UMW FDV303N

25V N-Channel MOSFET

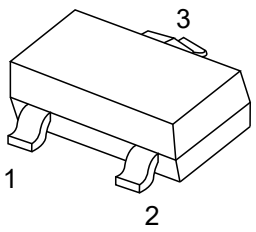
1.Features

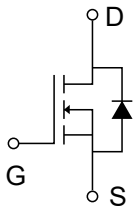
- $V_{DS(V)}$=25V
- I_D=0.68A
- $R_{DS(ON)}$<28mΩ(V_{GS}=4.5V)
- $R_{DS(ON)}$<42mΩ(V_{GS}=2.7V)
- Compact industry standard SOT-23 surface mount package.
- Very low level gate drive requirements allowing direct operation in 3V circuits $V_{GS(th)}$ < 1V.
- Gate-Source Zener for ESD ruggedness.>6kV Human 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	nA
Gate - Body Leakage	I_{GSS}	V_{GS}=8V, V_{DS}=0V			±100	
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			450	mΩ
		V_{GS}=2.7V, I_D=0.2A			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%

5.1Typical Characterisitics

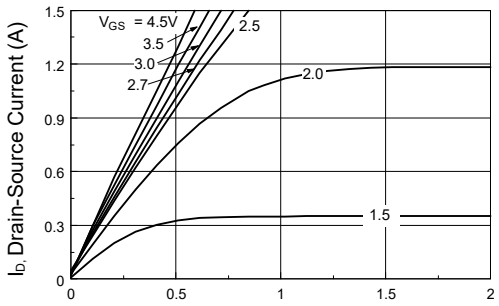


Figure 1: On-Region Characteristics.

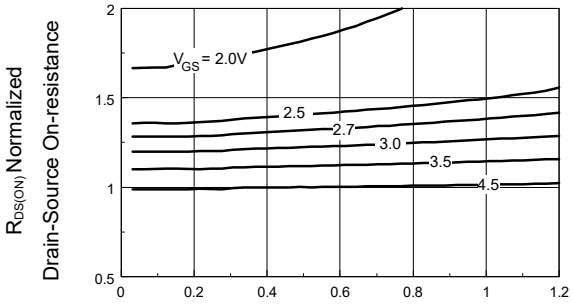


Figure 2: On-Resistance Variation with Drain Current and Gate Voltage.

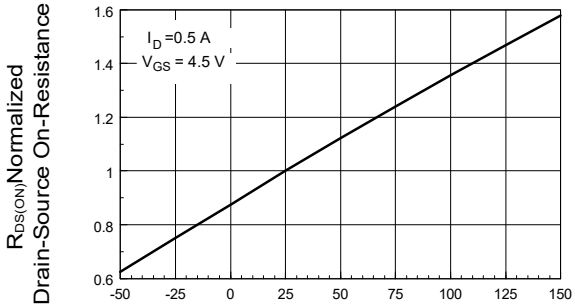


Figure 3: On-Resistance Variation with Temperature.

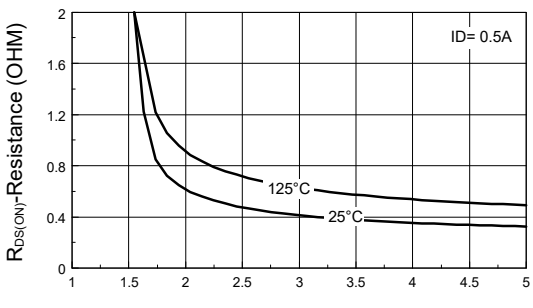


Figure 4: On-Resistance Variation with Gate-to-Source Voltage.

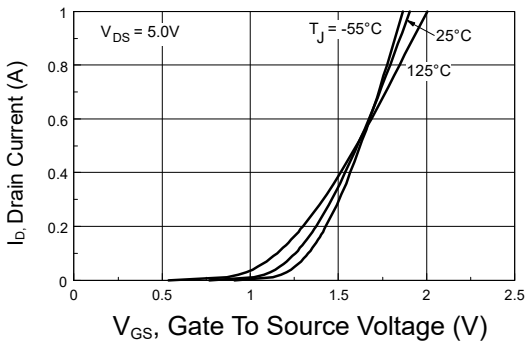


Figure 5: Transfer Characteristics.

