UMW IRF7324TR

Dual P-Channel MOSFET

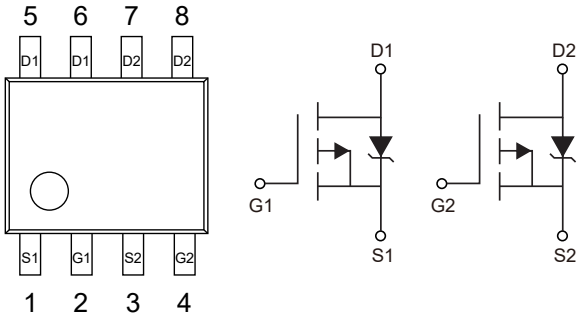
1.Features

- $V_{DS\ (V)}$=-20V
- I_D=-9A
- $R_{DS(ON)}$<18mΩ(V_{GS}=-4.5)
- $R_{DS(ON)}$<26mΩ(V_{GS}=-2.5V)
- Trench Technology
- Ultra Low On-Resistance
- Low Profile (<1.1mm)
- Available in Tape & Reel
- 2.5V Rated
- Lead-Free

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	Rating	Units
Drain-Source Voltage	V_{DS}	-20	V
Continuous Drain Current, V_{GS}=-4.5V	I_D	-9	A
Continuous Drain Current, V_{GS}=-4.5V		-7.1	A
Pulsed Drain Current ①	I_{DM}	-71	A
Maximum Power Dissipation ③	P_D	2	W
Maximum Power Dissipation ③		1.3	W
Linear Derating Factor		16	mW/°C
Gate-to-Source Voltage	V_{GS}	±12	V
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C

4.Thermal Resistance Rating

Parameter	Symbol	Typ	Max	Units
Maximum Junction-to-Ambient ③	$R_{\theta JA}$		62.5	°C/W

5.Electrical Characteristics T_J=25°C

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=-250μA, V_{GS}=0V	-20			V
Breakdown Voltage Temp. Coefficient	$\Delta V_{(BR)DSS}/T_J$	I_D=-1mA,Reference to 25°C		-0.02		V/°C
Static Drain-to-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-9A ②			18	mΩ
		V_{GS}=-2.5V, I_D=-7.7A ②			26	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-0.45		-1	V
Forward Transconductance	g_{FS}	V_{DS}=-10V, I_D=-9A	19			S
Drain-to-Source Leakage Current	I_{DSS}	V_{DS}=-16V, V_{GS}=0V			-1	μA
		V_{DS}=-16V,V_{GS}=0V,T_J=125°C			-25	
Gate-to-Source Forward Leakage	I_{GSS}	V_{GS}=-12V			-100	nA
Gate-to-Source Reverse Leakage		V_{GS}=12V			100	
Total Gate Charge	Q_g	I_D=-9A		42	63	nC
Gate-to-Source Charge	Q_{gs}	V_{DS}=-16V		7.1	11	
Gate-to-Drain ("Miller") Charge	Q_{gd}	V_{GS}=-5V		12	18	
Turn-On Delay Time	$t_{D(on)}$	V_{DD}=-10V		17		ns
Rise Time	t_r	I_D=-1A		36		ns
Turn-Off Delay Time	$t_{D(off)}$	R_G=6Ω		170		ns
Fall Time	t_f	R_D=10Ω ②		190		ns
Input Capacitance	C_{iss}	V_{GS}=0V		2940		pF
Output Capacitance	C_{oss}	V_{DS}=-15V		630		pF
Reverse Transfer Capacitance	C_{rss}	f=1.0MHz		420		pF

Source-Drain Ratings and Characteristics						
Continuous Source Current (Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode.			-2	A
Pulsed Source Current (Body Diode) ①	I_{SM}				-71	
Diode Forward Voltage	V_{SD}	T_J=25°C,I_S=-2A,V_{GS}=0V ②			-1.2	V
Reverse Recovery Time	t_{rr}	T_J=25°C, I_F=-2A		180	270	ns
Reverse Recovery Charge	Q_{rr}	dI/dt=-100A/μs ②		300	450	nC

