UMW IRF7342TR

Dual P-Channel MOSFET

1.Description

The SOP-8 has been modified through a customized leadframe for enhanced thermal characteristics and multiple-die capability making it ideal in a variety of power applications. With these improvements, multiple devices can be used in an application with dramatically reduced board space. The package is designed for vapor phase, infra red, or wave soldering techniques. Power dissipation of greater than 0.8W is possible in a typical PCB mount application.

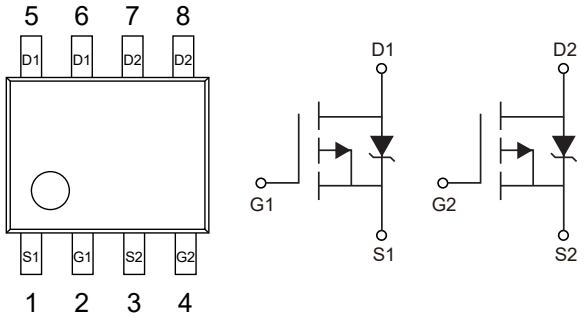
2.Features

- $V_{DS\ (V)}$=-55V
- $R_{DS(ON)}$<105mΩ(V_{GS}=-10)
- $R_{DS(ON)}$<170mΩ(V_{GS}=-4.5V)
- Generation V Technolog
- Ultra Low On-Resistance
- Surface Mount
- Dynamic dv/dt Rating
- Fast Switching
- Lead-Free

3.Pinning information

Pin	Symbol	Description
2,4	G	GATE
1,3	S	SOURCE
5,6,7,8	D	DRAIN

SOP-8



4.Absolute Maximum Ratings T_A=25°C unless otherwise noted

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	-55	V
Continuous Drain Current, V_{GS}=10V	I_D	-3.4	A
Continuous Drain Current, V_{GS}=10V		-2.7	A
Pulsed Drain Current ①	I_{DM}	-27	A
Power Dissipation	P_D	2	W
Power Dissipation		1.3	W
Linear Derating Factor		0.016	W/°C
Gate-to-Source Voltage	V_{GS}	±20	V
Gate-to-Source Voltage Single Pulse tp<10μs	V_{GSM}	30	V

Single Pulse Avalanche Energy ②	E_{AS}	114	
Peak Diode Recovery dv/dt ③	dv/dt	5	V/ns
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 ⑤	$R_{\theta JA}$		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	-55			V
Breakdown Voltage Temp. Coefficient	$\Delta V_{(BR)DSS}/T_J$	I_D=1mA,Reference to 25°C		-0.054		V/°C
Static Drain-to-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=4.7A ④		95	105	mΩ
		V_{GS}=4.5V, I_D=3.8A ④		150	170	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	-1			V
Forward Transconductance	g_{FS}	V_{DS}=10V, I_D=4.5A	3.3			S
Drain-to-Source Leakage Current	I_{DSS}	V_{DS}=55V, V_{GS}=0V			-2	μA
		V_{DS}=55V, V_{GS}=0V, T_J=55°C			-25	
Gate-to-Source Forward Leakage	I_{GSS}	V_{GS}=-20V			-100	nA
Gate-to-Source Reverse Leakage		V_{GS}=20V			100	
Total Gate Charge	Q_g	I_D=4.5A		26	38	nC
Gate-to-Source Charge	Q_{gs}	V_{DS}=44V, V_{GS}=10V		3	4.5	
Gate-to-Drain ("Miller") Charge	Q_{gd}	See Fig. 10 ④		8.4	13	
Turn-On Delay Time	$t_{D(on)}$	V_{DD}=28V		14	22	ns
Rise Time	t_r	I_D=1A		10	15	ns
Turn-Off Delay Time	$t_{D(off)}$	R_G=6Ω		43	64	ns
Fall Time	t_f	R_D=16Ω ④		22	32	ns
Input Capacitance	C_{iss}	V_{GS}=0V		690		pF
Output Capacitance	C_{oss}	V_{DS}=-25V		210		pF
Reverse Transfer Capacitance	C_{rss}	f=1.0MHz, See Fig. 9		86		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}				-27	
Diode Forward Voltage	V_{SD}	T_J=25°C,I_S=1.7A,V_{GS}=0V③			-1.2	V
Reverse Recovery Time	t_{rr}	T_J=25°C, I_F=1.7A		54	80	ns
Reverse Recovery Charge	Q_{rr}	dI/dt=100A/μs ③		85	130	nC

