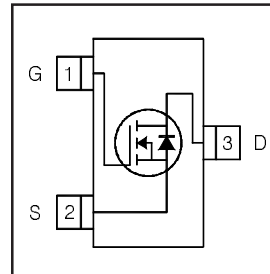


IRLML6244TRPbF

HEXFET® Power MOSFET

V_{DS}	20	V
$V_{GS\ Max}$	±12	V
$R_{DS(on)\ max}$ (@ $V_{GS} = 4.5V$)	21.0	mΩ
$R_{DS(on)\ max}$ (@ $V_{GS} = 2.5V$)	27.0	mΩ



Application(s)

- Load/ System Switch

Features and Benefits

Features

Low $R_{DS(on)}$ (< 21mΩ)
Industry-standard SOT-23 Package
RoHS compliant containing no lead, no bromide and no halogen

results in
⇒

Benefits

Lower conduction losses
Multi-vendor compatibility
Environmentally friendly

Absolute Maximum Ratings

Symbol	Parameter	Max.	Units
V_{DS}	Drain-Source Voltage	20	V
I_D @ $T_A = 25^\circ C$	Continuous Drain Current, V_{GS} @ 10V	6.3	A
I_D @ $T_A = 70^\circ C$	Continuous Drain Current, V_{GS} @ 10V	5.1	
I_{DM}	Pulsed Drain Current	32	
P_D @ $T_A = 25^\circ C$	Maximum Power Dissipation	1.3	W
P_D @ $T_A = 70^\circ C$	Maximum Power Dissipation	0.80	
	Linear Derating Factor	0.01	
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	

ORDERING INFORMATION:

See detailed ordering and shipping information on the last page of this data sheet.

Notes ① through ④ are on page 10

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Electric Characteristics @ $T_J = 25^\circ\text{C}$ (unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	20	—	—	V	$V_{GS} = 0V, I_D = 250\mu A$
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	—	7.8	—	mV/°C	Reference to 25°C , $I_D = 1mA$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	16.0	21.0	mΩ	$V_{GS} = 4.5V, I_D = 6.3A$ ②
		—	22.0	27.0		$V_{GS} = 2.5V, I_D = 5.1A$ ②
$V_{GS(th)}$	Gate Threshold Voltage	0.5	0.9	1.1	V	$V_{DS} = V_{GS}, I_D = 10\mu A$
I_{DSS}	Drain-to-Source Leakage Current	—	—	1.0	μA	$V_{DS} = 16V, V_{GS} = 0V$
		—	—	150		$V_{DS} = 16V, V_{GS} = 0V, T_J = 125^\circ\text{C}$
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	—	1.7	—	Ω	
g_{fs}	Forward Transconductance	17	—	—	S	$V_{DS} = 10V, I_D = 6.3A$
Q_g	Total Gate Charge	—	8.9	—	nC	$I_D = 6.3A$
Q_{gs}	Gate-to-Source Charge	—	0.68	—		$V_{DS} = 10V$
Q_{gd}	Gate-to-Drain ("Miller") Charge	—	4.4	—		$V_{GS} = 4.5V$ ②
$t_{d(on)}$	Turn-On Delay Time	—	4.9	—	ns	$V_{DD} = 10V$ ②
t_r	Rise Time	—	7.5	—		$I_D = 1.0A$
$t_{d(off)}$	Turn-Off Delay Time	—	19	—		$R_G = 6.8\Omega$
t_f	Fall Time	—	12	—		$V_{GS} = 4.5V$
C_{iss}	Input Capacitance	—	700	—	pF	$V_{GS} = 0V$
C_{oss}	Output Capacitance	—	140	—		$V_{DS} = 16V$
C_{rss}	Reverse Transfer Capacitance	—	98	—		$f = 1.0MHz$

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	—	—	32		
V_{SD}	Diode Forward Voltage	—	—	1.2	V	$T_J = 25^\circ\text{C}, I_S = 6.3A, V_{GS} = 0V$ ②
t_{rr}	Reverse Recovery Time	—	12	18	ns	$T_J = 25^\circ\text{C}, V_R = 15V, I_F = 1.3A$
Q_{rr}	Reverse Recovery Charge	—	5.1	7.7	nC	$di/dt = 100A/\mu s$ ②