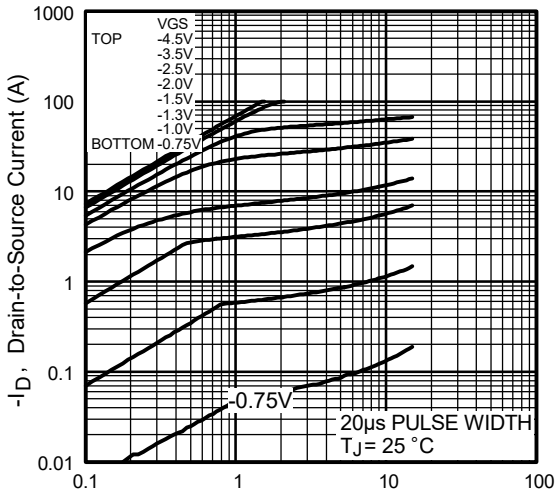
Notes:

① Repetitive rating; pulse width limited by max.junction temperature.

② Pulse width ≤ 300μs; duty cycle ≤ 2%.

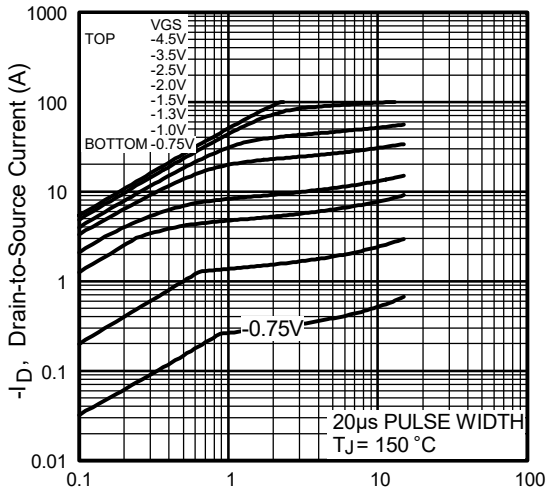
③ Surface mounted on FR-4 board, t ≤ 10sec.

6.1 Typical Characterisitics



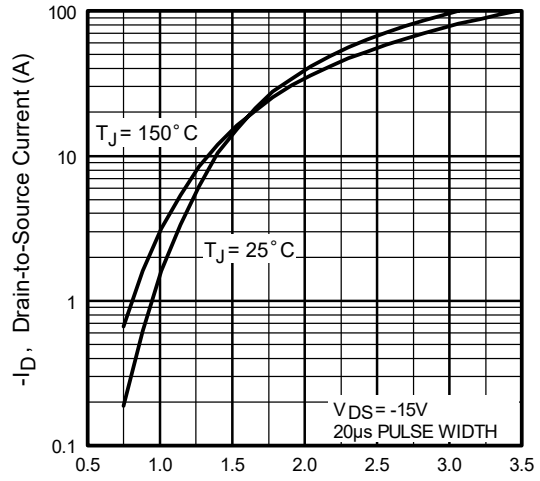
$-V_{DS}$ - Drain-to-Source Voltage (V)

Fig 1. Typical Output Characteristics



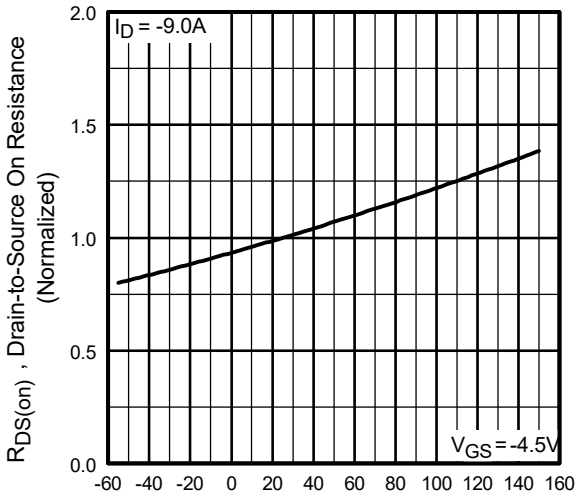
$-V_{DS}$ - Drain-to-Source Voltage (V)

