

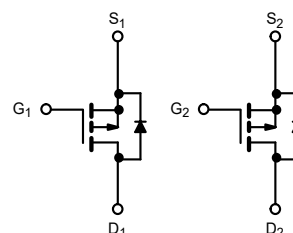
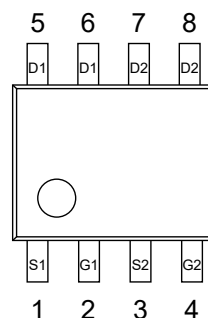
1.Features

- $V_{DS(V)} = -60V$
- $R_{DS(ON)} < 120m\Omega (V_{GS} = -10V)$
- $R_{DS(ON)} < 150m\Omega (V_{GS} = -4.5V)$

2.Pinning information

Pin	Symbol	Description
2,4	G1,G2	GATE
1,3	S1,S2	SOURCE
5,6,7,8	D1,D2	DRAIN

SOP-8



3.Absolute Maximum Ratings $T_A = 25^\circ C$ unless otherwise noted

Parameter		Symbol	10s	Max	Units
Drain-Source Voltage		V _{DS}	-60		V
Gate-Source Voltage		V _{GS}	±20		
Continuous Drain Current (T _J =150 °C) ^a	T _C =25°C	I _D	-3.1	-2.4	A
	T _C =70°C		-2.6	-2	
Pulsed Drain Current (10 μs Pulse Width)		I _{DM}	-25		
Continuous Source Current (Diode Conduction) ^a		I _S	-2	-1.1	
Avalanche Current	L=0.1mH	I _{AS}	15		
Single Pulse Avalanche Energy		E _{AS}	11		
Maximum Power Dissipation ^a	T _C =25°C	P _D	2.4	1.4	W
	T _A =70°C		1.7	0.95	
Operating Junction and Storage Temperature Range		T _J , T _{STG}	-55 to 175		°C



4.Thermal Resistance Rating

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient ^a	t ≤10s	R _{thJA}	53	62.5	°C/W
	Steady-State		85	110	°C/W
Maximum Junction-to-Foot	Steady-State	R _{thJF}	30	37	°C/W

Notes:

a. Surface Mounted on 1" x 1" FR4 board.



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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-250\mu\text{A}$, $V_{GS}=0\text{V}$	-60			
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=-250\mu\text{A}$	-1		-3	V
Gate-Body Leakage	I_{GSS}	$V_{DS}=0\text{V}$, $V_{GS}=\pm 20\text{V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-60\text{V}$, $V_{GS}=0\text{V}$			-1	μA
		$V_{DS}=-60\text{V}$, $V_{GS}=0\text{V}$, $T_J=70^{\circ}\text{C}$			-10	μA
On-State Drain Current ^a	$I_{D(ON)}$	$V_{DS}=-5\text{V}$, $V_{GS}=-10\text{V}$	-25			A
Drain-Source On-State Resistance ^a	$R_{DS(ON)}$	$V_{GS}=-10\text{V}$, $I_D=-3.1\text{A}$		100	120	m Ω
		$V_{GS}=-4.5\text{V}$, $I_D=-0.2\text{A}$		126	150	
Forward Transconductance ^a	g_{FS}	$V_{DS}=-15\text{V}$, $I_D=-3.1\text{A}$		8.5		S
Diode Forward Voltage ^a	V_{SD}	$I_S=-2\text{A}$, $V_{GS}=0\text{V}$		-0.8	-1.2	V
Dynamic ^b						
Total Gate Charge	Q_g	$V_{DS}=-30\text{V}$		14.5	22	nC
Gate-to-Source Charge	Q_{gs}	$V_{GS}=-10\text{V}$		2.2		
Gate-to-Drain Charge	Q_{gd}	$I_D=-3.1\text{A}$		3.7		
Gate Resistance	R_g	$f=1\text{MHz}$		14		Ω
Turn-On Delay Time	$t_{D(on)}$	$V_{DD}=-30\text{V}$, $R_L=30\Omega$ $I_D \leq -1\text{A}$, $V_{GEN}=-10\text{V}$, $R_G=6\Omega$		10	15	ns
Rise Time	t_r			15	22	
Turn-Off Delay Time	$t_{D(off)}$			50	75	
Fall Time	t_f			35	55	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F=-2\text{A}$, $dI/dt=100\text{A}/\mu\text{s}$		30	50	