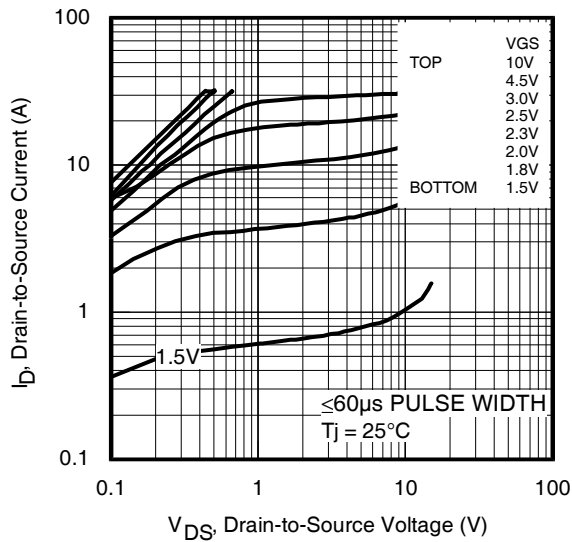


Fig 1. Typical Output Characteristics

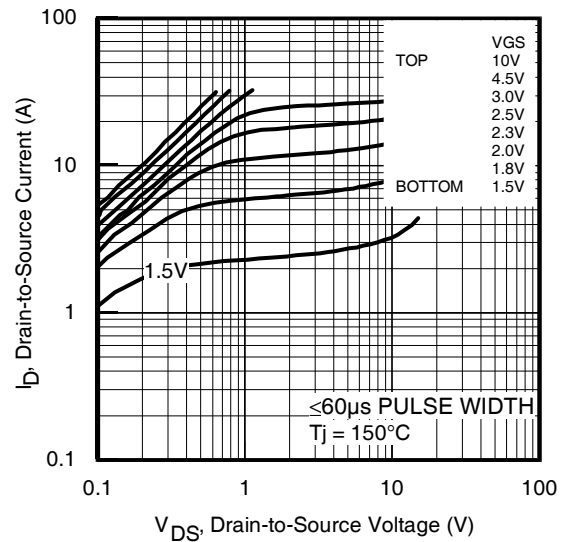


Fig 2. Typical Output Characteristics

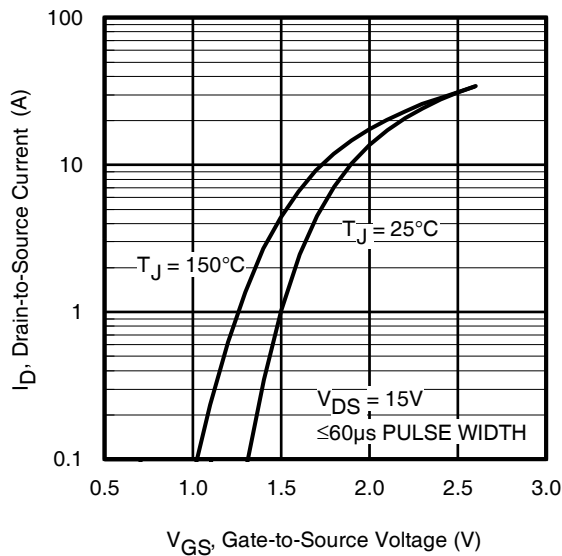


Fig 3. Typical Transfer Characteristics

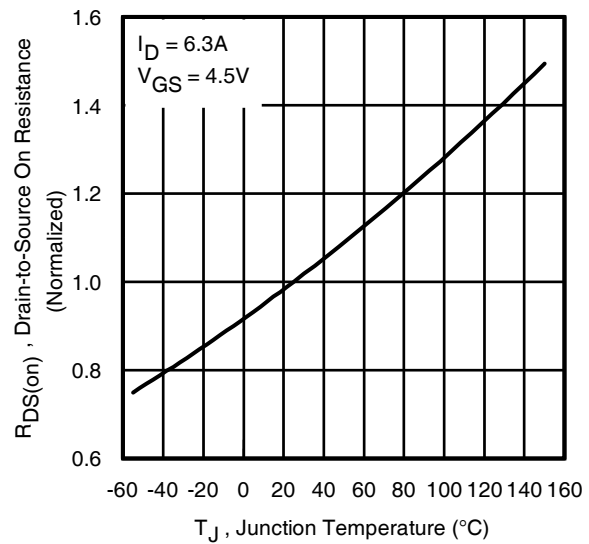


Fig 4. Normalized On-Resistance vs. Temperature

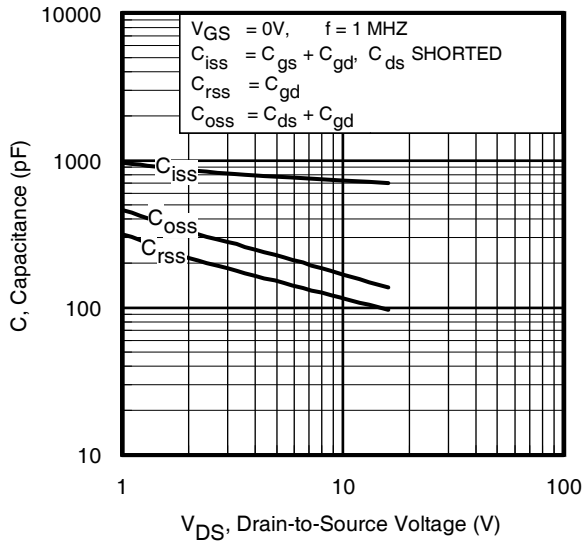


Fig 5. Typical Capacitance vs. Drain-to-Source Voltage

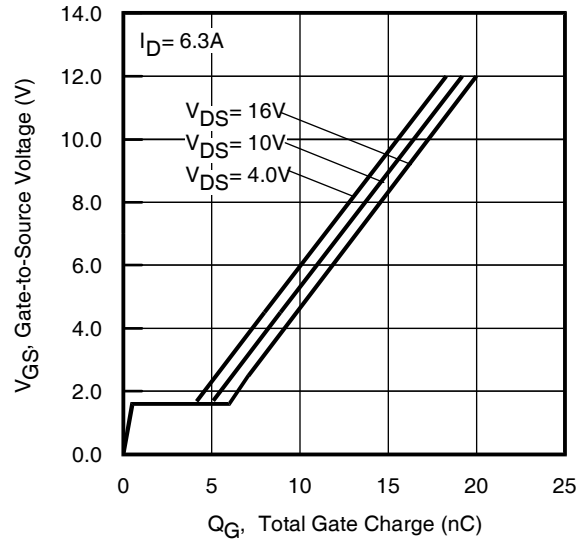


Fig 6. Typical Gate Charge vs. Gate-to-Source Voltage

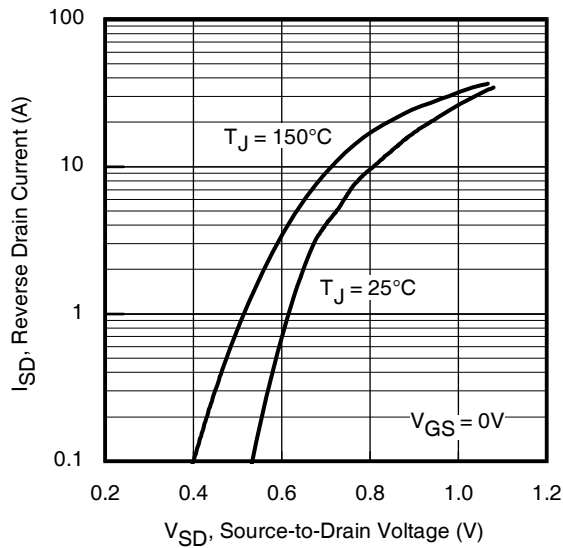


Fig 7. Typical Source-Drain Diode Forward Voltage

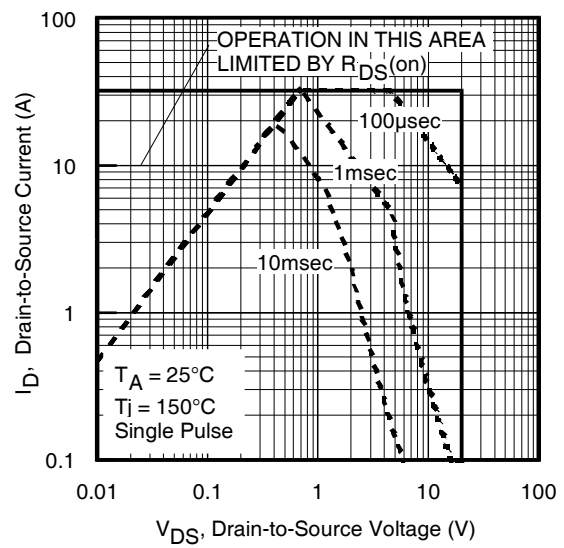


