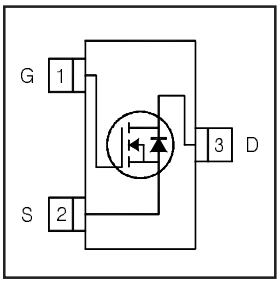
International
IOR Rectifier

PD - 97587A

IRFML8244TRPbF

HEXFET® Power MOSFET

V_{DS}	25	V
$V_{GS\ Max}$	± 20	V
$R_{DS(on)\ max}$ (@V_{GS} = 10V)	24	mΩ
$R_{DS(on)\ max}$ (@V_{GS} = 4.5V)	41	mΩ



Micro3™ (SOT-23)
IRFML8244TRPbF

Application(s)

- Load/ System Switch

Features and Benefits

Features		Benefits
Low $R_{DS(on)}$ (≤ 24mΩ)		Lower switching losses
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	25	V
I_D @ T_A = 25°C	Continuous Drain Current, V_{GS} @ 10V	5.8	A
I_D @ T_A = 70°C	Continuous Drain Current, V_{GS} @ 10V	4.6	
I_{DM}	Pulsed Drain Current	24	
P_D @T_A = 25°C	Maximum Power Dissipation	1.25	W
P_D @T_A = 70°C	Maximum Power Dissipation	0.80	
	Linear Derating Factor	0.01	W/°C
V_{GS}	Gate-to-Source Voltage	± 20	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

Free Datasheet http://www.datasheet4u.com/

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

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	25	—	—	V	V_{GS} = 0V, I_D = 250µA
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	—	0.02	—	V/°C	Reference to 25°C, I_D = 1mA
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	20	24	mΩ	V_{GS} = 10V, I_D = 5.8A ②
		—	32	41		V_{GS} = 4.5V, I_D = 4.6A ②
$V_{GS(th)}$	Gate Threshold Voltage	1.35	1.7	2.35	V	V_{DS} = V_{GS}, I_D = 10µA
I_{DSS}	Drain-to-Source Leakage Current	—	—	1.0	µA	V_{DS} = 20V, V_{GS} = 0V
		—	—	150		V_{DS} = 20V, V_{GS} = 0V, T_J = 125°C
I_{GSS}	Gate-to-Source Forward Leakage	—	—	100	nA	V_{GS} = 20V
	Gate-to-Source Reverse Leakage	—	—	-100		V_{GS} = -20V
R_G	Internal Gate Resistance	—	1.6	—	Ω	
gfs	Forward Transconductance	10	—	—	S	V_{DS} = 10V, I_D = 5.8A
Q_g	Total Gate Charge	—	5.4	—	nC	I_D = 5.8A
Q_{gs}	Gate-to-Source Charge	—	1.0	—		V_{DS} =13V
Q_{gd}	Gate-to-Drain ("Miller") Charge	—	0.81	—		V_{GS} = 10V ②
$t_{d(on)}$	Turn-On Delay Time	—	2.7	—	ns	V_{DD} =13V②
t_r	Rise Time	—	2.1	—		I_D = 1.0A
$t_{d(off)}$	Turn-Off Delay Time	—	9.0	—		R_G = 6.8Ω
t_f	Fall Time	—	2.9	—		V_{GS} = 10V
C_{iss}	Input Capacitance	—	430	—	pF	V_{GS} = 0V
C_{oss}	Output Capacitance	—	110	—		V_{DS} = 10V
C_{rss}	Reverse Transfer Capacitance	—	49	—		f = 1.0MHz

Source - Drain Ratings and Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	1.25	A	MOSFET symbol showing the integral reverse p-n junction diode.
I_{SM}	Pulsed Source Current (Body Diode) ①	—	—	24		
V_{SD}	Diode Forward Voltage	—	—	1.2	V	T_J = 25°C, I_S = 5.8A, V_{GS} = 0V ②
t_{rr}	Reverse Recovery Time	—	11	17	ns	T_J = 25°C, V_R = 20V, I_F=5.8A
Q_{rr}	Reverse Recovery Charge	—	4.2	6.3	nC	di/dt = 100A/µs ②

