TY Semicondutor® TY

IRLML2246TRPbF

HEXFET® Power MOSFET

V_{DS}	-20	V
$V_{GS\ Max}$	±12	V
$R_{DS(on)\ max}$ (@ V_{GS} = -4.5V)	135	mΩ
$R_{DS(on)\ max}$ (@ V_{GS} = -2.5V)	236	mΩ

G 1   3 D

S 2

Micro3™ (SOT-23)
IRLML2246TRPbF
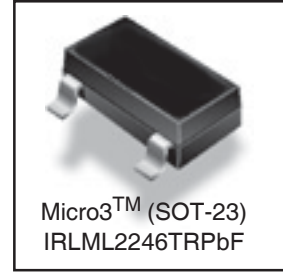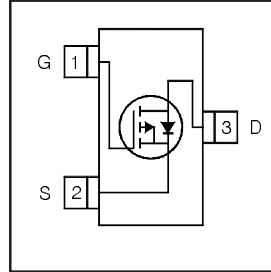
Application(s)

• System/Load Switch

Features and Benefits

Features		Benefits
Industry-standard pinout		Multi-vendor compatibility
Compatible with existing Surface Mount Techniques	results in	Easier manufacturing
RoHS compliant containing no lead, no bromide and no halogen	⇒	Environmentally friendly
MSL1, Consumer qualification		Increased reliability

Absolute Maximum Ratings

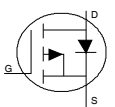| Symbol	Parameter	Max.	Units
V_{DS}	Drain-Source Voltage	-20	V
I_D @ T_A = 25°C	Continuous Drain Current, V_{GS} @ -10V	-2.6	A
I_D @ T_A = 70°C	Continuous Drain Current, V_{GS} @ -10V	-2.1	A
I_{DM}	Pulsed Drain Current	-11	
P_D @ T_A = 25°C	Maximum Power Dissipation	1.3	W
P_D @ T_A = 70°C	Maximum Power Dissipation	0.80	W
	Linear Derating Factor	0.01	W/°C
V_{GS}	Gate-to-Source Voltage	± 12	V
T_J, T_{STG}	Junction and Storage Temperature Range	-55 to + 150	°C

Thermal Resistance

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JA}$	Junction-to-Ambient ③	——	100	°C/W
$R_{\theta JA}$	Junction-to-Ambient (t<10s) ④	——	99	°C/W

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Electric Characteristics @ T_J = 25°C (unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	-20	——	——	V	V_{GS} = 0V, I_D = -250µA
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	——	9.5	——	mV/°C	Reference to 25°C, I_D = -1mA
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	——	90	135	mΩ	V_{GS} = -4.5V, I_D = -2.6A ②
		——	157	236		V_{GS} = -2.5V, I_D = -2.1A ②
$V_{GS(th)}$	Gate Threshold Voltage	-0.4	——	-1.1	V	V_{DS} = V_{GS}, I_D = -10µA
I_{DSS}	Drain-to-Source Leakage Current	——	——	-1.0	µA	V_{DS} = -16V, V_{GS} = 0V
		——	——	-150		V_{DS} = -16V, V_{GS} = 0V, T_J = 125°C
I_{GSS}	Gate-to-Source Forward Leakage	——	——	100	nA	V_{GS} = 12V
	Gate-to-Source Reverse Leakage	——	——	-100		V_{GS} = -12V
R_G	Internal Gate Resistance	——	16	——	Ω	
gfs	Forward Transconductance	3.4	——	——	S	V_{DS} = -10V, I_D = -2.6A
Q_g	Total Gate Charge	——	2.9	——	nC	I_D = -2.6A
Q_{gs}	Gate-to-Source Charge	——	0.52	——		V_{DS} =-10V
Q_{gd}	Gate-to-Drain ("Miller") Charge	——	1.2	——		V_{GS} = -4.5V ②
$t_{d(on)}$	Turn-On Delay Time	——	5.3	——	ns	V_{DD} =-10V②
t_r	Rise Time	——	7.7	——		I_D = -1.0A
$t_{d(off)}$	Turn-Off Delay Time	——	26	——		R_G = 6.8Ω
t_f	Fall Time	——	16	——		V_{GS} = -4.5V
C_{iss}	Input Capacitance	——	220	——	pF	V_{GS} = 0V
C_{oss}	Output Capacitance	——	70	——		V_{DS} = -16V
C_{rss}	Reverse Transfer Capacitance	——	48	——		f = 1.0KHz

Source - Drain Ratings and Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	——	——	-1.3	A	MOSFET symbol showing the integral reverse p-n junction diode.
I_{SM}	Pulsed Source Current (Body Diode) ①	——	——	-11		
V_{SD}	Diode Forward Voltage	——	——	-1.2	V	T_J = 25°C, I_S = -2.6A, V_{GS} = 0V ②
t_{rr}	Reverse Recovery Time	——	17	26	ns	T_J = 25°C, V_R = -15V, I_F=-2.6A
Q_{rr}	Reverse Recovery Charge	——	6.2	9.3	nC	di/dt = 100A/µs ②