

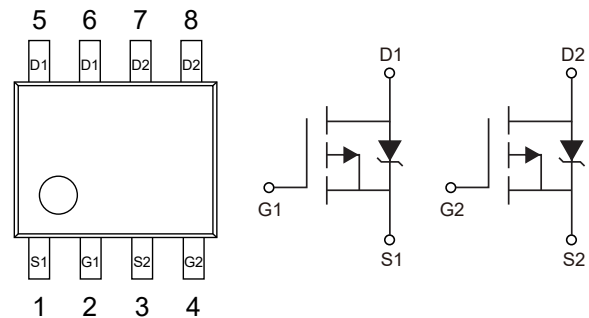
1.Features

- $V_{DS(V)} = -20V$
- $I_D = -9A$
- $R_{DS(ON)} < 18m\Omega (V_{GS} = -4.5V)$
- $R_{DS(ON)} < 26m\Omega (V_{GS} = -2.5V)$
- 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 $T_A = 25^\circ C$ 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/ $^\circ C$
Gate-to-Source Voltage	V_{GS}	± 12	V
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ C$



4. Thermal Resistance Rating

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

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

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



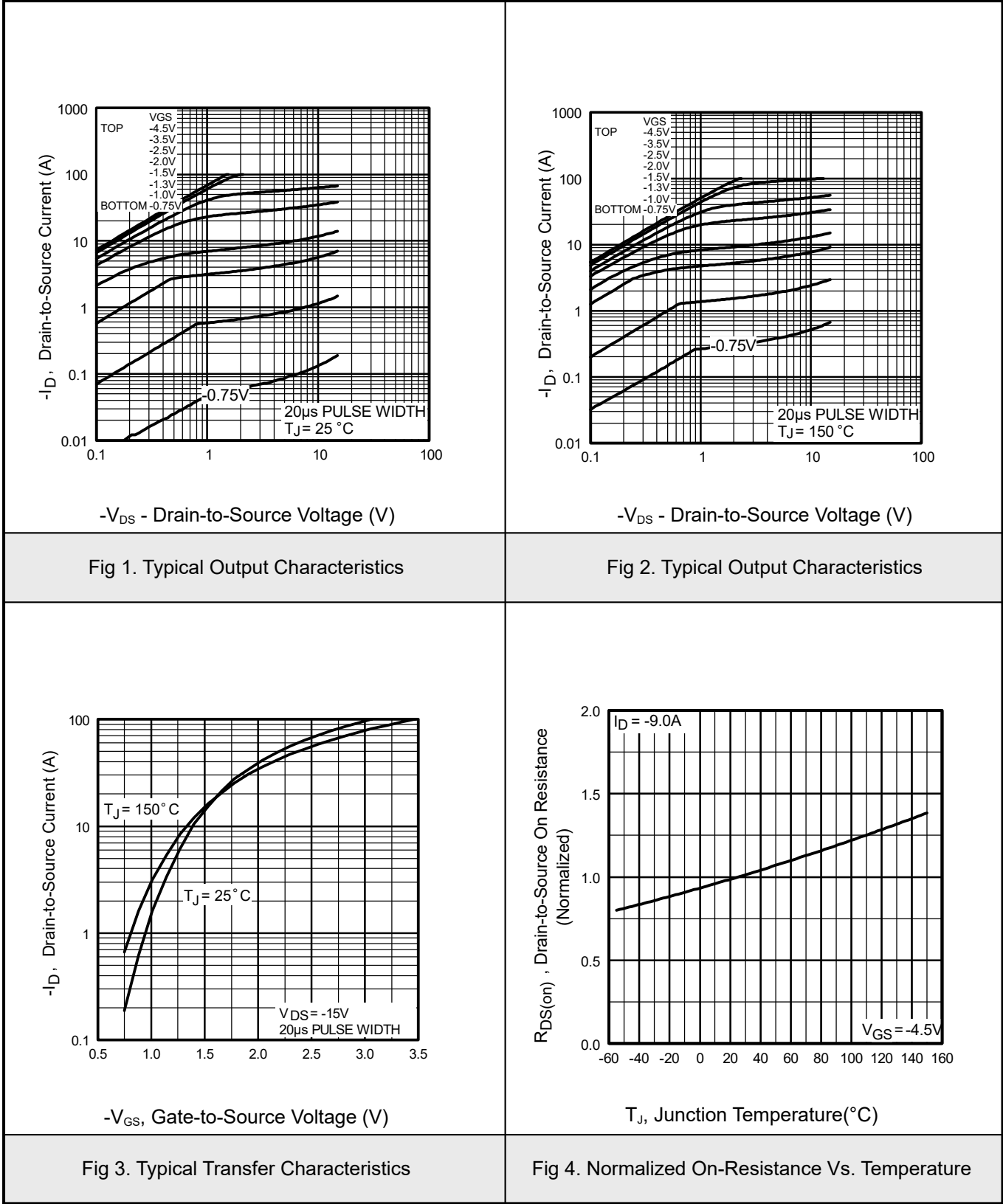
Source-Drain Ratings and Characteristics						
Continuous Source Current (Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode.			-2	A
Pulsed Source Current (Body Diode) ①	I_{SM}				-71	
Diode Forward Voltage	V_{SD}	$T_J=25^\circ\text{C}, I_S=-2\text{A}, V_{GS}=0\text{V}$ ②	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

