



**THE DATASHEET OF
IRF7606TRPBF**



IRF7606PbF

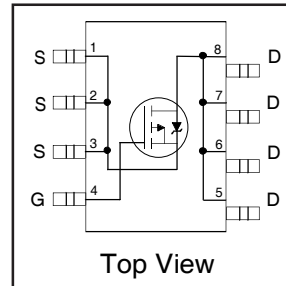
HEXFET® Power MOSFET

- Generation V Technology
- Ultra Low On-Resistance
- P-Channel MOSFET
- Very Small SOIC Package
- Low Profile (<1.1mm)
- Available in Tape & Reel
- Fast Switching
- Lead-Free

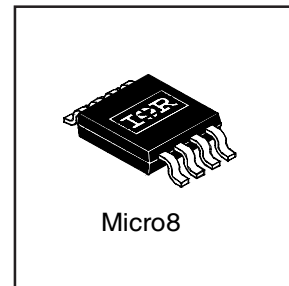
Description

Fifth Generation HEXFETs from International Rectifier utilize advanced processing techniques to achieve extremely low on-resistance per silicon area. This benefit, combined with the fast switching speed and ruggedized device design that HEXFET Power MOSFETs are well known for, provides the designer with an extremely efficient and reliable device for use in a wide variety of applications.

The new Micro8 package, with half the footprint area of the standard SO-8, provides the smallest footprint available in an SOIC outline. This makes the Micro8 an ideal device for applications where printed circuit board space is at a premium. The low profile (<1.1mm) of the Micro8 will allow it to fit easily into extremely thin application environments such as portable electronics and PCMCIA cards.



$V_{DS} = -30V$
$R_{DS(on)} = 0.09\Omega$



Absolute Maximum Ratings

	Parameter	Max.	Units
V_{DS}	Drain-Source Voltage	-30	V
$I_D @ T_A = 25^\circ C$	Continuous Drain Current, $V_{GS} @ -10V$	-3.6	A
$I_D @ T_A = 70^\circ C$	Continuous Drain Current, $V_{GS} @ -10V$	-2.9	
I_{DM}	Pulsed Drain Current ^①	-29	
$P_D @ T_A = 25^\circ C$	Maximum Power Dissipation ^④	1.8	W
$P_D @ T_A = 70^\circ C$	Maximum Power Dissipation ^④	1.1	W
	Linear Derating Factor	14	mW/°C
V_{GS}	Gate-to-Source Voltage	± 20	V
V_{GSM}	Gate-to-Source Voltage Single Pulse $t_p < 10\mu S$	30	V
dv/dt	Peak Diode Recovery dv/dt ^②	-5.0	V/ns
T_J, T_{STG}	Junction and Storage Temperature Range	-55 to + 150	°C
	Soldering Temperature, for 10 seconds	240 (1.6mm from case)	

Thermal Resistance

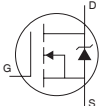
	Parameter	Max.	Units
$R_{\theta JA}$	Maximum Junction-to-Ambient ^④	70	°C/W

All Micro8 Data Sheets reflect improved Thermal Resistance, Power and Current -Handling Ratings- effective only for product marked with Date Code 505 or later .

