UMW FDV303N

25V N-Channel MOSFET

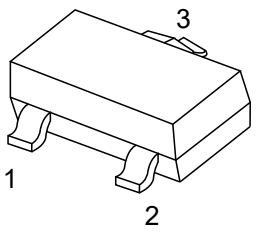
1.Features

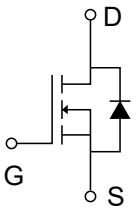
- $V_{DS(V)}$=25V
- I_D=0.68A
- $R_{DS(ON)}$<450mΩ(V_{GS}=4.5V)
- $R_{DS(ON)}$<600mΩ(V_{GS}=2.7V)
- Compact industry standard SOT-23 surface mount package.
- Very low level gate drive requirements allowing direct operation in 3V circuits $V_{GS(th)}$ < 1V.
- Gate-Source Zener for ESD ruggedness.>6kV 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°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	°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	°C/W

4.Electrical Characteristics (T_A=25°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	$\Delta BV_{DSS}/\Delta T_J$	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	$\Delta V_{GS(th)}/T_J$	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	450	mΩ
		V_{GS}=2.7V, I_D=0.2A		440	600	
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%

5.1 Typical Characterisitics

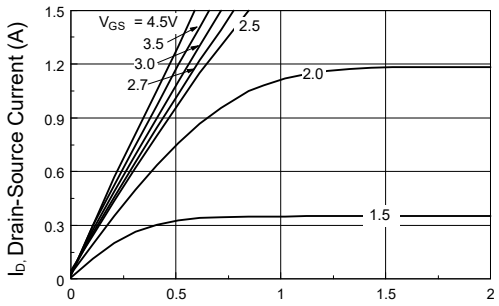


Figure 1: On-Region Characteristics.

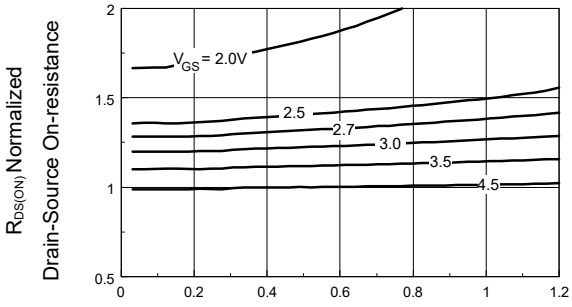


Figure 2: On-Resistance Variation with Drain Current and Gate Voltage.

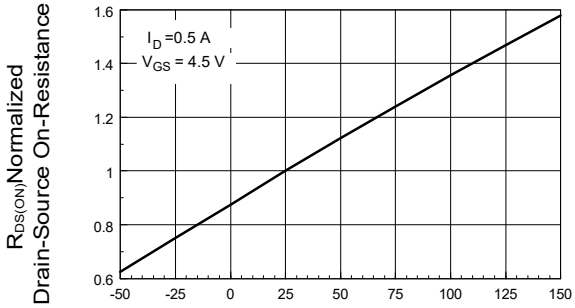


Figure 3: On-Resistance Variation with Temperature.

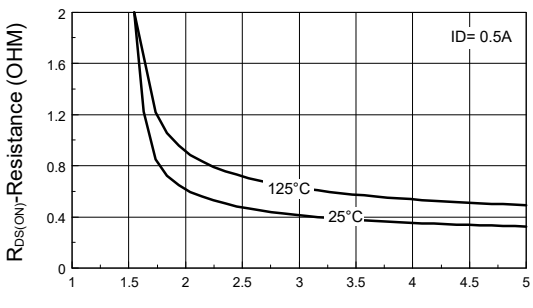


Figure 4: On-Resistance Variation with Gate-to-Source Voltage.

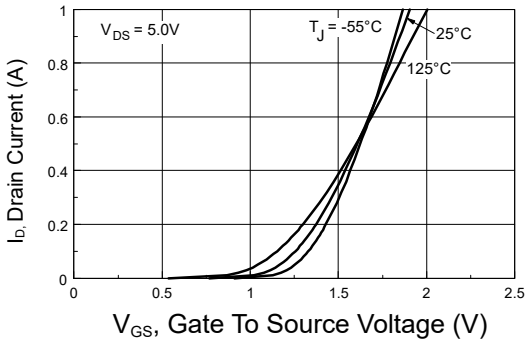


Figure 5: Transfer Characteristics.