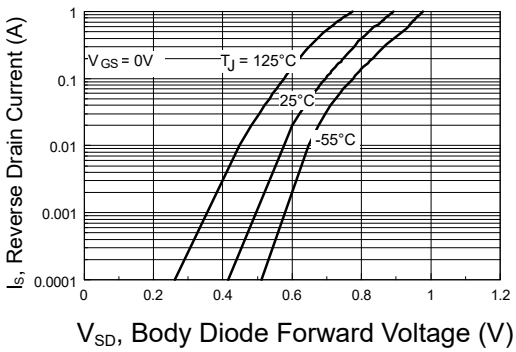


Figure 6: . Body Diode Forward Voltage Variation with Source Current and Temperature.

5.2Typical Characterisitics

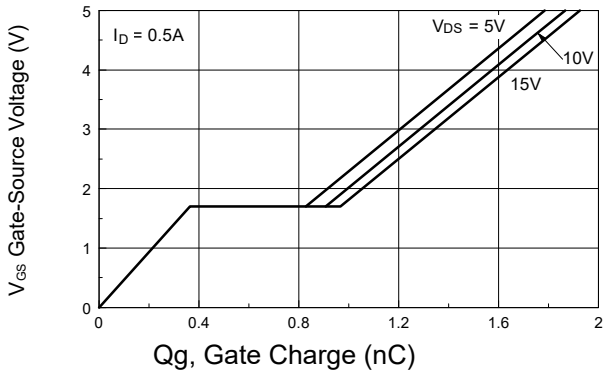


Figure 7: Gate-Charge Characteristics

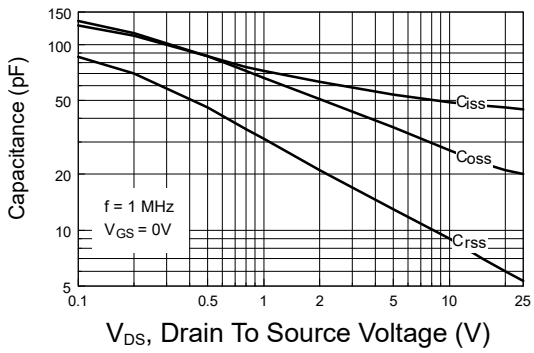


Figure 8: Capacitance Characteristics

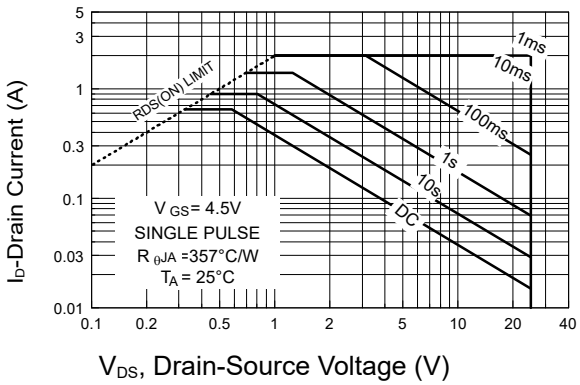


Figure 9: Maximum Safe Operating Area.

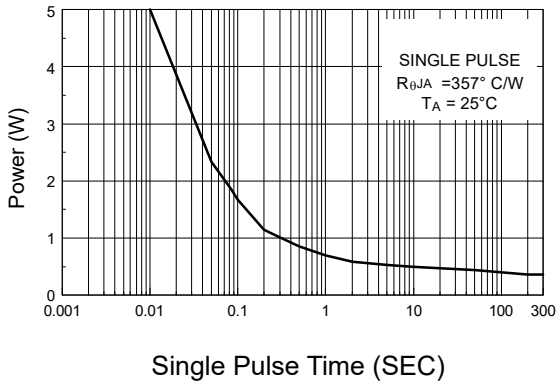


Figure 10: Single Pulse Maximum Power Dissipation.

