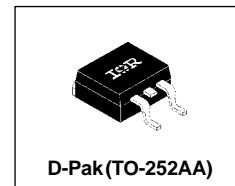


SCHOTTKY RECTIFIER

3.5 Amp



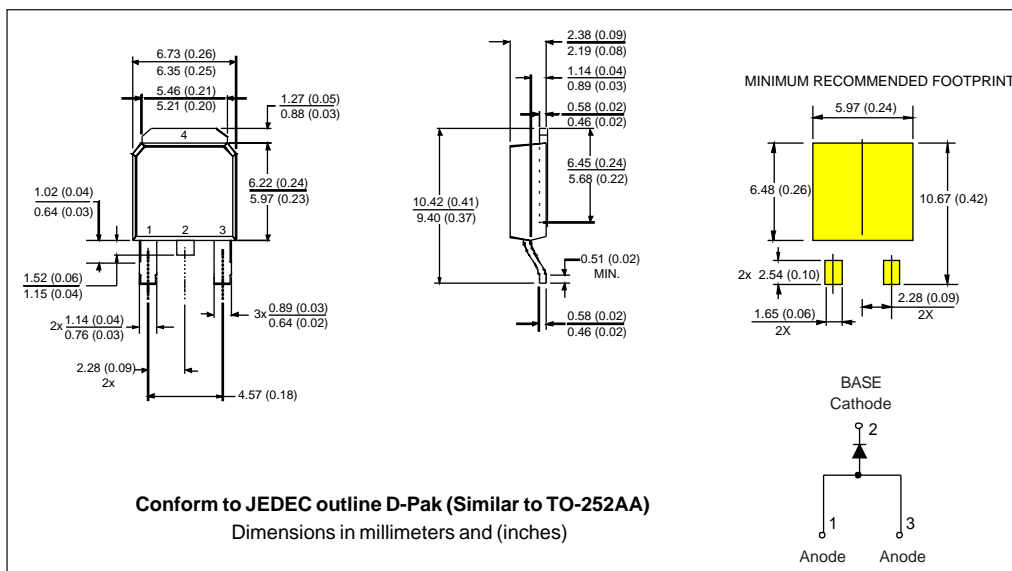
Major Ratings and Characteristics

Characteristics	30WQ03FN	Units
$I_{F(AV)}$ Rectangular waveform	3.5	A
V_{RRM}	30	V
I_{FSM} @ $t_p = 5 \mu s$ sine	535	A
V_F @ 3 Apk, $T_J = 125^\circ C$	0.35	V
T_J range	-40 to 150	$^\circ C$

Description/Features

The 30WQ03FN surface mount Schottky rectifier has been designed for applications requiring low forward drop and small foot prints on PC board. Typical applications are in disk drives, switching power supplies, converters, free-wheeling diodes, battery charging, and reverse battery protection.

- Popular D-PAK outline
- Small foot print, surface moutable
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability



Voltage Ratings

Part number	30WQ03FN
V_R Max. DC Reverse Voltage (V)	30
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	30WQ03FN	Units	Conditions	
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 5	3.5	A	50% duty cycle @ $T_C = 134^\circ\text{C}$, rectangular wave form	
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 7	535	A	5 μs Sine or 3 μs Rect. pulse	Following any rated load condition and with rated V_{RWM} applied
	90		10ms Sine or 6ms Rect. pulse	

Electrical Specifications

Parameters	30WQ03FN	Units	Conditions	
V_{FM} Max. Forward Voltage Drop * See Fig. 1 (1)	0.45	V	@ 3A	$T_J = 25^\circ\text{C}$
	0.52	V	@ 6A	
	0.35	V	@ 3A	$T_J = 125^\circ\text{C}$
	0.46	V	@ 6A	
I_{RM} Max. Reverse Leakage Current * See Fig. 2 (1)	2	mA	$T_J = 25^\circ\text{C}$	$V_R = \text{rated } V_R$
	50	mA	$T_J = 125^\circ\text{C}$	
$V_{F(TO)}$ Threshold Voltage	0.22	V	$T_J = T_J \text{ max.}$	
r_t Forward Slope Resistance	32.86	m Ω		
C_T Typical Junction Capacitance	290	pF	$V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) 25°C	
L_S Typical Series Inductance	5.0	nH	Measured lead to lead 5mm from package body	
dv/dt Max. Voltage Rate of Change (Rated V_R)	10,000	V/ μs		

