

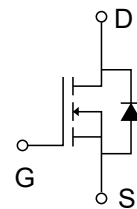
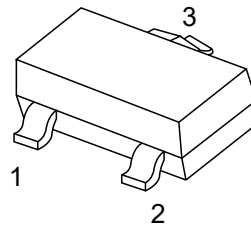
1.Features

- $V_{DS(V)}=25V$
- $I_D=0.68A$
- $R_{DS(ON)}<28m\Omega(V_{GS}=4.5V)$
- $R_{DS(ON)}<42m\Omega(V_{GS}=2.7V)$
- 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						
Drain-source breakdown voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	25			
Breakdown Voltage Temp. Coefficient	$\Delta BV_{DSS}/\Delta T_J$	$I_D=250\mu A$ Referenced to 25°C		26		mV/°C μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$			1	μA
		$T_J=55^\circ C$			10	nA
Gate - Body Leakage	I_{GSS}	$V_{GS}=8V, V_{DS}=0V$			±100	
ON CHARACTERISTICS (Note)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.65	0.8	1	V
Gate Threshold Voltage Temp. Coefficient	$\Delta V_{GS(th)}/T_J$	$I_D=250\mu A$ 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	$t_{D(on)}$	$V_{DD}=6V, I_D=0.5A$ $V_{GS}=4.5V, R_{GEN}=50\Omega$		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

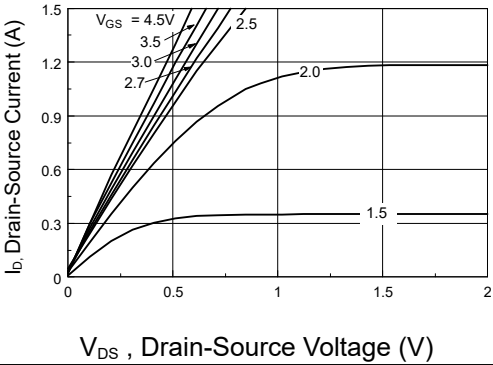
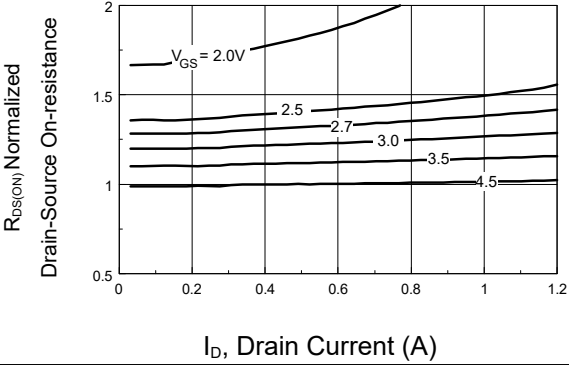
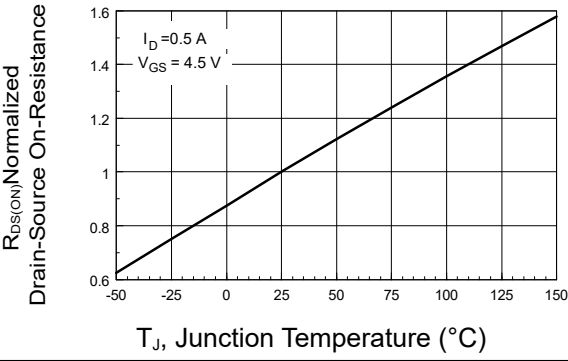
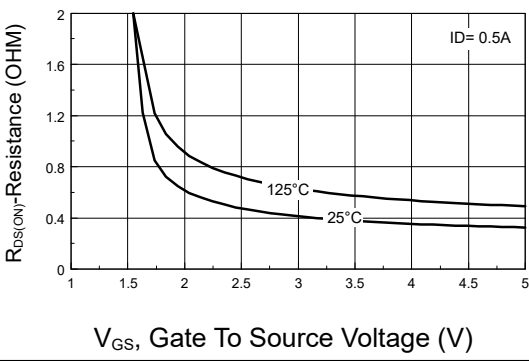
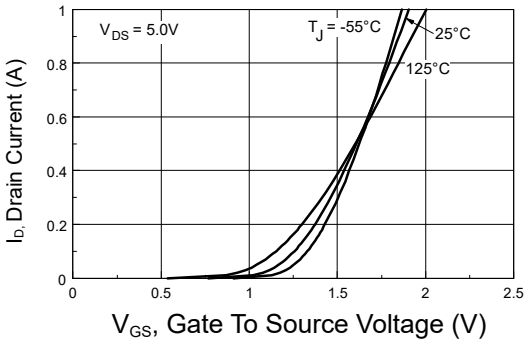
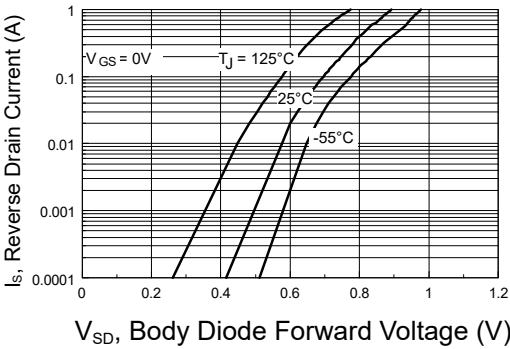


