

1.Features

- $V_{DS(V)} = -60V$
- $I_D = -1.25A (V_{GS} = -10V)$
- $R_{DS(ON)} < 340m\Omega (V_{GS} = -10V)$
- $R_{DS(ON)} < 550m\Omega (V_{GS} = -4.5V)$

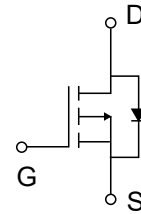
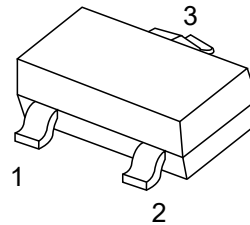
2.Applications

- Load/Power Switching
- Interfacing Switching
- Logic Level Shift

3.Pinning information

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

SOT-23



4.Absolute Maximum Ratings $T_A = 25^\circ C$

Parameter	Symbol	Rating	Units	
Drain-Source Voltage	V_{DS}	-60	V	
Gate-Source Voltage	V_{GS}	± 20		
Continuous Drain Current *1,*2	I_D	$T_A = 25^\circ C$	-1.25	A
		$T_A = 70^\circ C$	-0.85	
Pulsed Drain Current	I_{DM}	-8		
Avalanche Current	I_{AS}	-5		
Power Dissipation *1,*2	P_D	$T_A = 25^\circ C$	1.25	W
		$T_A = 70^\circ C$	0.8	
Thermal Resistance.Junction- to-Ambient	R_{thJA}	$t \leq 5sec$	100	$^\circ C/W$
		Steady State *1	166	
Thermal Resistance.Junction- to-Case *1	R_{thJC}	60		
Junction Temperature	T_J	150	$^\circ C$	
Storage Temperature Range	T_{STG}	-55 to 150		