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

	Parameter	Min.	Typ.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source Breakdown Voltage	-30	—	—	V	V _{GS} = 0V, I _D = 250μA
ΔV _{(BR)DSS/ΔT_J}	Breakdown Voltage Temp. Coefficient	—	-0.024	—	V/°C	Reference to 25°C, I _D = -1mA
R _{DSON}	Static Drain-to-Source On-Resistance	—	0.075	0.09	Ω	V _{GS} = -10V, I _D = -2.4A ③
		—	0.130	0.15		V _{GS} = -4.5V, I _D = -1.2A ③
V _{GS(th)}	Gate Threshold Voltage	-1.0	—	—	V	V _{DS} = V _{GS} , I _D = -250μA
g _{fs}	Forward Transconductance	2.3	—	—	S	V _{DS} = -10V, I _D = -1.2A
I _{DSS}	Drain-to-Source Leakage Current	—	—	-1.0	μA	V _{DS} = -24V, V _{GS} = 0V
		—	—	-25		V _{DS} = -24V, 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
Q _g	Total Gate Charge	—	20	30	nC	I _D = -2.4A
Q _{gs}	Gate-to-Source Charge	—	2.1	3.1		V _{DS} = -24V
Q _{gd}	Gate-to-Drain ("Miller") Charge	—	7.6	11		V _{GS} = -10V, See Fig. 9 ③
t _{d(on)}	Turn-On Delay Time	—	13	—	ns	V _{DD} = -10V
t _r	Rise Time	—	20	—		I _D = -2.4A
t _{d(off)}	Turn-Off Delay Time	—	43	—		R _G = 6.0Ω
t _f	Fall Time	—	39	—		R _D = 4.0Ω ③
C _{iss}	Input Capacitance	—	520	—	pF	V _{GS} = 0V
C _{oss}	Output Capacitance	—	300	—		V _{DS} = -25V
C _{rss}	Reverse Transfer Capacitance	—	140	—		f = 1.0MHz, See Fig. 8

Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I _S	Continuous Source Current (Body Diode)	—	—	-1.8	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I _{SM}	Pulsed Source Current (Body Diode) ①	—	—	-29		
V _{SD}	Diode Forward Voltage	—	—	-1.2	V	T _J = 25°C, I _S = -2.4A, V _{GS} = 0V ③
t _{rr}	Reverse Recovery Time	—	43	64	ns	T _J = 25°C, I _F = -2.4A
Q _{rr}	Reverse Recovery Charge	—	50	76	nC	di/dt = -100A/μs ③

Notes:

① Repetitive rating; pulse width limited by max. junction temperature. (See fig. 10)

③ Pulse width ≤ 300μs; duty cycle ≤ 2%.

② I_{SD} ≤ -2.4A, di/dt ≤ -130A/μs, V_{DD} ≤ V_{(BR)DSS}, T_J ≤ 150°C

④ Surface mounted on FR-4 board, t ≤ 10sec.

