

HEXFET Power MOSFET

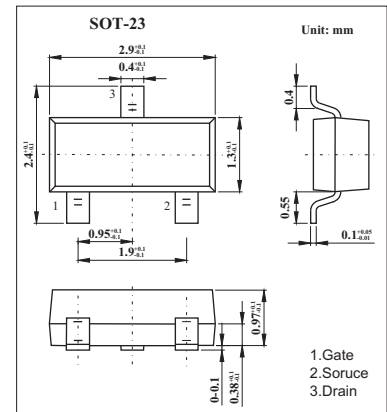
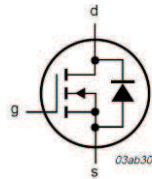
IRLML2502

Features

Ultra Low On-Resistance

N-Channel MOSFET

Fast switching.

Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-to-source voltage	V_{GS}	± 12	V
Continuous drain current, @ $V_{GS}=4.5\text{V}, T_a=25^\circ\text{C}$	I_D	4.2	A
Continuous drain current, @ $V_{GS}=4.5\text{V}, T_a=70^\circ\text{C}$		3.4	A
Pulsed drain current *1	I_{DM}	33	A
Power dissipation @ $T_a=25^\circ\text{C}$	P_D	1.25	W
Thermal Resistance, Junction- to-Ambient	$R_{\theta JA}$	100	$^\circ\text{C/W}$
Junction and storage temperature range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

*1.Repetitive rating:pulse width limited by max.junction temperature.

*2. $I_{SD} \quad 0.93\text{A}, di/dt \quad 90\text{A}/\mu\text{s}, V_{DD} \quad V_{(BR)DSS}, T_J \quad 150^\circ\text{C}$

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Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test conditons	Min	Typ	Max	Unit
Drain-source Breakdown voltage	V _{DSS}	I _D = 250 μ A, V _{GS} = 0V	20			V
Gate-source leakage current	I _{DSS}	V _{DS} = 16 V, V _{GS} = 0V			1	μ A
		V _{DS} = 16 V, V _{GS} = 0V, T _J = 125°C			25	
Gate-source leadage	I _{GSS}	V _{GS} = $\pm$ 12V, V _{DS} = 0V			$\pm$ 100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μ A	0.6		1.2	V
Static drain-source on- resistance	R _{DS(on)}	I _D = 4.2A, V _{GS} = 4.5V			47	m Ω
		I _D = 3.6A, V _{GS} = 2.5V			83	
Forward Transconductance	g _{fs}	V _{DS} = 10 V, I _D = 4 A	5.8			S
Input capacitance	C _{iss}	V _{DS} = 15V,		745		pF
Output capacitance	C _{oss}	V _{GS} = 0 V,		93		
Reverse transfer capacitance	C _{rss}	f = 1MHz		67		
Total Gate Charge	Q _g	V _{DS} = 10V, V _{GS} = 5 V, I _D = 4 A		2.6	3.9	nC
Gate-Source Charge	Q _{gs}			0.41	0.62	
Gate-Drain Charge	Q _{gd}			1.1	1.7	
Turn-on delay time	t _{d(on)}	V _{DD} = 10 V, I _D = 1A, R _D = 10 Ω , R _G = 6 Ω		7.5		ns
Rise time	t _r			10		
Turn-off delay time	t _{d(off)}			54		
Fall time	t _f			26		
Reverse recovery time	t _{rr}	T _J = 25°C, I _F = 1.3 A,			24	ns
Reverse recovery charge	Q _{rr}	dI / dt = 100 A / μ s *2			13	nC
Continuous source current	I _S	MOSFET symbol I showing the integral reverse p-n junction diode			1.3	A
Pulsed source current *1	I _{SM}				33	
Diode forward voltage	V _{SD}	T _J = 25°C, V _{GS} = 0 V, I _S = 1.3 A *2			1.2	V

*1 Repetitive rating;pulse width limited by max.junction temperature.

* 2 Pulse width 300 μ s, Duty cycle 2%