*1 Surface Mounted on FR4 Board. *2 $t \leq 5 sec.$



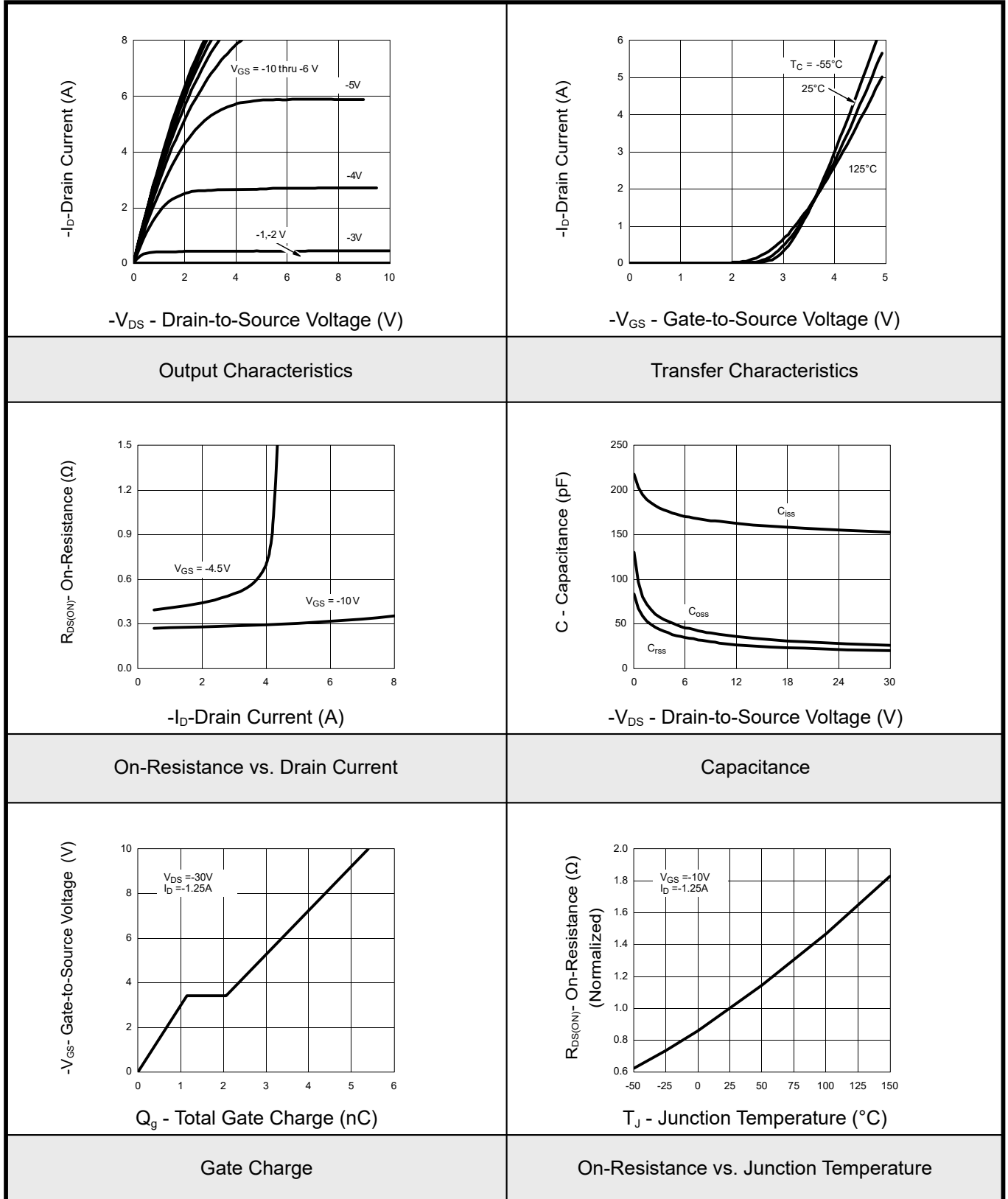
5. Electrical Characteristics $T_A = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{DSS}	$I_D = -250\mu\text{A}$, $V_{GS} = 0\text{V}$	-60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -48\text{V}$, $V_{GS} = 0\text{V}$			-1	μA
		$V_{DS} = -48\text{V}$, $V_{GS} = 0\text{V}$, $T_J = 125^\circ\text{C}$			-50	
Gate-Body leakage current	I_{GSS}	$V_{DS} = 0\text{V}$, $V_{GS} = \pm 20\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -250\mu\text{A}$	-1		-3	V
Static Drain-Source On-Resistance *1	$R_{DS(on)}$	$V_{GS} = -10\text{V}$, $I_D = -1.25\text{A}$			340	$\text{m}\Omega$
		$V_{GS} = -4.5\text{V}$, $I_D = -1\text{A}$			550	
On state drain current *1	$I_{D(on)}$	$V_{GS} = -4.5\text{V}$, $V_{DS} = -10\text{A}$	-6			A
Forward Transconductance *1	g_{FS}	$V_{DS} = -4.5\text{V}$, $I_D = -1\text{A}$		1.9		S
Input Capacitance	C_{iss}	$V_{GS} = 0\text{V}$		270		pF
Output Capacitance	C_{oss}	$V_{DS} = -25\text{V}$		170		
Reverse Transfer Capacitance	C_{rss}	$f = 1\text{MHz}$		31		
Total Gate Charge	Q_g	$V_{GS} = -10\text{V}$		5.4	12	nC
Gate Source Charge	Q_{gs}	$V_{DS} = -30\text{V}$		1.15		
Gate Drain Charge	Q_{gd}	$I_D = -1.25\text{A}$		0.92		
Turn-On DelayTime	$t_{D(on)}$	$V_{GS} = -4.5\text{V}$, $V_{DS} = -30\text{V}$ $R_L = 30\Omega$, $R_{GEN} = 6\Omega$ $I_D = -1\text{A}$		10.5	20	ns
Turn-On Rise Time	t_r			11.5	20	
Turn-Off DelayTime	$t_{D(off)}$			15.5	30	
Turn-Off Fall Time	t_f			7.5	15	
Body Diode Reverse Recovery Time	t_{rr}	$I_F = -1.25\text{A}$, $d_I/d_t = 100\text{A}/\mu\text{s}$		30	55	
Maximum Body-Diode Continuous Current	I_S				-1.25	A
Diode Forward Voltage	V_{SD}	$I_S = -1.25\text{A}$, $V_{GS} = 0\text{V}$		-0.82	-1.2	V