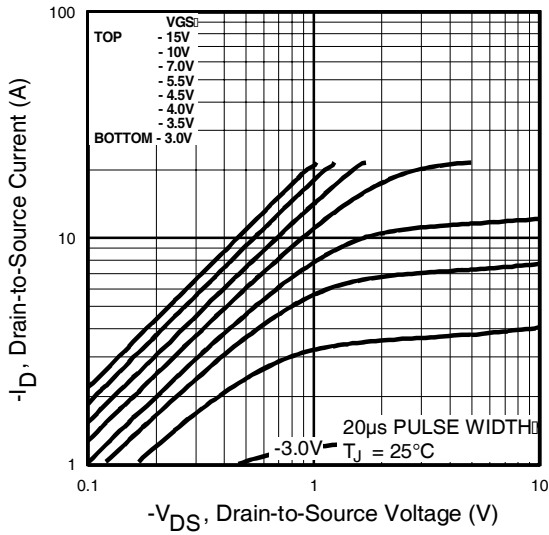


Fig 1. Typical Output Characteristics

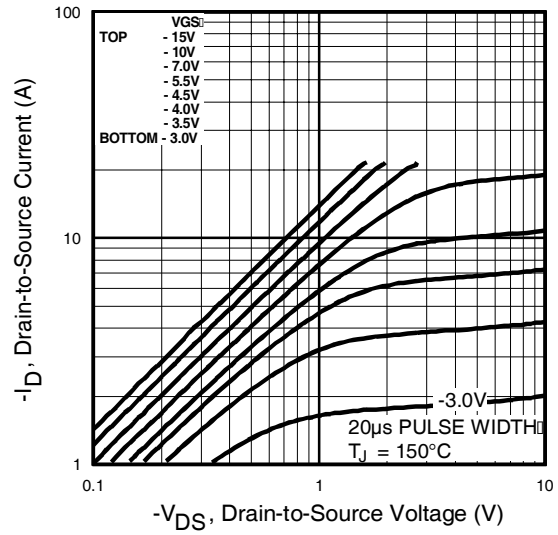


Fig 2. Typical Output Characteristics

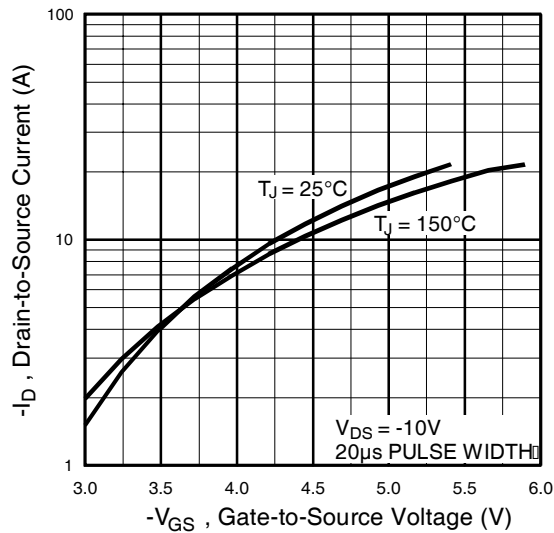


Fig 3. Typical Transfer Characteristics

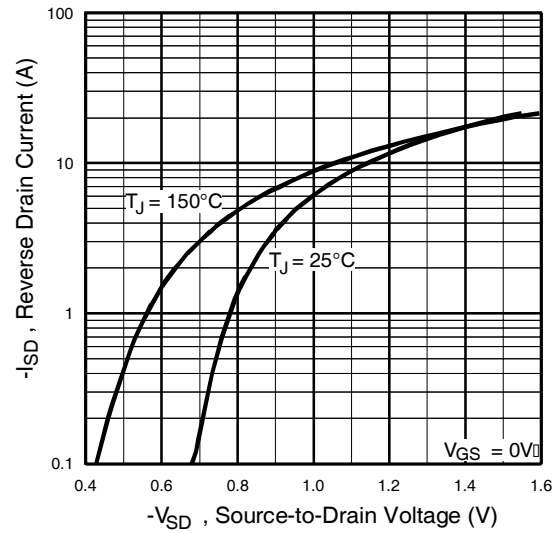


Fig 4. Typical Source-Drain Diode Forward Voltage

