



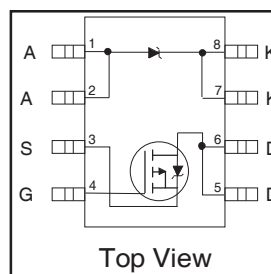
THE DATASHEET OF IRF7321D2TRPBF

International
IR Rectifier

IRF7321D2PbF

FETKY™ MOSFET & Schottky Diode

- Co-packaged HEXFET® Power MOSFET and Schottky Diode
- Ideal For Buck Regulator Applications
- P-Channel HEXFET®
- Low V_F Schottky Rectifier
- Generation 5 Technology
- SO-8 Footprint
- Lead-Free

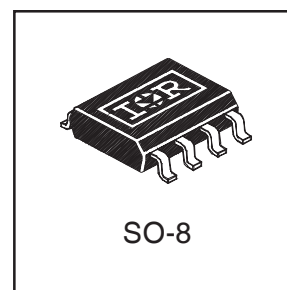


$V_{DSS} = -30V$
 $R_{DS(on)} = 0.062\Omega$
 Schottky $V_f = 0.52V$

Description

The FETKY™ family of Co-packaged HEXFETs and Schottky diodes offer the designer an innovative board space saving solution for switching regulator and power management applications. Generation 5 HEXFETs utilize advanced processing techniques to achieve extremely low on-resistance per silicon area. Combining this technology with International Rectifier's low forward drop Schottky rectifiers results in an extremely efficient device suitable for use in a wide variety of portable electronics applications.

The SO-8 has been modified through a customized leadframe for enhanced thermal characteristics. The SO-8 package is designed for vapor phase, infrared or wave soldering techniques.



Absolute Maximum Ratings ($T_A = 25^\circ C$ Unless Otherwise Noted)

Parameter	Maximum	Units
I_D @ $T_A = 25^\circ C$	-4.7	A
I_D @ $T_A = 70^\circ C$	-3.8	A
I_{DM}	-38	A
P_D @ $T_A = 25^\circ C$	2.0	W
P_D @ $T_A = 70^\circ C$	1.3	W
Linear Derating Factor	16	mW/°C
V_{GS}	± 20	V
dv/dt	-5.0	V/ns
T_J, T_{STG}	-55 to +150	°C

Thermal Resistance Ratings

Parameter	Maximum	Units
$R_{\theta JA}$	62.5	°C/W

Notes:

- ① Repetitive rating – pulse width limited by max. junction temperature (see fig. 11)
- ② $I_{SD} \leq -2.9A$, $di/dt \leq -77A/\mu s$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ C$
- ③ Pulse width $\leq 300\mu s$ – duty cycle $\leq 2\%$
- ④ Surface mounted on FR-4 board, $t \leq 10sec$.

www.irf.com

10/12/04

IRF7321D2PbF

International
Rectifier

MOSFET 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	-30	—	—	V	$V_{GS} = 0V, I_D = -250\mu A$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	0.042	0.062	Ω	$V_{GS} = -10V, I_D = -4.9A$ ③
		—	0.076	0.098		$V_{GS} = -4.5V, I_D = -3.6A$ ③
$V_{GS(th)}$	Gate Threshold Voltage	-1.0	—	—	V	$V_{DS} = V_{GS}, I_D = -250\mu A$
g_{fs}	Forward Transconductance	—	7.7	—	S	$V_{DS} = -15V, I_D = -4.9A$
I_{DSS}	Drain-to-Source Leakage Current	—	—	-1.0	μA	$V_{DS} = -24V, V_{GS} = 0V$
		—	—	-25		$V_{DS} = -24V, V_{GS} = 0V, T_J = 55^\circ\text{C}$
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	—	23	34	nC	$I_D = -4.9A$
Q_{gs}	Gate-to-Source Charge	—	3.8	5.7		$V_{DS} = -15V$
Q_{gd}	Gate-to-Drain ("Miller") Charge	—	5.9	8.9		$V_{GS} = -10V$, See Fig. 6 ③
$t_{d(on)}$	Turn-On Delay Time	—	13	19	ns	$V_{DD} = -15V$
t_r	Rise Time	—	13	20		$I_D = -1.0A$
$t_{d(off)}$	Turn-Off Delay Time	—	34	51		$R_G = 6.0\Omega$
t_f	Fall Time	—	32	48		$R_D = 15\Omega$, ③
C_{iss}	Input Capacitance	—	710	—	pF	$V_{GS} = 0V$
C_{oss}	Output Capacitance	—	380	—		$V_{DS} = -25V$
C_{rss}	Reverse Transfer Capacitance	—	180	—		$f = 1.0\text{MHz}$, See Fig. 5

