UMW SI4948BEY

Dual P-Channel MOSFET

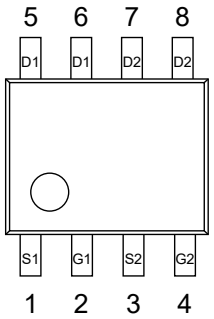
1.Features

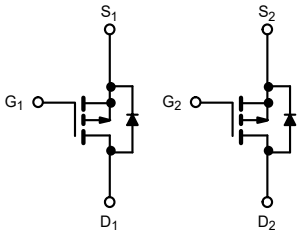
- $V_{DS\ (V)}$=-60V
- $R_{DS(ON)}$<120mΩ(V_{GS}=-10V)
- $R_{DS(ON)}$<150mΩ(V_{GS}=-4.5V)

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°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		mJ
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°C

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=-250μA, V_{GS}=0V	-60			
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-1		-3	V
Gate-Body Leakage	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V, V_{GS}=0V			-1	μA
		V_{DS}=-60V,V_{GS}=0V,T_J=70°C			-10	μA
On-State Drain Current [a]	$I_{D(ON)}$	V_{DS}=-5V, V_{GS}=-10V	-25			A
Drain-Source On-State Resistance [a]	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-3.1A		100	120	mΩ
		V_{GS}=-4.5V, I_D=-0.2A		126	150	
Forward Transconductance [a]	g_{FS}	V_{DS}=-15V, I_D=-3.1A		8.5		S
Diode Forward Voltage [a]	V_{SD}	I_S=-2A, V_{GS}=0V		-0.8	-1.2	V
Dynamic [b]						
Total Gate Charge	Q_g	V_{DS}=-30V		14.5	22	nC
Gate-to-Source Charge	Q_{gs}	V_{GS}=-10V		2.2		
Gate-to-Drain Charge	Q_{gd}	I_D=-3.1A		3.7		
Gate Resistance	R_g	f=1MHz		14		Ω
Turn-On Delay Time	$t_{D(on)}$	V_{DD}=-30V, R_L=30Ω I_D≅-1A, V_{GEN}=-10V, R_G=6Ω		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}	IF=-2A, dI/dt=100A/μs		30	50	

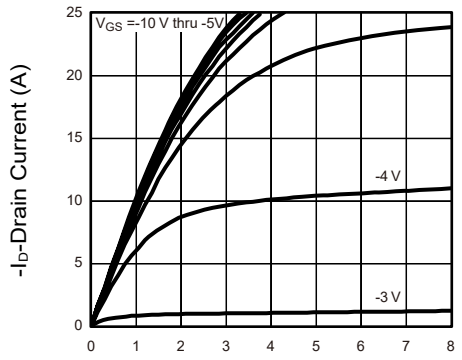
Notes:

a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2 %.

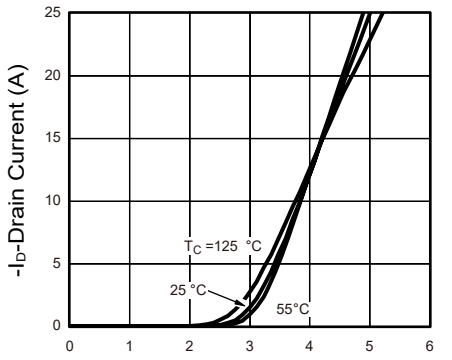
b. Guaranteed by design, not subject to production testing.

