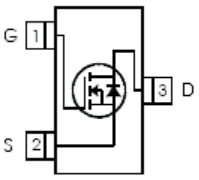
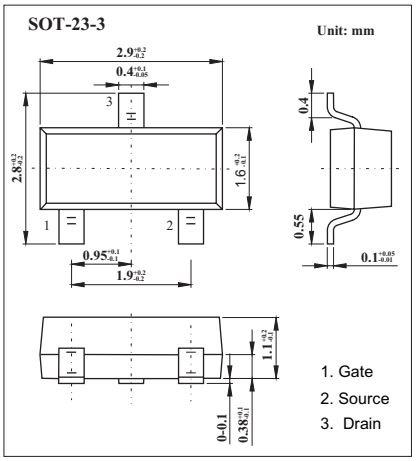
N-Channel MOSFET

KRLML2502

Features

- Ultra Low On-Resistance
- N-Channel MOSFET
- Low Profile (<1.1mm)
- Available in Tape and Reel
- Fast Switching





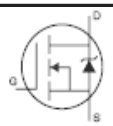
Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain- Source Voltage	V_{DS}	20	V
Gate-to-source voltage	V_{GS}	±12	V
Continuous drain curent,V_{GS}@4.5V	I_D	4.2	A
Pulsed drain current	I_{DM}	33	A
Power dissipation	P_D	1.25	W
Linear derating factor		0.01	W℃
Junction-to-ambient *	$R_{\theta JA}$	75	℃/W
Junction and storage temperature range	T_J,T_{STG}	-55 to +150	℃

* Surface mounted on FR-4 board,t≤5 sec.

KRLML2502

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-source Breakdown voltage	$V_{(BR)DSS}$	I_D= 250 μA, V_{GS} = 0V	20			V
Static drain-source on-state resistance *	$R_{DS(on)}$	I_D= 4.2A, V_{GS} = 4.5V		0.035	0.045	Ω
		I_D=3.6A, V_{GS} = 2.5V		0.050	0.080	
Gate threshold voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D= 250 μA	0.6		1.2	V
Forward Transconductance	g_{fs}	V_{DS} = 10 V, I_D = 4.0 A	5.8			S
Gate-source leakage current	I_{DSS}	V_{DS} = 16 V, V_{GS} = 0V			1.0	μA
		V_{DS} = 16 V, V_{GS} = 0V, T_J=70℃			25	
Gate-source forward leadage	I_{GSS}	V_{GS} =-12V			-100	nA
Gate-source reverse leadage		V_{GS} =12V			100	
Input capacitance	C_{iss}	V_{DS} = 15 V,		740		pF
Output capacitance	C_{oss}	V_{GS} = 0 V,		90		
Reverse transfer capacitance	C_{rss}	f= 1MHz		66		
Total Gate Charge	Q_g	V_{DS} = 5.0V ,V_{GS} = 10 V , I_D= 4.0 A		8.0	12	nC
Gate-Source Charge	Q_{gs}			1.8	2.7	
Gate-Drain Charge	Q_{gd}			1.7	2.6	
Turn-on delay time	$t_{d(on)}$	I_D= 1 A,		7.5		ns
Rise time	t_r	V_{DD}= 10V,		10		
Turn-off delay time	$t_{d(off)}$	R_D= 10Ω		54		
Fall time	t_r	R_G= 6.Ω		26		
Reverse recovery time *	t_{rr}	T_J=25℃, I_F = 1.3 A,		16	24	ns
Reverse recovery charge *	Q_{rr}	di / dt = 100 A/μs		8.6	13	nC
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}	T_J=25℃,V_{GS} = 0 V, I_S = 1.3 A			1.2	V