(1) Pulse Width < 300 μs , Duty Cycle < 2%

Thermal-Mechanical Specifications

Parameters	30WQ03FN	Units	Conditions	
T_J Max. Junction Temperature Range	-40 to 150	$^\circ\text{C}$		
T_{stg} Max. Storage Temperature Range	-40 to 150	$^\circ\text{C}$		
R_{thJC} Max. Thermal Resistance Junction to Case	4.7	$^\circ\text{C/W}$	DC operation	* See Fig. 4
wt Approximate Weight	0.3(0.01)	g(oz.)		
Case Style	D - PAK		Similar to TO-252AA	

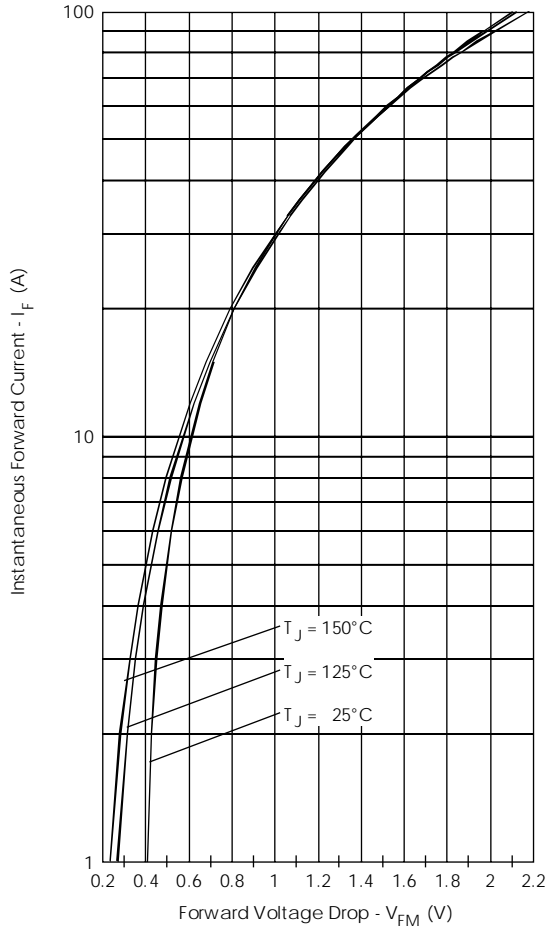


Fig. 1 - Maximum Forward Voltage Drop Characteristics

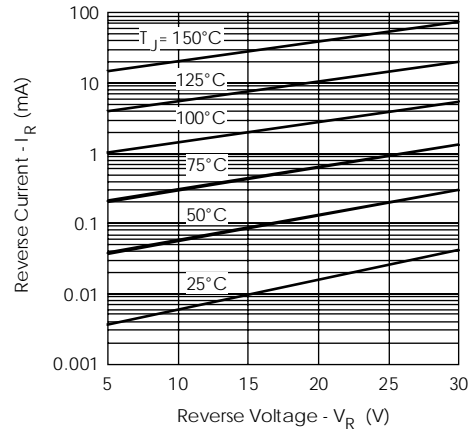


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

