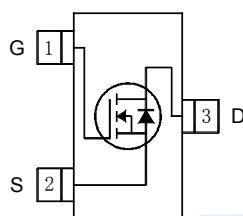
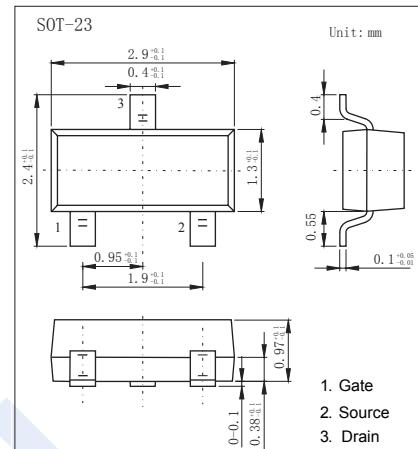


N-Channel MOSFET

IRLML2502 (KRLML2502)

■ Features

- $V_{DS} (V) = 20V$
- $I_D = 4.2 A$
- $R_{DS(ON)} < 45m\Omega$ ($V_{GS} = 4.5V$)
- $R_{DS(ON)} < 80m\Omega$ ($V_{GS} = 2.5V$)
- Fast Switching



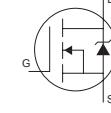
■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	
Continuous Drain Current	I_D	4.2	A
		3.4	
Pulsed Drain Current	I_{DM}	33	
Power Dissipation	P_D	1.25	W
		0.8	
Linear Derating Factor		0.01	W/°C
Thermal Resistance.Junction- to-Ambient	R_{thJA}	100	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{stg}	-55 to 150	

N-Channel MOSFET

IRLML2502 (KRLML2502)

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=16\text{V}, V_{GS}=0\text{V}$			1	μA
		$V_{DS}=16\text{V}, V_{GS}=0\text{V}, T_J=70^\circ\text{C}$			25	
Gate-Body Leakage Current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 12\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(\text{th})}$	$V_{DS}=V_{GS}, I_D=250 \mu\text{A}$	0.5		1	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5\text{V}, I_D=4.2\text{A}$			45	$\text{m}\Omega$
		$V_{GS}=2.5\text{V}, I_D=3.6\text{A}$			80	
Forward Transconductance	g_{FS}	$V_{DS}=10\text{V}, I_D=4\text{A}$	5.8			S
Input Capacitance	C_{iss}	$V_{GS}=0\text{V}, V_{DS}=15\text{V}, f=1\text{MHz}$		740		pF
Output Capacitance	C_{oss}			90		
Reverse Transfer Capacitance	C_{rss}			66		
Total Gate Charge	Q_g	$V_{GS}=5\text{V}, V_{DS}=10\text{V}, I_D=4\text{A}$			12	nC
Gate Source Charge	Q_{gs}				2.7	
Gate Drain Charge	Q_{gd}				2.6	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=10\text{V}, I_D=1\text{A}, R_L=6 \Omega, R_{GEN}=10 \Omega$		7.5		ns
Turn-On Rise Time	t_r			10		
Turn-Off Delay Time	$t_{d(off)}$			54		
Turn-Off Fall Time	t_f			26		
Body Diode Reverse Recovery Time	t_{rr}	$I_F=1.3\text{A}, dI/dt=100\text{A}/\mu\text{s}, T_J=25^\circ\text{C}$			24	nC
Body Diode Reverse Recovery Charge	Q_{rr}				13	
Continuous Source Current	I_S	MOSFET symbol showing the integral reverse p-n junction diode.			1.3	A
Pulsed Source Current	I_{SM}				33	
Diode Forward Voltage	V_{SD}	$I_S=1.3\text{A}, V_{GS}=0\text{V}, T_J=25^\circ\text{C}$			1.2	V

■ Marking

Marking	1G**
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N-Channel MOSFET

IRLML2502 (KRLML2502)