Fig 2. Typical Output Characteristics



$-V_{GS}$, Gate-to-Source Voltage (V)

Fig 3. Typical Transfer Characteristics



T_J, Junction Temperature(°C)

Fig 4. Normalized On-Resistance Vs. Temperature

6.2 Typical Characterisitics

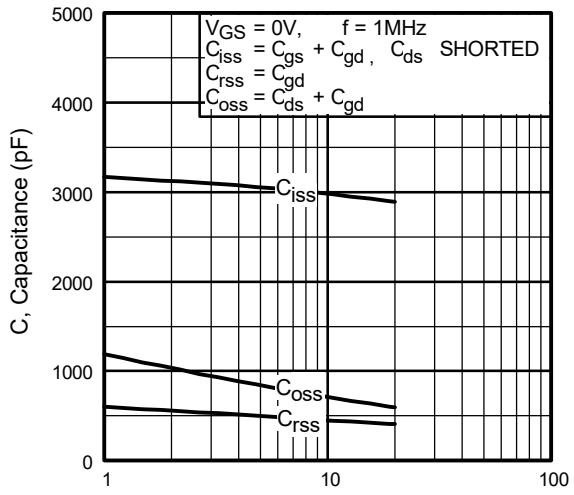


Fig 5. Typical Capacitance Vs.Drain-to-Source Voltage

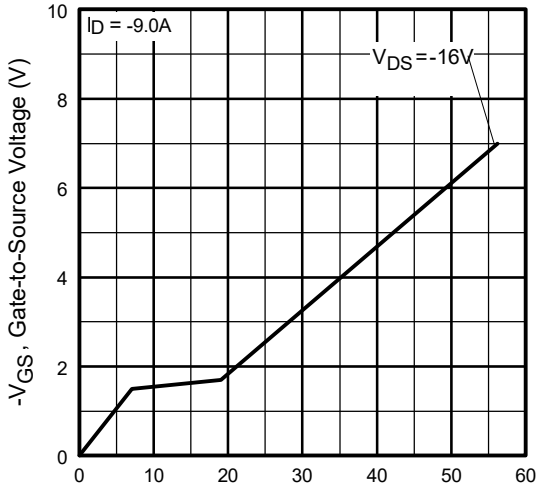


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

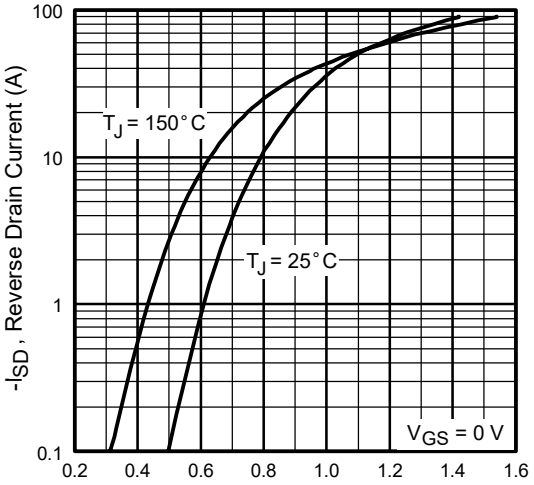


Fig 7. Typical Source-Drain Diode Forward Voltage

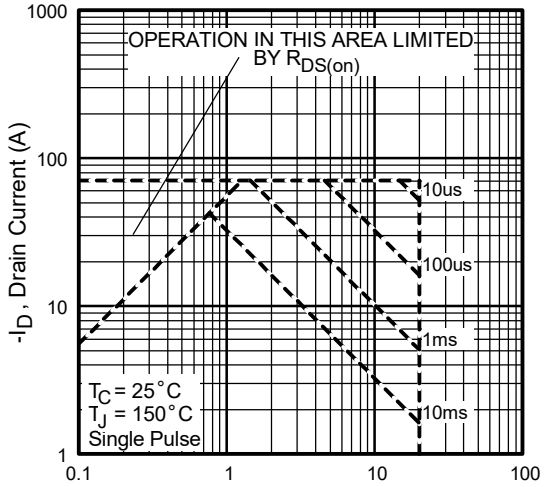