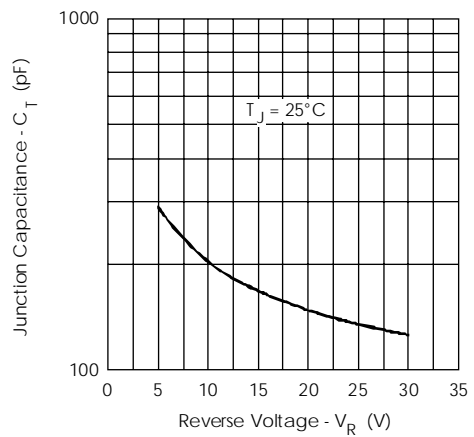


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

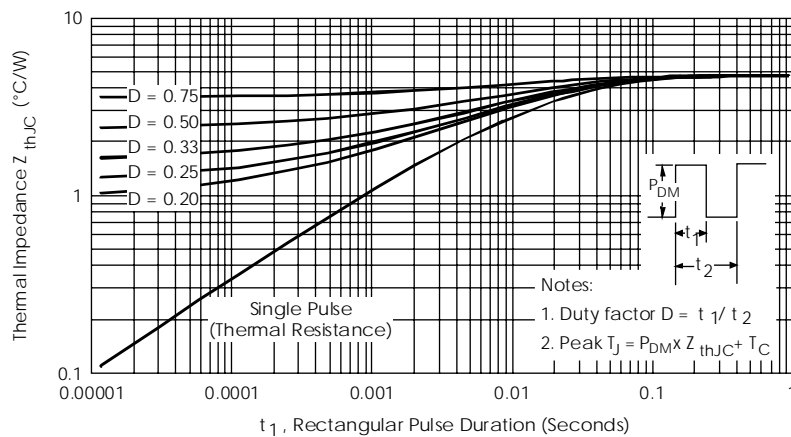


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

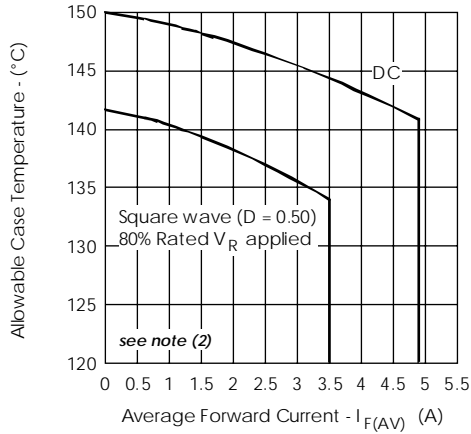


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

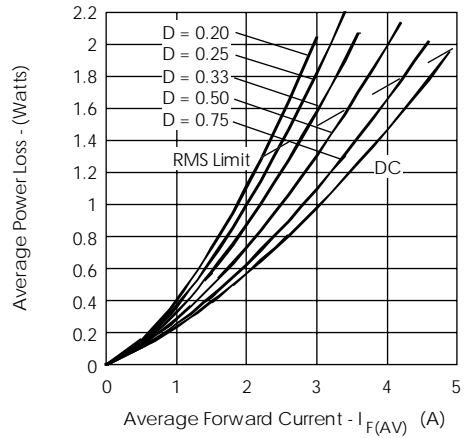


Fig. 6 - Forward Power Loss Characteristics

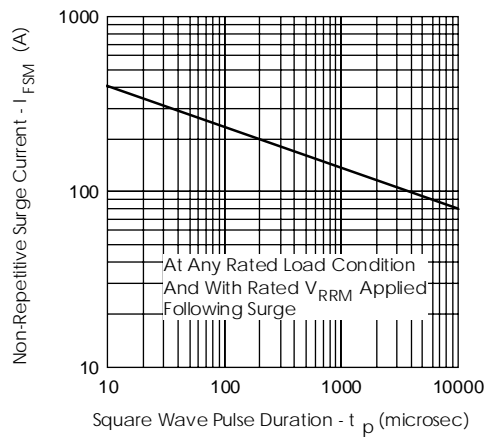


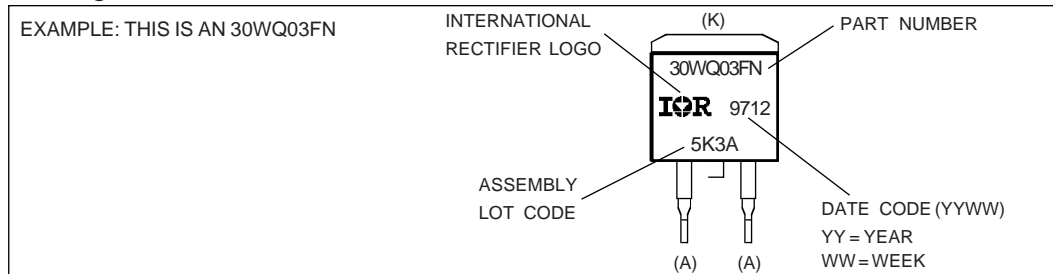
Fig. 7 - Maximum Non-Repetitive Surge Current

(2) Formula used: $T_c = T_j - (Pd + Pd_{REV}) \times R_{thJC}$;