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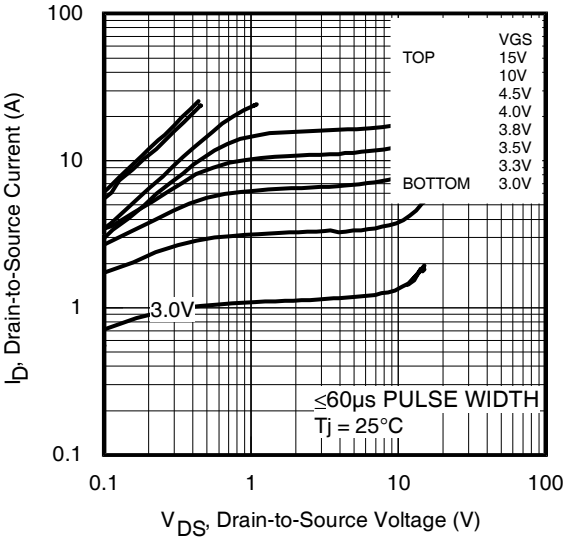

Fig 1. Typical Output Characteristics

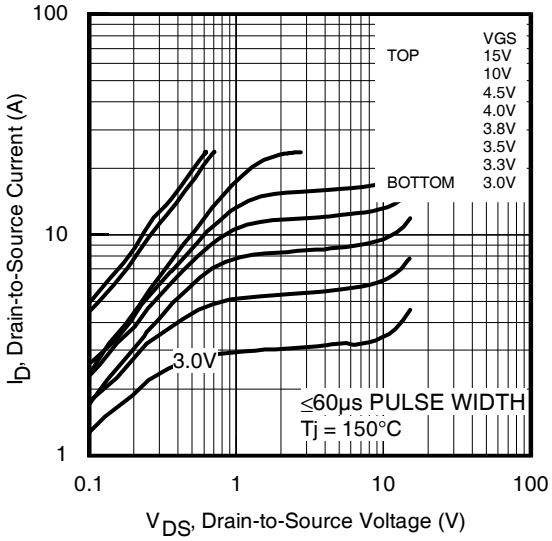

Fig 2. Typical Output Characteristics

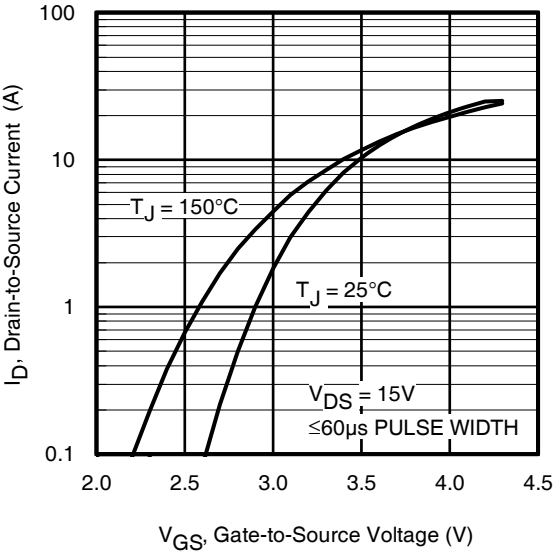

Fig 3. Typical Transfer Characteristics

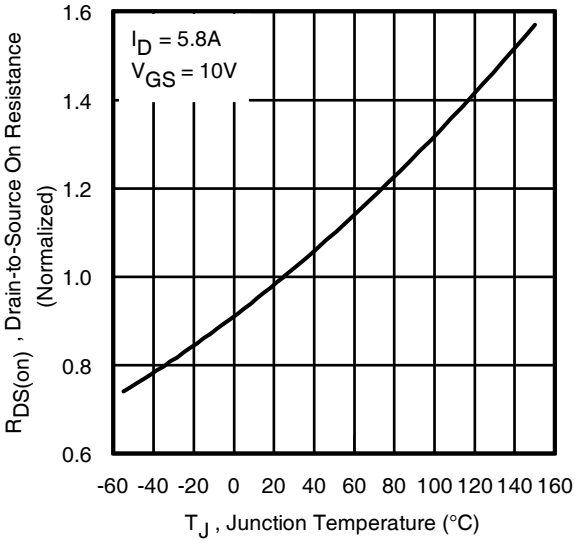

Fig 4. Normalized On-Resistance vs. Temperature

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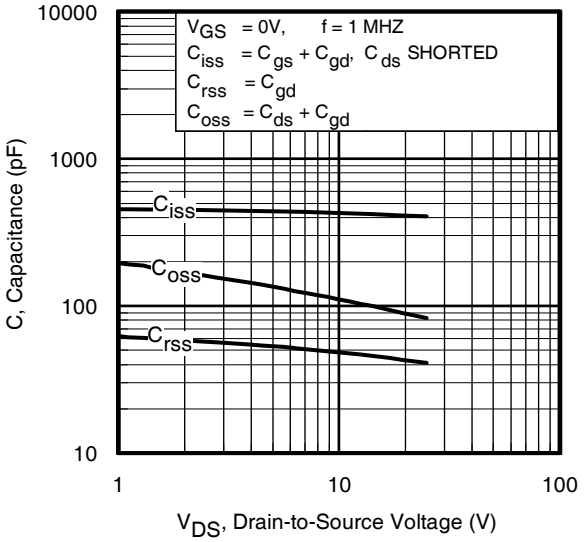