Notes:

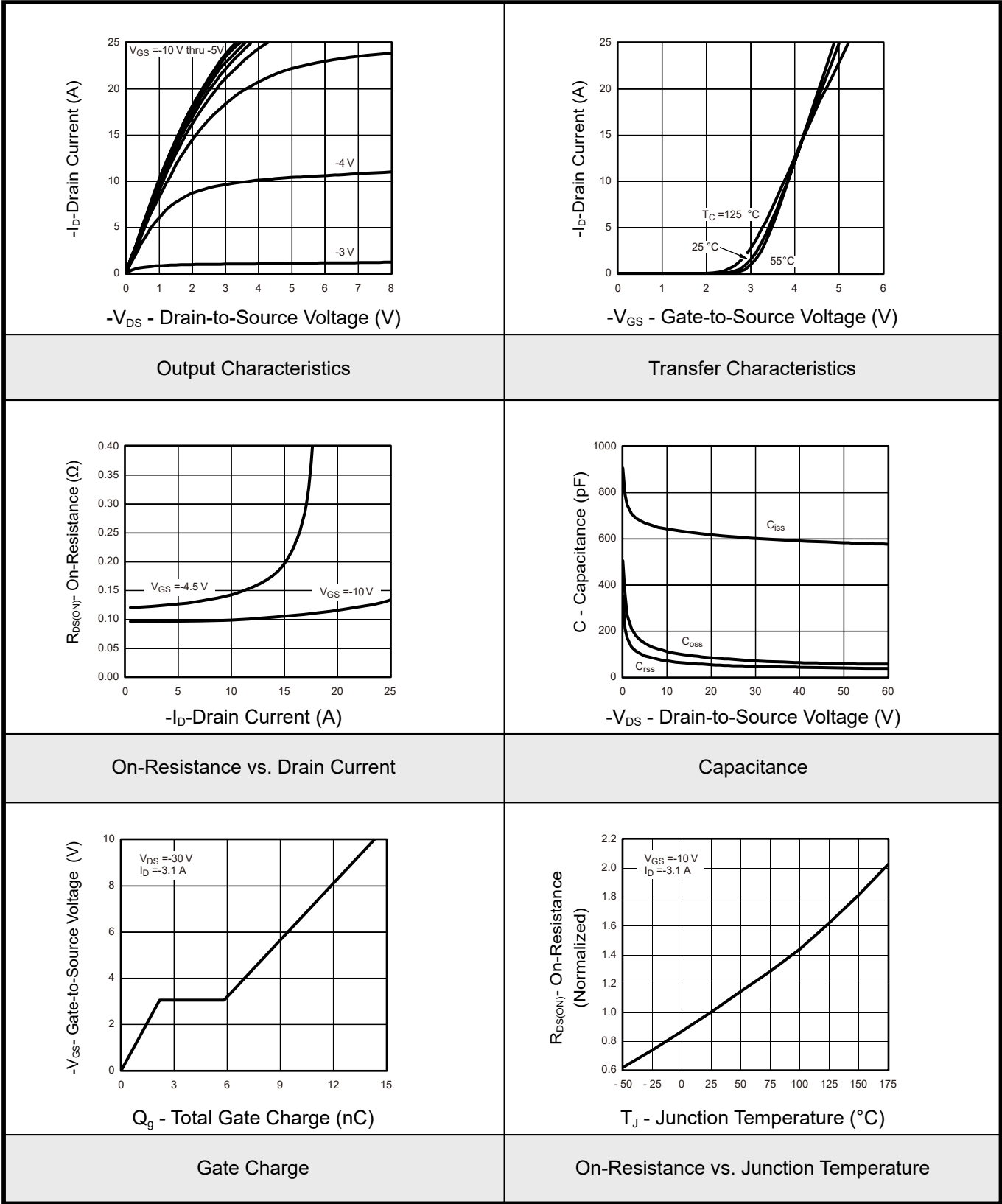
a. Pulse test; pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

b. Guaranteed by design, not subject to production testing.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability

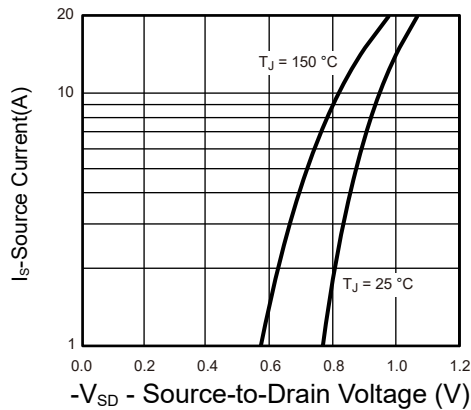


6.1 Typical Characteristics

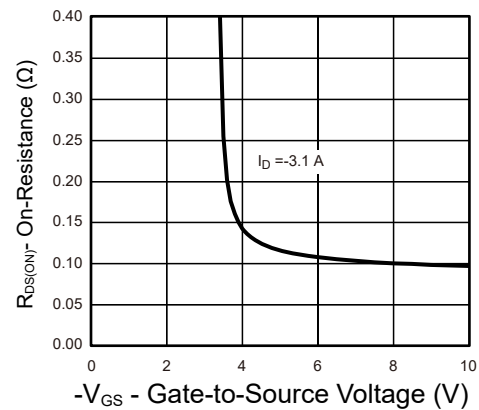




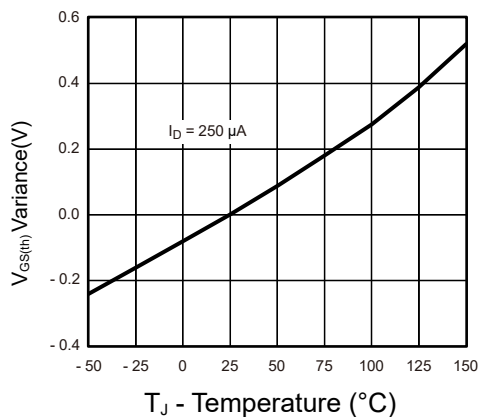
6.2 Typical Characteristics



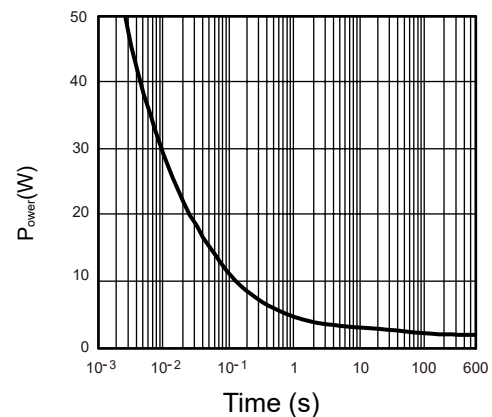
Source-Drain Diode Forward Voltage



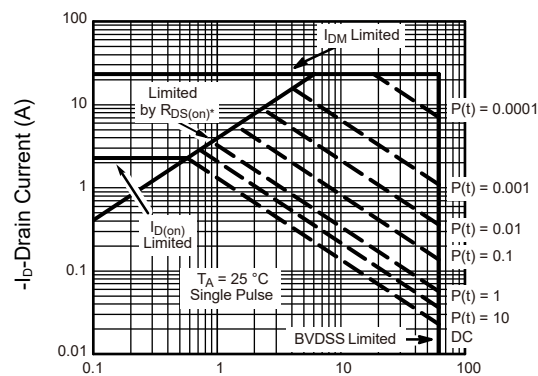
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power

