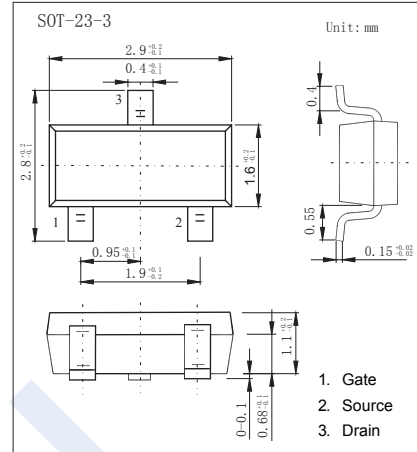
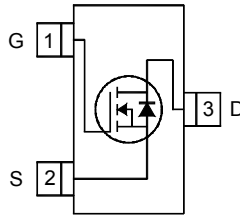


N-Channel MOSFET

IRLML0100 (KRLML0100)

■ Features

- $V_{DS} (V) = 100V$
- $I_D = 1.6A (V_{GS} = 10V)$
- $R_{DS(ON)} < 220m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 235m\Omega (V_{GS} = 4.5V)$



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

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	100	V	
Gate-Source Voltage	V_{GS}	± 16		
Continuous Drain Current @ $V_{GS}=10V$	I_D	$T_A=25^\circ C$	1.6	A
		$T_A=70^\circ C$	1.3	
Pulsed Drain Current	I_{DM}	7		
Power Dissipation	P_D	$T_A=25^\circ C$	1.3	W
		$T_A=70^\circ C$	0.8	
Thermal Resistance.Junction- to-Ambient (Note.1)	R_{thJA}		100	$^\circ C/W$
			99	
Linear Derating Factor		0.01	$W/^\circ C$	
Junction Temperature	T_J	150	$^\circ C$	
Storage Temperature Range	T_{stg}	-55 to 150		

Note.1: Surface mounted on 1 in square Cu board

N-Channel MOSFET

IRLML0100 (KRLML0100)

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250 μA, V _{GS} =0V	100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V			20	μA
		V _{DS} =100V, V _{GS} =0V, T _J =125°C			250	
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±16V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250 μA	1		2.5	V
Static Drain-Source On-Resistance (Note.1)	R _{DS(on)}	V _{GS} =4.5V, I _D =1.3A		190	235	mΩ
		V _{GS} =10V, I _D =1.6A		178	220	
Forward Transconductance	g _{FS}	V _{DS} =50V, I _D =1.6A	5.7			S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V, f=1MHz		290		pF
Output Capacitance	C _{oss}			27		
Reverse Transfer Capacitance	C _{rss}			13		
Gate Resistance	R _g			1.3		Ω
Total Gate Charge	Q _g	V _{GS} =4.5V, V _{DS} =50V, I _D =1.6A		2.5		nC
Gate Source Charge	Q _{gs}			0.5		
Gate Drain Charge	Q _{gd}			1.2		
Turn-On DelayTime	t _{d(on)}	V _{GS} =4.5V, V _{DS} =50V, I _D =1A, R _{GEN} =6.8 Ω		2.2		ns
Turn-On Rise Time	t _r			2.1		
Turn-Off DelayTime	t _{d(off)}			9		
Turn-Off Fall Time	t _f			3.6		
Body Diode Reverse Recovery Time	t _{rr}	V _R =50V, I _F = 1.1A, di/dt= 100A/μs, T _J = 25°C (Note.1)		20	30	nC
Body Diode Reverse Recovery Charge	Q _{rr}			13	20	
Maximum Body-Diode Continuous Current	I _S				1.1	A
Pulsed Source Current	I _{SM}	(Note.2)			7	
Diode Forward Voltage	V _{SD}	I _S =1.1A, V _{GS} =0V, T _J = 25°C (Note.1)			1.3	V

Note.1: Pulse width ≤ 400μs; duty cycle ≤ 2%.

Note.2: Repetitive rating; pulse width limited by max. junction temperature.