Notes:

① Repetitive rating; pulse width limited by max.junction temperature.(See fig.11)

② Starting T_J= 25°C,L=20mH, R_G= 25Ω, I_{AS}=-3.4A.(See Figure 8)

③ I_{SD}≤ -3.4A, didt ≤ -150A/μs, V_{DD}≤ $V_{(BR)DSS}$,T_J≤ 150°C.

④ Pulse width ≤ 300μs; duty cycle ≤ 2%.

⑤ When mounted on 1 inch square copper board, t<10 sec.

7.1Typical Characterisitics

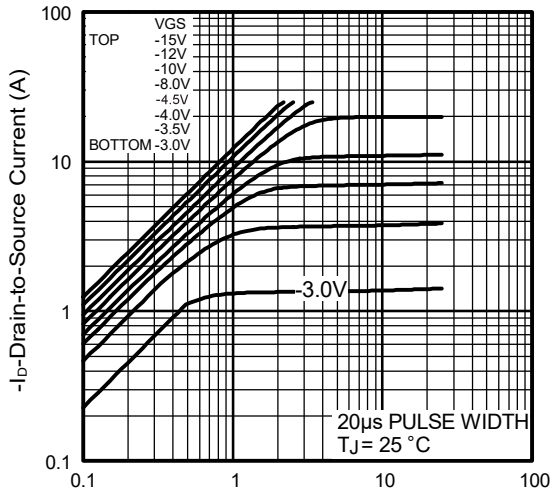


Fig 1. Typical Output Characteristics

