



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!



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$$I_{F(AV)} = 3.5\text{Amp}$$

$$V_R = 100\text{V}$$

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform	3.5	A
V_{RRM}	100	V
I_{FSM} @tp = 5 μ s sine	440	A
V_F @3 Apk, $T_J = 125^\circ\text{C}$	0.63	V
T_J	-40 to 150	$^\circ\text{C}$

Description/ Features

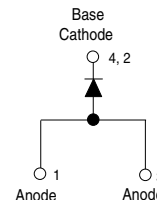
The 30WQ10FN surface mount Schottky rectifier has been designed for applications requiring low forward drop and small foot prints on PC board. Typical applications are in disk drives, switching power supplies, converters, free-wheeling diodes, battery charging, and reverse battery protection.

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

Case Styles



D-PAK (TO-252AA)



Voltage Ratings

Part number	30WQ10FN
V_R Max. DC Reverse Voltage (V)	100
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	30WQ...	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 5	3.5	A	50% duty cycle @ $T_C = 135^\circ\text{C}$, rectangular wave form
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 7	440	A	Following any rated load condition and with rated V_{RRM} applied
	70		
E_{AS} Non-Repetitive Avalanche Energy	5.0	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 1$ Amp, $L = 10$ mH
I_{AR} Repetitive Avalanche Current	0.5	A	Current decaying linearly to zero in 1 μsec Frequency limited by T_J max. $V_A = 1.5 \times V_R$ typical

Electrical Specifications

Parameters	30WQ...	Units	Conditions
V_{FM} Max. Forward Voltage Drop * See Fig. 1 (1)	0.81	V	@ 3A $T_J = 25^\circ\text{C}$
	0.96	V	@ 6A
	0.63	V	@ 3A $T_J = 125^\circ\text{C}$
	0.74	V	@ 6A
I_{RM} Max. Reverse Leakage Current * See Fig. 2 (1)	1	mA	$T_J = 25^\circ\text{C}$ $V_R = \text{rated } V_R$
	4.9	mA	$T_J = 125^\circ\text{C}$
$V_{F(TO)}$ Threshold Voltage	0.48	V	$T_J = T_J$ max.
r_t Forward Slope Resistance	30.89	m Ω	
C_T Typical Junction Capacitance	92	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	10000	V/ μs	(Rated V_R)

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

Thermal-Mechanical Specifications

Parameters	30WQ...	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	$^\circ\text{C}/\text{W}$	DC operation * See Fig. 4
wt Approximate Weight	0.3(0.01)	g(oz.)	
Case Style	D-PAK		Similar to TO-252AA
Marking Device	30WQ10FN		

(*) $\frac{dP_{tot}}{dT_J} < \frac{1}{R_{th(j-a)}}$ thermal runaway condition for a diode on its own heatsink