Fig 8. Maximum Safe Operating Area

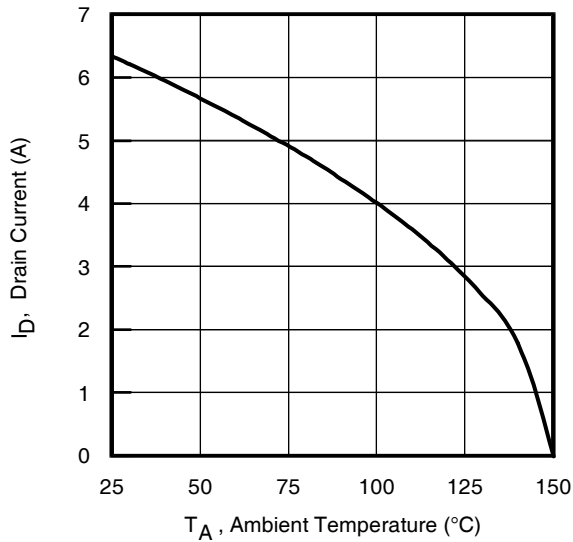


Fig 9. Maximum Drain Current vs. Ambient Temperature

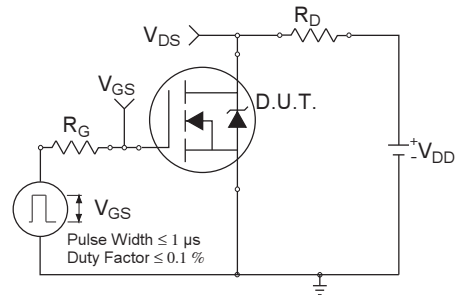


Fig 10a. Switching Time Test Circuit

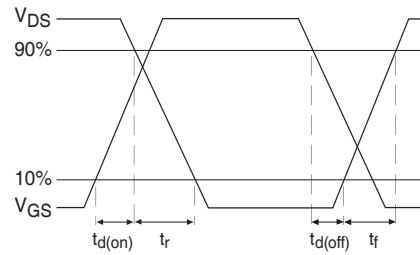


Fig 10b. Switching Time Waveforms

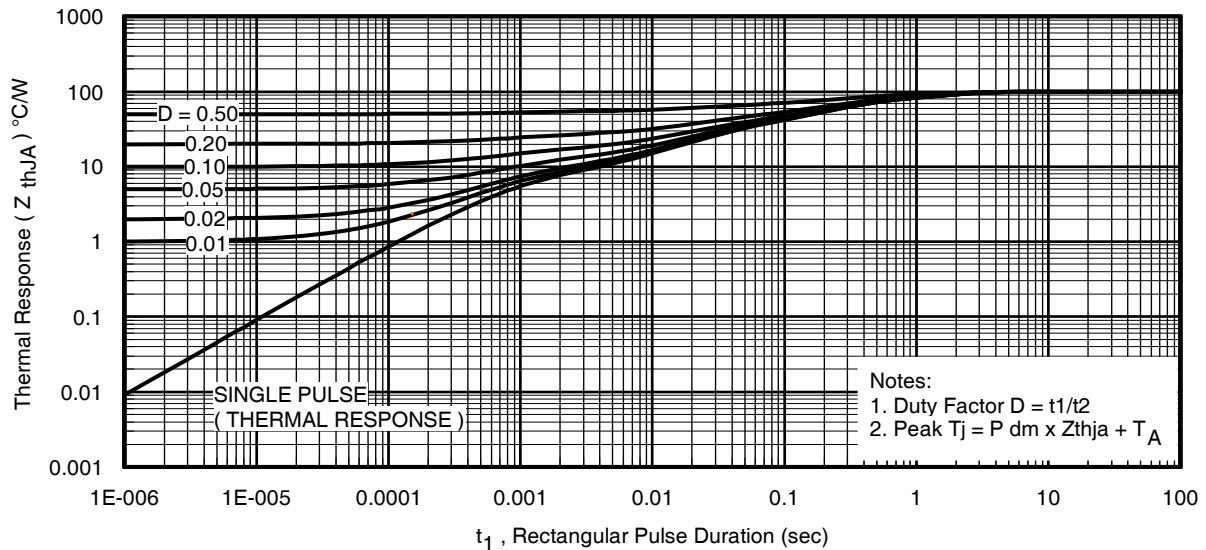


Fig 11. Typical Effective Transient Thermal Impedance, Junction-to-Ambient

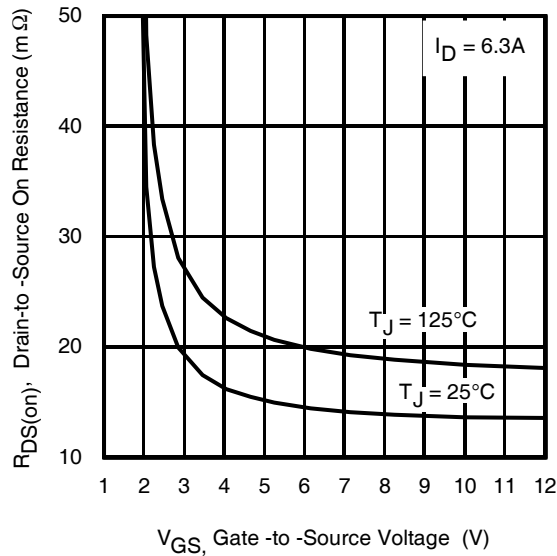


Fig 12. Typical On-Resistance vs. Gate Voltage

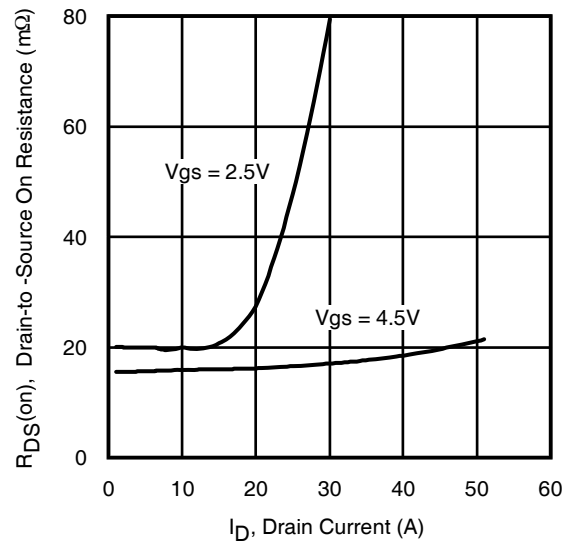


Fig 13. Typical On-Resistance vs. Drain Current

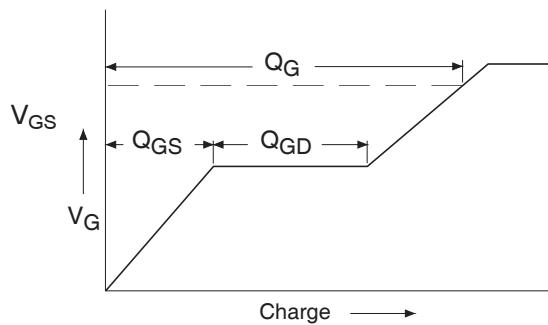


Fig 14a. Basic Gate Charge Waveform