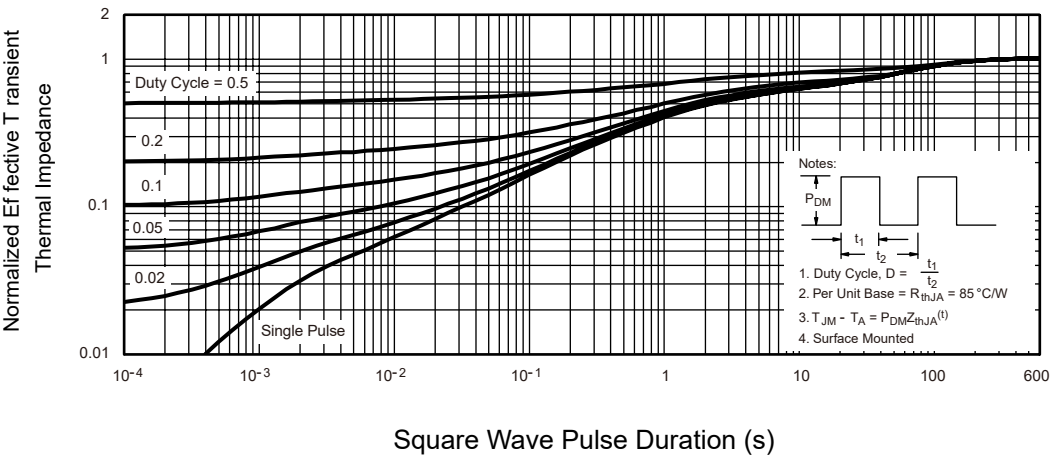


$-V_{DS}$ - Drain-to-Source Voltage (V) * V_{GS} > minimum V_{GS} at which $R_{DS(on)}$ is specified

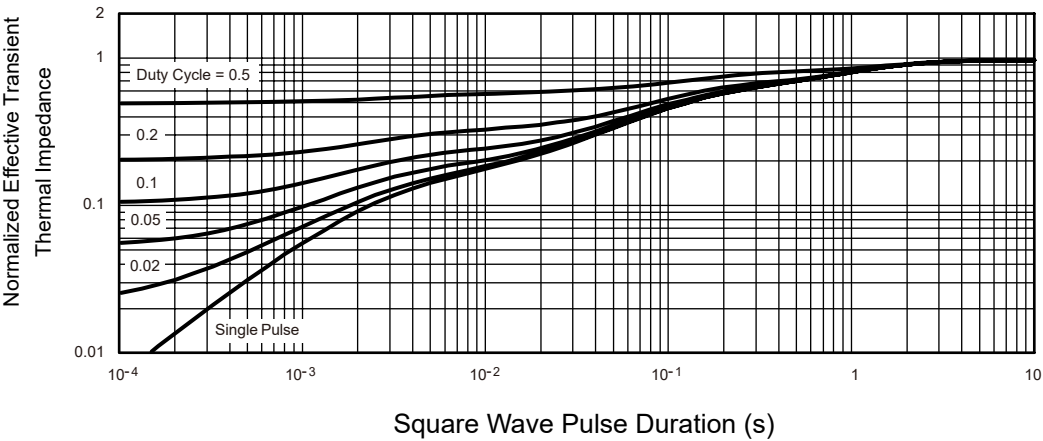
Safe Operating Area, Junction-to-Ambient