IRF7606PbF

International
IR Rectifier

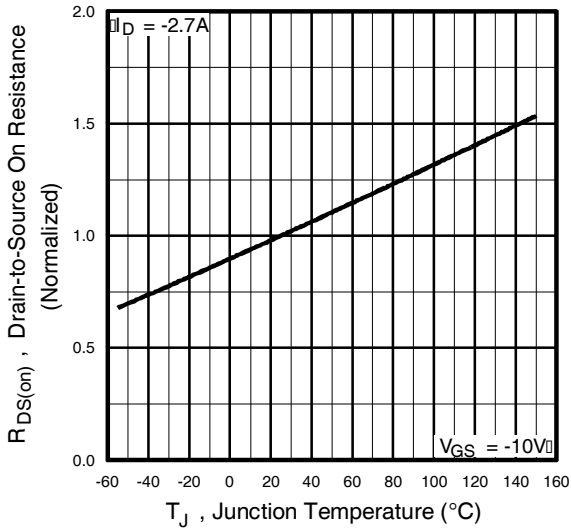


Fig 5. Normalized On-Resistance Vs. Temperature

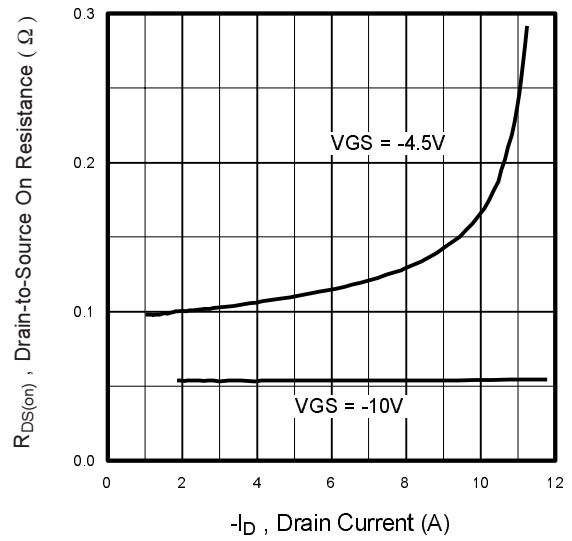


Fig 6. Typical On-Resistance Vs. Drain Current

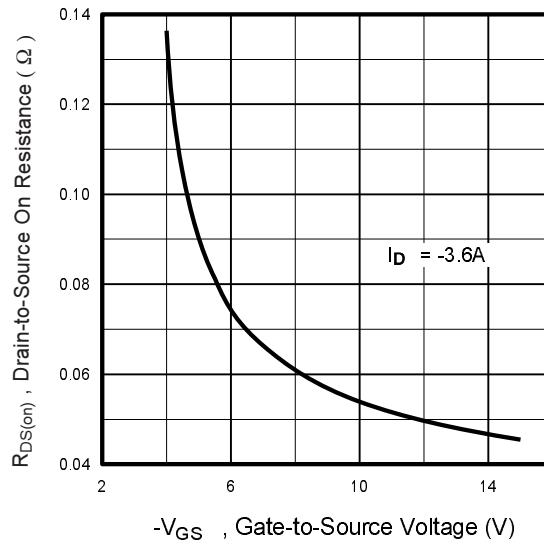


Fig 7. Typical On-Resistance Vs. Gate Voltage