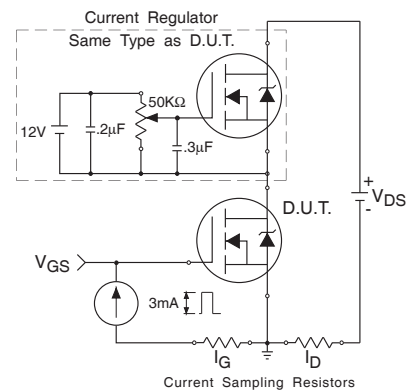


Fig 14b. Gate Charge Test Circuit

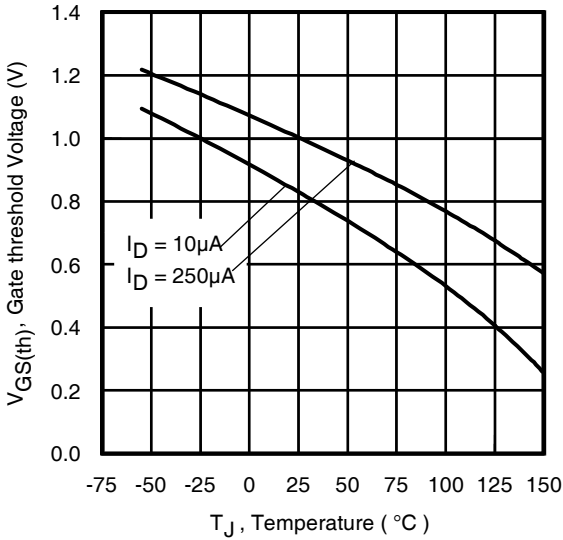


Fig 15. Typical Threshold Voltage vs. Junction Temperature

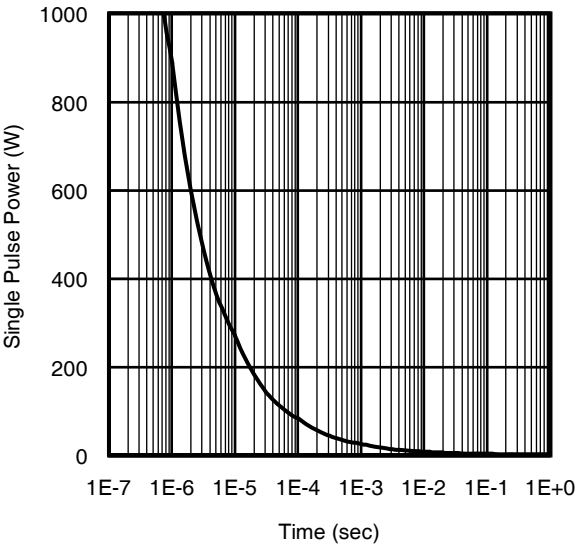
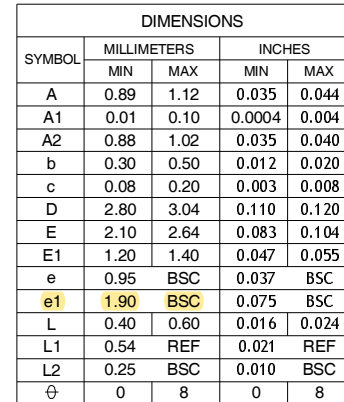


Fig 16. Typical Power vs. Time

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Dimensions are shown in millimeters (inches)

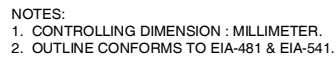


Micro3 (SOT-23/TO-236AB) Part Marking Information

YEAR		Y	WORK WEEK	W
2011	2001	A	27	A
2012	2002	B	28	B
2013	2003	C	29	C
2014	2004	D	30	D
2015	2005	E		
2016	2006	F		
2017	2007	G		
2018	2008	H		
2019	2009	J		
2020	2010	K		
			50	X
			51	Y
			52	Z