Total Gate Charge	Q _g	V _{DS} =5V, I _D =0.5A V _{GS} =4.5V		1.64	23	nC
Gate-Source Charge	Q _{gs}			0.38		nC
Gate-Drain Charge	Q _{gd}			0.45		nC
Drain–Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain–Source Diode Forward Current	I _s				0.3	A
Drain–Source Diode Forward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

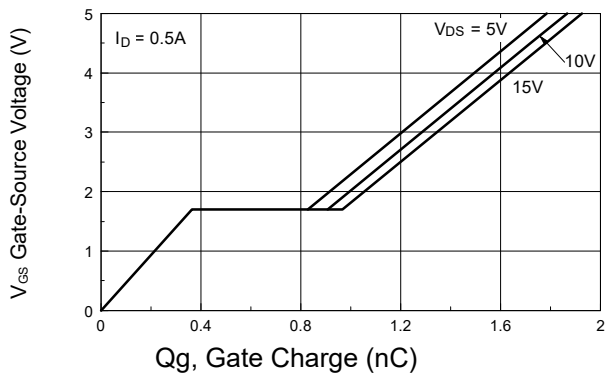


Figure 7: Gate-Charge Characteristics

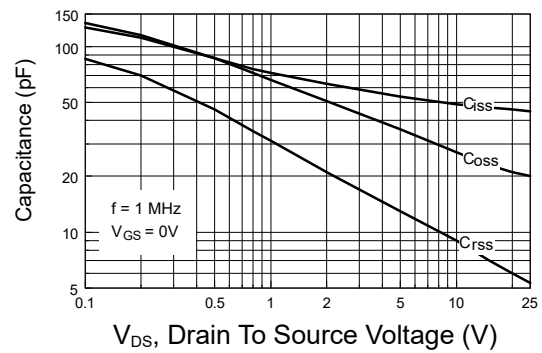


Figure 8: Capacitance Characteristics

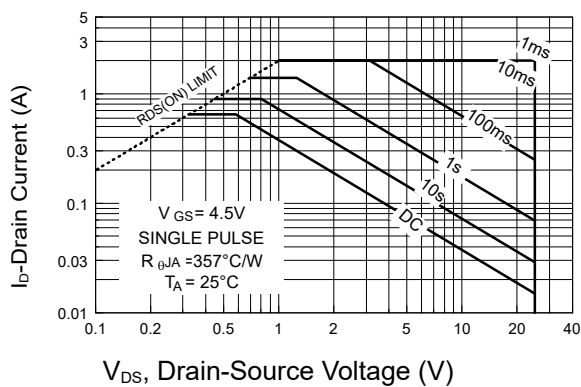


Figure 9: Maximum Safe Operating Area.

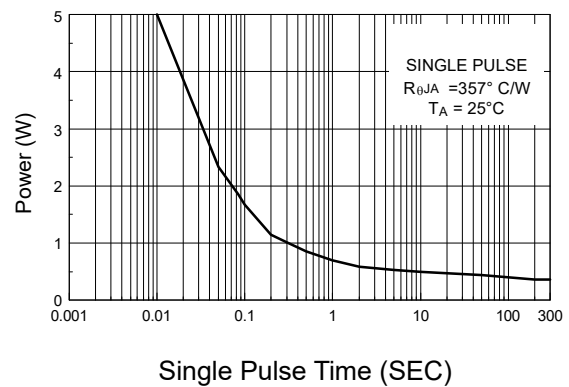


Figure 10: Single Pulse Maximum Power Dissipation.

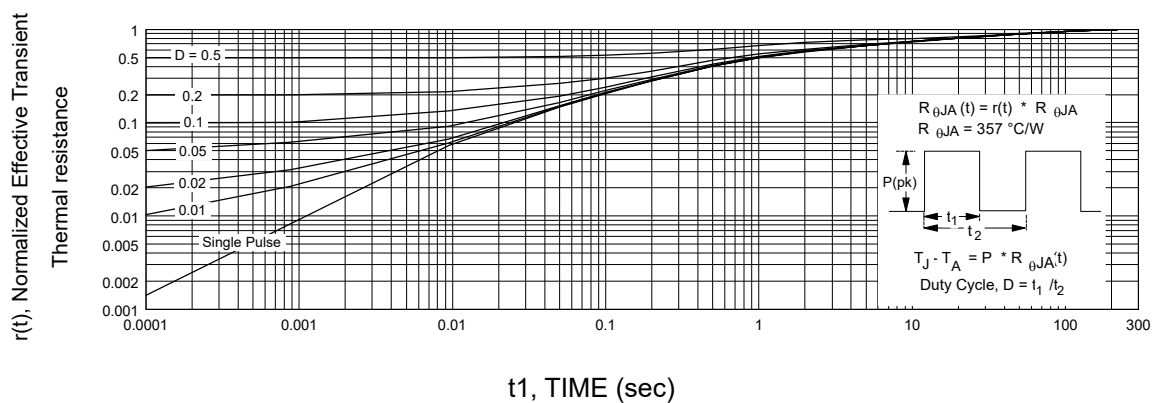
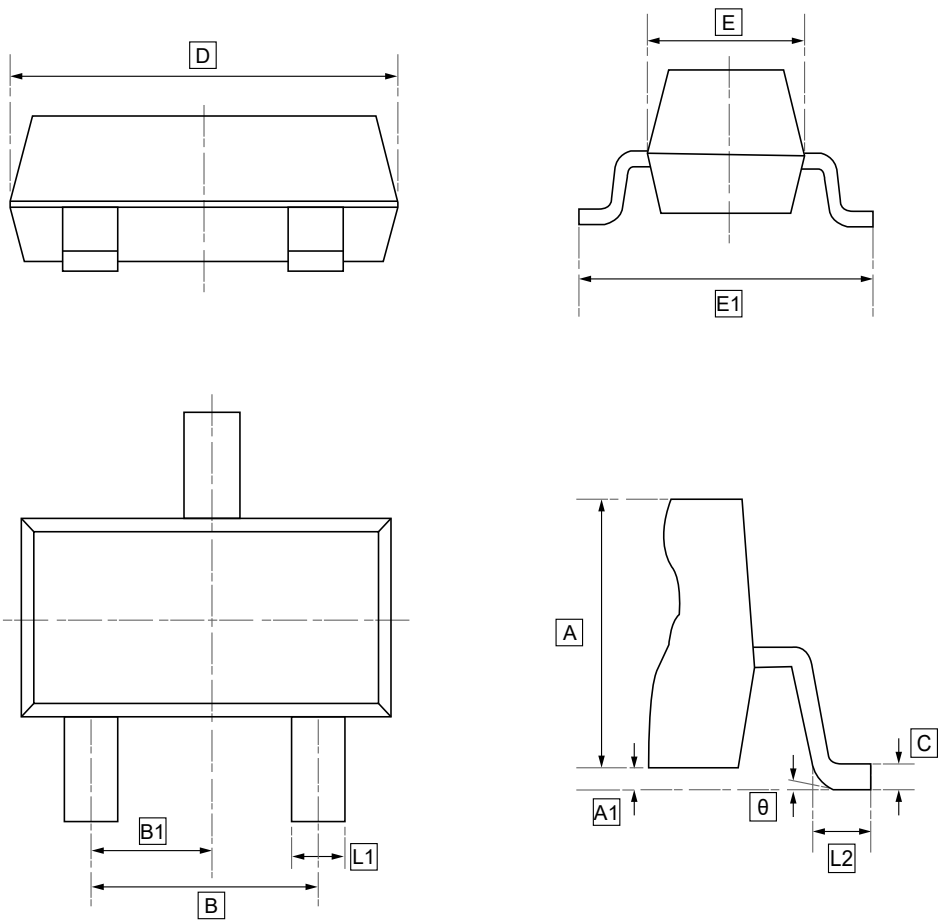


Figure 11. Transient Thermal Response Curve.



6.SOT-23 Package Outline Dimensions

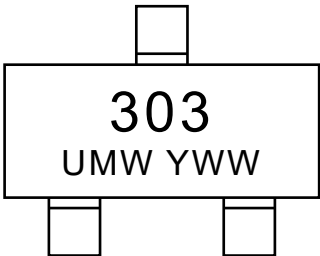


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	L1	L2	C	D	E	E1	B	B1	θ
Min	1.050	0.000	0.300	0.350	0.100	2.820	1.500	2.700	1.800	0.950	0°
Max	1.150	0.100	0.500	0.550	0.200	3.020	1.700	2.900	2.000	TYP	8°



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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