Fig 8. Maximum Safe Operating Area

6.3 Typical Characterisitics

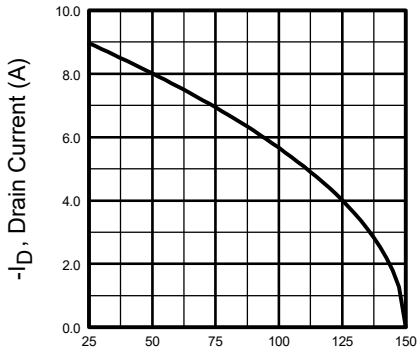


Fig 9. Maximum Drain Current Vs. Case Temperature

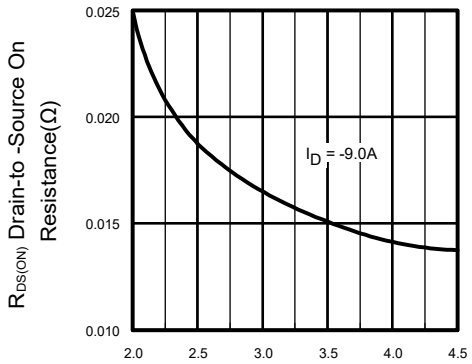


Fig 10. Typical On-Resistance Vs. Gate Voltage

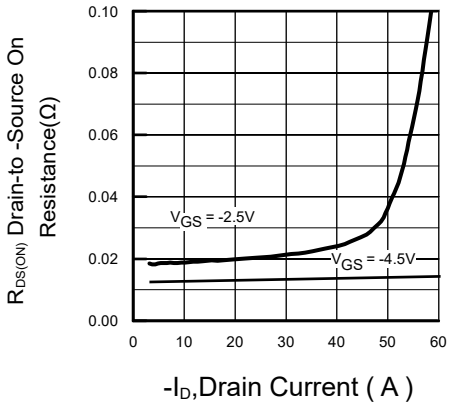


Fig 11. Typical On-Resistance Vs.Drain Current

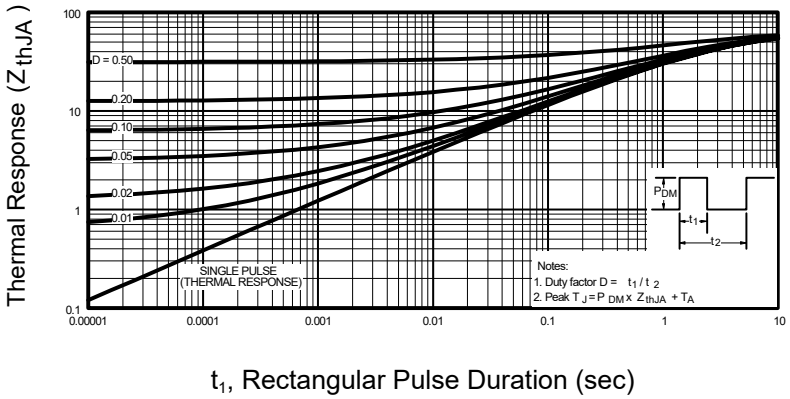


Fig 12. Maximum Effective Transient Themal Impedance, Junction-to-Ambient

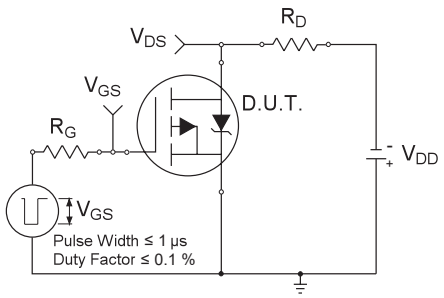


Fig 13a. Switching Time Test Circuit