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Dimensions are shown in millimeters (inches)



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IRLML6244TRPbF

International
IR Rectifier

Orderable part number	Package Type	Standard Pack		Note
		Form	Quantity	
IRLML6244TRPbF	Micro3 (SOT-23)	Tape and Reel	3000	

Qualification information[†]

Qualification level	Consumer ^{††} (per JEDEC JESD47F ^{†††} guidelines)	
Moisture Sensitivity Level	Micro3 (SOT-23)	MSL 1 (per IPC/JEDEC J-STD-020D ^{†††})
RoHS compliant	Yes	

- † Qualification standards can be found at International Rectifier's web site
<http://www.irf.com/product-info/reliability>
- †† Higher qualification ratings may be available should the user have such requirements.
Please contact your International Rectifier sales representative for further information:
<http://www.irf.com/whoto-call/salesrep/>
- ††† Applicable version of JEDEC standard at the time of product release.

Notes:

- ① Repetitive rating; pulse width limited by max. junction temperature.
- ② Pulse width ≤ 400μs; duty cycle ≤ 2%.
- ③ Surface mounted on 1 in square Cu board.
- ④ Refer to [application note #AN-994](#).

Data and specifications subject to change without notice.

International
IR Rectifier

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TAC Fax: (310) 252-7903

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