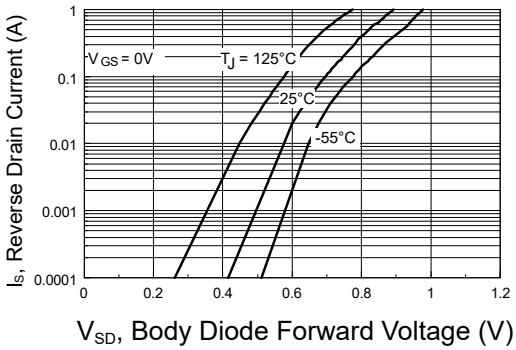


Figure 6: . Body Diode Forward Voltage Variation with Source Current and Temperature.

5.2 Typical Characterisitics

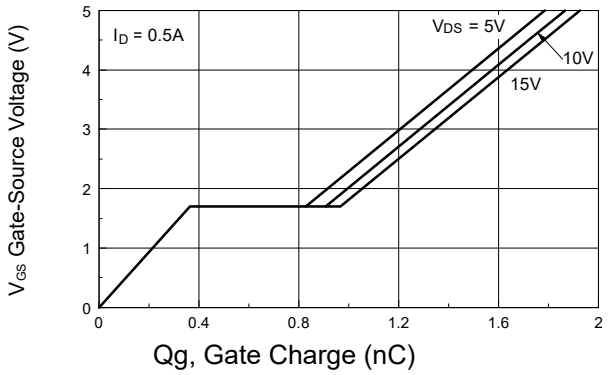


Figure 7: Gate-Charge Characteristics

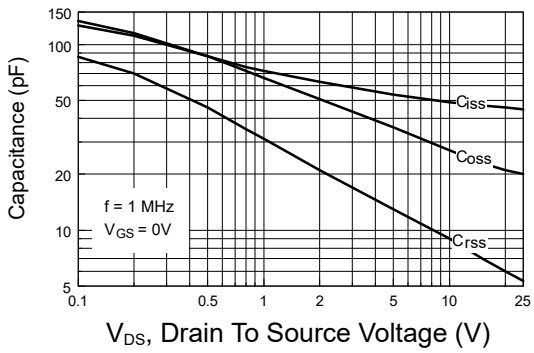


Figure 8: Capacitance Characteristics

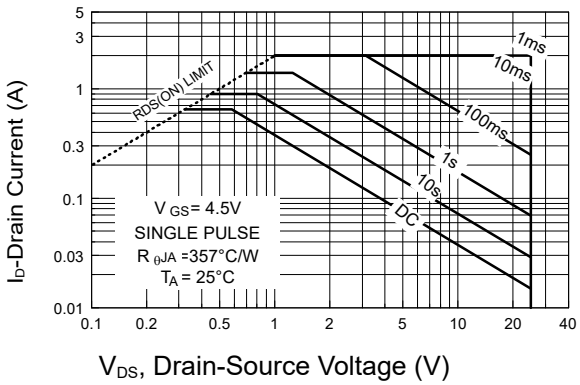


Figure 9: Maximum Safe Operating Area.

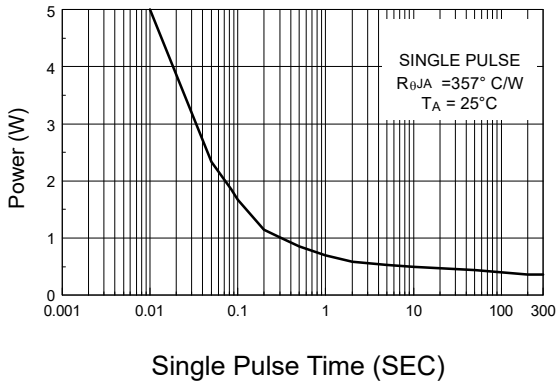


Figure 10: Single Pulse Maximum Power Dissipation.