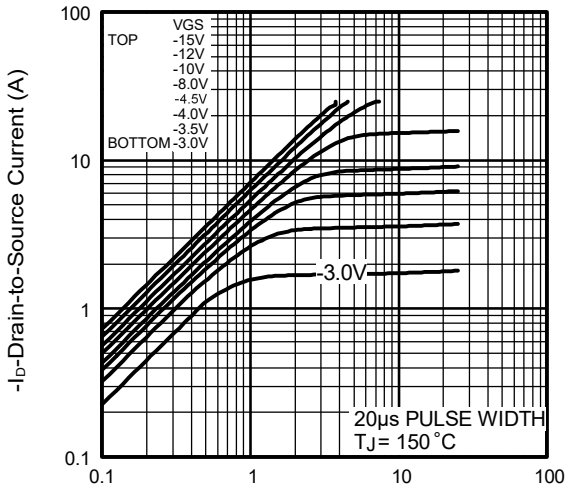


Fig 2. Typical Output Characteristics

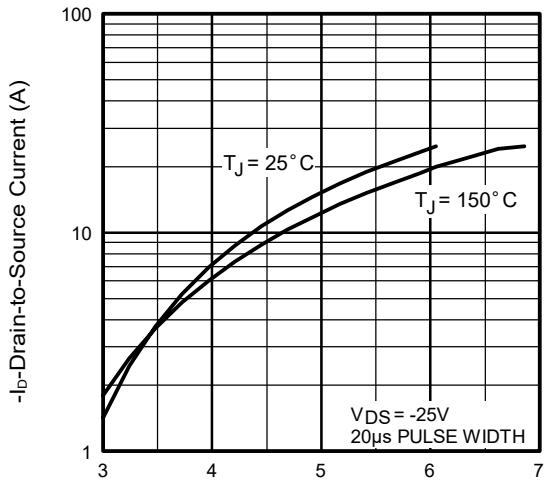


Fig 3. Typical Transfer Characteristics

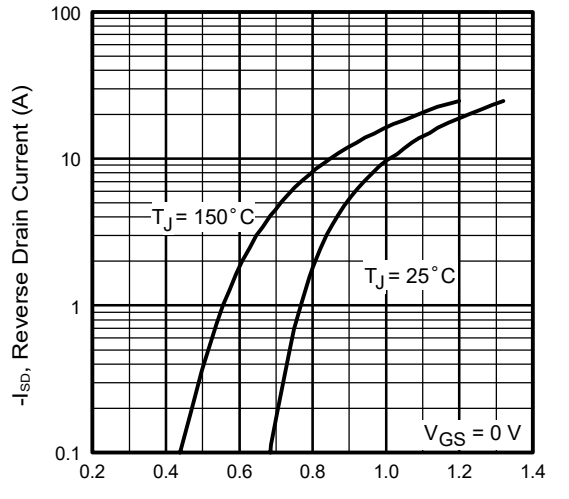
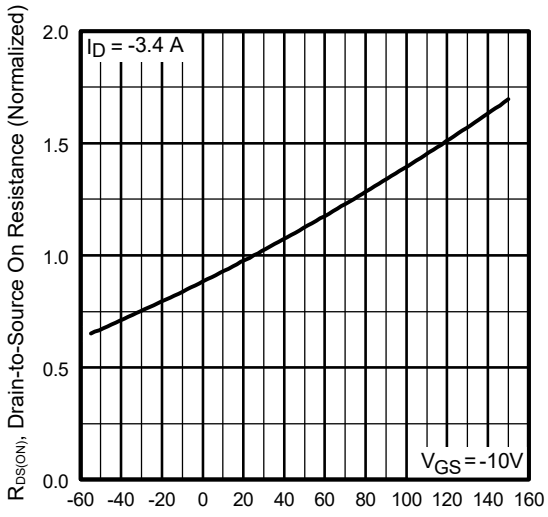


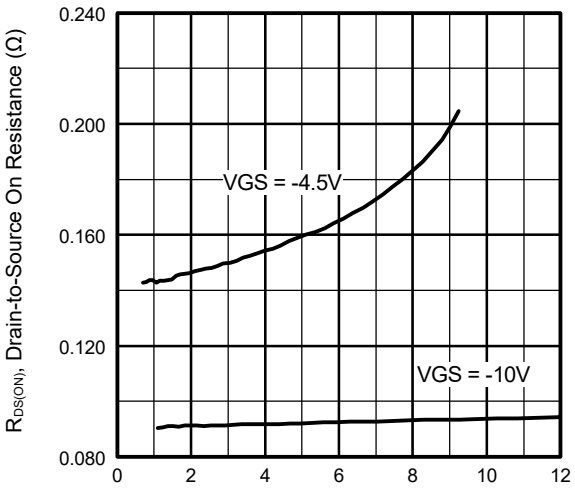
Fig 4. Typical Source-Drain DiodeForward Voltage

7.2Typical Characterisitics



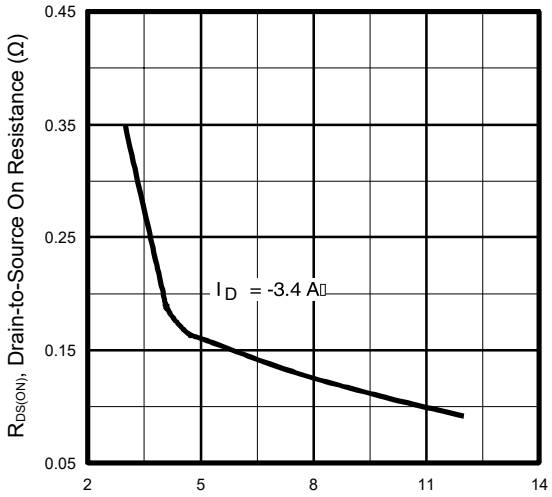
T_J, Junction Temperature (°C)