■ Typical Characteristics

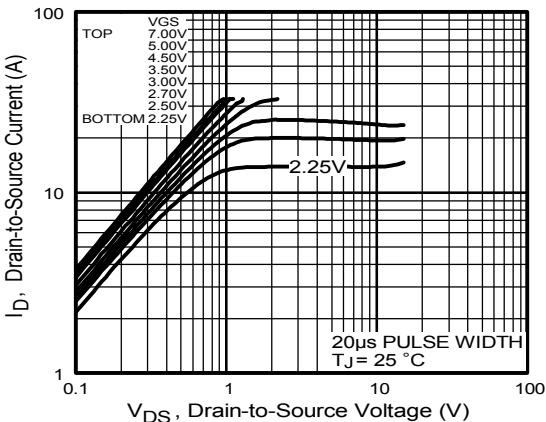


Fig 1. Typical Output Characteristics

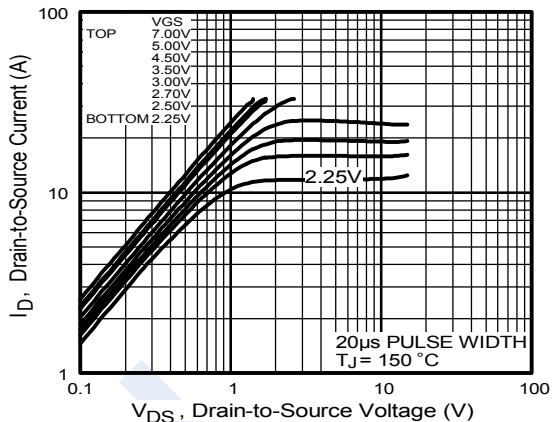


Fig 2. Typical Output Characteristics

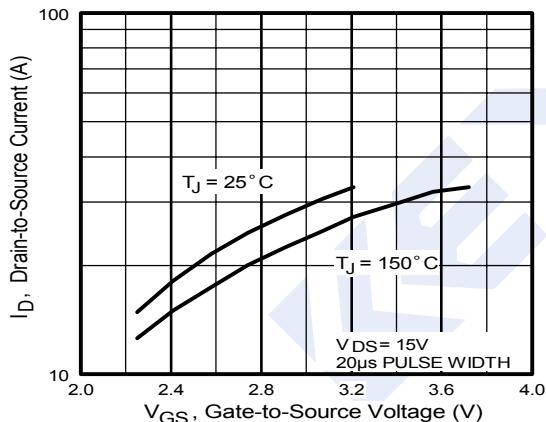


Fig 3. Typical Transfer Characteristics

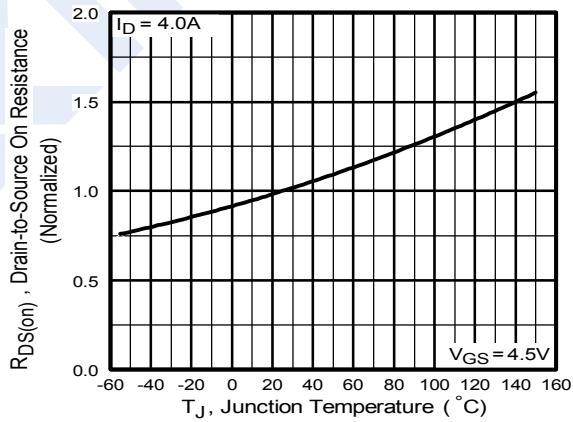


Fig 4. Normalized On-Resistance Vs. Temperature

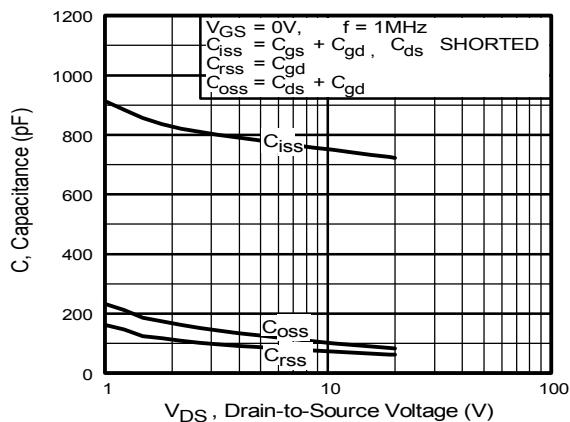


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

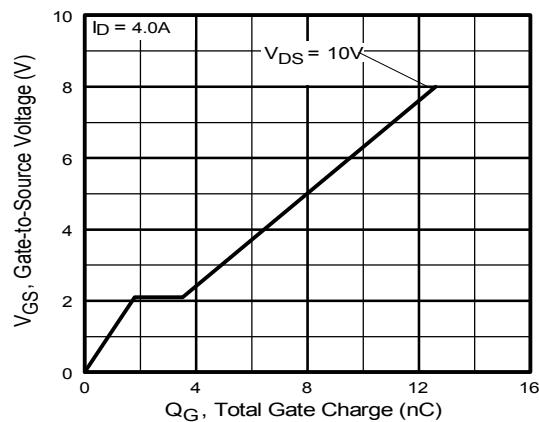


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

N-Channel MOSFET

IRLML2502 (KRLML2502)