Fig 5. Typical Capacitance vs. Drain-to-Source Voltage

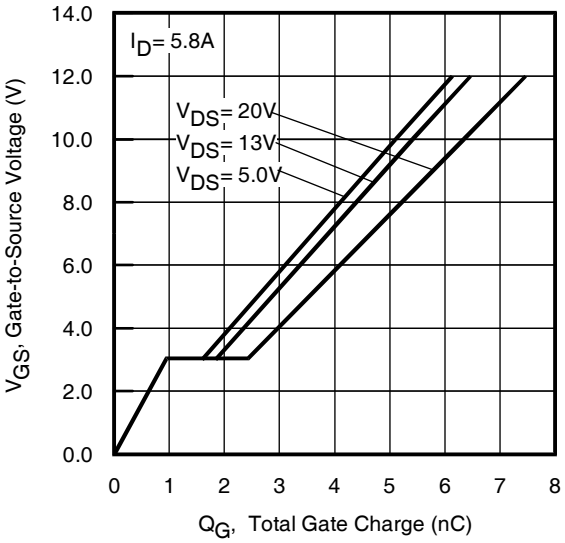

Fig 6. Typical Gate Charge vs. Gate-to-Source Voltage

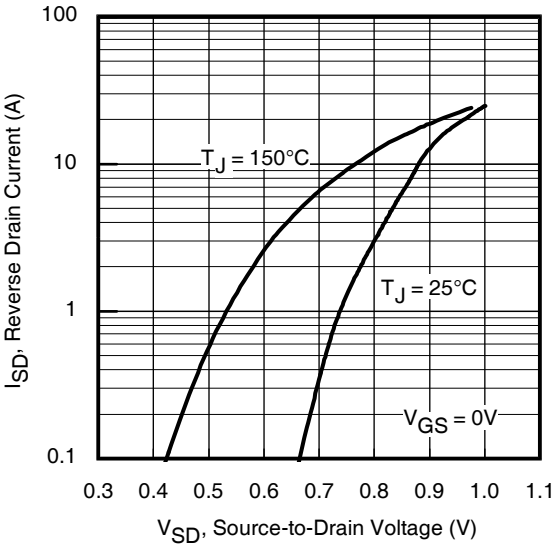

Fig 7. Typical Source-Drain Diode Forward Voltage

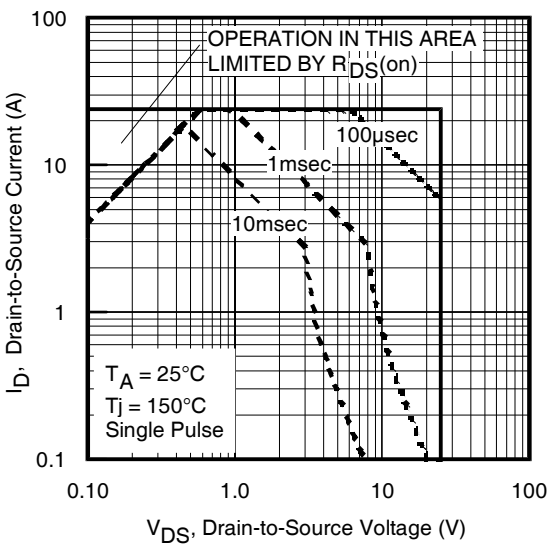

Fig 8. Maximum Safe Operating Area

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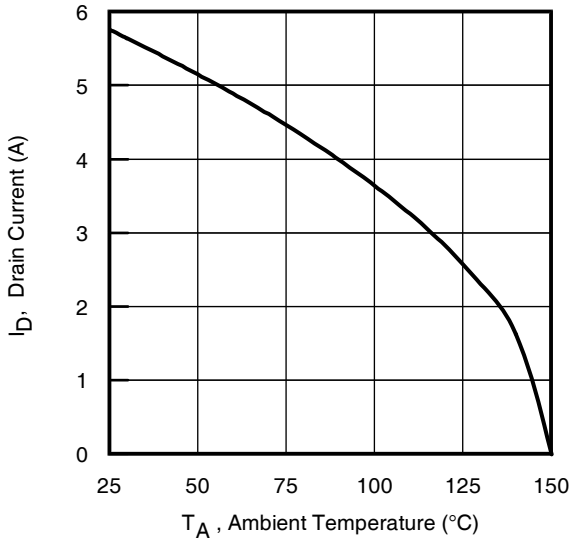