MOSFET Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	-2.5	A	
I_{SM}	Pulsed Source Current (Body Diode)	—	—	-30		
V_{SD}	Body Diode Forward Voltage	—	-0.78	-1.0	V	$T_J = 25^\circ\text{C}, I_S = -1.7A, V_{GS} = 0V$
t_{rr}	Reverse Recovery Time (Body Diode)	—	44	66	ns	$T_J = 25^\circ\text{C}, I_F = -1.7A$
Q_{rr}	Reverse Recovery Charge	—	42	63	nC	$di/dt = 100A/\mu s$ ③

Schottky Diode Maximum Ratings

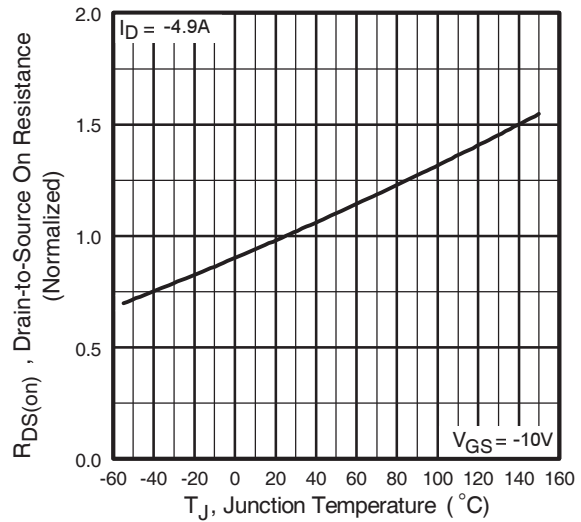
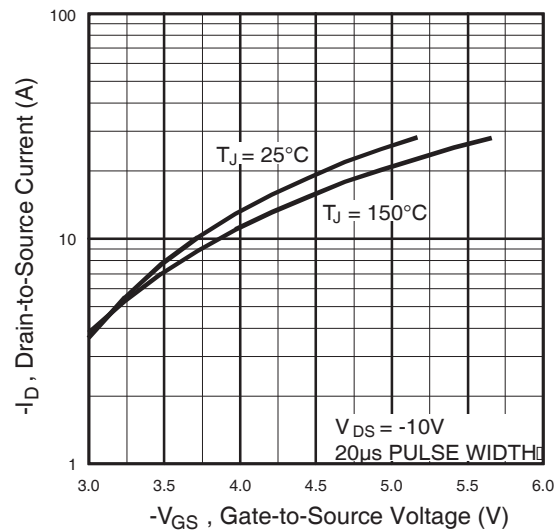
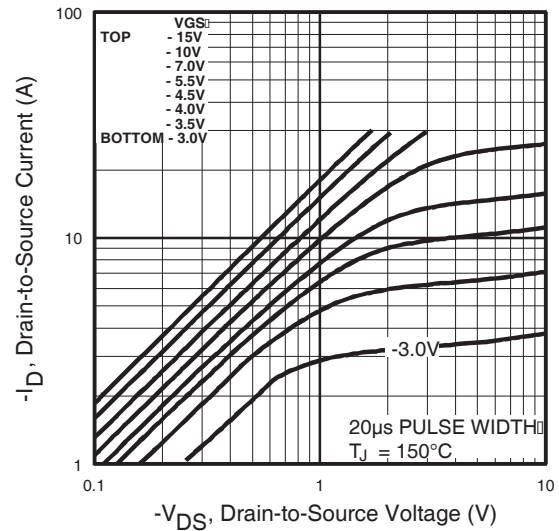
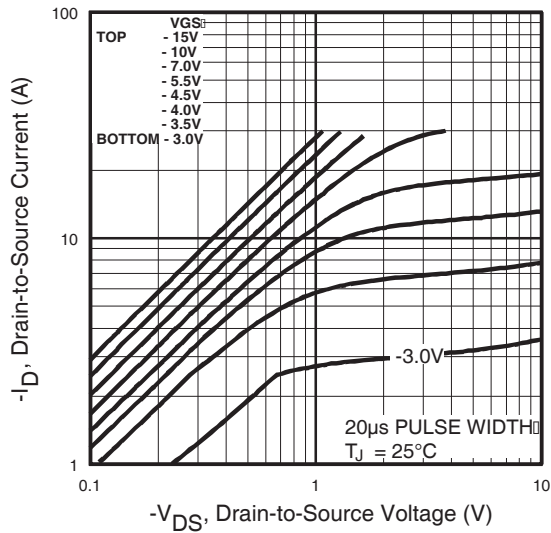
	Parameter	Max.	Units	Conditions
I_f (av)	Max. Average Forward Current	3.2	A	50% Duty Cycle. Rectangular Wave, $T_c = 25^\circ\text{C}$
		2.0		See Fig.14 $T_c = 70^\circ\text{C}$
I_{SM}	Max. peak one cycle Non-repetitive Surge current	200	A	5 μs sine or 3 μs Rect. pulse
		20		10ms sine or 6ms Rect. pulse
				Following any rated load condition & with V_{rrm} applied

