UMW IRF7324TR

Dual P-Channel MOSFET

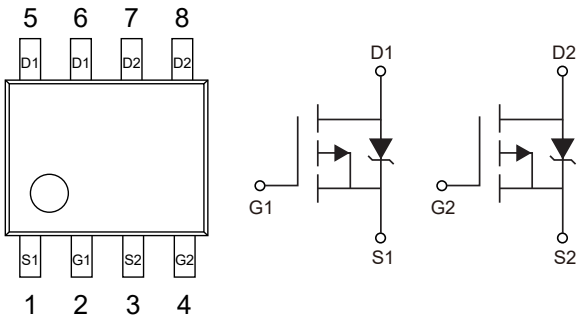
1.Features

- $V_{DS\ (V)}$=-20V
- $R_{DS(ON)}$<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	G	GATE
1,3	S	SOURCE
5,6,7,8	D	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

5.Thermal resist ance rating

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

6.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

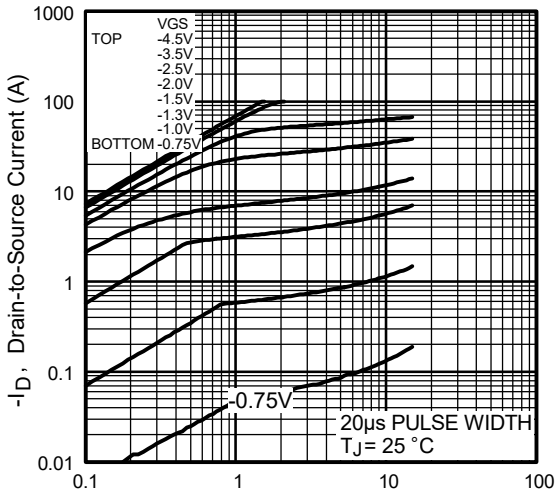
Notes:

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

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

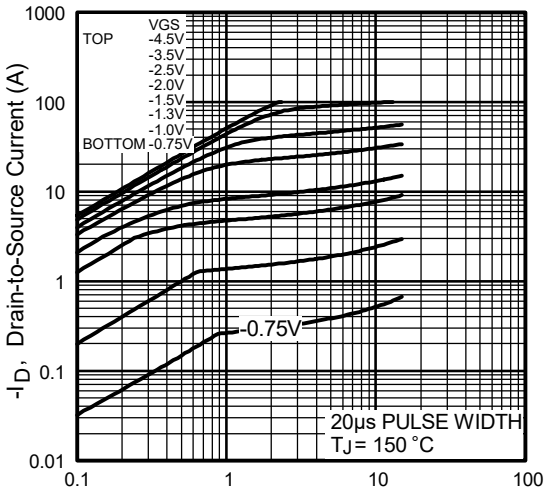
③ Surface mounted on FR-4 board, t ≤ 10sec.

7.1Typical Characterisitics



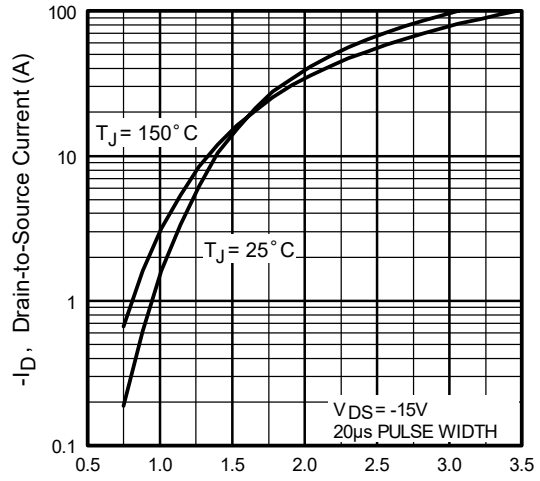
-V_{DS} - Drain-to-Source Voltage (V)