Fig 9. Maximum Drain Current vs. Ambient Temperature

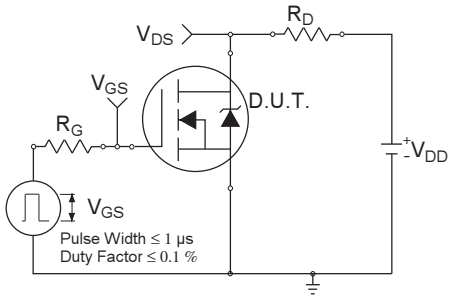

Fig 10a. Switching Time Test Circuit

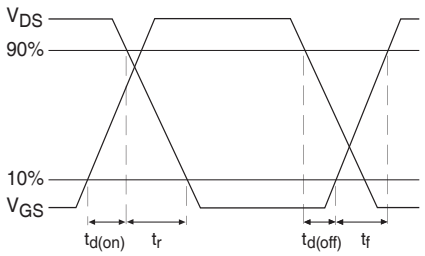

Fig 10b. Switching Time Waveforms

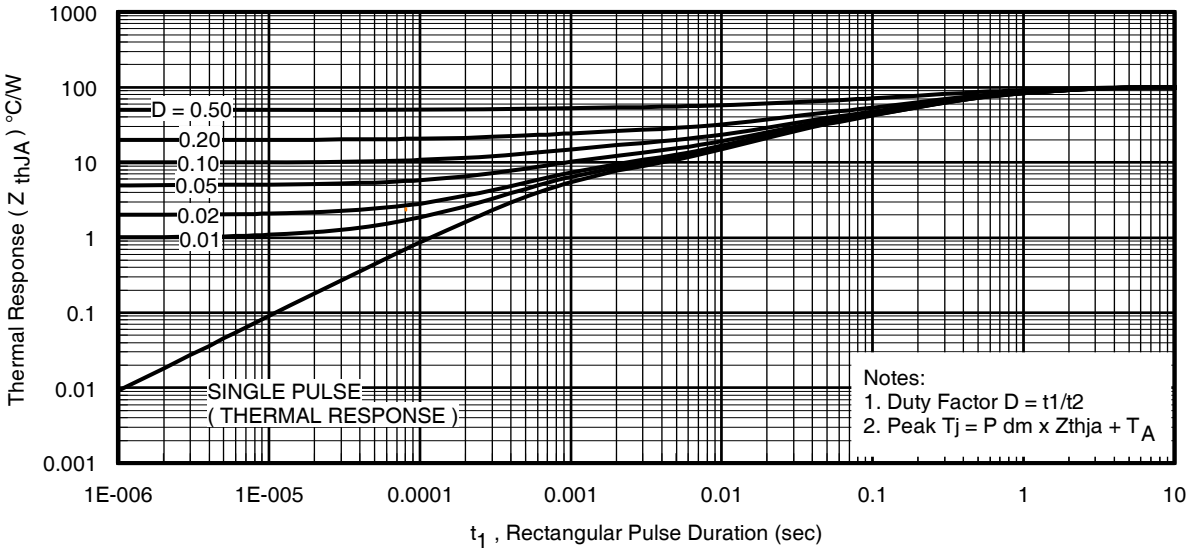

Fig 11. Typical Effective Transient Thermal Impedance, Junction-to-Ambient

Free Datasheet http://www.datasheet4u.com/

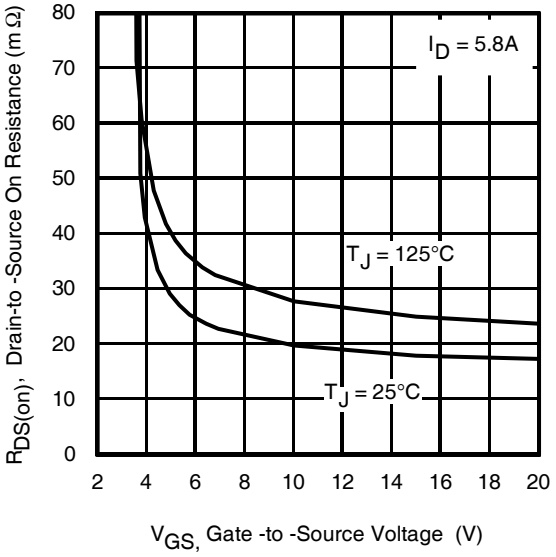