Schottky Diode Electrical Specifications

	Parameter	Max.	Units	Conditions
V_{fm}	Max. Forward voltage drop	0.57	V	$I_f = 3.0, T_J = 25^\circ\text{C}$
		0.77		$I_f = 6.0, T_J = 25^\circ\text{C}$
		0.52		$I_f = 3.0, T_J = 125^\circ\text{C}$
		0.79		$I_f = 6.0, T_J = 125^\circ\text{C}$
I_{rm}	Max. Reverse Leakage current	0.30	mA	$V_r = 30V, T_J = 25^\circ\text{C}$
		37		$T_J = 125^\circ\text{C}$
C_t	Max. Junction Capacitance	310	pF	$V_r = 5V_{dc}$ (100kHz to 1 MHz) 25°C
dv/dt	Max. Voltage Rate of Charge	4900	V/ μs	Rated V_r

(HEXFET is the reg. TM for International Rectifier Power MOSFET's)

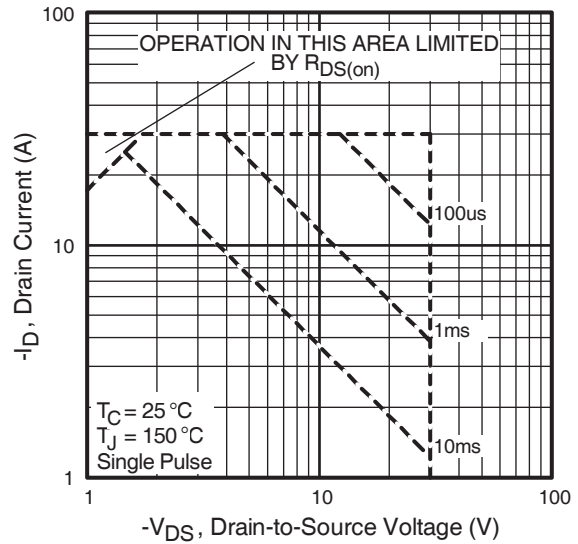
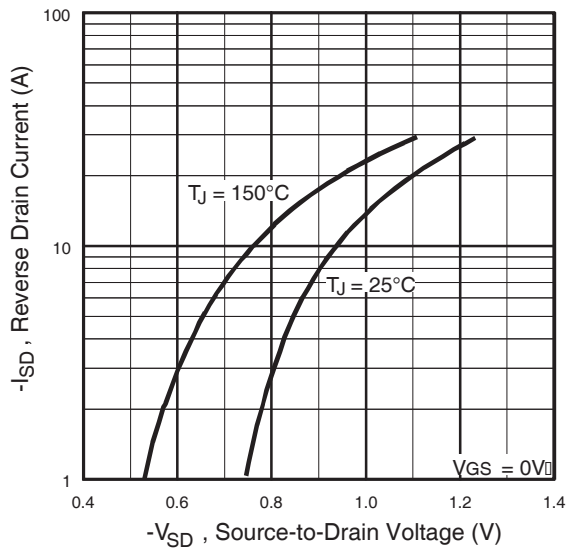
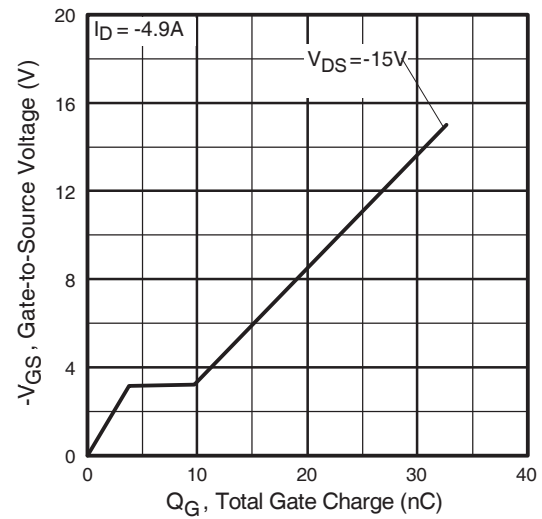
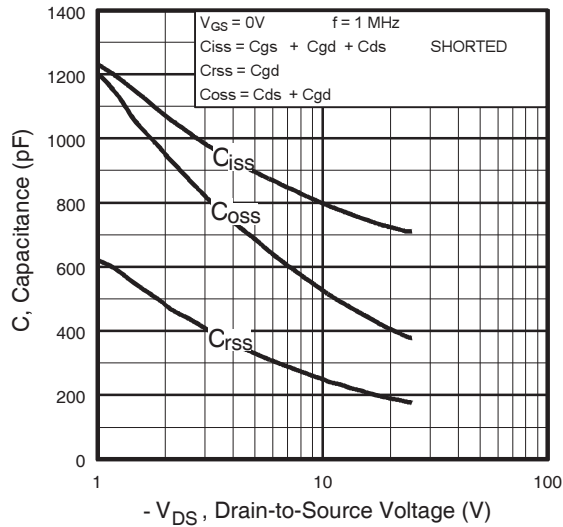
Power Mosfet Characteristics



IRF7321D2PbF

International
IR Rectifier

Power Mosfet Characteristics



Power Mosfet Characteristics

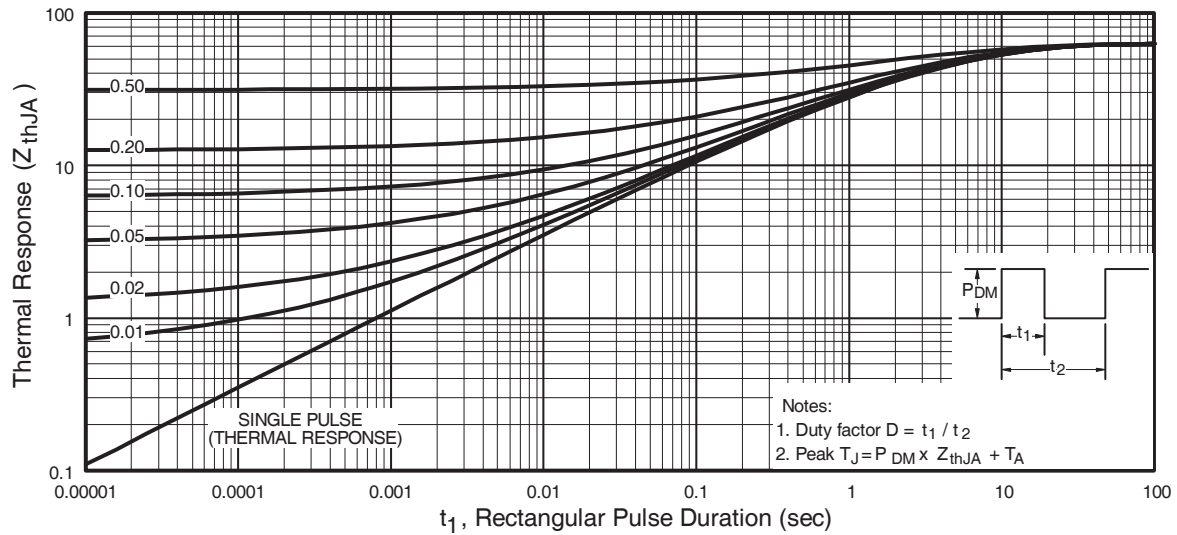


Fig 9. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

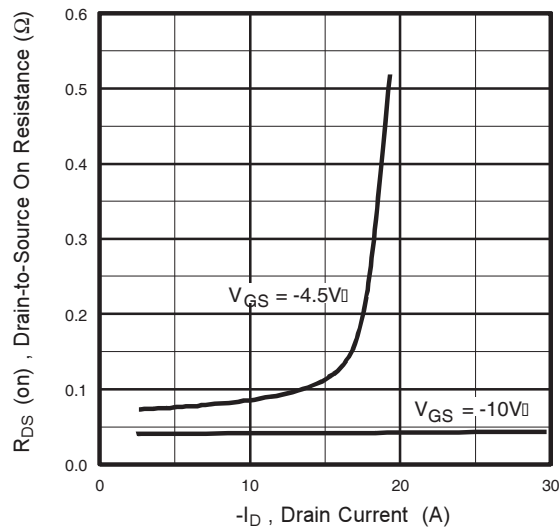


Fig 10. Typical On-Resistance Vs. Drain Current

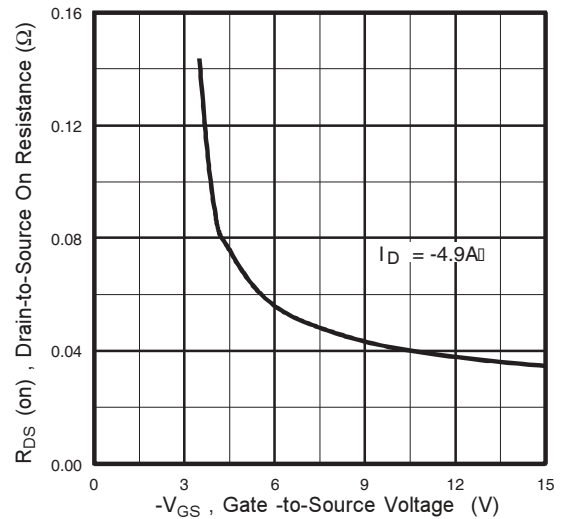


Fig 11. Typical On-Resistance Vs. Gate Voltage

Schottky Diode Characteristics

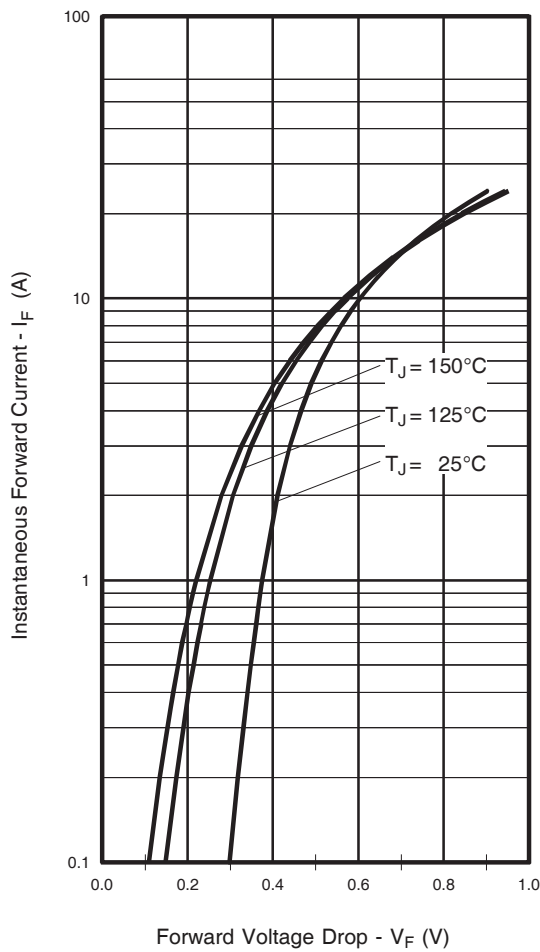


Fig. 12 - Typical Forward Voltage Drop Characteristics

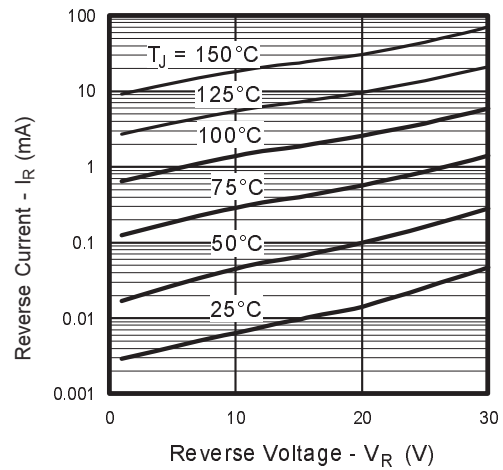


Fig. 13 - Typical Values of Reverse Current Vs. Reverse Voltage

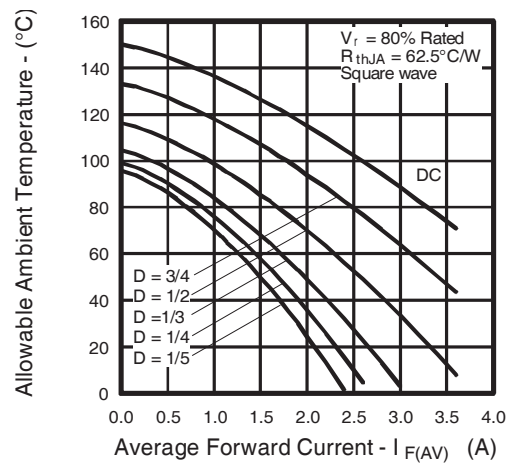


Fig. 14 - Maximum Allowable Ambient Temp. Vs. Forward Current

Technical drawing of a 4x4 grid plate. The drawing shows a rectangular plate with a grid of 16 squares. The grid is labeled with numbers 1 through 16. The plate has a central rectangular area with a width of 100 mm and a height of 100 mm. The plate is shown with a top view and a side view. The top view shows the grid and the dimensions. The side view shows the thickness of the plate, which is 10 mm. The drawing includes a title block with the following information:
 Title: 4x4 Grid Plate
 Drawing Number: 4x4-01
 Date: 10/10/2023
 Author: [Name]
 The drawing also includes a dimension table with the following information:
 Dimension: 100 mm
 Tolerance: ±0.10 mm
 Material: A3
 Surface Finish: A3

[illegible]

-
- Technical drawing of a flange with dimensions: $K \times 45^\circ$, y , 7, $8X L$, $8X C$, and a circled number 7.

Diagram illustrating the markings on a 10R 807D1 diode package:

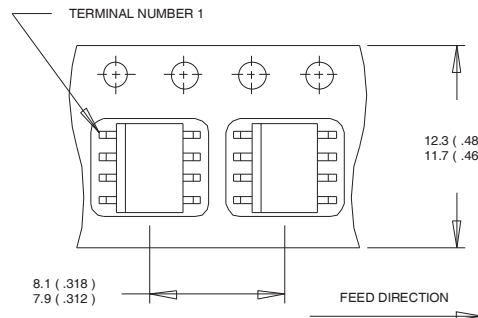
