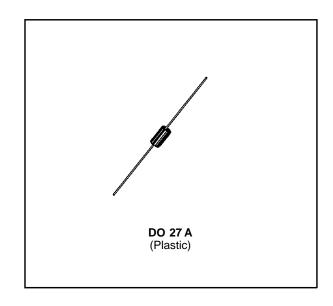


# BYW 98-50 →200

## HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODES

- VERY LOW CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD AND REVERSE RECOVERY TIMES
- HIGH SURGE CURRENT
- THE SPECIFICATIONS AND CURVES ENABLE THE DETERMINATION OF t<sub>rr</sub> AND I<sub>RM</sub> AT 100°C UNDER USERS CONDITIONS



## **DESCRIPTION**

Low voltage drop and rectifier suited for switching mode base drive and transistor circuits.

## **ABSOLUTE MAXIMUM RATINGS** (limiting values)

Symbol	Parameter	Value	Unit	
I <sub>FRM</sub>	Repetive Peak Forward Current	$t_p \le 20 \mu s$	70	А
I <sub>F (AV)</sub>	Average Forward Current*	3	А	
I <sub>FSM</sub>	Surge non Repetitive Forward Current	70	А	
P <sub>tot</sub>	Power Dissipation *	2.5	W	
T <sub>stg</sub> T <sub>j</sub>	Storage and Junction Temperature Range	- 40 to + 150 - 40 to + 150	°C	
TL	Maximum Lead Temperature for Soldering du from Case	230	°C	

Symbol	Parameter		Unit			
Cymbol	r drameter	50	100	150	200	
$V_{RRM}$	Repetitive Peak Reverse Voltage	50	100	150	200	V
V <sub>RSM</sub>	Non Repetitive Peak Reverse Voltage	55	110	165	220	V

## THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
R <sub>th (j - a)</sub>	Junction-ambient*	25	°C/W

<sup>\*</sup> On infinite heatsink with 10mm lead length.

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## **ELECTRICAL CHARACTERISTICS**

## STATIC CHARACTERISTICS

Synbol	Tes	Min.	Тур.	Max.	Unit	
I <sub>R</sub>	T <sub>j</sub> = 25°C	$V_R = V_{RRM}$			10	μΑ
	T <sub>j</sub> = 100°C				0.5	mA
V <sub>F</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 9A			1.1	V
	T <sub>j</sub> = 100°C	I <sub>F</sub> = 3A			0.85	

## RECOVERY CHARACTERISTICS

Symbol		Min.	Тур.	Max.	Unit		
t <sub>rr</sub>	$T_j = 25$ °C $V_R = 30$ V	I <sub>F</sub> = 1A See figure 10	$di_F/dt = -50A/\mu s$			35	ns
Q <sub>rr</sub>	$T_j = 25^{\circ}C$ $V_R \le 30V$	I <sub>F</sub> = 2A	$di_F/dt = -20A/\mu s$		12		nC
t <sub>fr</sub>	T <sub>j</sub> = 25°C Measured at 1.1 x V <sub>F</sub>	I <sub>F</sub> = 1A	t <sub>r</sub> = 10ns		20		ns
V <sub>FP</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 1A	$t_r = 10$ ns		5		V

To evaluate the conduction losses use the following equations:

 $V_F = 0.66 + 0.03 \ I_F \\ P = 0.06 \ x \ I_{F(AV)} + 0.03 \ I_F^2(RMS)$ 

Figure 1. Maximum average power dissipation versus average forward current.

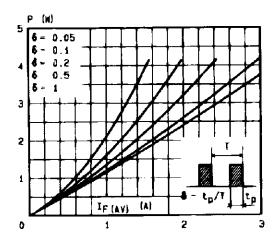


Figure 3. Thermal resistance versus lead length.

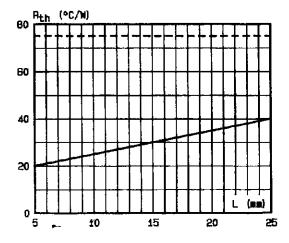


Figure 4. Transient thermal impedance junction-ambient for mounting  $n^{\circ}2$  versus pulse duration (L = 10 mm).