6.3Typical Characteristics



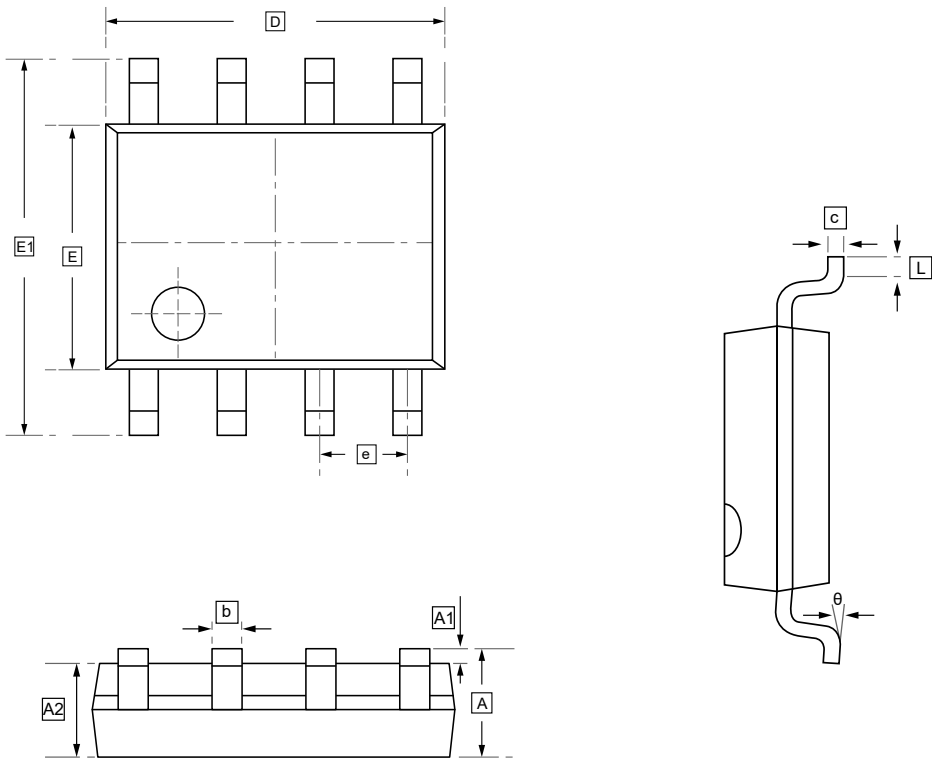
Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot



7.SOP-8 Package Outline Dimensions

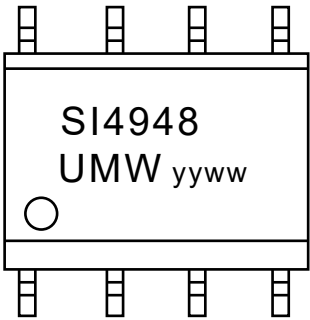


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	b	c	D	E	E1	e	L	θ
Min	1.350	0.000	1.350	0.330	0.170	4.700	3.800	5.800	1.270	0.400	0°
Max	1.750	0.100	1.550	0.510	0.250	5.100	4.000	6.200	BSC	1.270	8°



8.Ordering information



yy: Year Code
ww: Week Code

Order Code	Package	Base QTY	Delivery Mode
UMW SI4948BEY	SOP-8	3000	Tape and reel



9.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.

When applying our products, please do not exceed the maximum rated values, as this may affect the reliability of the entire system. Under certain conditions, any semiconductor product may experience faults or failures. Buyers are responsible for adhering to safety standards and implementing safety measures during system design, prototyping, and manufacturing when using our products to prevent potential failure risks that could lead to personal injury or property damage.

Unless explicitly stated in writing, UMW products are not intended for use in medical, life-saving, or life-sustaining applications, nor for any other applications where product failure could result in personal injury or death. If customers use or sell the product for such applications without explicit authorization, they assume all associated risks.

When reselling, applying, or exporting, please comply with export control laws and regulations of China, the United States, the United Kingdom, the European Union, and other relevant countries, regions, and international organizations.

This document and any actions by UMW do not grant any intellectual property rights, whether express or implied, by estoppel or otherwise. The product names and marks mentioned herein may be trademarks of their respective owners.