Fig 1. Typical Output Characteristics



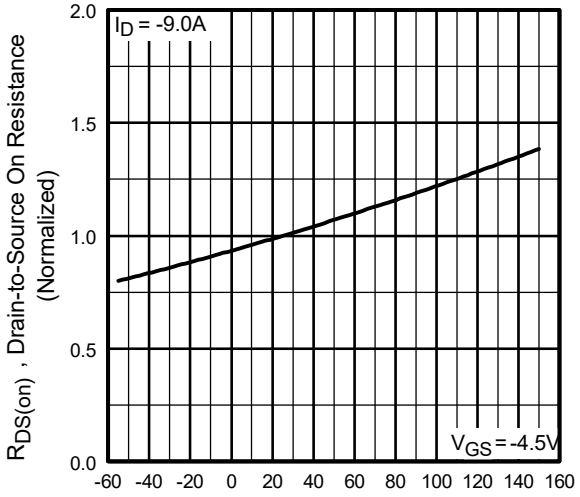
-V_{DS} - Drain-to-Source Voltage (V)

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

7.2Typical Characterisitics

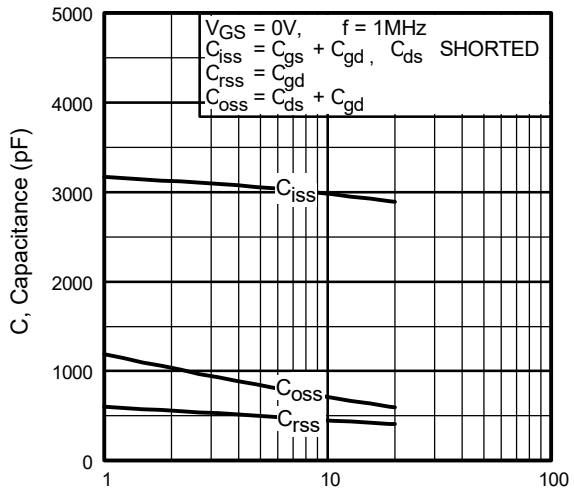


Fig 5. Typical Capacitance Vs.Drain-to-Source Voltage

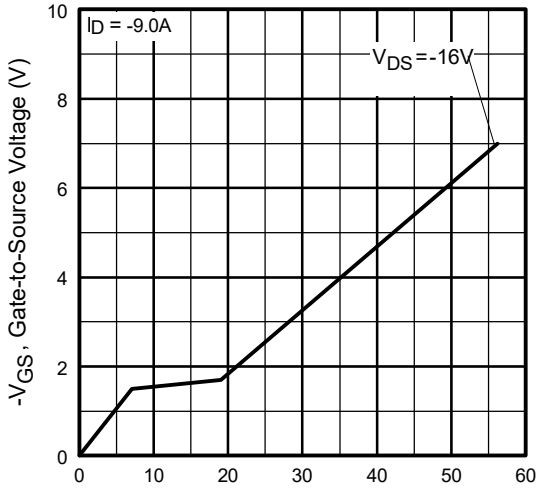


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

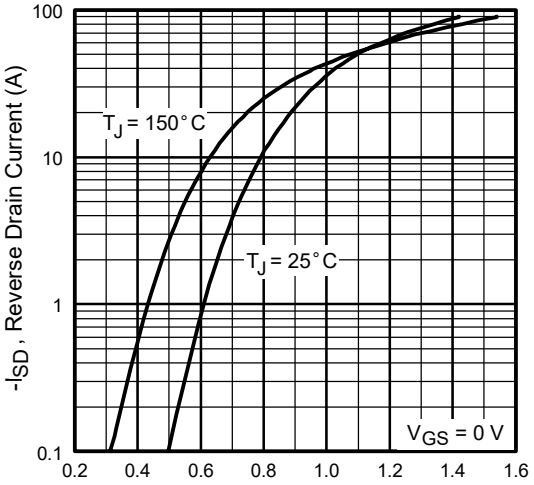


Fig 7. Typical Source-Drain Diode Forward Voltage

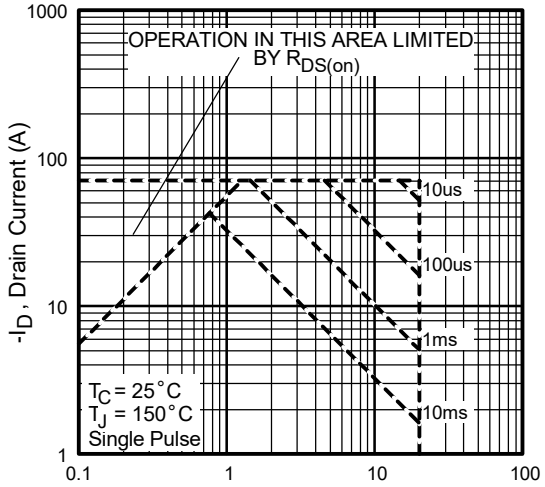


Fig 8. Maximum Safe Operating Area