- 10R**: INTERNATIONAL RECTIFIER LOGO
- PYWWA**: DATE CODE (YWWW)
- XXXX**: P = DESIGNATES LEAD-FREE PRODUCT (OPTIONAL); Y = LAST DIGIT OF THE YEAR; WW = WEEK; A = ASSEMBLY SITE CODE
- 807D1**: LOT CODE
- 807D1**: PART NUMBER

IRF7321D2PbF

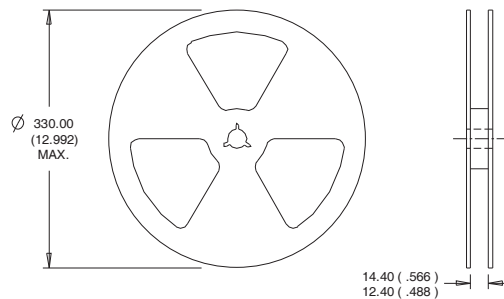
International
IR Rectifier

SO-8 Tape and Reel

Dimensions are shown in millimeters (inches)



- NOTES:
1. CONTROLLING DIMENSION : MILLIMETER.
 2. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS(INCHES).
 3. OUTLINE CONFORMS TO EIA-481 & EIA-541.



- 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.
Qualifications 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.10/04

www.irf.com

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

 [View IRF7321D2TRPBF](#) 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