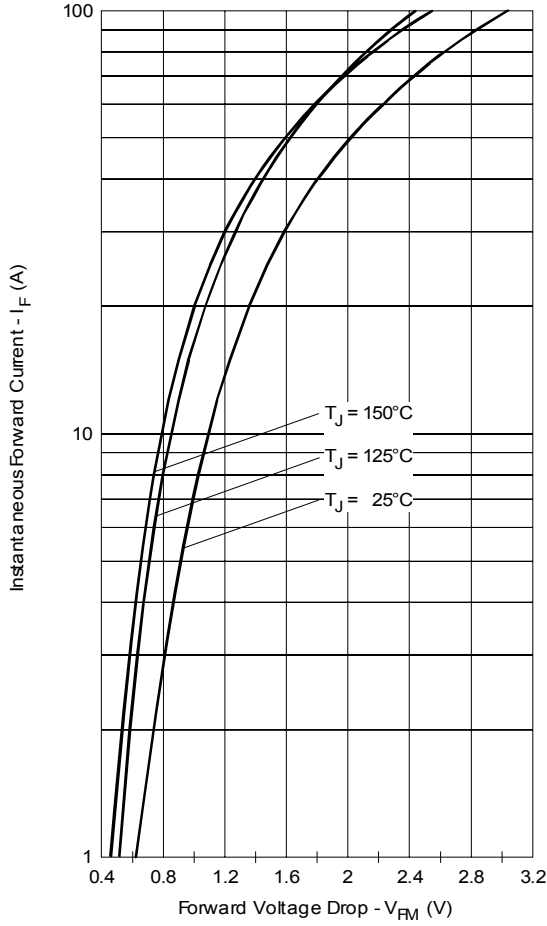


Fig. 1 - Maximum Forward Voltage Drop Characteristics

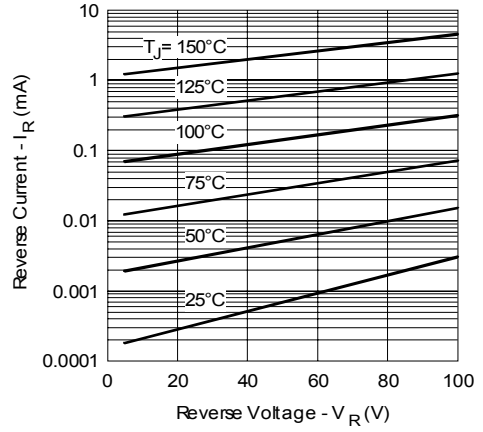


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

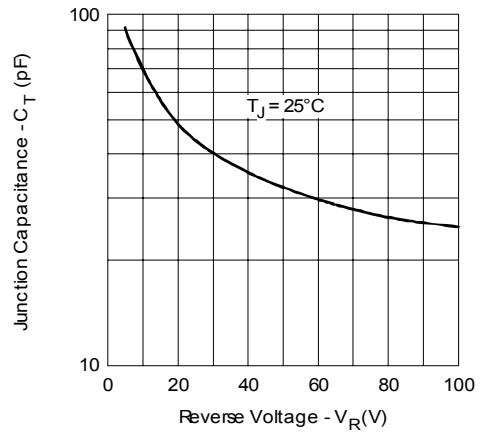


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

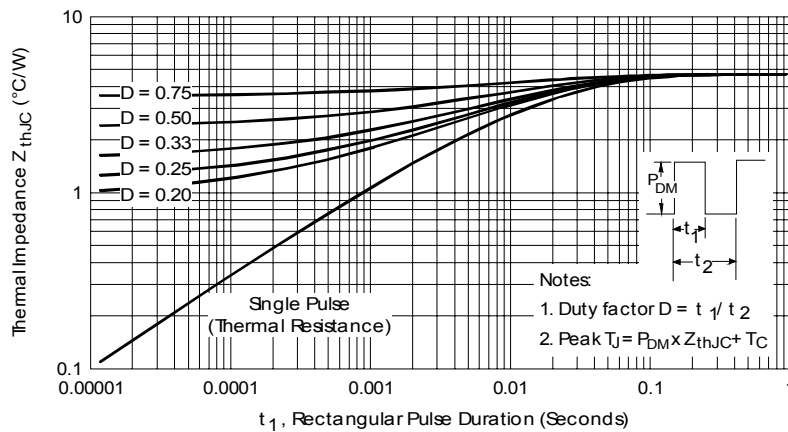


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

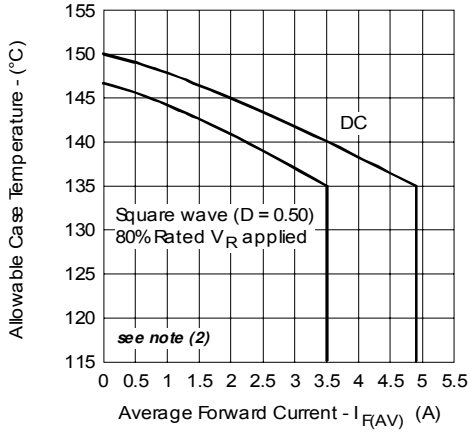