■ Marking

Marking	1K**
---------	------

N-Channel MOSFET

IRLML0100 (KRLML0100)

■ Typical Characteristics

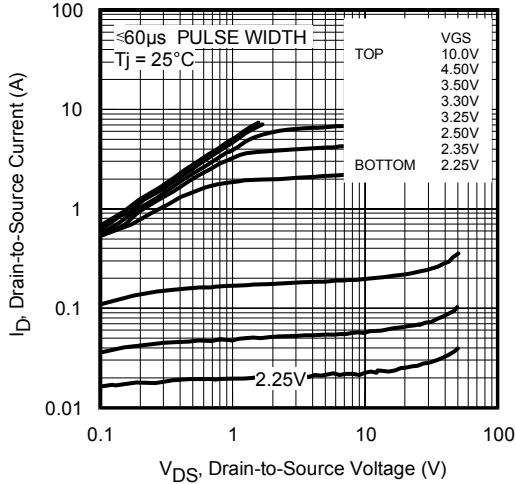


Fig 1. Typical Output Characteristics

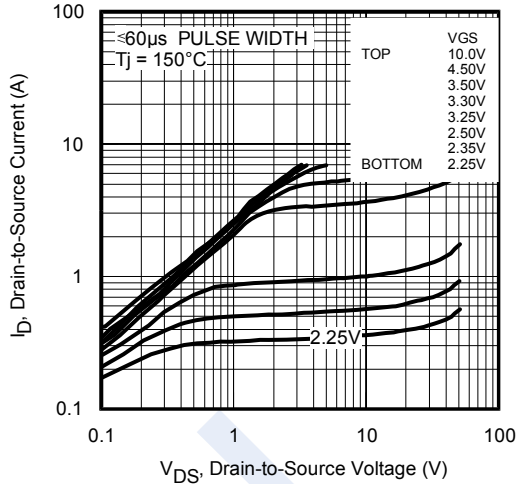


Fig 2. Typical Output Characteristics

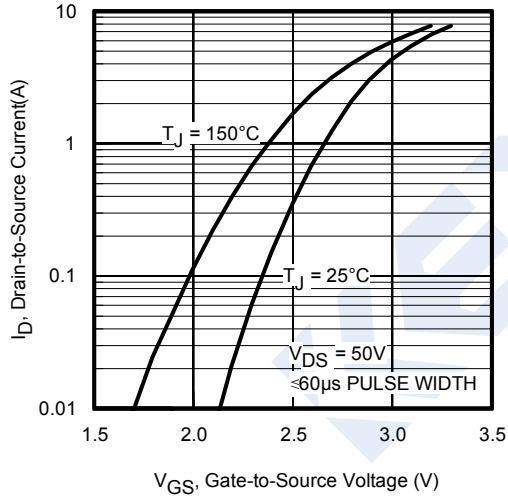


Fig 3. Typical Transfer Characteristics

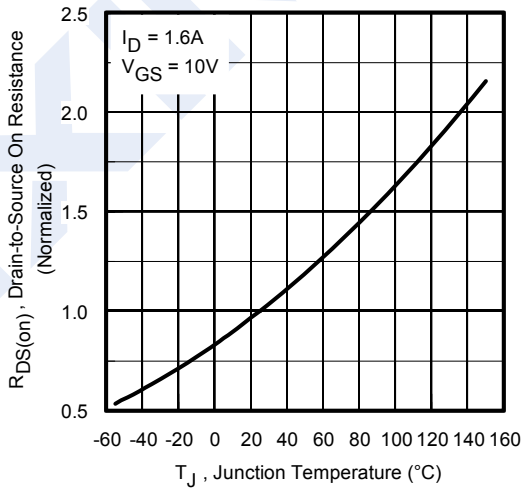


Fig 4. Normalized On-Resistance Vs. Temperature

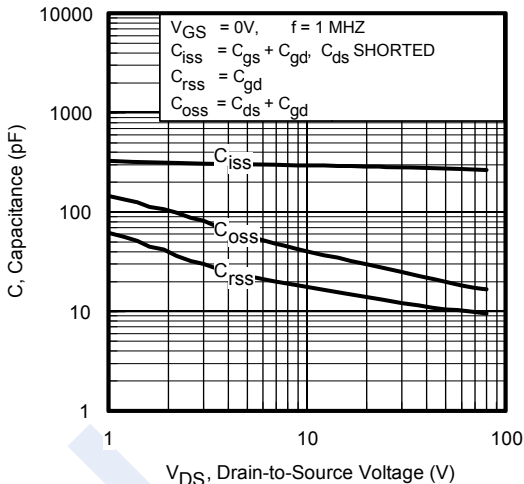


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

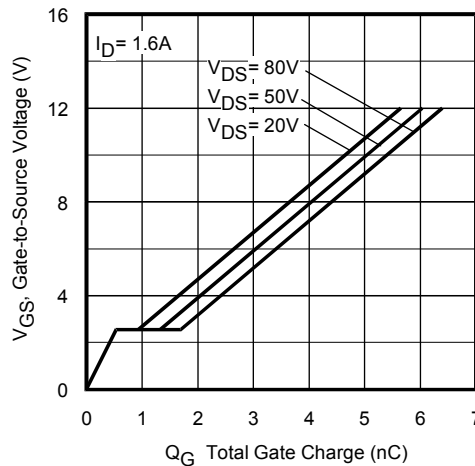


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

N-Channel MOSFET IRLML0100 (KRLML0100)