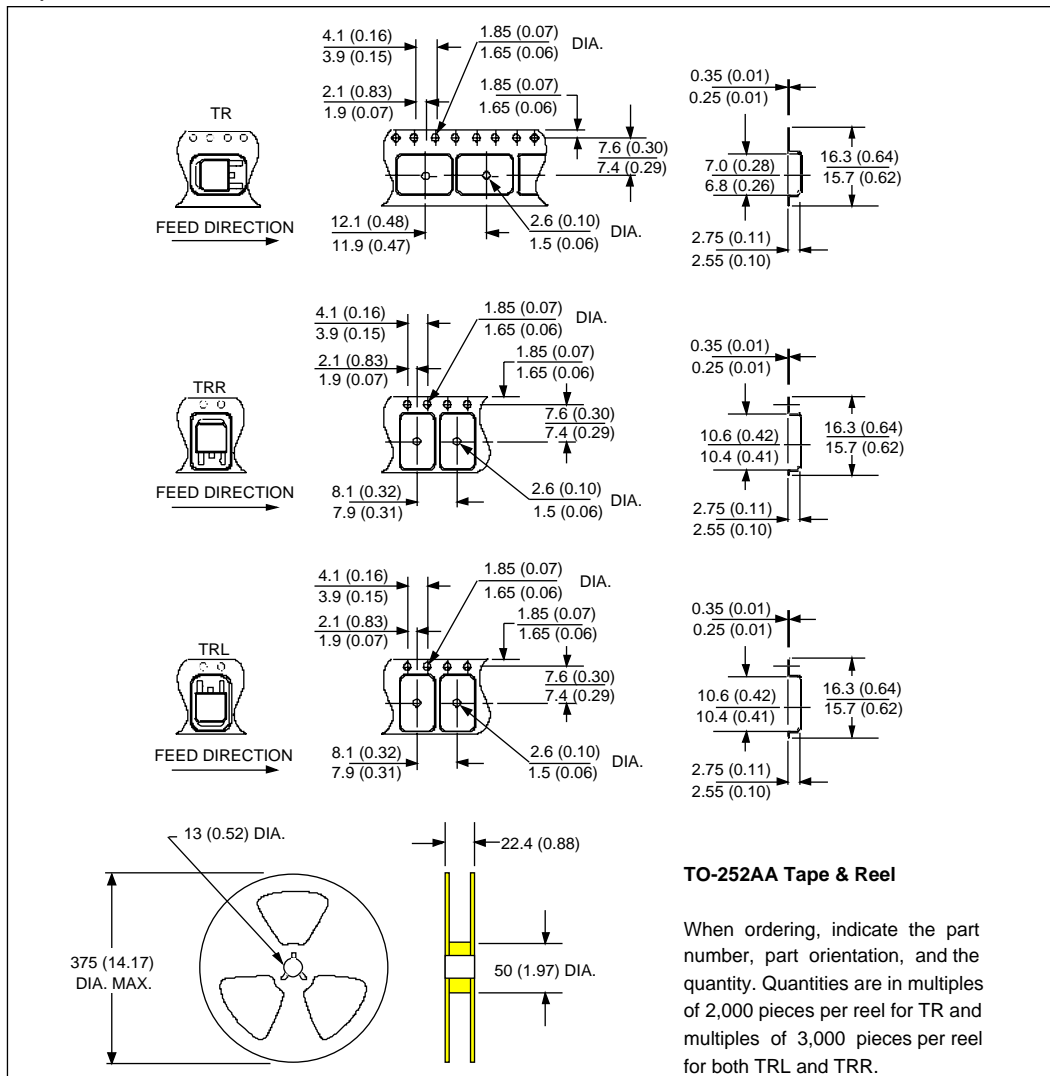
Pd = Forward Power Loss = $I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);

Pd_{REV} = Inverse Power Loss = $V_{R1} \times I_R (1 - D)$; $I_R @ V_{R1} = 80\%$ rated V_R

Marking Information



Tape & Reel Information



30WQ03FN

PD-20559 rev. B 10/98

International
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WORLDHEADQUARTERS: 233 Kansas St., El Segundo, California 90245 U.S.A. Tel: (310) 322 3331. Fax: (310) 322 3332.
EUROPEANHEADQUARTERS: Hurst Green, Oxted, Surrey RH8 9BB, U.K. Tel: ++ 44 1883 732020. Fax: ++ 44 1883 733408.
IR CANADA: 15 Lincoln Court, Brampton, Markham, Ontario L6T3Z2. Tel: (905) 453 2200. Fax: (905) 475 8801.
IR GERMANY: Saalburgstrasse 157, 61350 Bad Homburg. Tel: ++ 49 6172 96590. Fax: ++ 49 6172 965933.
IR ITALY: Via Liguria 49, 10071 Borgaro, Torino. Tel: ++ 39 11 4510111. Fax: ++ 39 11 4510220.
IR FAR EAST: K&H Bldg., 2F, 30-4 Nishi-Ikebukuro 3-Chome, Toshima-Ku, Tokyo, Japan 171. Tel: 81 3 3983 0086.
IR SOUTHEAST ASIA: 1 Kim Seng Promenade, Great World City West Tower, 13-11, Singapore 237994. Tel: ++ 65 838 4630.
IR TAIWAN: 16 Fl. Suite D.207, Sec. 2, Tun Haw South Road, Taipei, 10673, Taiwan. Tel: 886 2 2377 9936.

<http://www.irf.com>

Fax-On-Demand: +44 1883 733420

Data and specifications subject to change without notice.