7.3Typical Characterisitics

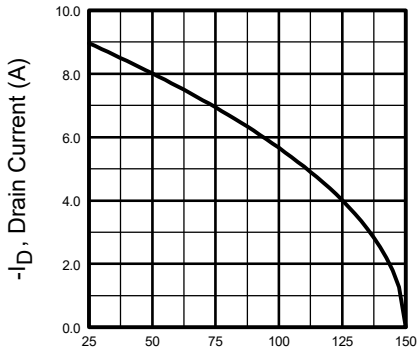


Fig 9. Maximum Drain Current Vs. Case Temperature

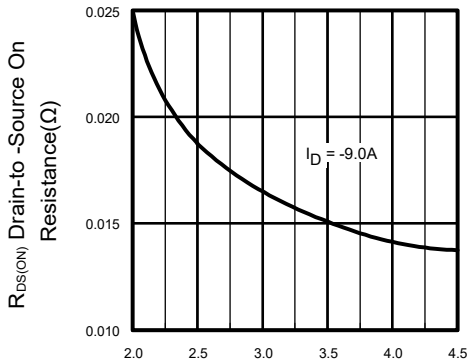


Fig 10. Typical On-Resistance Vs. Gate Voltage

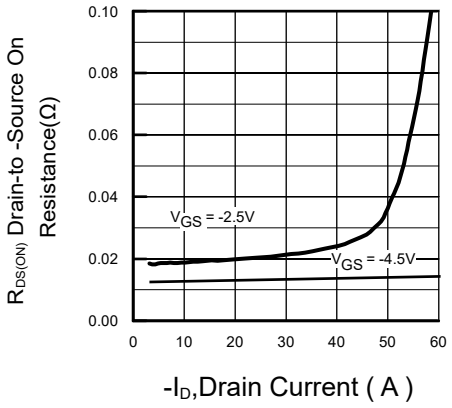


Fig 11. Typical On-Resistance Vs.Drain Current

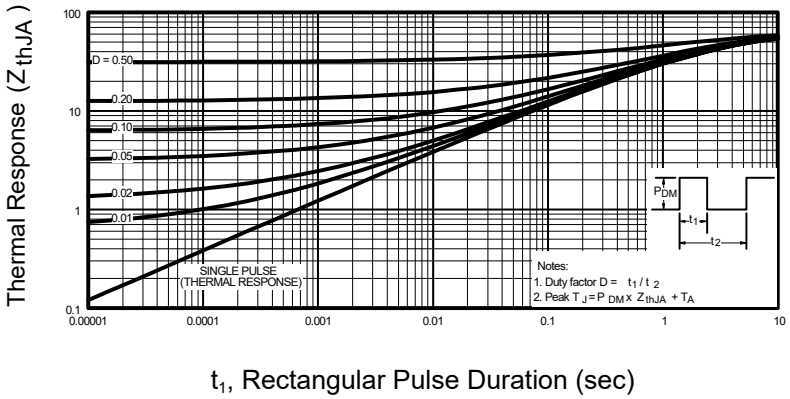


Fig 12. Maximum Effective Transient Themal Impedance, Junction-to-Ambient

7.3Typical Characterisitics

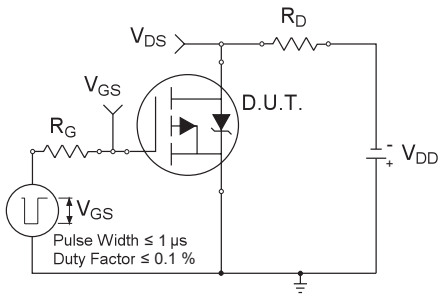


Fig 13a. Switching Time Test Circuit

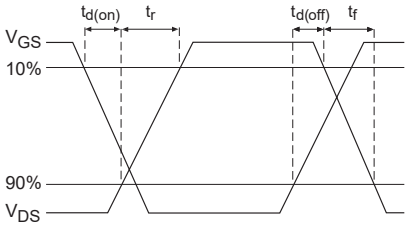