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

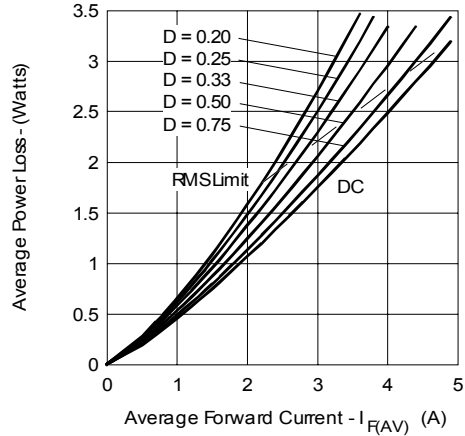


Fig. 6 - Forward Power Loss Characteristics

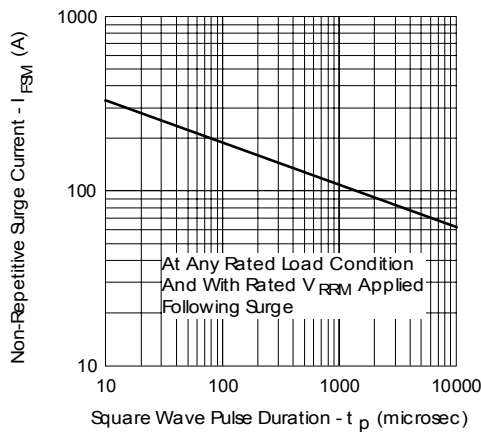


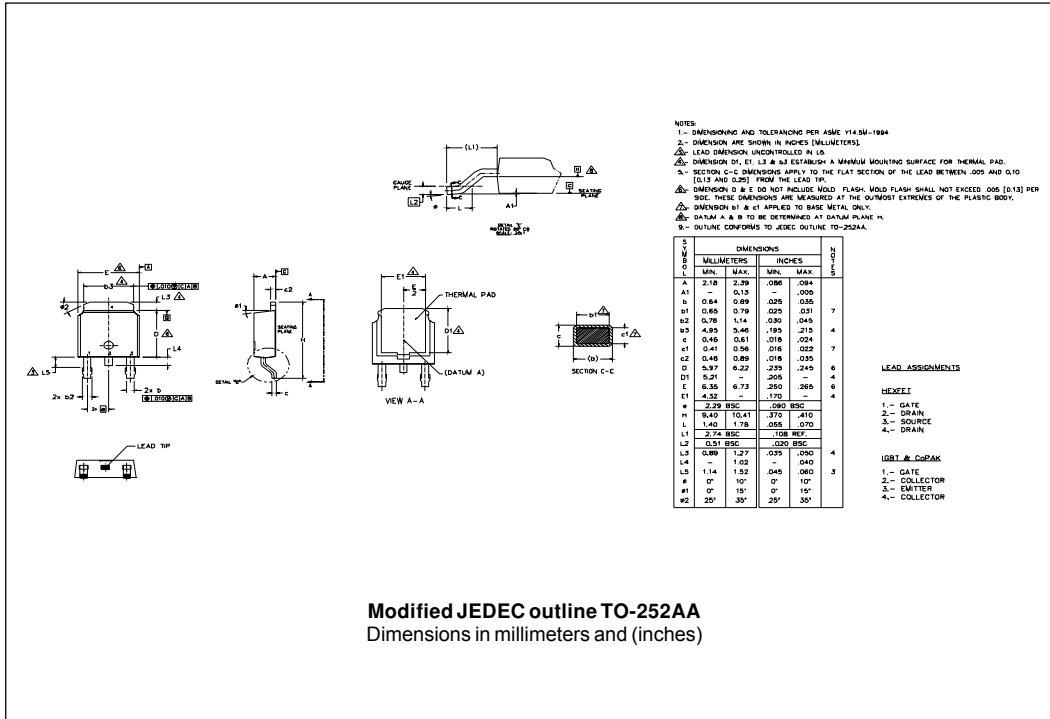
Fig. 7 - Maximum Non-Repetitive Surge Current

(2) Formula used: $T_C = T_J - (P_d + P_{d_{REV}}) \times R_{thJC}$;

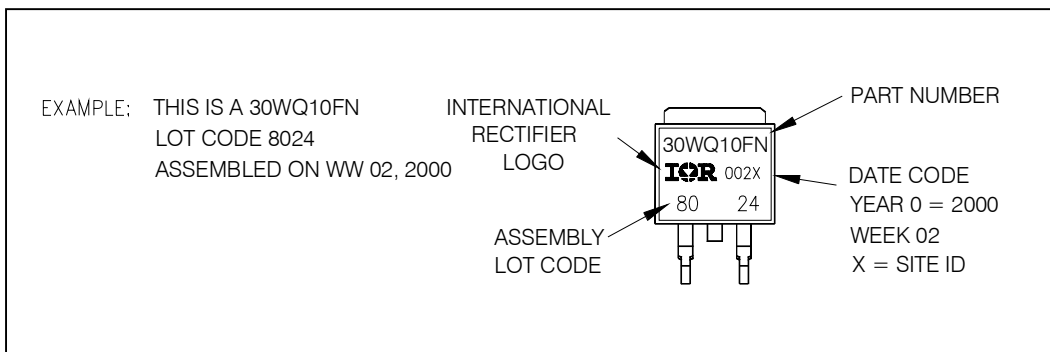
P_d = Forward Power Loss = $I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);