Notes:

- ① Repetitive rating; pulse width limited by max.junction temperature.
- ② Pulse width $\leq 300\mu\text{s}$; duty cycle $\leq 2\%$.
- ③ Surface mounted on FR-4 board, $t \leq 10\text{sec}$.



6.1 Typical Characteristics





6.2 Typical Characteristics

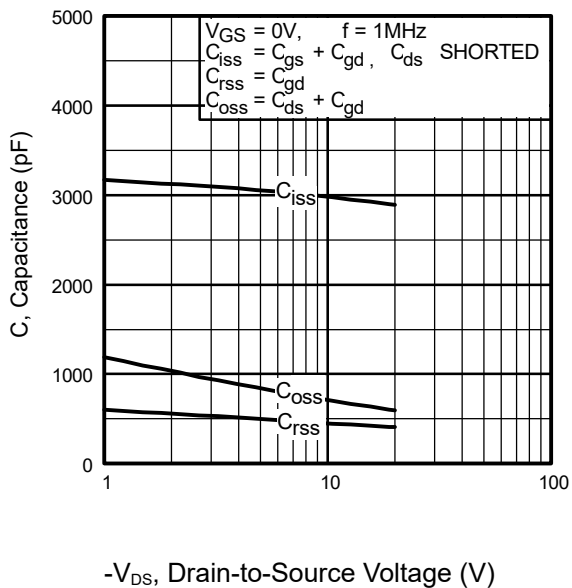


Fig 5. Typical Capacitance Vs.Drain-to-Source Voltage

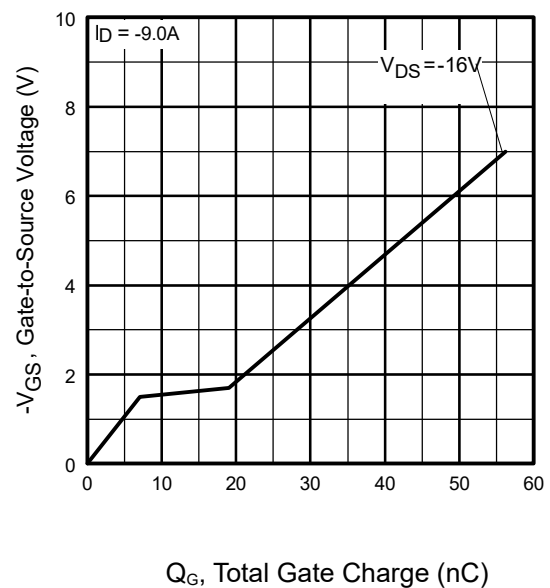


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

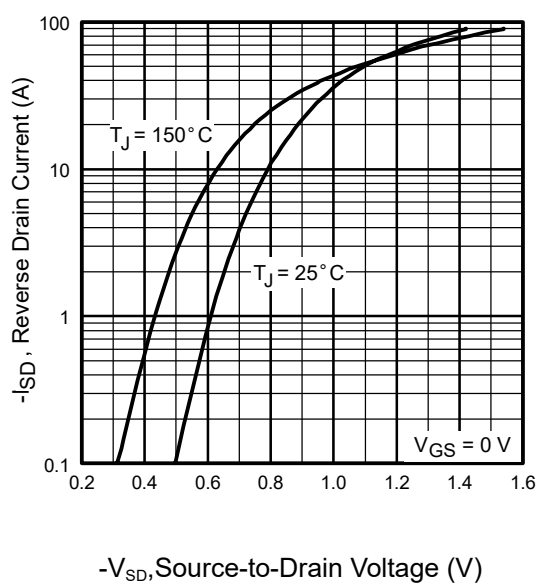


Fig 7. Typical Source-Drain Diode Forward Voltage

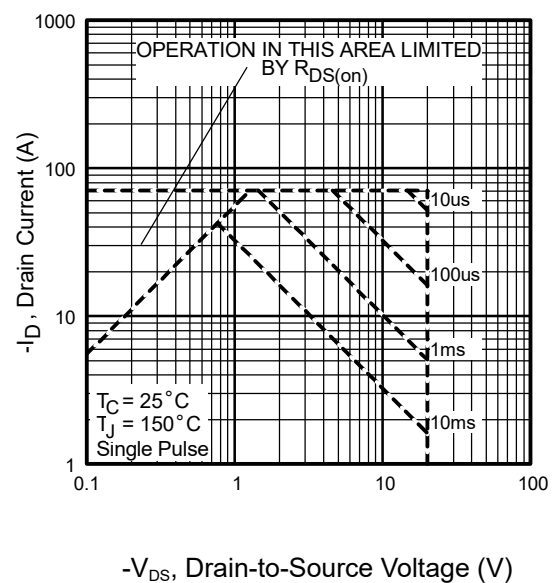