■ Typical Characteristics

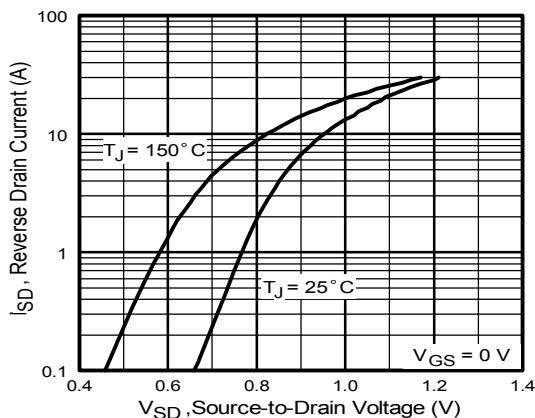


Fig 7. Typical Source-Drain Diode Forward Voltage

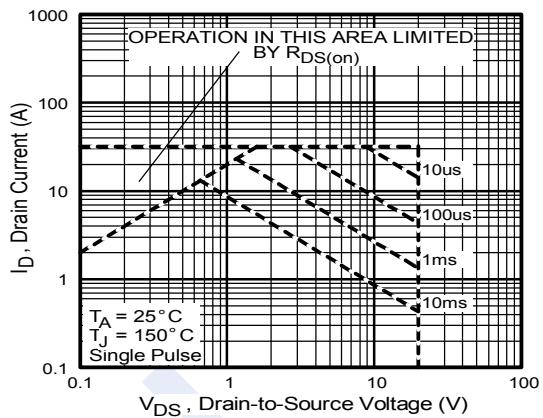


Fig 8. Maximum Safe Operating Area

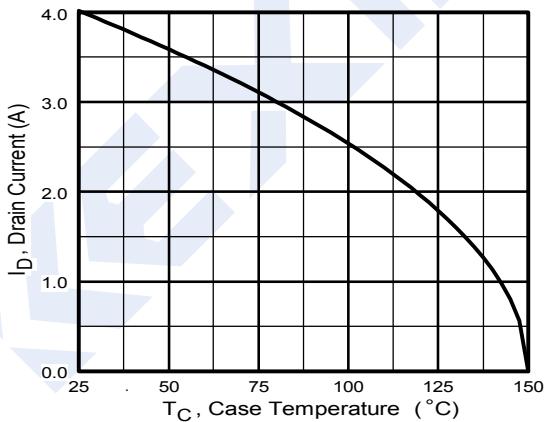


Fig 9. Maximum Drain Current Vs. Case Temperature