Fig 13b. Switching Time Waveforms

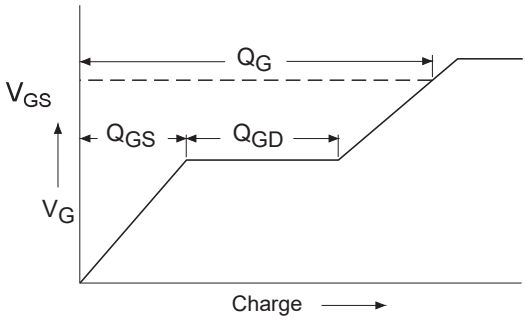


Fig 14a. Basic Gate Charge Waveform

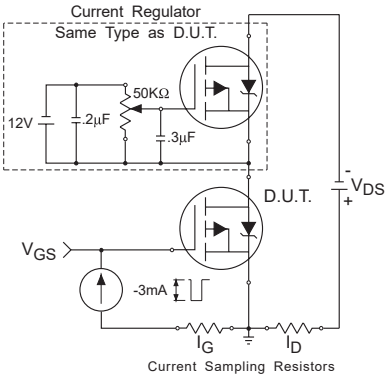
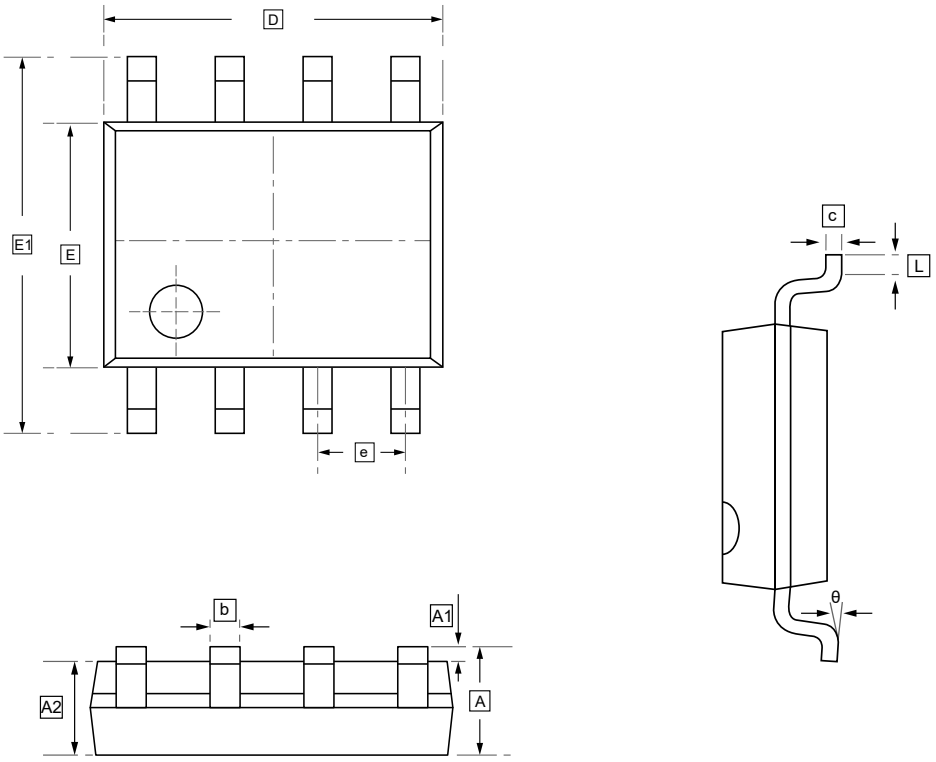


Fig 14b. Gate Charge Test Circuit

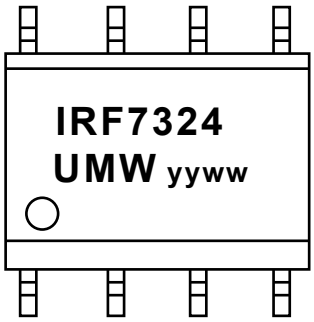
8.SOP-8 Package Outline Dimensions



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°

9.Ordering information



yy: Year Code
ww: Week Code

Order Code	Package	Base QTY	Delivery Mode
UMW IRF7324TR	SOP-8	3000	Tape and reel

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