■ Typical Characteristics

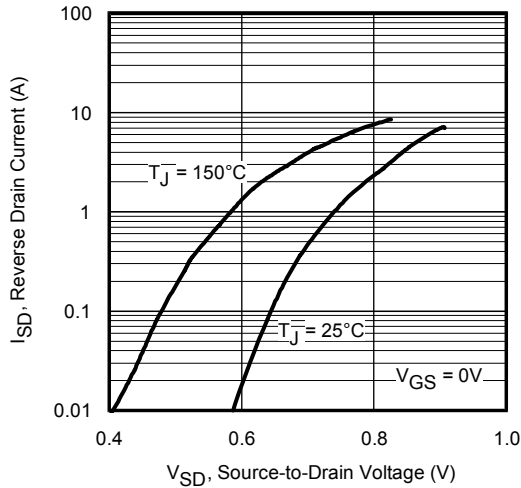


Fig 7. Typical Source-Drain Diode Forward Voltage

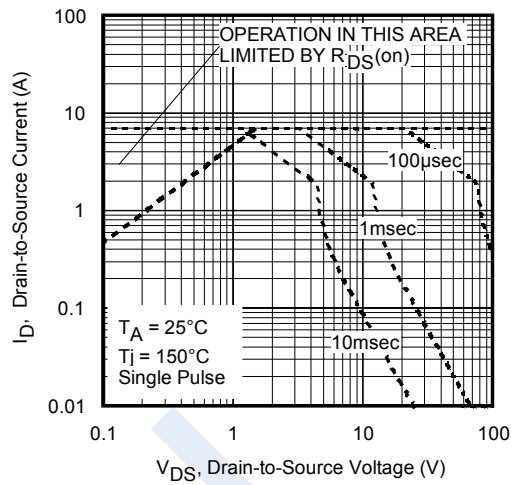


Fig 8. Maximum Safe Operating Area

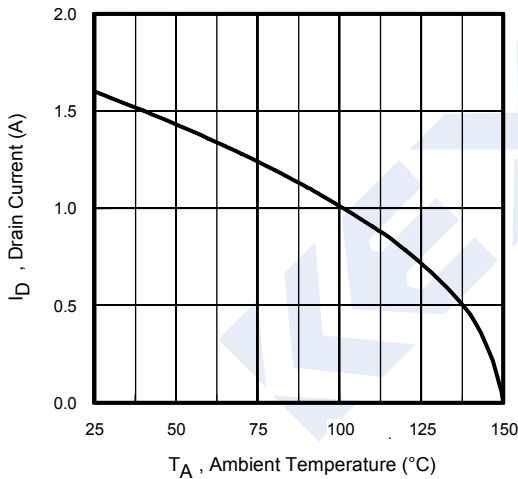


Fig 9. Maximum Drain Current Vs. Ambient Temperature

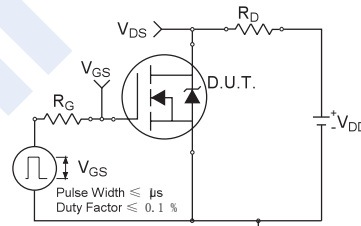


