

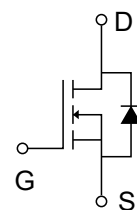
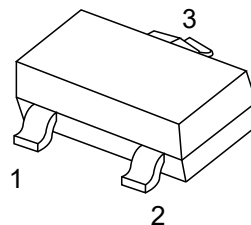
1.Features

- $V_{DS(V)}=25V$
- $I_D=0.68A$
- $R_{DS(ON)}<200m\Omega(V_{GS}=4.5V)$
- $R_{DS(ON)}<250m\Omega(V_{GS}=2.7V)$
- Compact industry standard SOT-23 surface mount package.
- Very low level gate drive requirements allowing direct operation in 3V circuits
 $V_{GS(th)} < 1V$.
- Gate-Source Zener for ESD ruggedness.>6kV Human Body Model

2.Pinning information

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

SOT-23



3.Maximum ratings ($T_A=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Units
Drain-Source Voltage, Power Supply Voltage	V_{DSS}	25	V
Gate-Source Voltage, V_{IN}	V_{GSS}	8	
Drain/Output Current - Continuous	I_D	0.68	A
- Pulsed		2	A
Maximum Power Dissipation	P_D	0.35	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^{\circ}C$
Electrostatic Discharge Rating MIL-STD-883D Human Body Model (100pf / 1500 Ohm)	E_{SD}	6	kV
THERMAL CHARACTERISTICS			
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	357	$^{\circ}C/W$



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

Parameter	Symbol	Conditions	Min	Typ	Max	Units	
OFF CHARACTERISTICS							V
Drain-source breakdown voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	25				
Breakdown Voltage Temp. Coefficient	ΔBV _{DSS} /ΔT _J	I _D =250μA Referenced to 25°C		26		mV/°C μA	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	μA	
		T _J =55°C			10	μA	
Gate - Body Leakage	I _{GSS}	V _{GS} =8V, V _{DS} =0V			100	nA	
ON CHARACTERISTICS (Note)							
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.65	0.8	1	V	
Gate Threshold Voltage Temp. Coefficient	ΔV _{GS(th)} /T _J	I _D =250μA Referenced to 25°C		-2.6		mV/°C	
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =4.5, I _D =0.5A		330	200	mΩ	
		V _{GS} =2.7V, I _D =0.2A		510	250		
On-State Drain Current	I _{D(ON)}	V _{GS} =2.7V, V _{DS} =5V	0.5			A	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =0.5A		1.45		S	
DYNAMIC CHARACTERISTICS							
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =10V, f=1MHz		50		pF	
Output Capacitance	C _{oss}			28		pF	
Reverse Transfer Capacitance	C _{rss}			9		pF	
SWITCHING CHARACTERISTICS (Note)							
Turn - On Delay Time	t _{D(on)}	V _{DD} =6V, I _D =0.5A V _{GS} =4.5V, R _{GEN} =50Ω		3	6	ns	
Turn - On Rise Time	t _r			8.5	18	ns	
Turn - Off Delay Time	t _{D(off)}			17	30	ns	
Turn - Off Fall Time	t _f			13	25	ns	



Total Gate Charge	Q _g	V _{DS} =5V, I _D =0.5A V _{GS} =4.5V		1.64	23	nC
Gate-Source Charge	Q _{gs}			0.38		nC
Gate-Drain Charge	Q _{gd}			0.45		nC
Drain–Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain–Source Diode Forward Current	I _s				0.3	A
Drain–Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _s =0.5A (Note)		0.83	1.2	V

Note:
Pulse Test: Pulse Width < 300μs, Duty Cycle < 2.0%



5.1Typical Characterisitics

Figure 1: On-Region Characteristics.	Figure 2: On-Resistance Variation with Drain Current and Gate Voltage.
Figure 3: On-Resistance Variation with Temperature.	Figure 4: On-Resistance Variation with Gate-to-Source Voltage.
Figure 5: Transfer Characteristics.	Figure 6: . Body Diode Forward Voltage Variation with Source Current and Temperature.