Fig 5. Nomalized On-ResistanceVs. Temperature



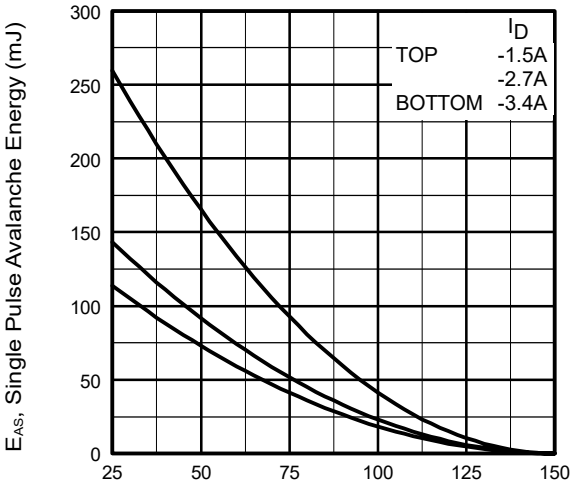
$-I_D$, Drain Current(A)

Fig 6. Typical On-Resistance Vs. DrainCurrent



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

Fig 7. Typical On-Resistance Vs. GateVoltage



Starting T_J, Junction Temperature (°C)

Fig 8. Maximum Avalanche EnergyVs. Drain Curent

7.3Typical Characterisitics

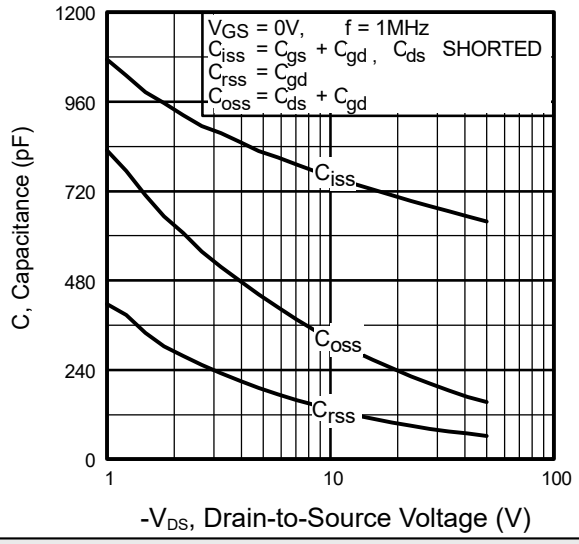


Fig 9. Typical capacitance Vs.Drain-to-Source Voltage