Fig 12. Typical On-Resistance vs. Gate Voltage

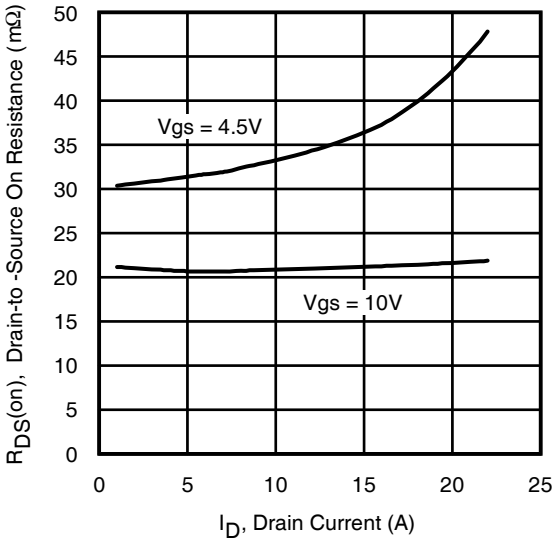

Fig 13. Typical On-Resistance vs. Drain Current

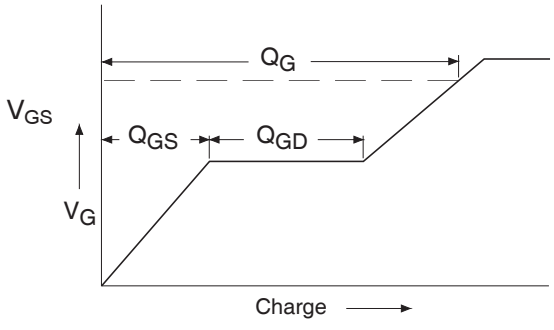

Fig 14a. Basic Gate Charge Waveform

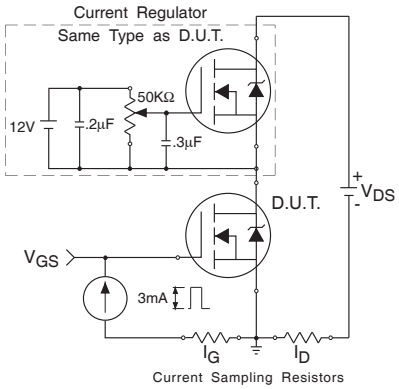

Fig 14b. Gate Charge Test Circuit

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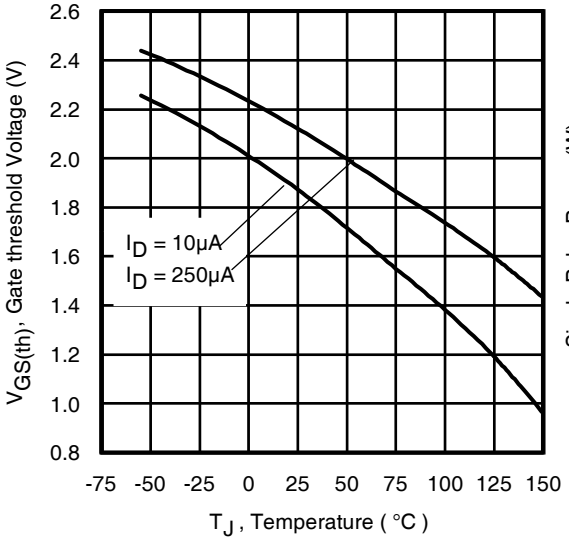


Fig 15. Typical Threshold Voltage vs. Junction Temperature

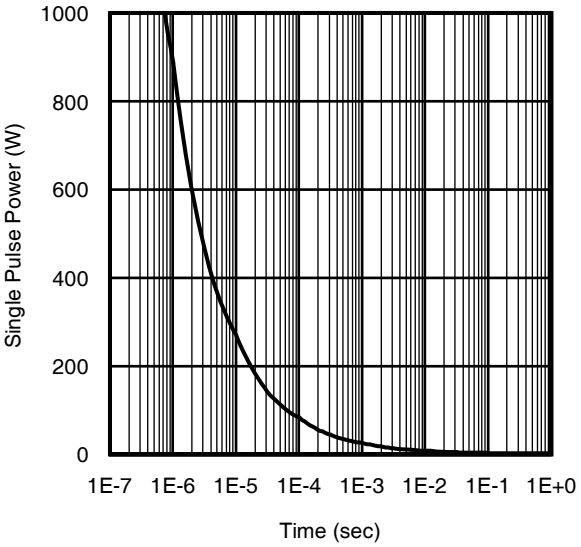
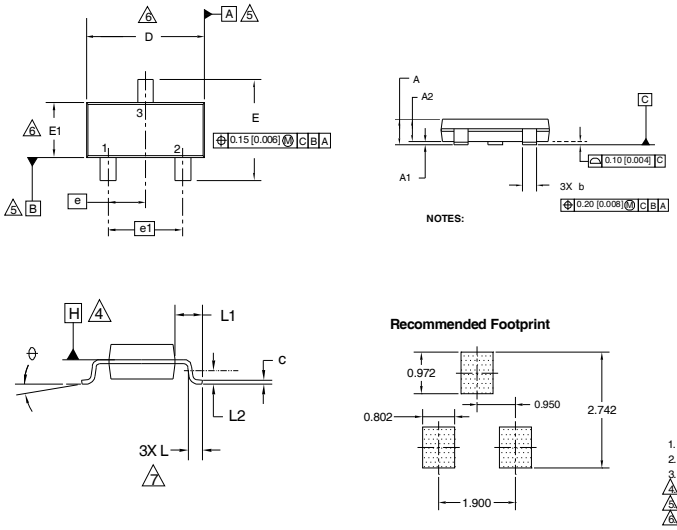


Fig 16. Typical Power vs. Time

Free Datasheet http://www.datasheet4u.com/

Micro3 (SOT-23) Package Outline

Dimensions are shown in millimeters (inches)

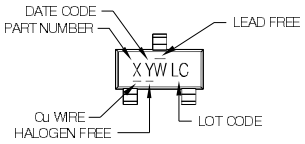


DIMENSIONS				
SYMBOL	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.89	1.12	0.035	0.044
A1	0.01	0.10	0.0004	0.004
A2	0.88	1.02	0.035	0.040
b	0.30	0.50	0.012	0.020
c	0.08	0.20	0.003	0.008
D	2.80	3.04	0.110	0.120
E	2.10	2.64	0.083	0.104
E1	1.20	1.40	0.047	0.055
e	0.95	BSC	0.037	BSC
e1	1.90	BSC	0.075	BSC
L	0.40	0.60	0.016	0.024
L1	0.54	REF	0.021	REF
L2	0.25	BSC	0.010	BSC
θ	0	8	0	8

1. DIMENSIONING & TOLERANCING PER ANSI Y14.5M-1994
2. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
3. CONTROLLING DIMENSION: MILLIMETER.
4. DATUM PLANE H IS LOCATED AT THE MOLD PARTING LINE.
5. DATUM A AND B TO BE DETERMINED AT DATUM PLANE H.
6. DIMENSIONS D AND E1 ARE MEASURED AT DATUM PLANE H. DIMENSIONS DOES NOT INCLUDE MOLD PROTRUSIONS OR INTERLEAD FLASH. MOLD PROTRUSIONS OR INTERLEAD FLASH SHALL NOT EXCEED 0.25 MM [0.010 INCH] PER SIDE.
7. DIMENSION L IS THE LEAD LENGTH FOR SOLDERING TO A SUBSTRATE.
8. OUTLINE CONFORMS TO JEDEC OUTLINE TO-236 AB.