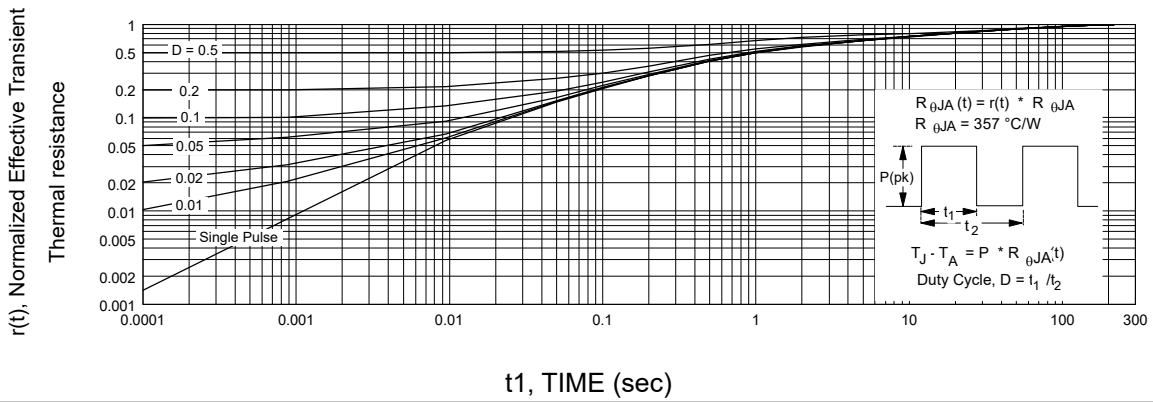
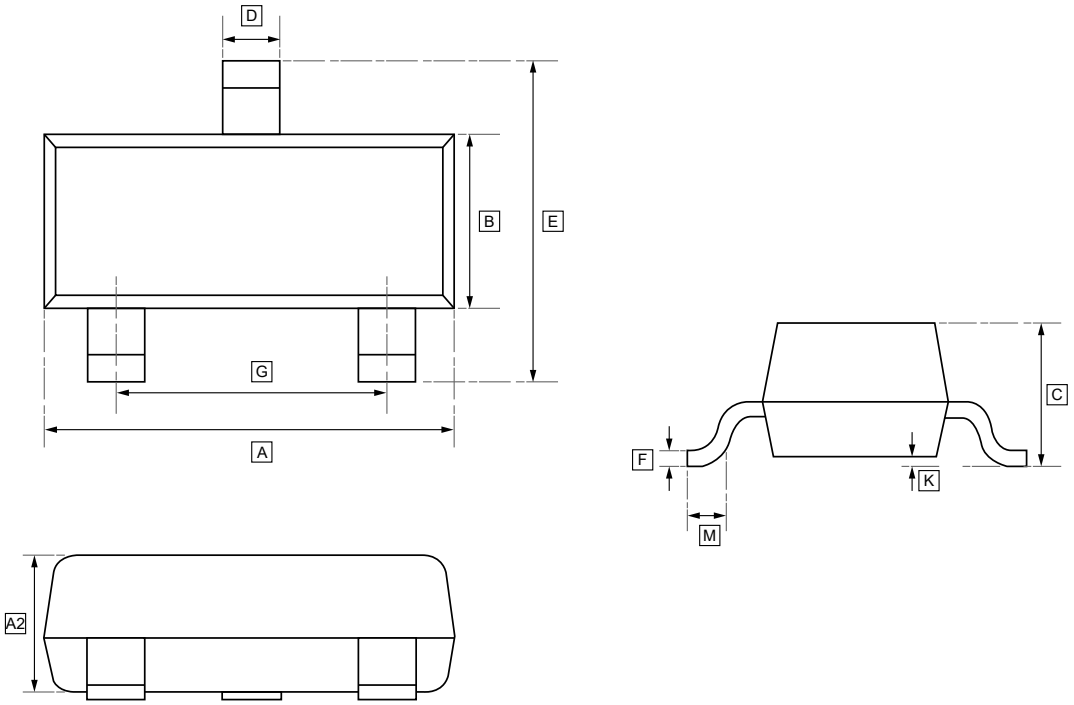


Figure 11. Transient Thermal Response Curve.

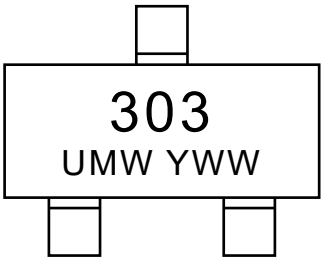
6.SOT-23 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	B	C	D	E	G	K	M	A2	F
Min	2.85	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

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