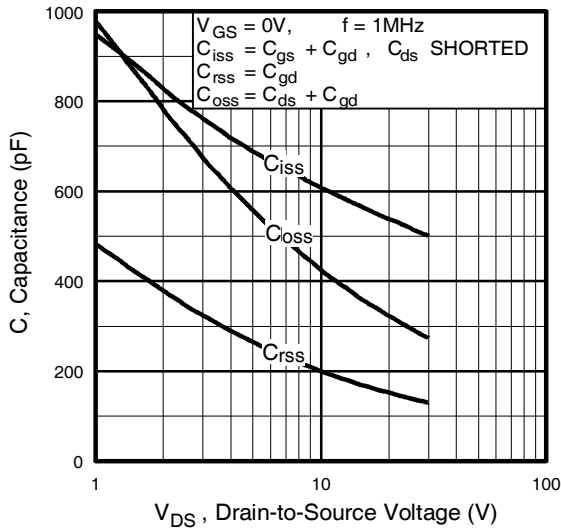


Fig 8. Typical Capacitance Vs. Drain-to-Source Voltage

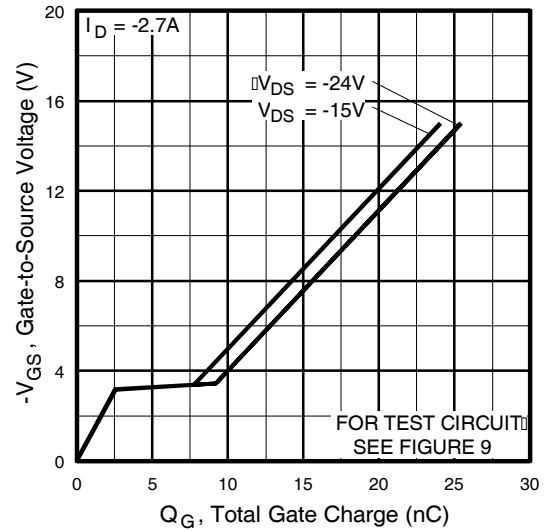


Fig 9. Typical Gate Charge Vs. Gate-to-Source Voltage

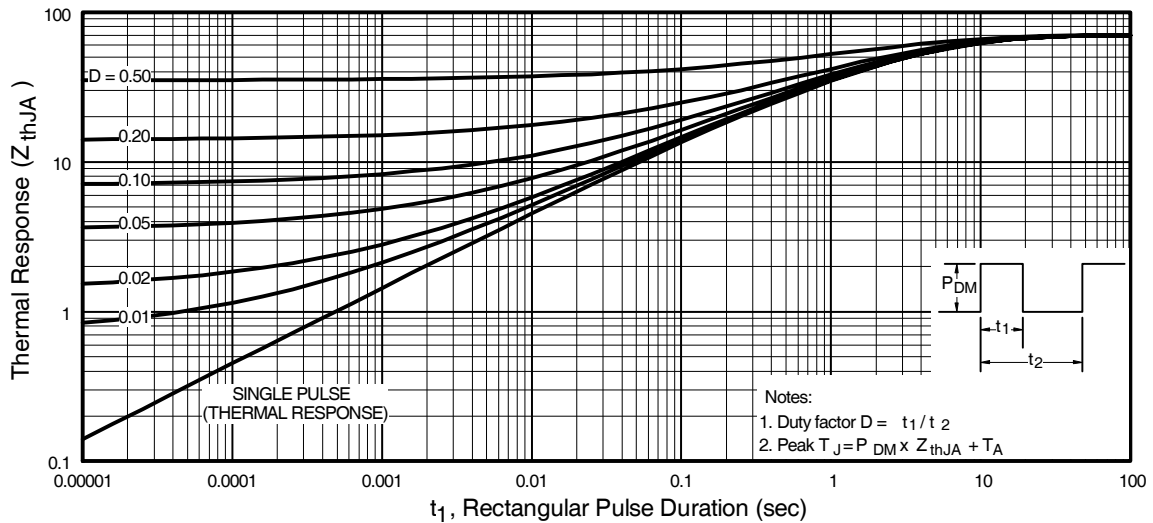


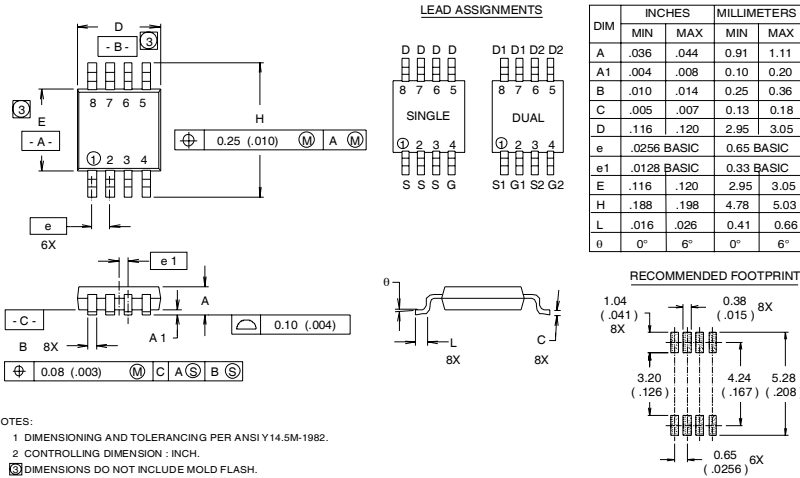
Fig 10. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

