

## BYX98 SERIES

### RECTIFIER DIODES

Silicon rectifier diodes in DO-4 metal envelopes, intended for use in power rectifier applications.

The series consists of the following types:

Normal polarity (cathode to stud): BYX98-300 to 1200.

Reverse polarity (anode to stud): BYX98-300R to 1200R.

#### QUICK REFERENCE DATA

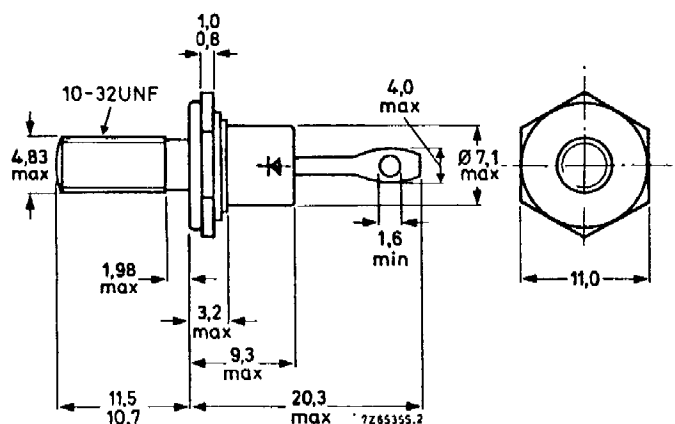
		BYX98-300(R)			V
		max.	300	600	
Repetitive peak reverse voltage	$V_{RRM}$				
Average forward current	$I_F(AV)$		max.	10	A
Non-repetitive peak forward current	$I_{FSM}$		max.	75	A

#### MECHANICAL DATA

Dimensions in mm

DO-4: Supplied with device: 1 nut, 1 lock-washer

Nut dimensions across the flats: 9.5 mm



Net mass: 6 g

Diameter of clearance hole: max. 5.2 mm

Accessories supplied on request:

see ACCESSORIES section

The mark shown applies to normal polarity types.

Torque on nut: min. 0.9 Nm

(9 kg cm)

max. 1.7 Nm

(17 kg cm)

NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

Quality Semi-Conductors

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**RATINGS** Limiting values in accordance with the Absolute Maximum System (IEC 134)

<u>Voltages</u>			BYX98-300(R)	600(R)	1200(R)	
Non-repetitive peak reverse voltage ( $t \leq 10$ ms)	$V_{RSM}$	max.	300	600	1200	V
Repetitive peak reverse voltage ( $\delta \leq 0,01$ )	$V_{RRM}$	max.	300	600	1200	V
Crest working reverse voltage	$V_{RWM}$	max.	200	400	800	V
Continuous reverse voltage	$V_R$	max.	200	400	800	V

### Currents

Average forward current (averaged over any 20 ms period) up to $T_{mb} = 97^\circ\text{C}$ at $T_{mb} = 125^\circ\text{C}$	$I_F(AV)$	max.	10	A
	$I_F(AV)$	max.	6	A
R.M.S. forward current	$I_F(RMS)$	max.	16	A
Repetitive peak forward current	$I_{FRM}$	max.	75	A
Non-repetitive peak forward current ( $t = 10$ ms; half sine-wave) $T_j = 150^\circ\text{C}$ prior to surge; with reapplied $V_{RWMmax}$	$I_{FSM}$	max.	75	A
$I^2t$ for fusing ( $t = 10$ ms)	$I^2t$	max.	28	$\text{A}^2\text{s}$

### Temperatures

Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$
Junction temperature	$T_j$	max. 150	$^\circ\text{C}$

### **THERMAL RESISTANCE**

From junction to ambient in free air	$R_{th\ j-a}$	=	50	$^\circ\text{C/W}$
From junction to mounting base	$R_{th\ j-mb}$	=	3	$^\circ\text{C/W}$
From mounting base to heatsink with heatsink compound	$R_{th\ mb-h}$	=	0,5	$^\circ\text{C/W}$
without heatsink compound	$R_{th\ mb-h}$	=	0,6	$^\circ\text{C/W}$
Transient thermal impedance; $t = 1$ ms	$Z_{th\ j-mb}$	=	0,3	$^\circ\text{C/W}$

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## **CHARACTERISTICS**

### Forward voltage

$$I_F = 20 \text{ A}; T_J = 25^\circ\text{C}$$

$$V_F < 1,7 \text{ V}$$

### Reverse current

$$V_R = V_{RWM\max}; T_J = 125^\circ\text{C}$$

$$I_R < 200 \text{ }\mu\text{A}$$

## **OPERATING NOTES**

1. The top connector should neither be bent nor twisted; it should be soldered into the circuit so that there is no strain on it.  
During soldering the heat conduction to the junction should be kept to a minimum.
2. Where there is a possibility that transients, due to the energy stored in the transformer, will exceed the maximum permissible non-repetitive peak reverse voltage, see General Section for information on damping circuits.