5.2 Typical Characteristics

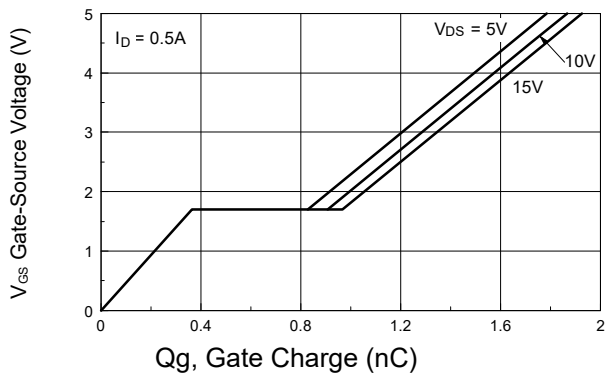


Figure 7: Gate-Charge Characteristics

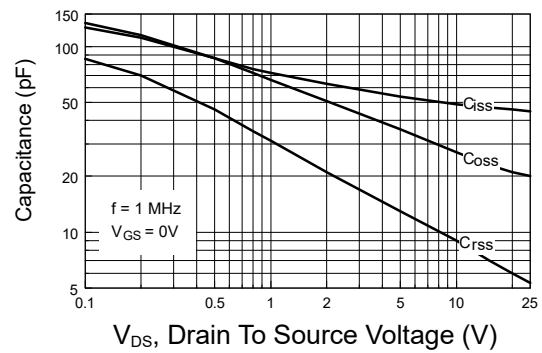


Figure 8: Capacitance Characteristics

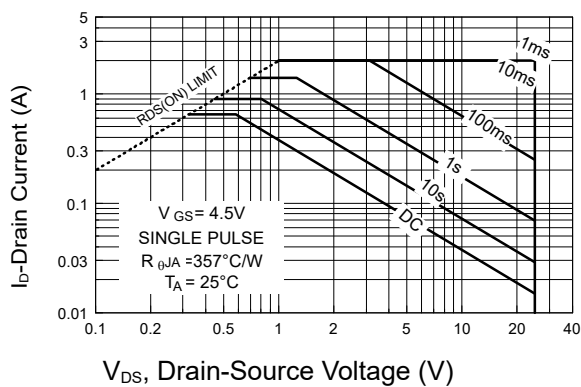


Figure 9: Maximum Safe Operating Area.

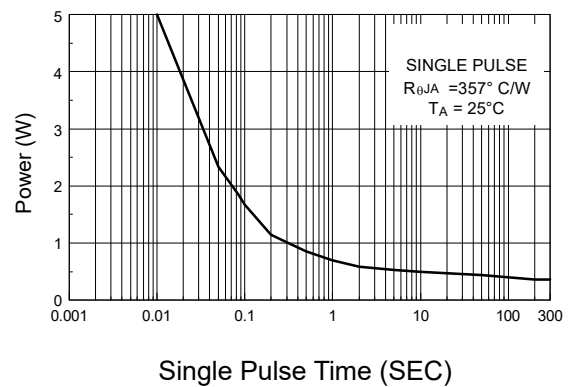


Figure 10: Single Pulse Maximum Power Dissipation.