* Pulse width ≤ 300μs, Duty cycle ≤ 2%

KRLML2502

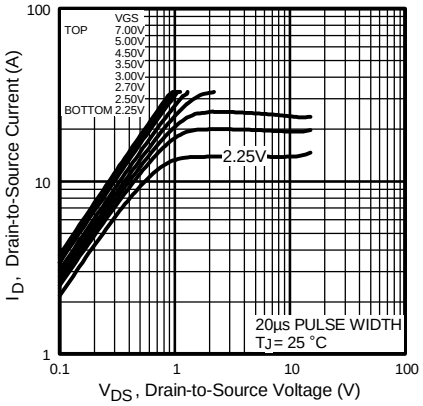


Fig 1. Typical Output Characteristics

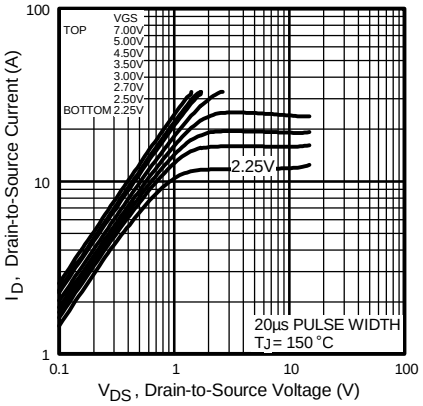


Fig 2. Typical Output Characteristics

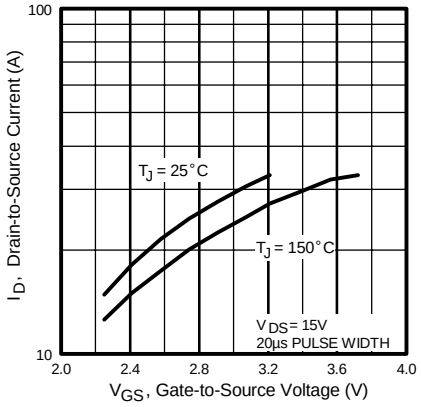


Fig 3. Typical Transfer Characteristics

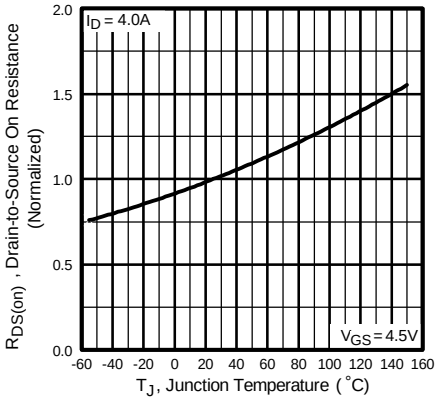


Fig 4. Normalized On-Resistance Vs. Temperature

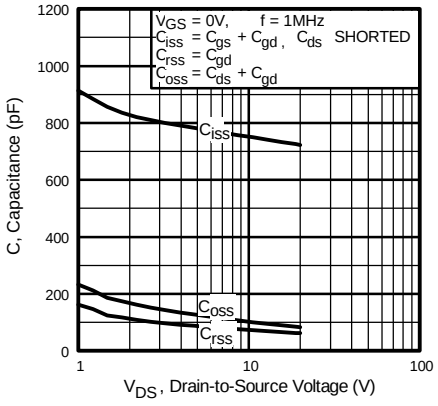


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

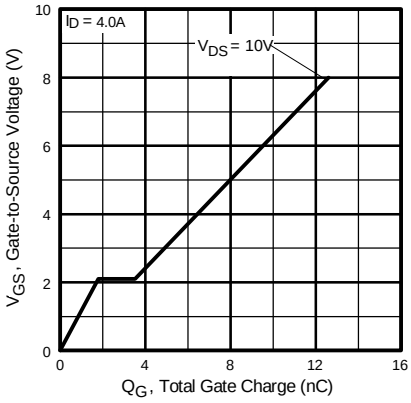


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

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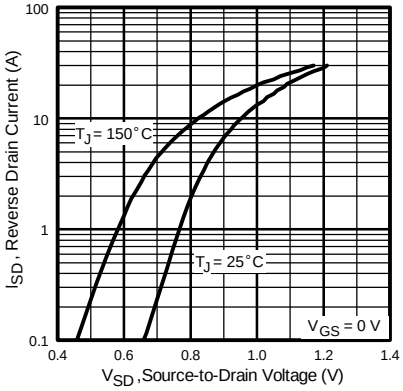

Fig 7. Typical Source-Drain Diode Forward Voltage

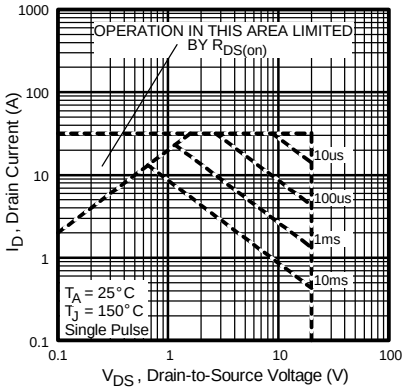

Fig 8. Maximum Drain Current Vs. Case Temperature$_a$

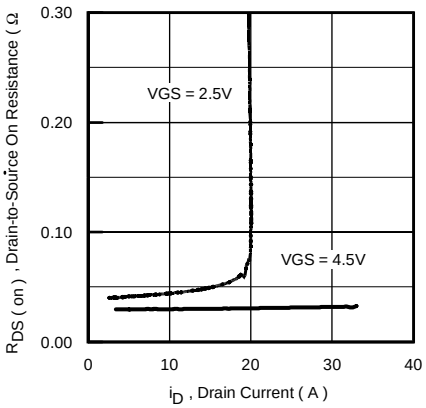

Fig 9. On-Resistance Vs. Drain Current

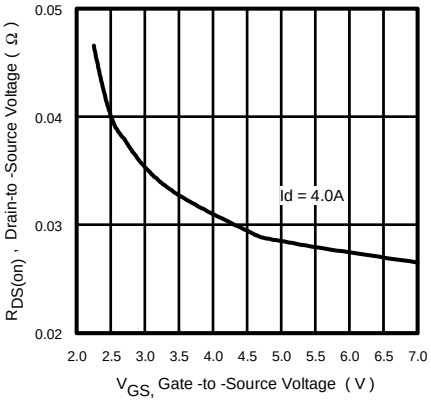

Fig 10. On-Resistance Vs. Gate Voltage

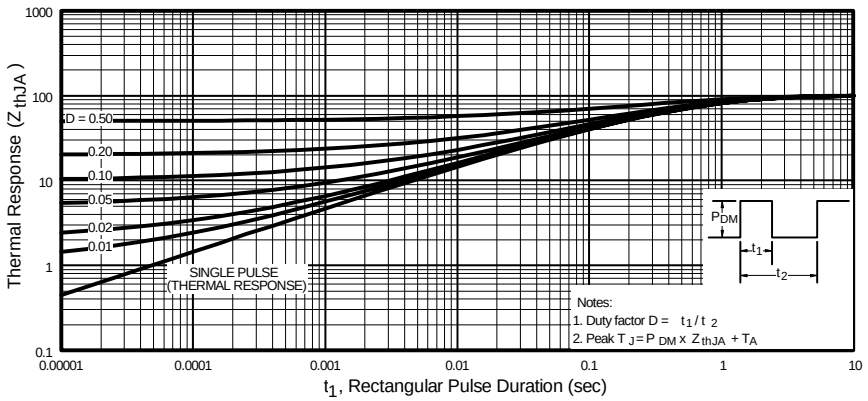

Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient