



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



IRF5804PbF

HEXFET® Power MOSFET

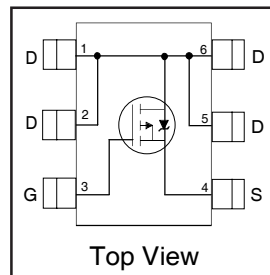
- Ultra Low On-Resistance
- P-Channel MOSFET
- Surface Mount
- Available in Tape & Reel
- Low Gate Charge
- Lead-Free
- Halogen-Free

V_{DSS}	$R_{DS(on)}$ max (m Ω)	I_D
-40V	198 @ $V_{GS} = -10V$	-2.5A
	334 @ $V_{GS} = -4.5V$	-2.0A

Description

These P-channel HEXFET® Power MOSFETs from International Rectifier utilize advanced processing techniques to achieve the extremely low on-resistance per silicon area. This benefit provides the designer with an extremely efficient device for use in battery and load management applications.

The TSOP-6 package with its customized leadframe produces a HEXFET® power MOSFET with $R_{DS(on)}$ 60% less than a similar size SOT-23. This package is ideal for applications where printed circuit board space is at a premium. It's unique thermal design and $R_{DS(on)}$ reduction enables a current-handling increase of nearly 300% compared to the SOT-23.



Absolute Maximum Ratings

	Parameter	Max.	Units
V_{DS}	Drain- Source Voltage	-40	V
$I_D @ T_A = 25^\circ C$	Continuous Drain Current, $V_{GS} @ -10V$	-2.5	A
$I_D @ T_A = 70^\circ C$	Continuous Drain Current, $V_{GS} @ -10V$	-2.0	
I_{DM}	Pulsed Drain Current ①	-10	
$P_D @ T_A = 25^\circ C$	Power Dissipation ③	2.0	W
$P_D @ T_A = 70^\circ C$	Power Dissipation ③	1.3	
	Linear Derating Factor	0.016	mW/ $^\circ C$
V_{GS}	Gate-to-Source Voltage	± 20	V
T_J, T_{STG}	Junction and Storage Temperature Range	-55 to + 150	$^\circ C$

Thermal Resistance

	Parameter	Max.	Units
$R_{\theta JA}$	Maximum Junction-to-Ambient ③	62.5	$^\circ C/W$

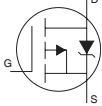
IRF5804PbF

International
IR Rectifier

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

	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	-40	—	—	V	$V_{GS} = 0V, I_D = -250\mu A$
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	—	0.03	—	V/ $^\circ\text{C}$	Reference to $25^\circ\text{C}, I_D = -1\text{mA}$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	—	198	m Ω	$V_{GS} = -10V, I_D = -2.5$ ②
		—	—	334		$V_{GS} = -4.5V, I_D = -2.0A$ ②
$V_{GS(th)}$	Gate Threshold Voltage	-1.0	—	-3.0	V	$V_{DS} = V_{GS}, I_D = -250\mu A$
g_{fs}	Forward Transconductance	2.5	—	—	S	$V_{DS} = -10V, I_D = -2.5A$
I_{DSS}	Drain-to-Source Leakage Current	—	—	-10	μA	$V_{DS} = -32V, V_{GS} = 0V$
		—	—	-25		$V_{DS} = -32V, V_{GS} = 0V, T_J = 70^\circ\text{C}$
I_{GSS}	Gate-to-Source Forward Leakage	—	—	-100	nA	$V_{GS} = -20V$
	Gate-to-Source Reverse Leakage	—	—	100		$V_{GS} = 20V$
Q_g	Total Gate Charge	—	5.7	8.5	nC	$I_D = -2.5A$
Q_{gs}	Gate-to-Source Charge	—	2.8	4.2		$V_{DS} = -20V$
Q_{gd}	Gate-to-Drain ("Miller") Charge	—	2.1	3.2		$V_{GS} = -10V$
$t_{d(on)}$	Turn-On Delay Time	—	19	—	ns	$V_{DD} = -20V$ ②
t_r	Rise Time	—	430	—		$I_D = -1.0A$
$t_{d(off)}$	Turn-Off Delay Time	—	100	—		$R_G = 6.0\Omega$
t_f	Fall Time	—	64	—		$V_{GS} = -10V$
C_{iss}	Input Capacitance	—	680	—	pF	$V_{GS} = 0V$
C_{oss}	Output Capacitance	—	60	—		$V_{DS} = -25V$
C_{rss}	Reverse Transfer Capacitance	—	44	—		$f = 1\text{kHz}$

Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	-2.5	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode) ①	—	—	-10		
V_{SD}	Diode Forward Voltage	—	—	-1.2	V	$T_J = 25^\circ\text{C}, I_S = -2.0A, V_{GS} = 0V$ ②
t_{rr}	Reverse Recovery Time	—	24	36	ns	$T_J = 25^\circ\text{C}, I_F = -2.0A$
Q_{rr}	Reverse Recovery Charge	—	32	49	nC	$di/dt = -100A/\mu s$ ②

Notes:

- ① Repetitive rating; pulse width limited by max. junction temperature.
- ② Pulse width $\leq 400\mu s$; duty cycle $\leq 2\%$.
- ③ Surface mounted on 1 in square Cu board

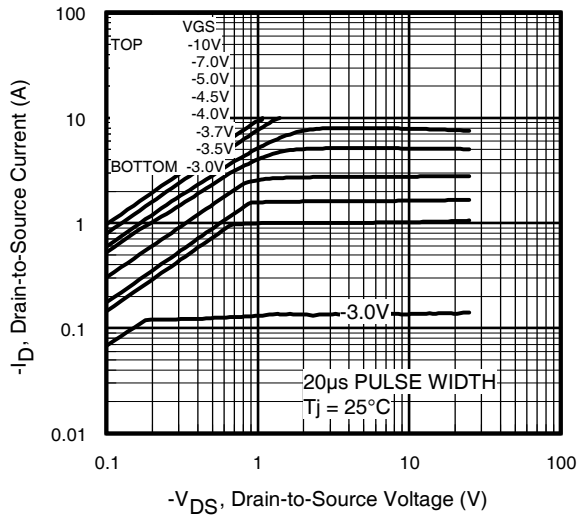


Fig 1. Typical Output Characteristics

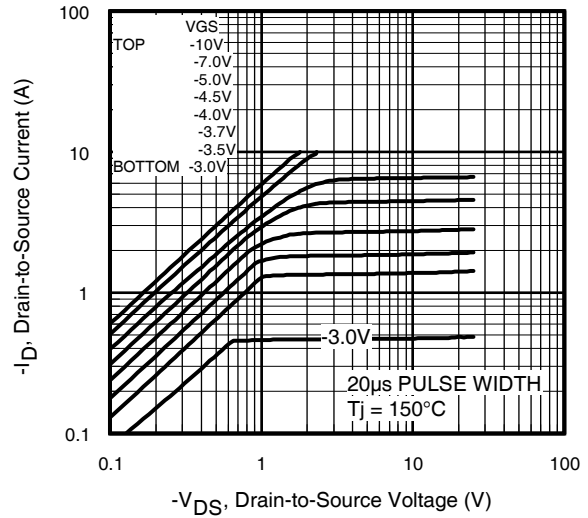


Fig 2. Typical Output Characteristics

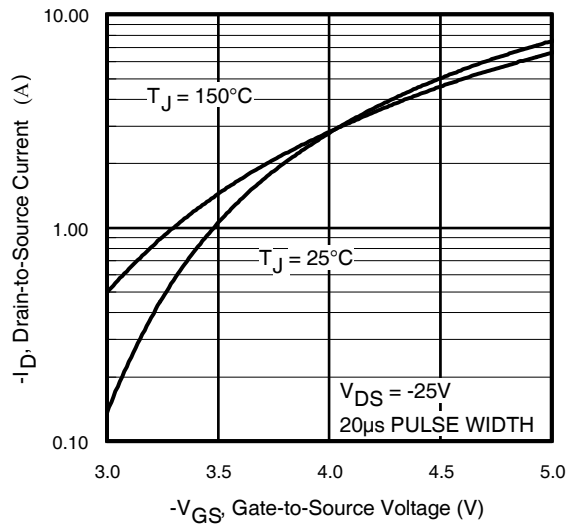


Fig 3. Typical Transfer Characteristics

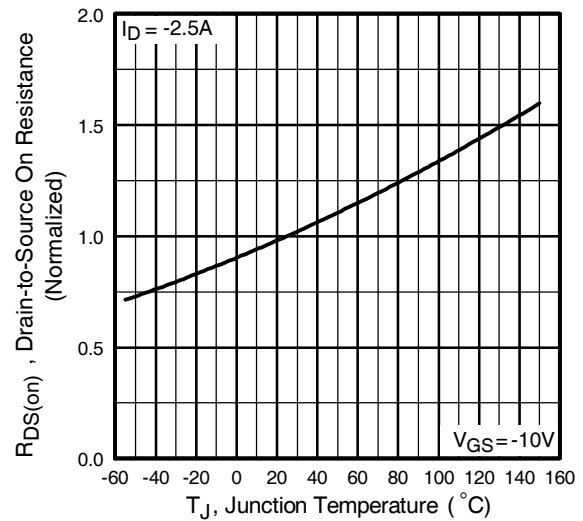


Fig 4. Normalized On-Resistance Vs. Temperature

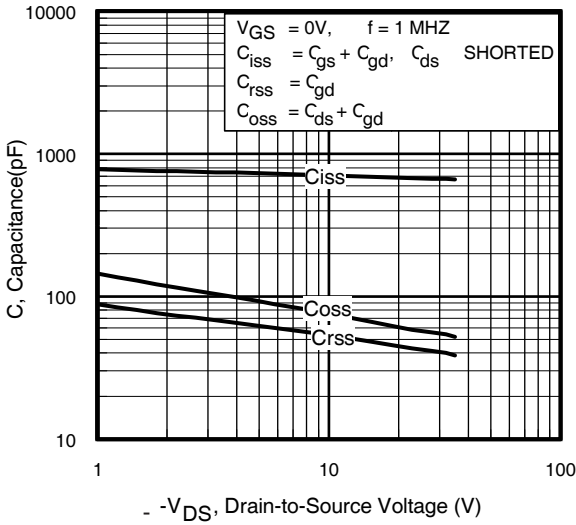


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

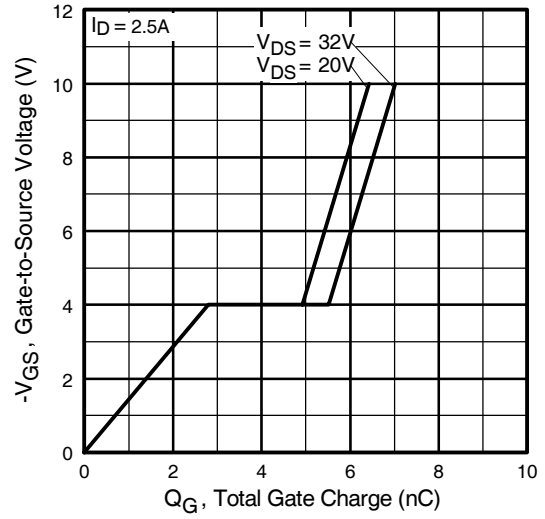


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

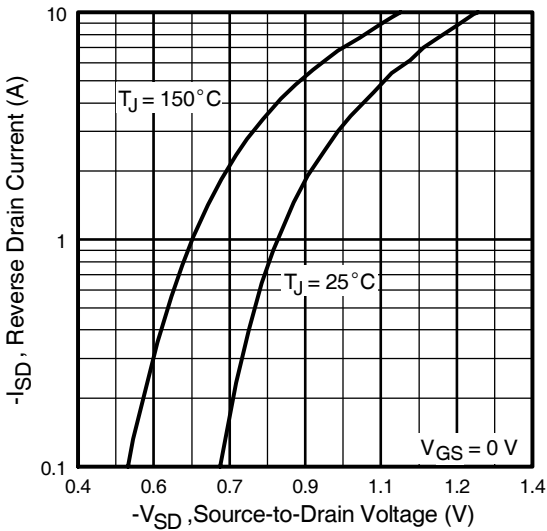


Fig 7. Typical Source-Drain Diode Forward Voltage

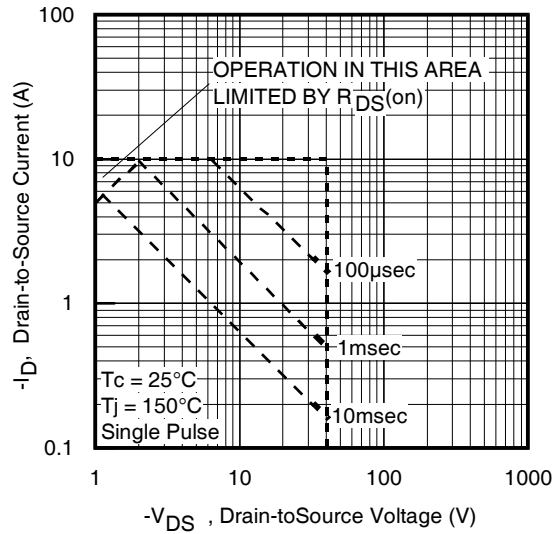


Fig 8. Maximum Safe Operating Area

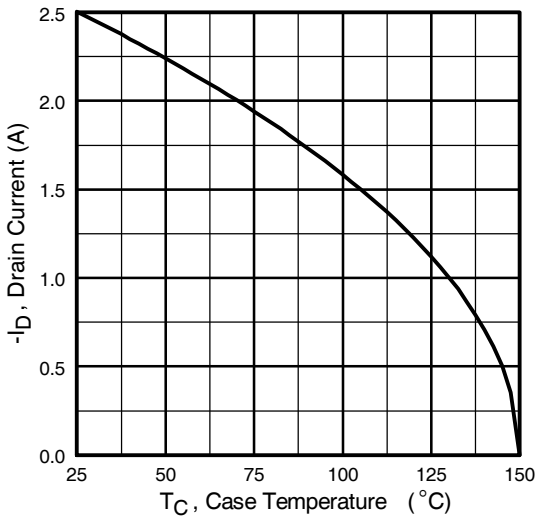


Fig 9. Maximum Drain Current Vs. Case Temperature

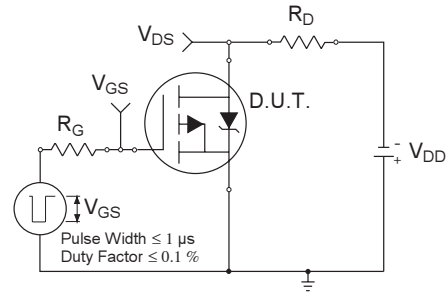


Fig 10a. Switching Time Test Circuit

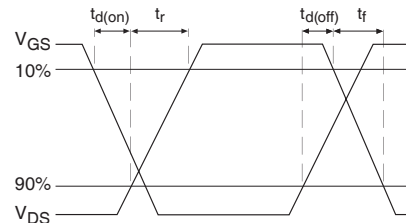


Fig 10b. Switching Time Waveforms

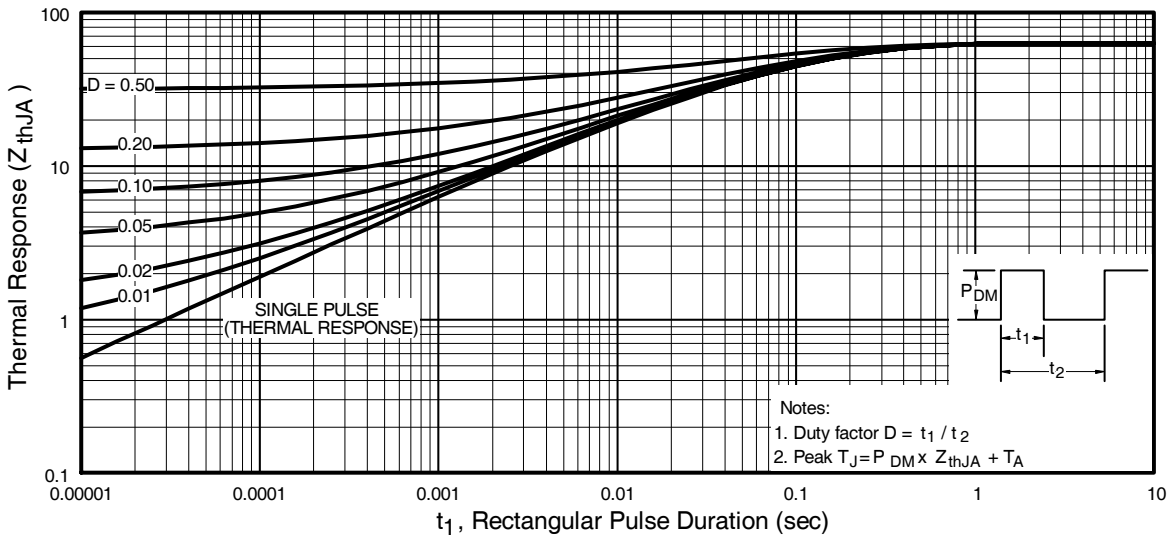


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