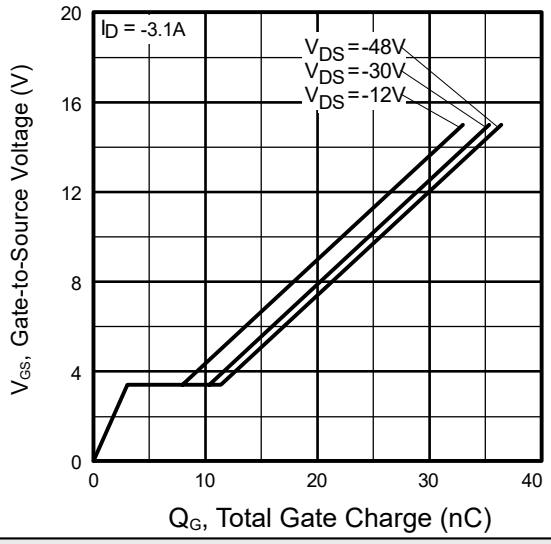


Fig 10. Typical Gate Charge Vs.Gate-to-Source Voltage

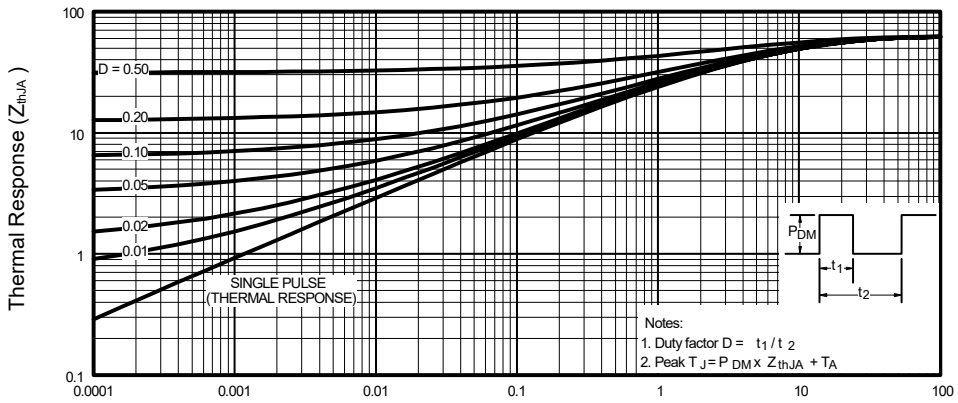
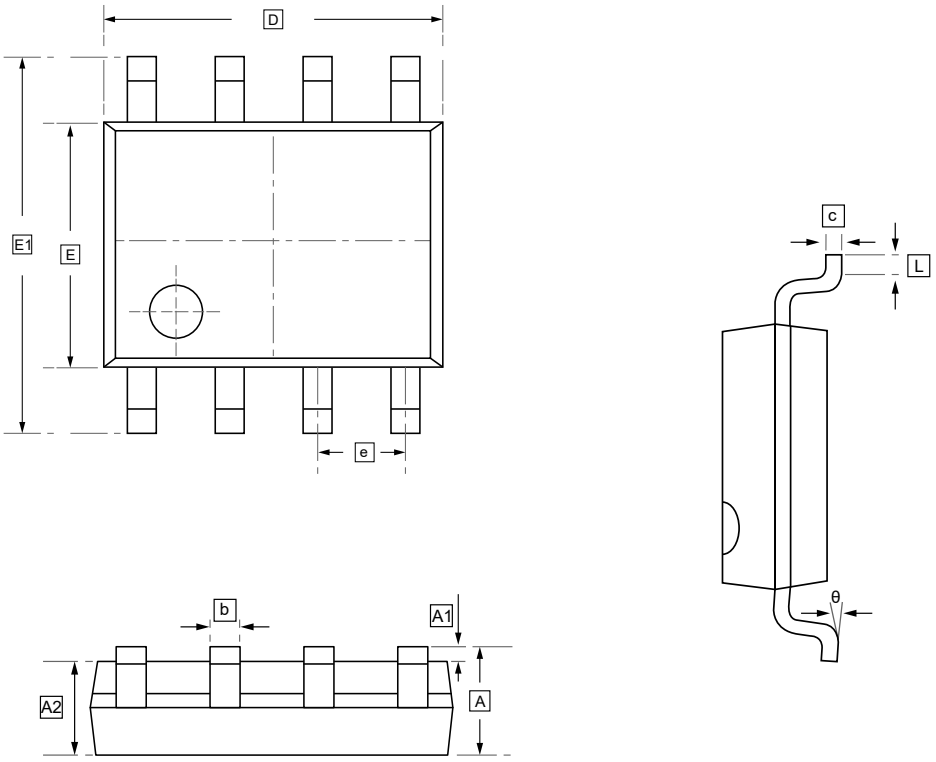


Fig 11. Maximum Effective Transient Themal Impedance, Junction-to-Ambient

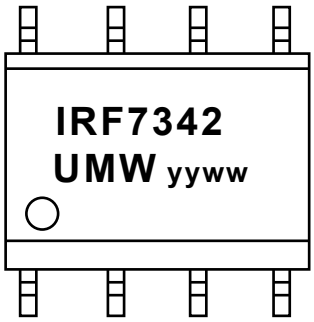
8.SOP-8 Package Outline Dimensions



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 IRF7342TR	SOP-8	3000	Tape and reel

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