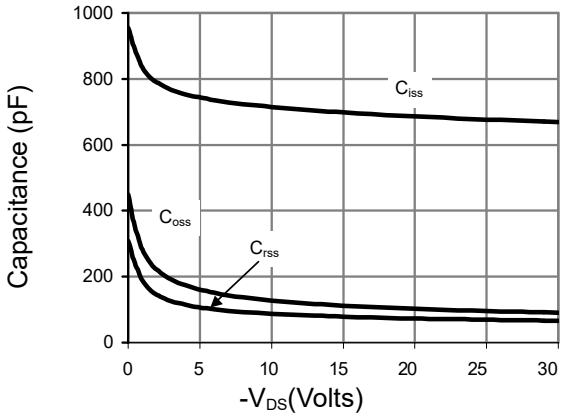


Figure 8: Capacitance Characteristics

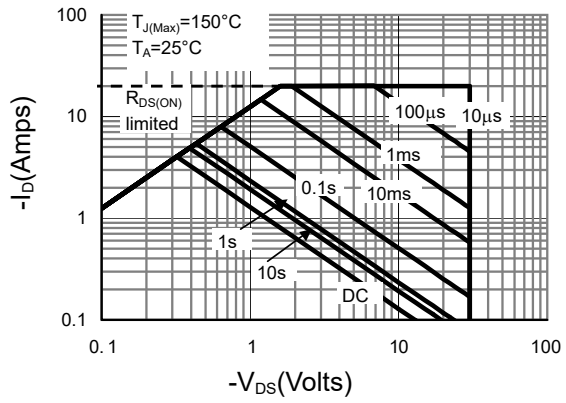


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

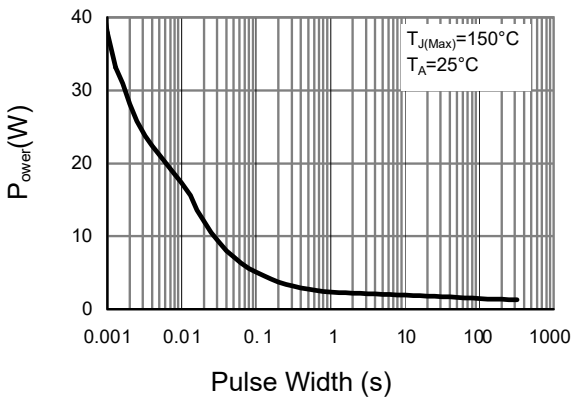


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

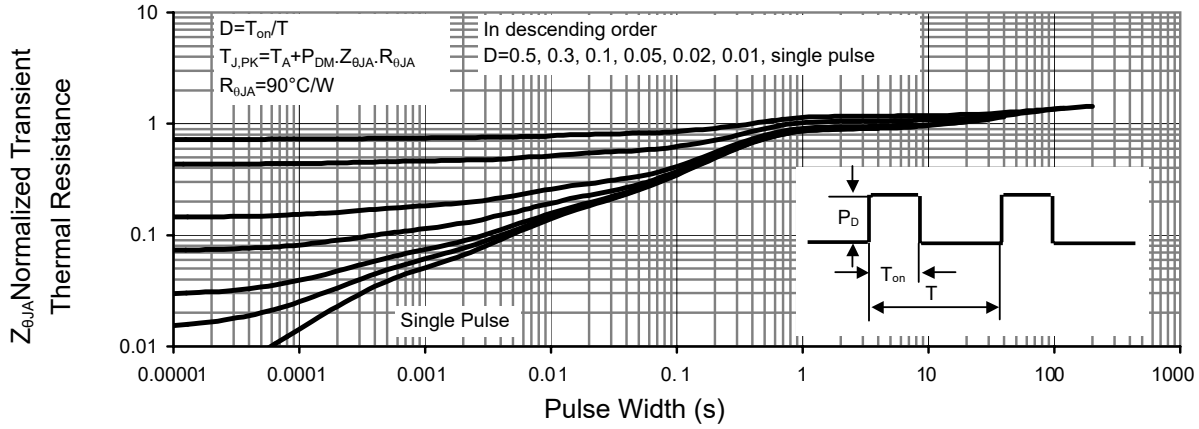
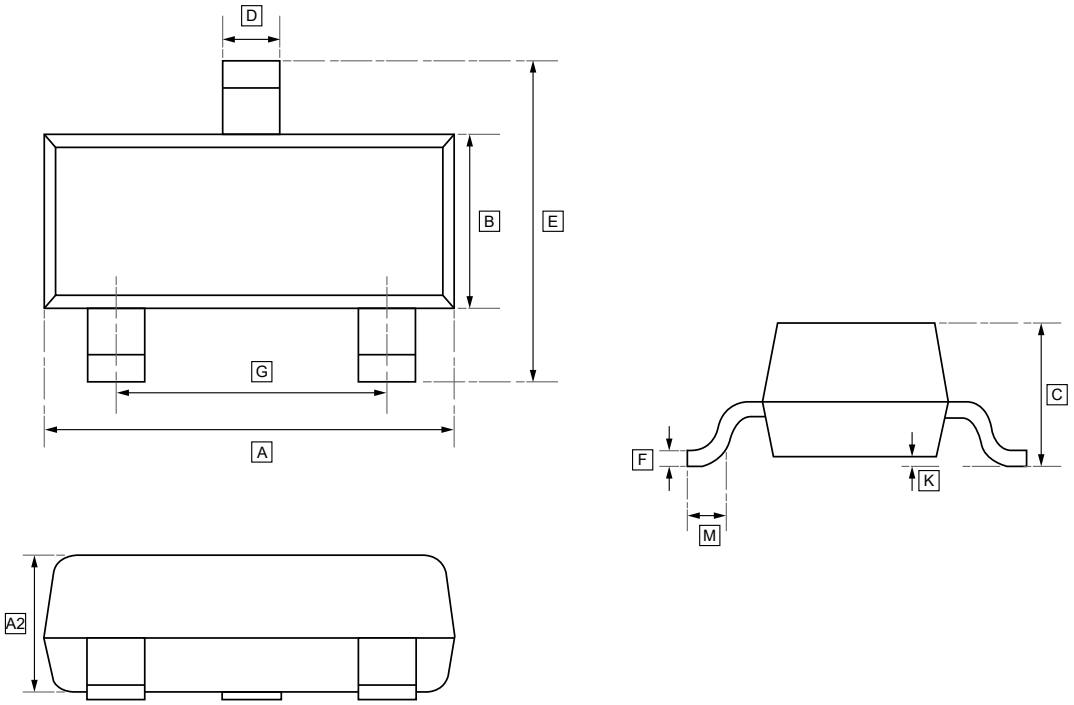


Figure 11: Normalized Maximum Transient Thermal Impedance

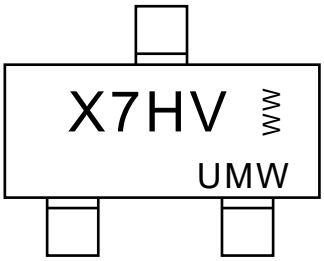
7.SOT-23 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	B	C	D	E	G	K	M	A2	F
Min	2.80	1.20	0.90	0.32	2.25	1.80	0.00	0.30	0.95	0.095
Max	3.04	1.40	1.10	0.55	2.55	2.00	0.10	-	1.05	0.115

8.Ordering Information



WW: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW AO3407A	SOT-23	3000	Tape and reel

9.Disclaimer

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