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

Notes: This part marking information applies to devices produced after 02/26/2001



X = PART NUMBER CODE REFERENCE:

A = IRLML2402	S = IRLML6244
B = IRLML2803	T = IRLML6246
C = IRLML6302	U = IRLML6344
D = IRLML5103	V = IRLML6346
E = IRLML6402	W = IRFML8244
F = IRLML6401	X = IRLML2244
G = IRLML2502	Y = IRLML2246
H = IRLML5203	Z = IRFML9244
I = IRLML0030	
J = IRLML2030	
K = IRLML0100	
L = IRLML0060	
M = IRLML0040	
N = IRLML2060	
P = IRLML9301	
R = IRLML9303	

Note: A line above the work week (as shown here) indicates Lead - Free.

DATE CODE MARKING INSTRUCTIONS

WW = (1-26) IF PRECEDED BY LAST DIGIT OF CALENDAR YEAR

YEAR		Y	WORK WEEK	W
2011	2001	1	01	A
2012	2002	2	02	B
2013	2003	3	03	C
2014	2004	4	04	D
2015	2005	5		
2016	2006	6		
2017	2007	7		
2018	2008	8		
2019	2009	9		
2020	2010	0	24	X
			25	Y
			26	Z

WW = (27-52) IF PRECEDED BY A LETTER

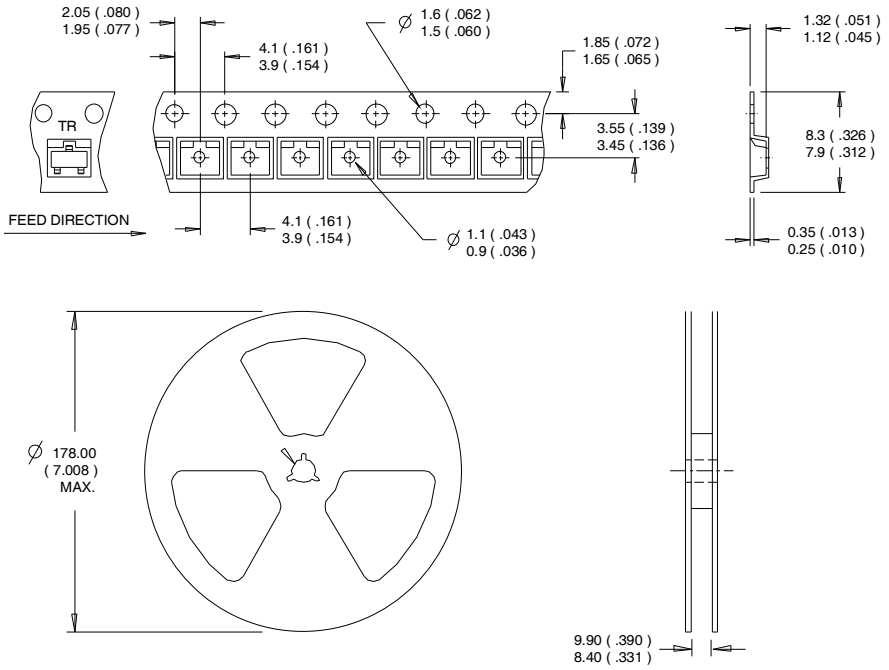
YEAR		Y	WORK WEEK	W
2011	2001	A	27	A
2012	2002	B	28	B
2013	2003	C	29	C
2014	2004	D	30	D
2015	2005	E		
2016	2006	F		
2017	2007	G		
2018	2008	H		
2019	2009	J		
2020	2010	K	50	X
			51	Y
			52	Z

Note: For the most current drawing please refer to IR website at: http://www.irf.com/package/

Free Datasheet http://www.datasheet4u.com/

Micro3™ Tape & Reel Information

Dimensions are shown in millimeters (inches)



NOTES:
1. CONTROLLING DIMENSION : MILLIMETER.
2. OUTLINE CONFORMS TO EIA-481 & EIA-541.

Note: For the most current drawing please refer to IR website at: http://www.irf.com/package/

Free Datasheet http://www.datasheet4u.com/

Orderable part number	Package Type	Standard Pack		Note
		Form	Quantity	
IRFML8244TRPbF	Micro3 (SOT-23)	Tape and Reel	3000	

Qualification information†

Qualification level	Consumer†† (per JEDEC JESD47F ††† guidelines)	
Moisture Sensitivity Level	Micro3 (SOT-23)	MSL1 (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
IOR Rectifier

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TAC Fax: (310) 252-7903
Visit us at www.irf.com for sales contact information.02/2012

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