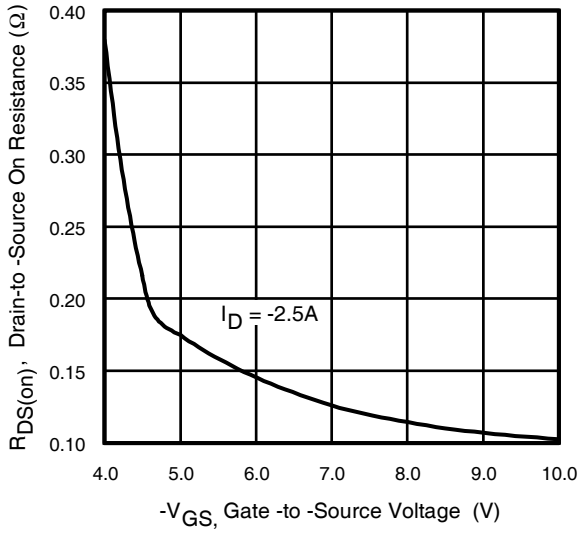


Fig 12. Typical On-Resistance Vs. Gate Voltage

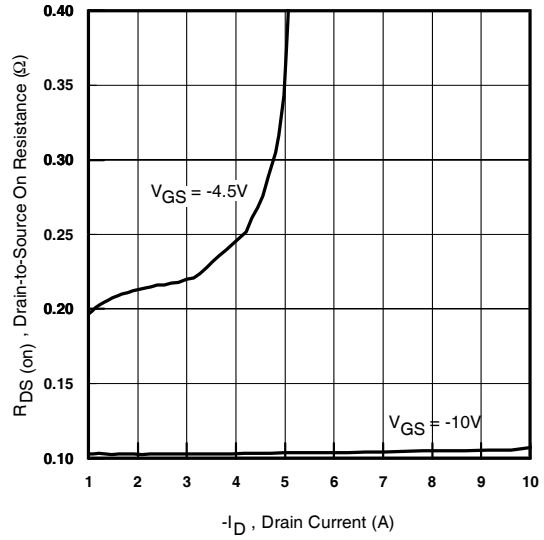


Fig 13. Typical On-Resistance Vs. Drain Current

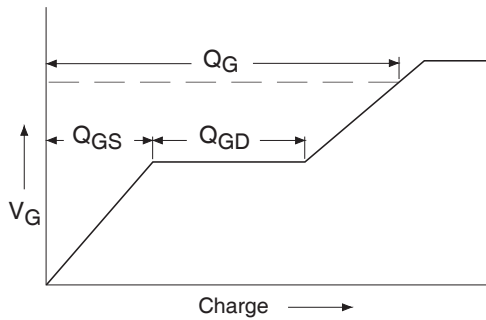


Fig 14a. Basic Gate Charge Waveform

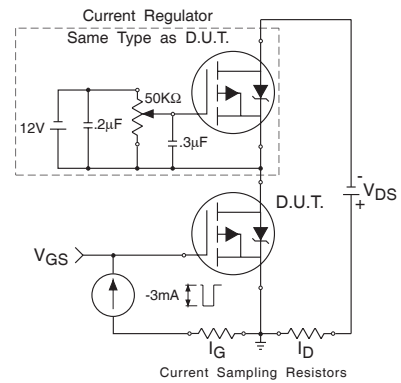


Fig 14b. Gate Charge Test Circuit

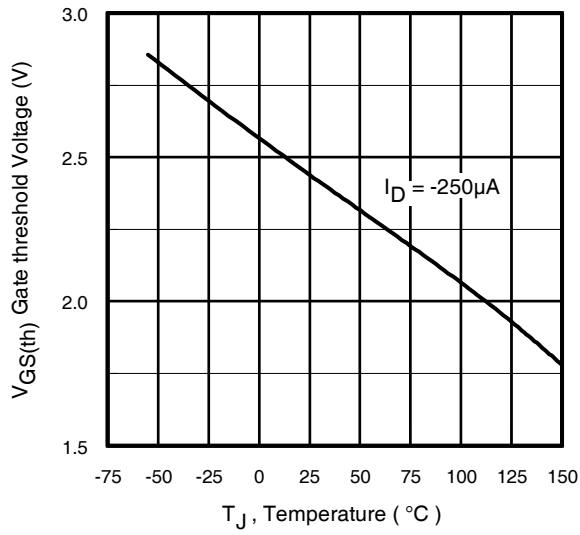


Fig 15. Typical Threshold Voltage Vs. Junction Temperature

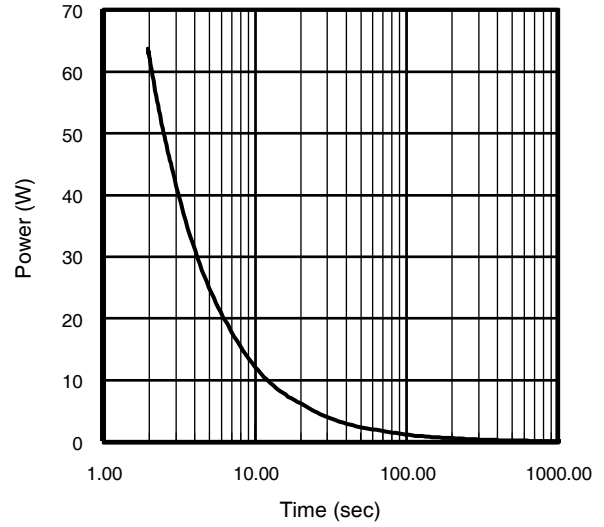
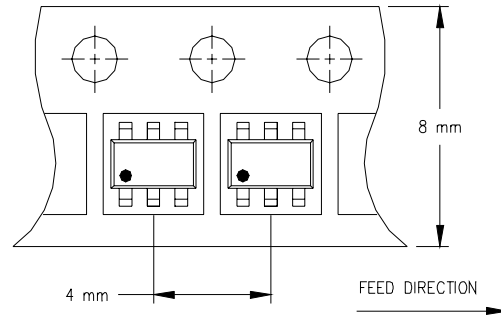


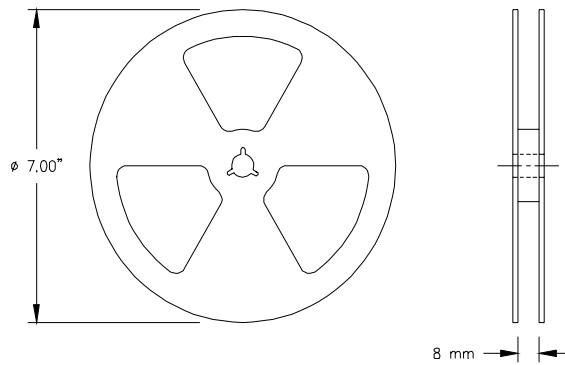
Fig 16. Typical Power Vs. Time

TSOP-6 Tape & Reel Information



NOTES:

1. OUTLINE CONFORMS TO EIA-481 & EIA-541.



NOTES:

1. OUTLINE CONFORMS TO EIA-481 & EIA-541.

Data and specifications subject to change without notice.
This product has been designed and qualified for the Consumer market.
Qualification Standards can be found on IR's Web site.

International
IR Rectifier

IR WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105
TAC Fax: (310) 252-7903

Visit us at www.irf.com for sales contact information.04/2010