Fig 8. Maximum Safe Operating Area



6.3 Typical Characteristics

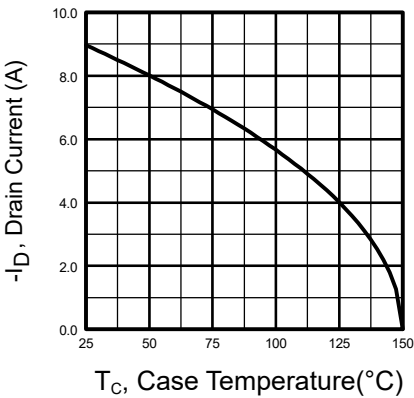


Fig 9. Maximum Drain Current Vs. Case Temperature

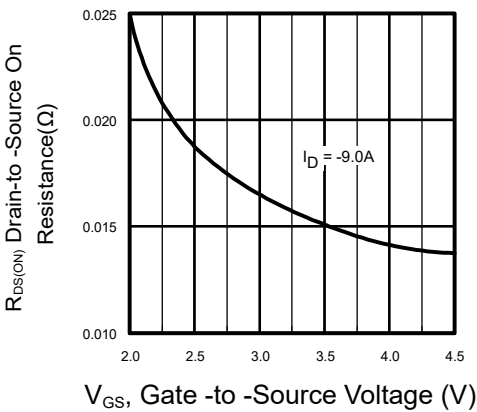


Fig 10. Typical On-Resistance Vs. Gate Voltage

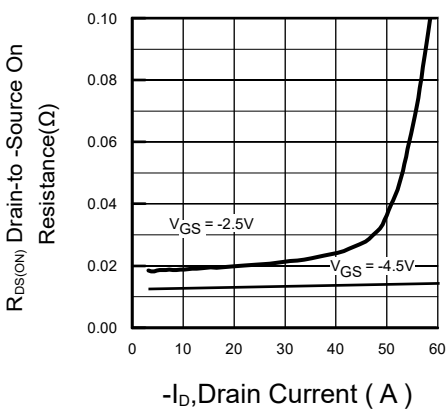


Fig 11. Typical On-Resistance Vs. Drain Current

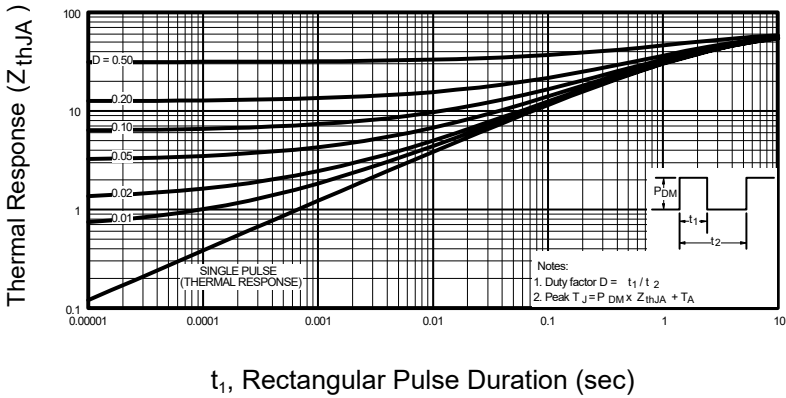


Fig 12. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

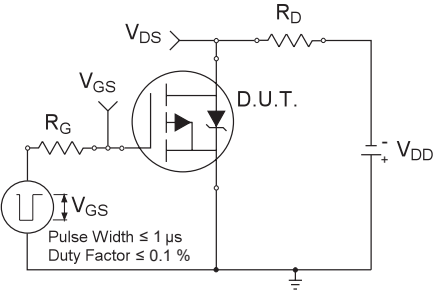


Fig 13a. Switching Time Test Circuit

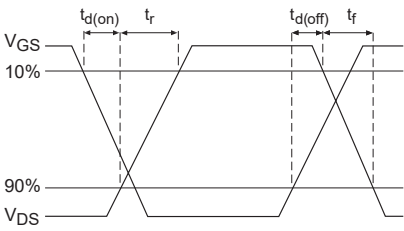