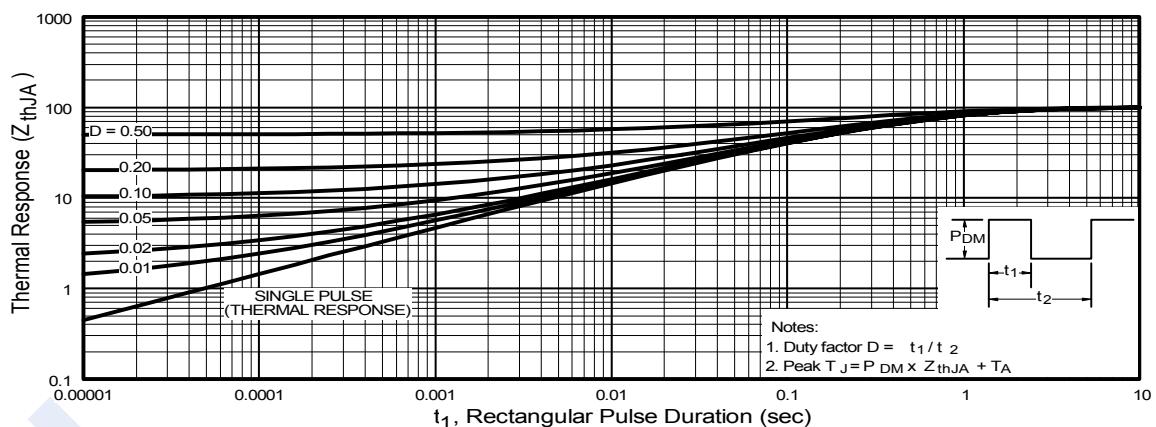


Fig 10. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

N-Channel MOSFET
IRLML2502 (KRLML2502)

■ Typical Characteristics

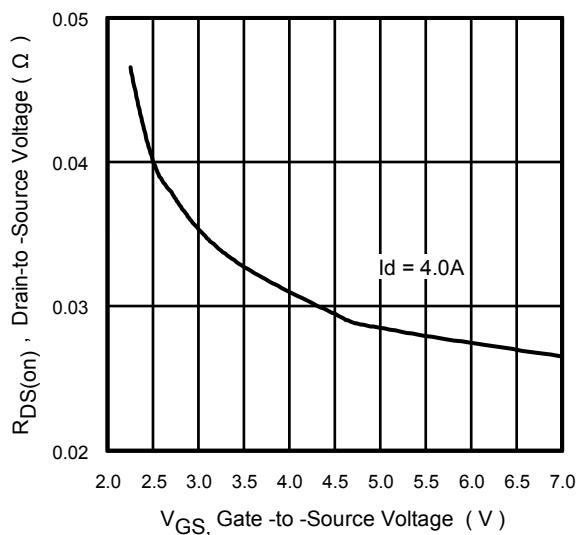


Fig 11. On-Resistance Vs. Gate Voltage

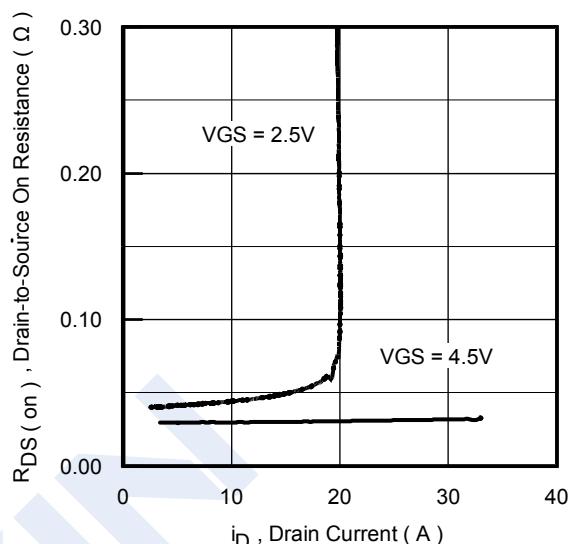


Fig 12. On-Resistance Vs. Drain Current