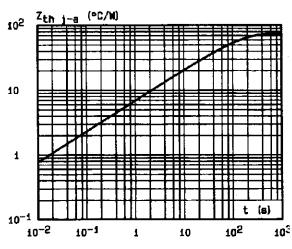
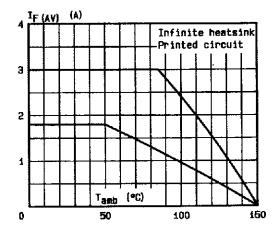


Figure 2. Average forward current versus ambient temperature.



Mounting n°1
INFINITE HEATSINK

Mounting n°2 PRINTED CIRCUIT

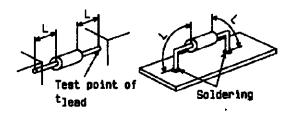


Figure 5. Peak forward current versus peak forward voltage drop (maximum values).

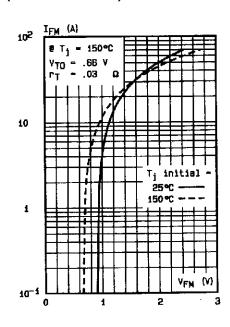


Figure 6. Capacitance versus reverse voltage applied.

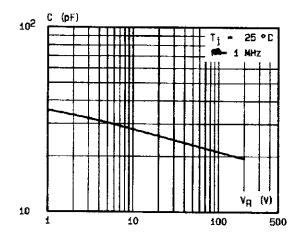


Figure 8. Peak reverse current versus dif/dt.

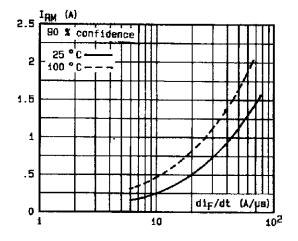


Figure 7. Recovery time versus dif/dt.

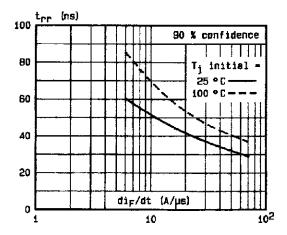


Figure 9. Dynamic parameters versus junction temperature.

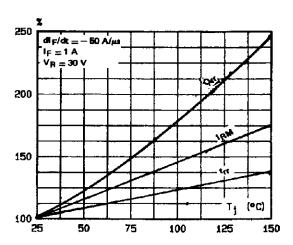
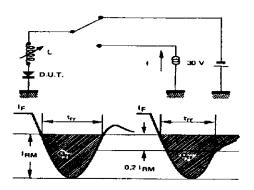
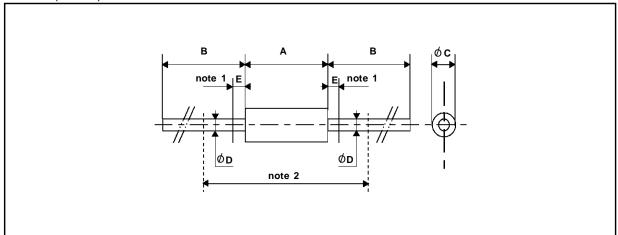


Figure 10. Measurement of  $t_{\mbox{\tiny FI}}$  (Fig. 7) and  $I_{\mbox{\tiny RM}}$  (Fig. 8).



#### PACKAGE MECHANICAL DATA

### DO 27A (Plastic)



DIMENSIONS					
REF.	REF. Millimeters		Inches		NOTES
	Min.	Max.	Min.	Max.	
Α		9.80		0.385	1 - The lead diameter Ø D is not controlled over zone E
В	26		1.024		2 - The minimum axial lengh within which the device may be
ØC		5.10		0.200	placed with its leads bent at right angles is 0.59"(15 mm)
ØD		1.28		0.050	
Е		1.25	_	0.049	

Cooling method: by convection (method A)
Marking: type number; white band indicates cathode
Weight: 1g

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