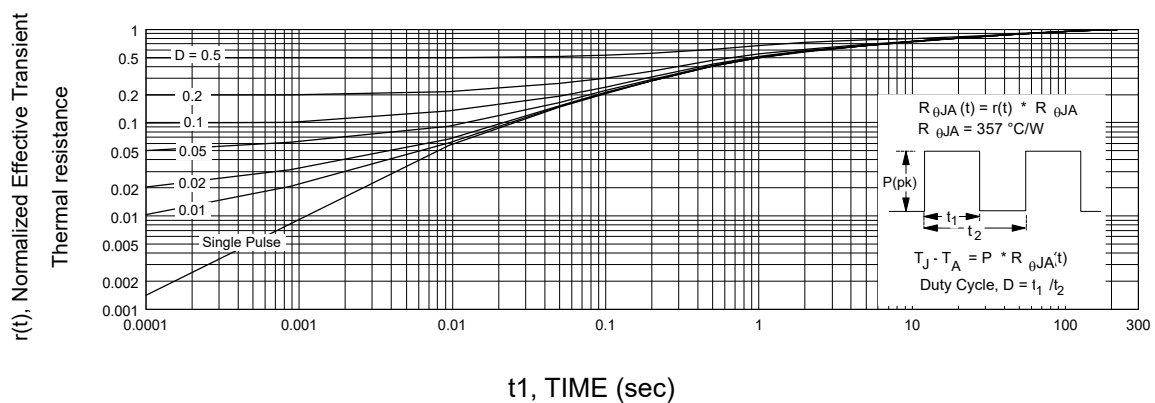
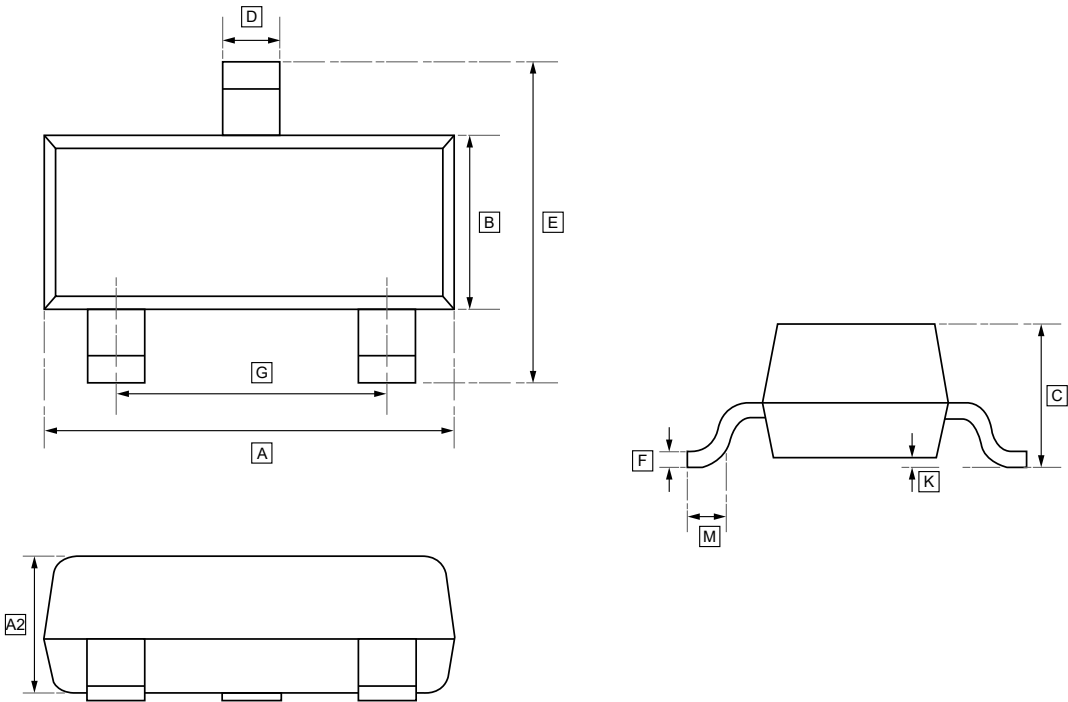


Figure 11. Transient Thermal Response Curve.



6.SOT-23 Package Outline Dimensions

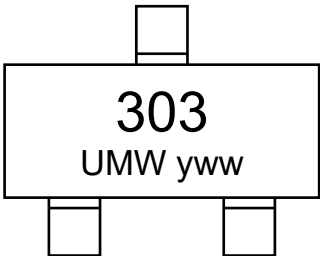


DIMENSIONS (mm are the original dimensions)

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



7.Ordering information



yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW FDV303N	SOT-23	3000	Tape and reel



8.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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