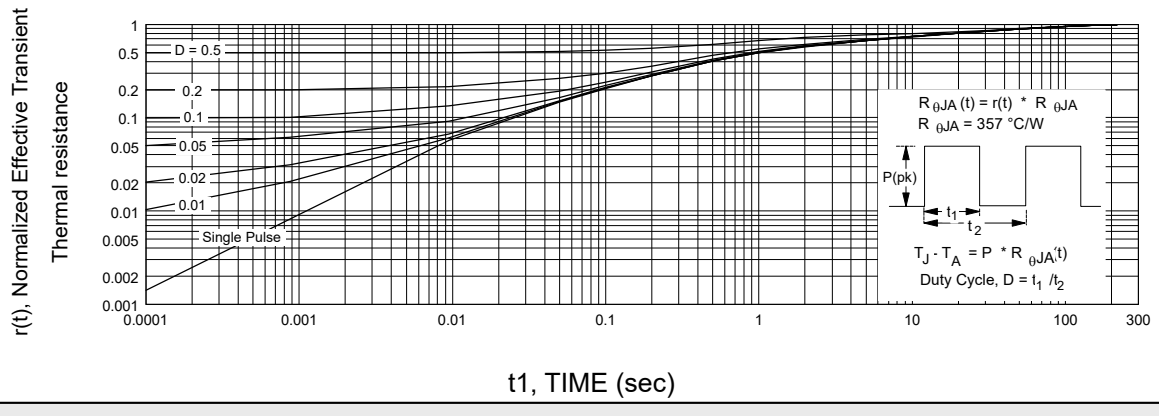
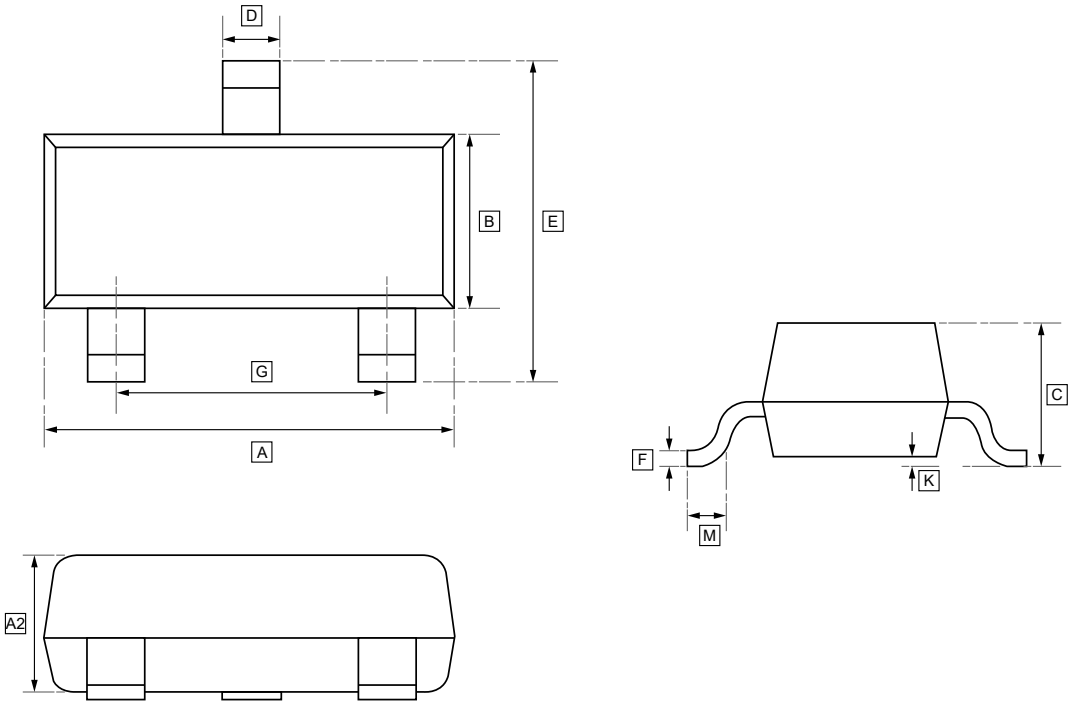


Figure 11. Transient Thermal Response Curve.

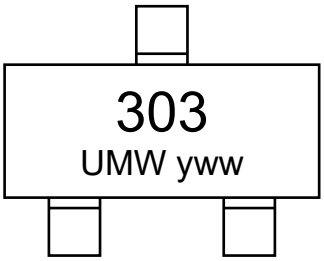
6.SOT-23 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	B	C	D	E	G	K	M	A2	F
Min	2.80	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

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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