*1 Pulse test: $PW \leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

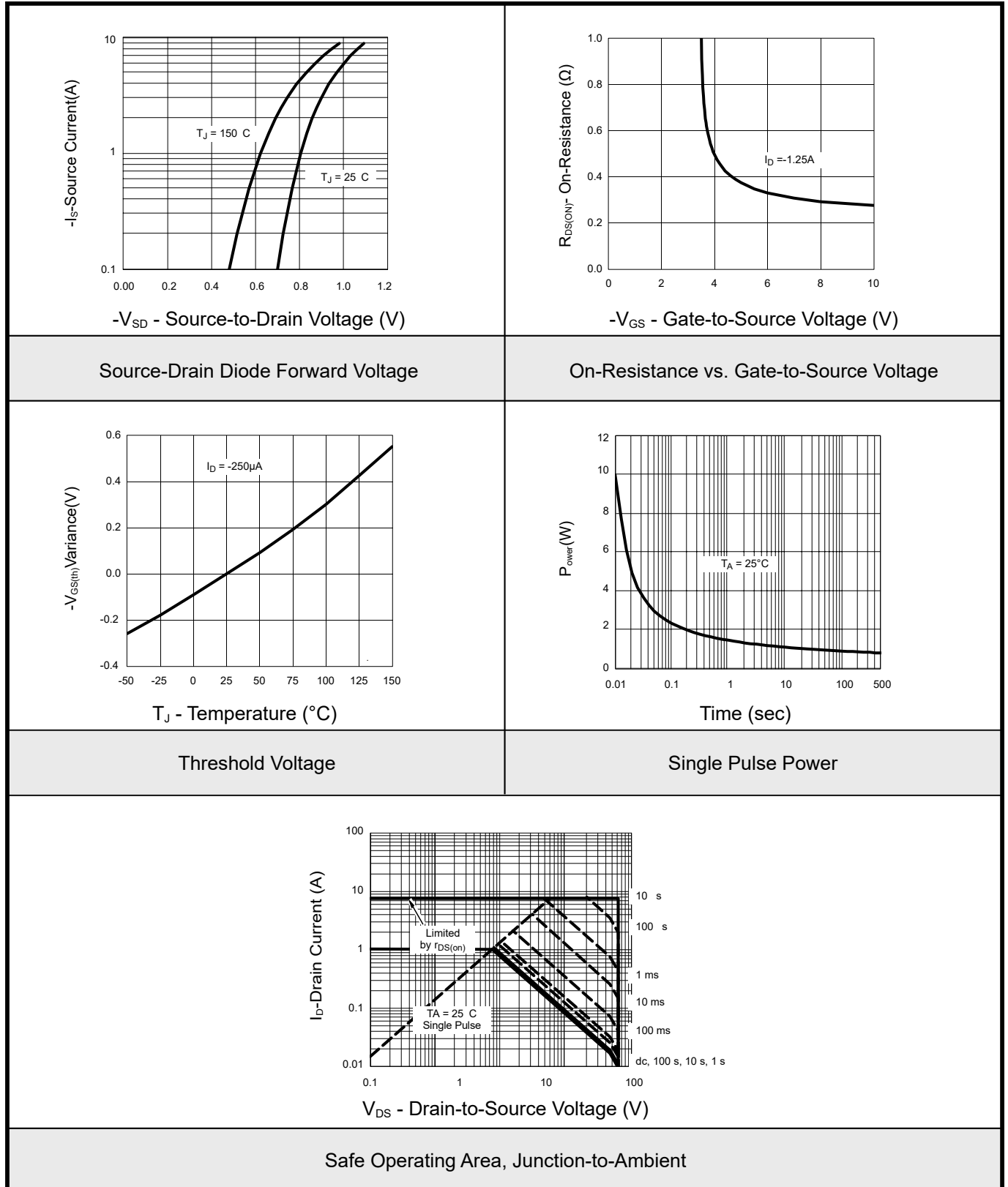


6.1 Typical Characteristics



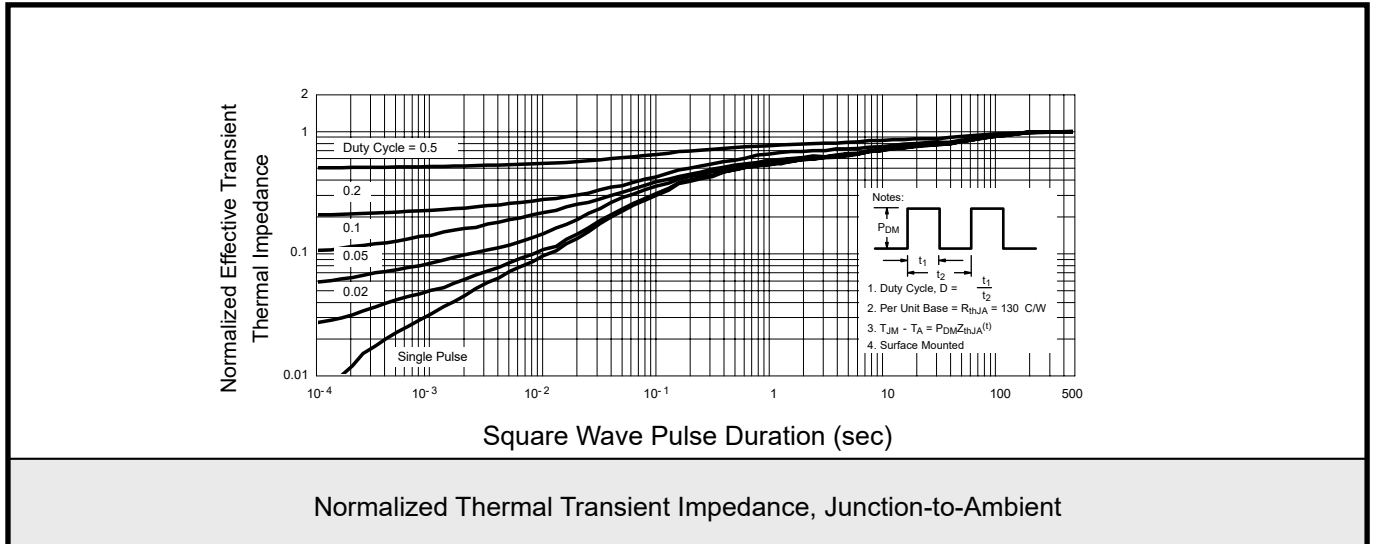


6.2 Typical Characteristics



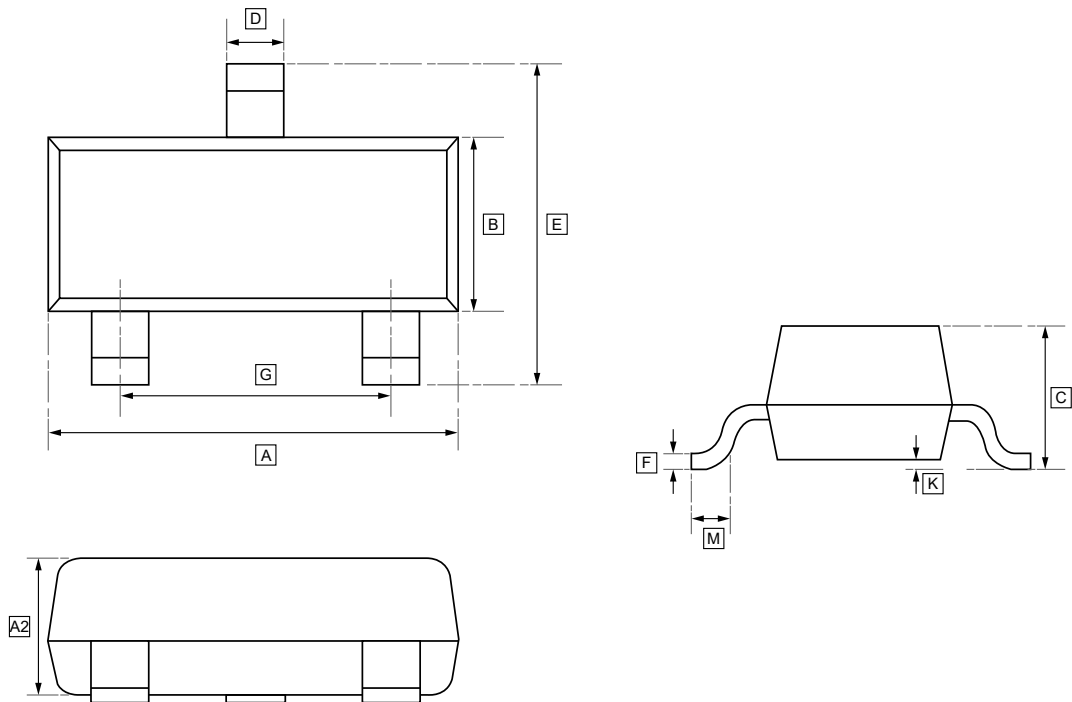


6.3 Typical Characteristics





7.SOT-23 Package Outline Dimensions

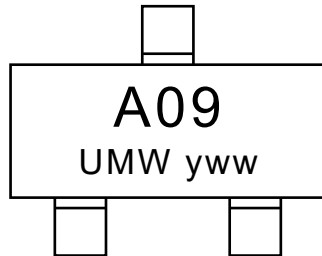


DIMENSIONS (mm are the original dimensions)

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



8. Ordering information



yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW SI2309A	SOT-23	3000	Tape and reel



9.Disclaimer

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