Fig 10a. Switching Time Test Circuit

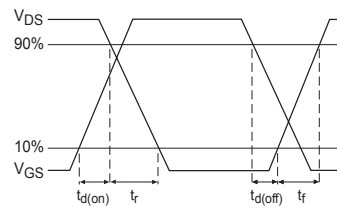
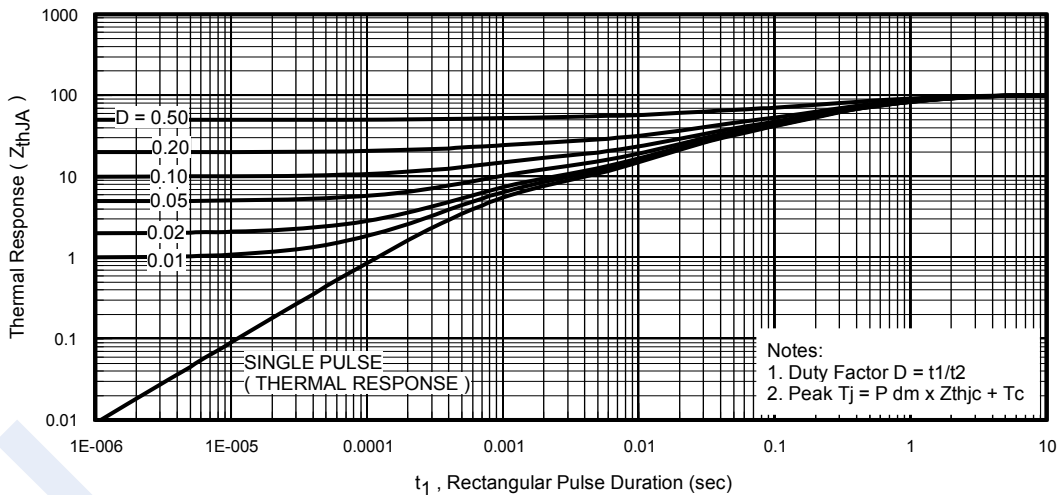


Fig 10b. Switching Time Waveforms



Notes:
1. Duty Factor $D = t_1/t_2$
2. Peak $T_J = P_{dm} \times Z_{thjc} + T_c$

Fig 11. Typical Effective Transient Thermal Impedance, Junction-to-Ambient

N-Channel MOSFET IRLML0100 (KRLML0100)