IRF7606PbF

International
IR Rectifier

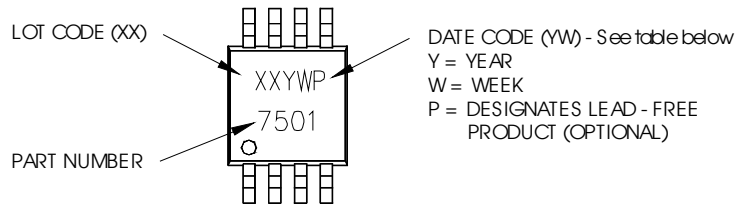
Micro8 Package Outline

Dimensions are shown in millimeters (inches)



Micro8 Part Marking Information

EXAMPLE: THIS IS AN IRF7501



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

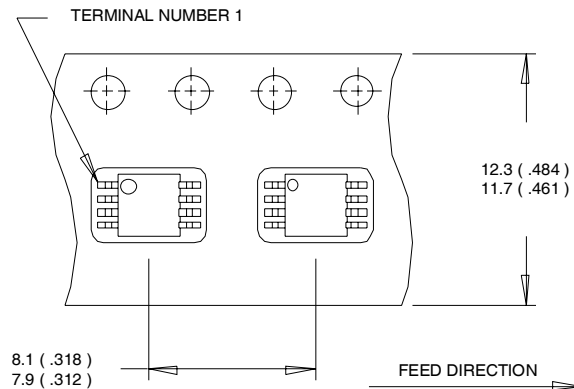
YEAR	Y	WORK WEEK	W
2001	1	01	A
2002	2	02	B
2003	3	03	C
2004	4	04	D
2005	5		
2006	6		
2007	7		
2008	8		
2009	9		
2010	0	24	X
		25	Y
		26	Z

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

YEAR	Y	WORK WEEK	W
2001	A	27	A
2002	B	28	B
2003	C	29	C
2004	D	30	D
2005	E		
2006	F		
2007	G		
2008	H		
2009	J		
2010	K	50	X
		51	Y
		52	Z

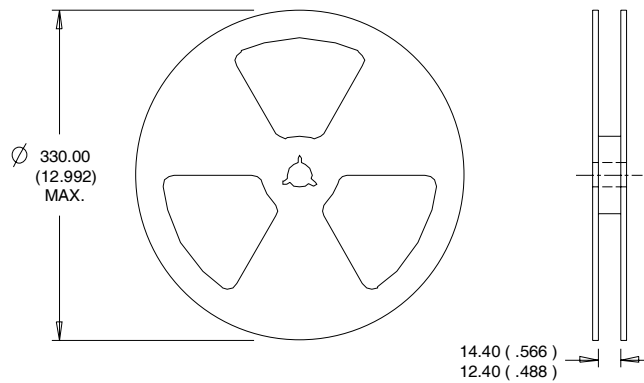
Micro8 Tape & Reel Information

Dimensions are shown in millimeters (inches)



NOTES:

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



NOTES:

1. CONTROLLING DIMENSION : MILLIMETER.
2. 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.

IMPORTANT NOTICE

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics ("Beschaffheitsgarantie").

With respect to any examples, hints or any typical values stated herein and/or any information regarding the application of the product, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

In addition, any information given in this document is subject to customer's compliance with its obligations stated in this document and any applicable legal requirements, norms and standards concerning customer's products and any use of the product of Infineon Technologies in customer's applications.

The data contained in this document is exclusively intended for technically trained staff. It is the responsibility of customer's technical departments to evaluate the suitability of the product for the intended application and the completeness of the product information given in this document with respect to such application.

For further information on the product, technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies office (www.infineon.com).

WARNINGS

Due to technical requirements products may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by Infineon Technologies in a written document signed by authorized representatives of Infineon Technologies, Infineon Technologies' products may not be used in any applications where a failure of the product or any consequences of the use thereof can reasonably be expected to result in personal injury.

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

 [View IRF7606TRPBF on WIN SOURCE](#)

 [Infineon Technologies](#) Information

Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management