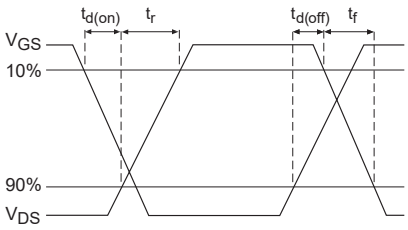


Fig 13b. Switching Time Waveforms

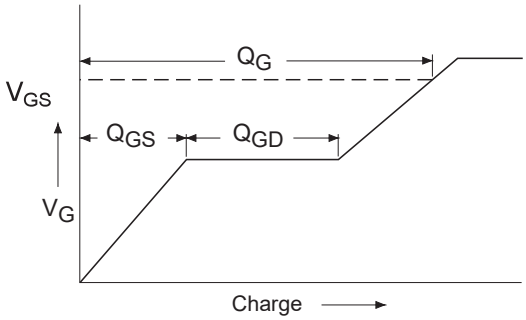


Fig 14a. Basic Gate Charge Waveform

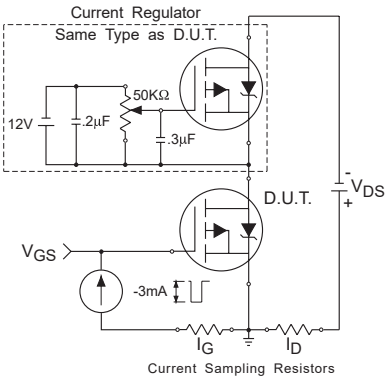
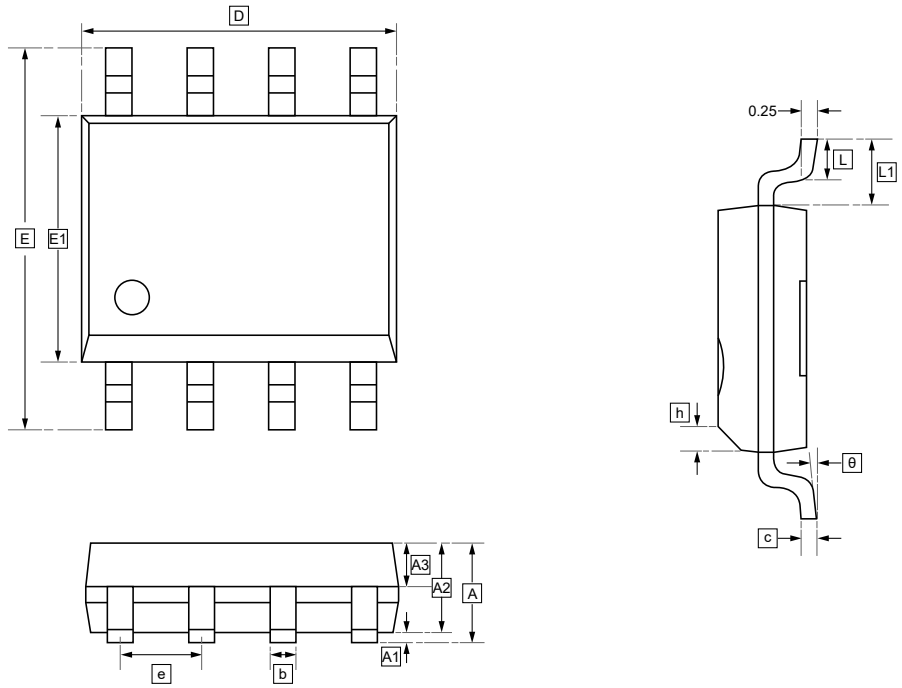


Fig 14b. Gate Charge Test Circuit

7.SOP-8 Package Outline Dimensions

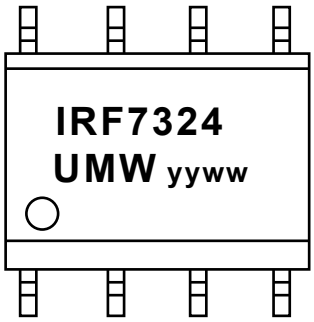


DIMENSIONS (mm are the original dimensions)

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 IRF7324TR	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.

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