■ Typical Characteristics

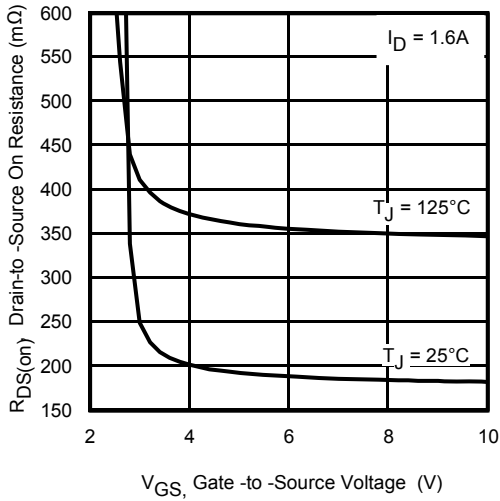


Fig 12. Typical On-Resistance Vs. Gate Voltage

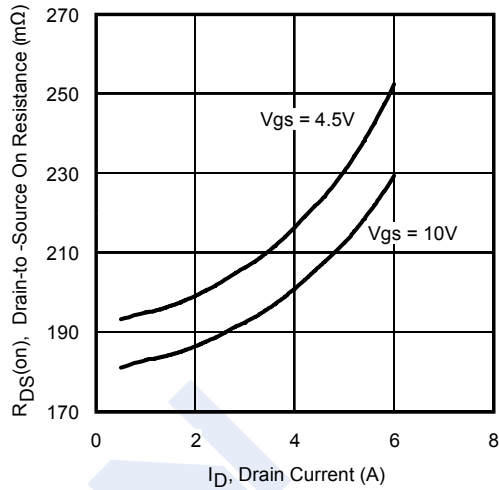


Fig 13. Typical On-Resistance Vs. Drain Current

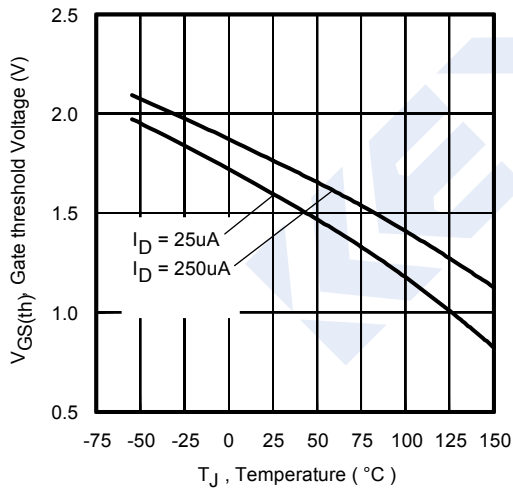


Fig 14. Typical Threshold Voltage Vs. Junction Temperature

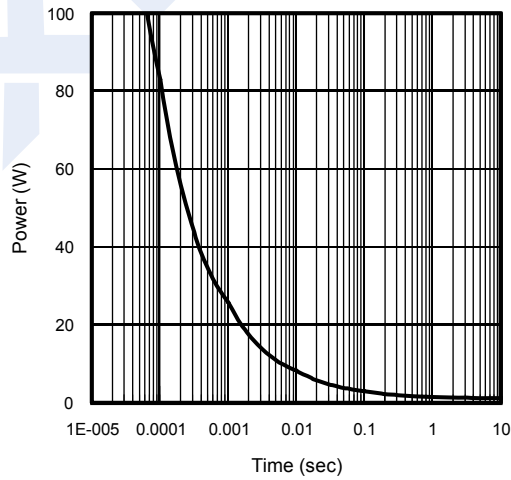


Fig 15. Typical Power Vs. Time

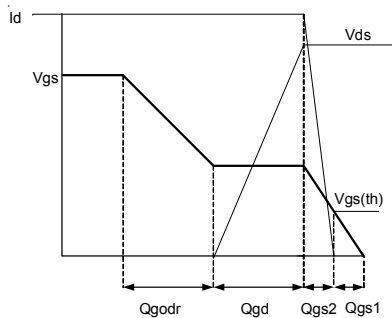


Fig 16a. Basic Gate Charge Waveform

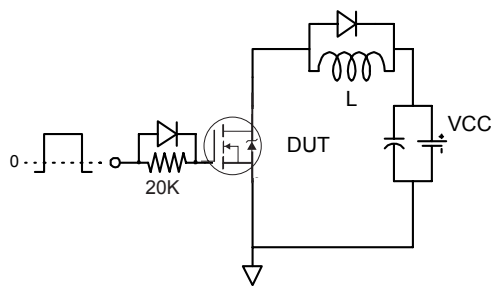


Fig 16b. Gate Charge Test Circuit