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

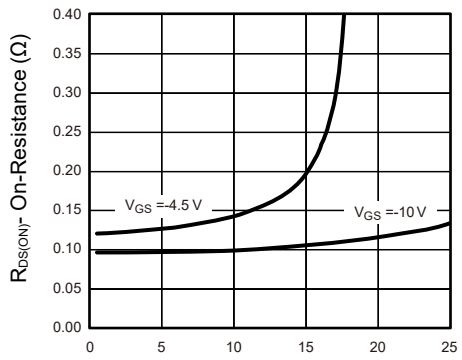
6.1Typical Characterisitics



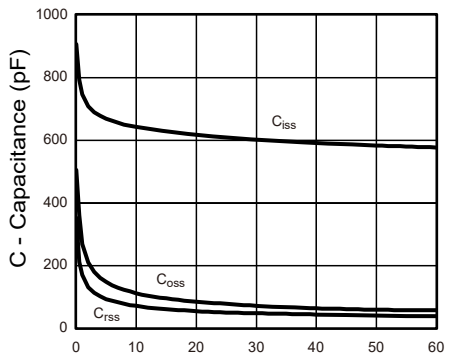
Output Characteristics



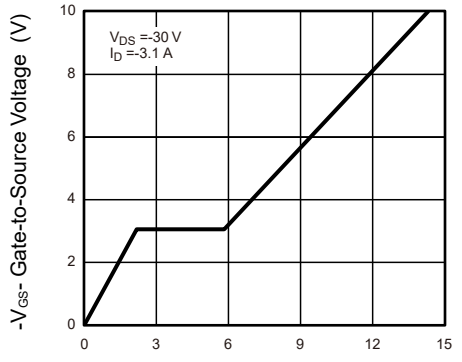
Transfer Characteristics



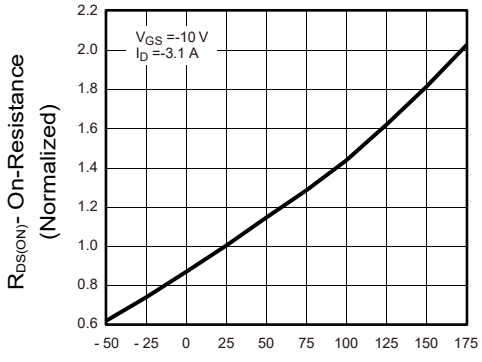
On-Resistance vs. Drain Current



Capacitance

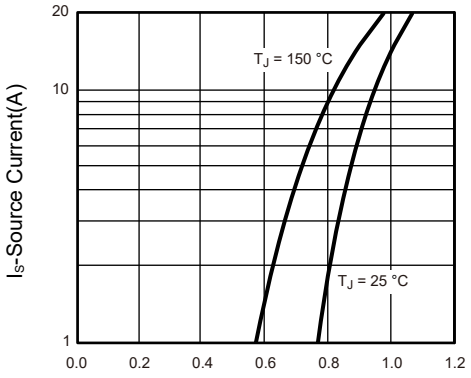


Gate Charge

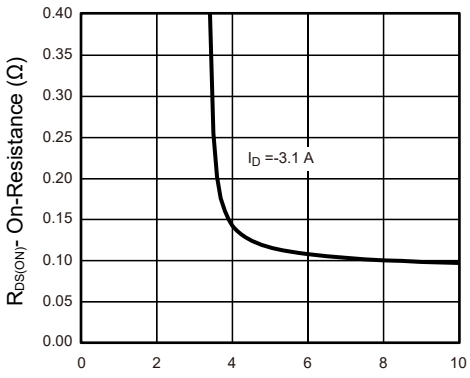


On-Resistance vs. Junction Temperature

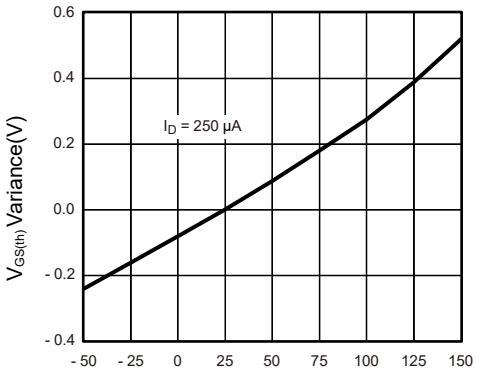
6.2Typical Characterisitics



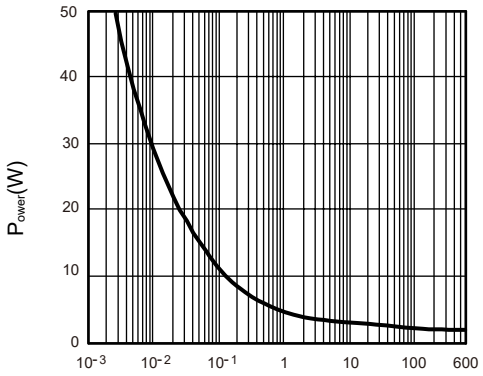
Source-Drain Diode Forward Voltage



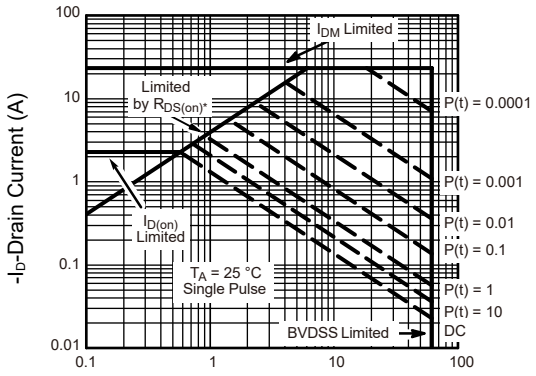
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage

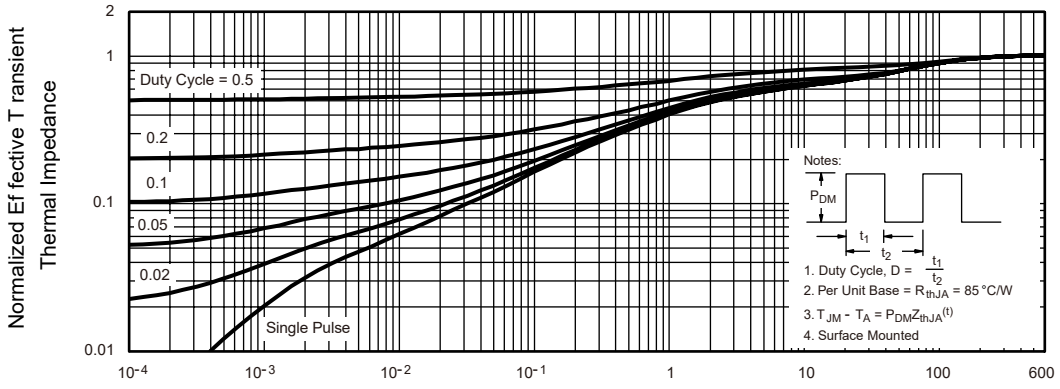


Single Pulse Power

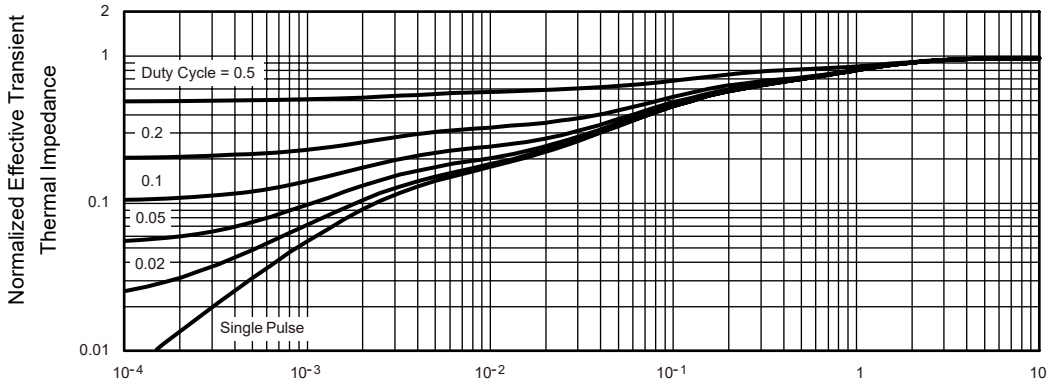


Safe Operating Area, Junction-to-Ambient

6.3Typical Characterisitics

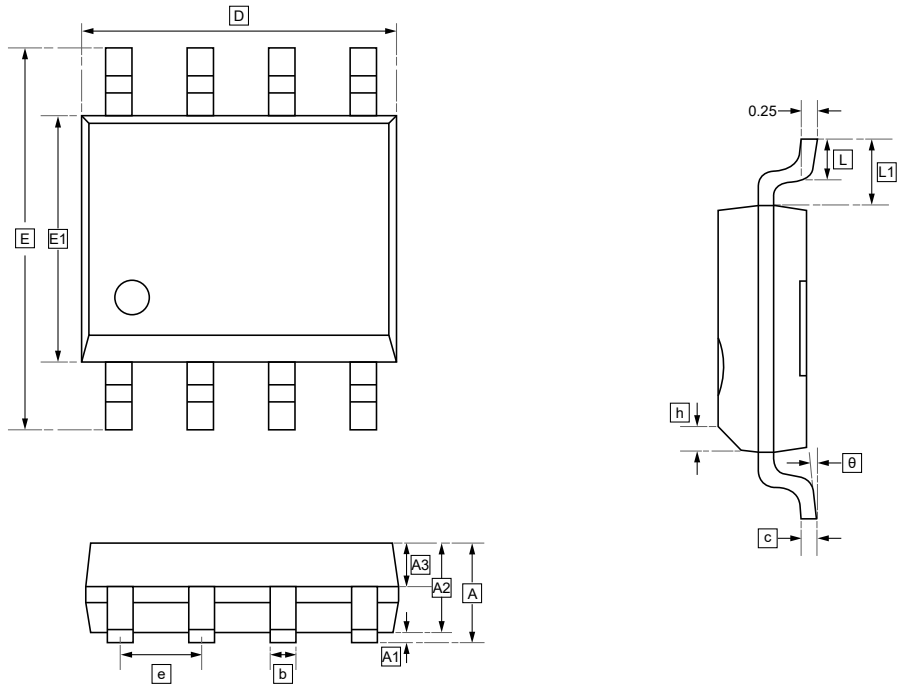


Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot

7.SOP-8 Package Outline Dimensions

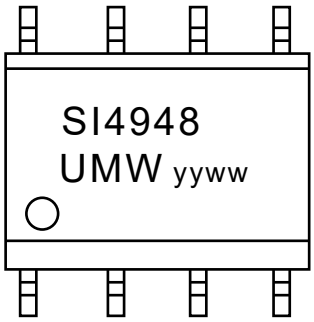


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	A3	b	c	D	E	E1	e	h	L
Min	-	0.05	1.30	0.60	0.39	0.20	4.70	5.80	3.80	1.24	0.30	0.50
Max	1.75	0.20	1.50	0.70	0.47	0.24	5.10	6.20	4.00	1.30	0.50	0.80

Symbol	L1	θ
Min	1.00	0°
Max	1.10	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

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