Fig 13b. Switching Time Waveforms

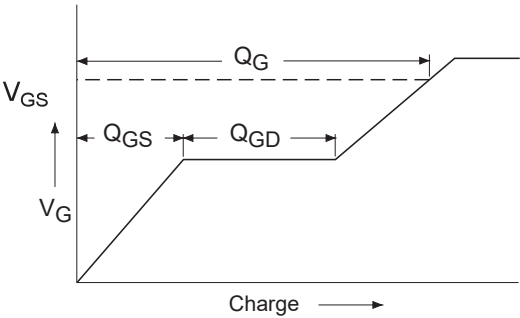


Fig 14a. Basic Gate Charge Waveform

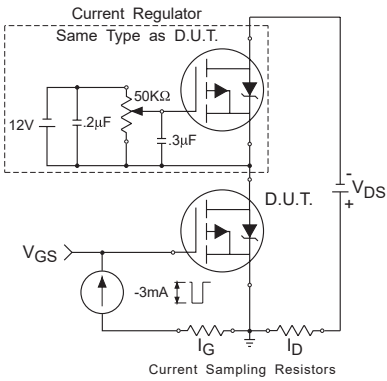
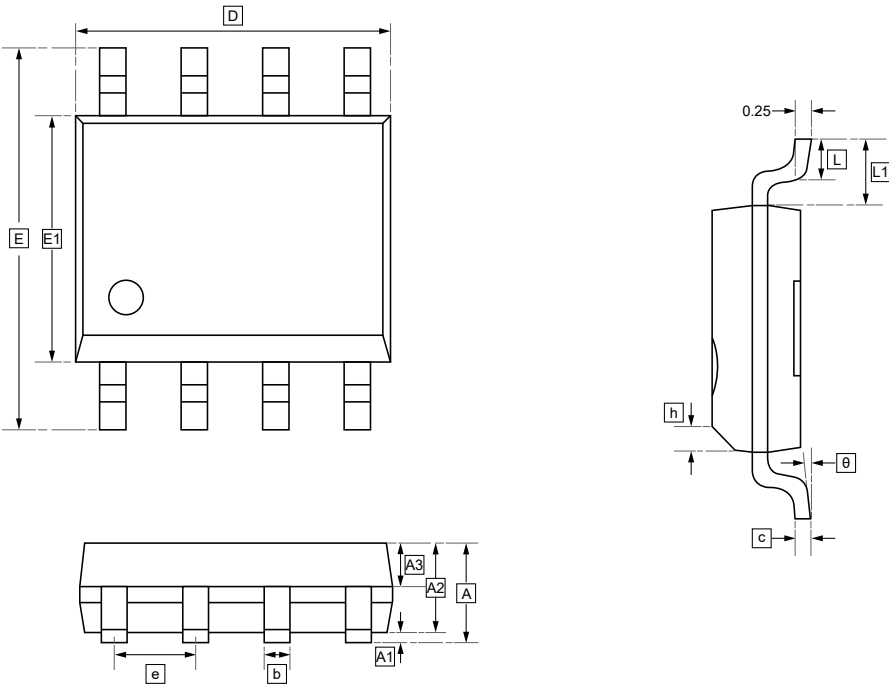


Fig 14b. Gate Charge Test Circuit



7.SOP-8 Package Outline Dimensions



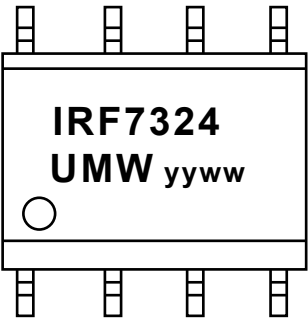
DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	A3	b	c	D	E	E1	e	h	L
Min	-	0.05	1.30	0.60	0.39	0.20	4.80	5.80	3.80	1.24	0.30	0.50
Max	1.75	0.20	1.50	0.70	0.47	0.24	5.00	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

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