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

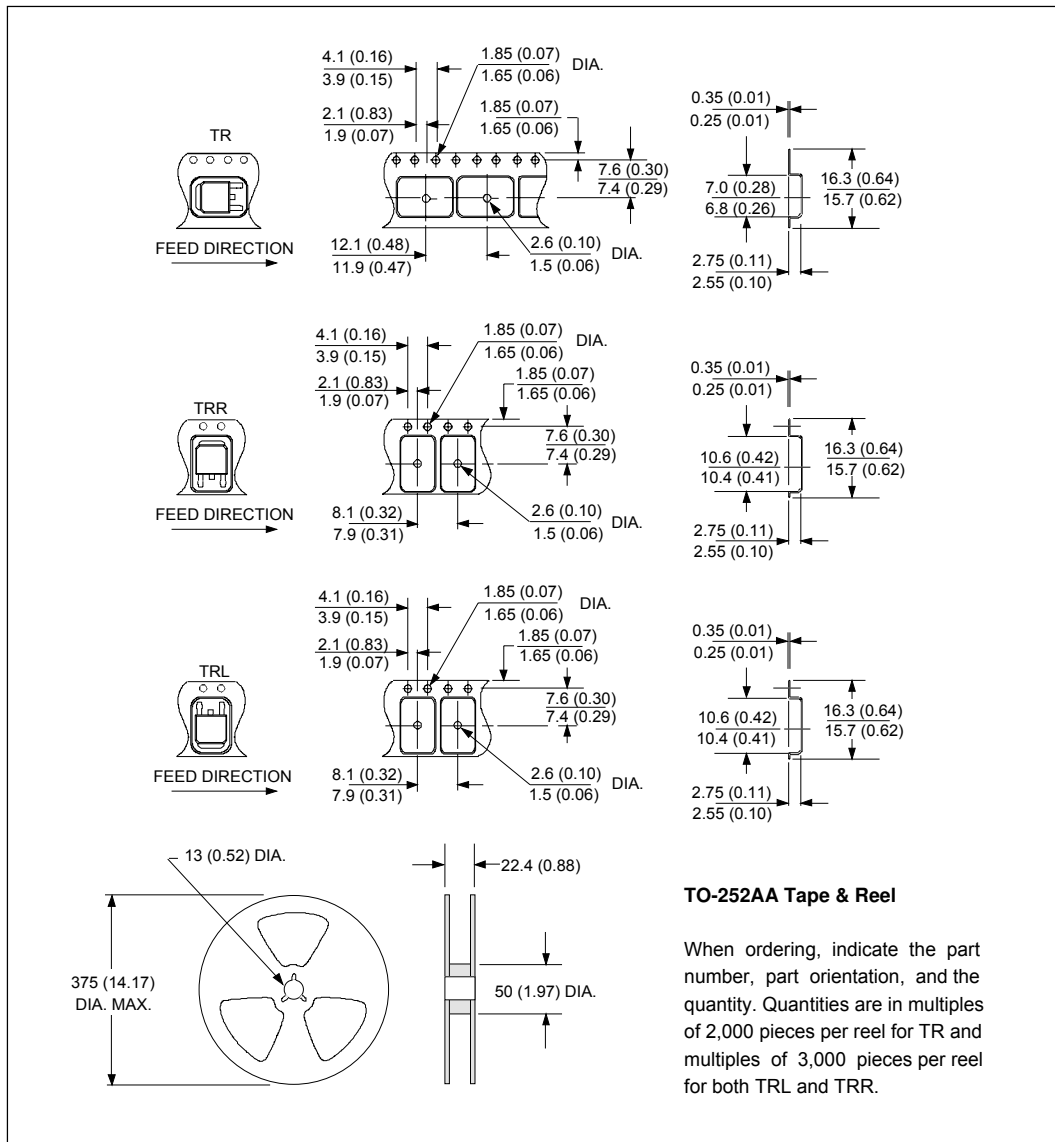
Outline Table



Part Marking Information



Tape & Reel Information



TO-252AA Tape & Reel

When ordering, indicate the part number, part orientation, and the quantity. Quantities are in multiples of 2,000 pieces per reel for TR and multiples of 3,000 pieces per reel for both TRL and TRR.

Ordering Information Table

Device Code															
	<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">30</td> <td style="padding: 5px;">W</td> <td style="padding: 5px;">Q</td> <td style="padding: 5px;">10</td> <td style="padding: 5px;">FN</td> <td style="padding: 5px;">TRL</td> <td style="padding: 5px;">-</td> </tr> <tr> <td style="text-align: center;">①</td> <td style="text-align: center;">②</td> <td style="text-align: center;">③</td> <td style="text-align: center;">④</td> <td style="text-align: center;">⑤</td> <td style="text-align: center;">⑥</td> <td style="text-align: center;">⑦</td> </tr> </table>	30	W	Q	10	FN	TRL	-	①	②	③	④	⑤	⑥	⑦
30	W	Q	10	FN	TRL	-									
①	②	③	④	⑤	⑥	⑦									
1	- Current Rating (3.5A)														
2	- Package Identifier W = D-Pak														
3	- Schottky "Q" Series														
4	- Voltage Rating (10 = 100V)														
5	- FN = TO-252AA														
6	- <ul style="list-style-type: none"> • none = Tube (50 pieces) • TR = Tape & Reel • TRL = Tape & Reel (Left Oriented) • TRR = Tape & Reel (Right Oriented) 														
7	- <ul style="list-style-type: none"> • none = Standard Production • PbF = Lead-Free 														

Data and specifications subject to change without notice.
 This product has been designed and qualified for AEC Q101 Level.
 Qualification Standards can be found on IR's Web site.



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