

SILICON RECTIFIER DIODES

Also available to BS9331-F127

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): BYX38-300 to 1200.

Reverse polarity (anode to stud): BYX38-300R to 1200R.

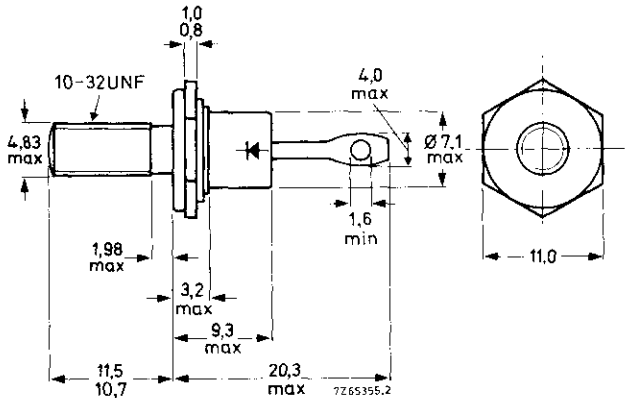
QUICK REFERENCE DATA

		BYX38-300(R)	600(R)	1200(R)
Repetitive peak reverse voltage	$V_{RRM}$	max. 300	600	1200 V
Average forward current	$I_F(AV)$	max.	6	A
Non-repetitive peak forward current	$I_{FSM}$	max.	50	A

MECHANICAL DATA

Dimensions in mm

DO-4



Net mass: 6 g

Diameter of clearance hole: max. 5,2 mm

Accessories supplied on request:

56295 (PTFE bush, 2 mica washers, plain washer, tag)

56262A (mica washer, insulating ring, plain washer)

Supplied with device: 1 nut, 1 lock washer

Nut dimensions across the flats: 9,5 mm

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)

# BYX38 SERIES

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

<u>Voltages</u>		BYX38-300(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 $T_{mb} = 110$ °C at $T_{mb} = 125$ °C	$I_{F(AV)}$	max.	6	A
	$I_{F(AV)}$	max.	4	A
R. M. S. forward current	$I_{F(RMS)}$	max.	10	A
Repetitive peak forward current	$I_{FRM}$	max.	50	A
Non-repetitive peak forward current ( $t = 10$ ms; half sine-wave) $T_j = 150$ °C prior to surge; with reapplied $V_{RWMmax}$	$I_{FSM}$	max.	50	A
$I^2t$ for fusing ( $t = 10$ ms)	$I^2t$	max.	13	A <sup>2</sup> s

## Temperatures

Storage temperature	$T_{stg}$	-55 to +150	°C
Junction temperature	$T_j$	max. 150	°C

## **THERMAL RESISTANCE**

From junction to ambient in free air	$R_{th j-a}$	=	50	°C/W
From junction to mounting base	$R_{th j-mb}$	=	4	°C/W
From mounting base to heatsink with heatsink compound	$R_{th mb-h}$	=	0,5	°C/W
without heatsink compound	$R_{th mb-h}$	=	0,6	°C/W
Transient thermal impedance; $t = 1$ ms	$Z_{th j-mb}$	=	0,3	°C/W

**CHARACTERISTICS**Forward voltage

$$I_F = 20 \text{ A}; T_j = 25 \text{ }^\circ\text{C} \qquad V_F < 1,7 \text{ V } ^1)$$

Reverse current

$$V_R = V_{RWM\max}; T_j = 125 \text{ }^\circ\text{C} \qquad I_R < 200 \text{ } \mu\text{A}$$

**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 in Data Handbook Part SC 1a.

<sup>1)</sup> Measured under pulse conduction to avoid excessive dissipation.

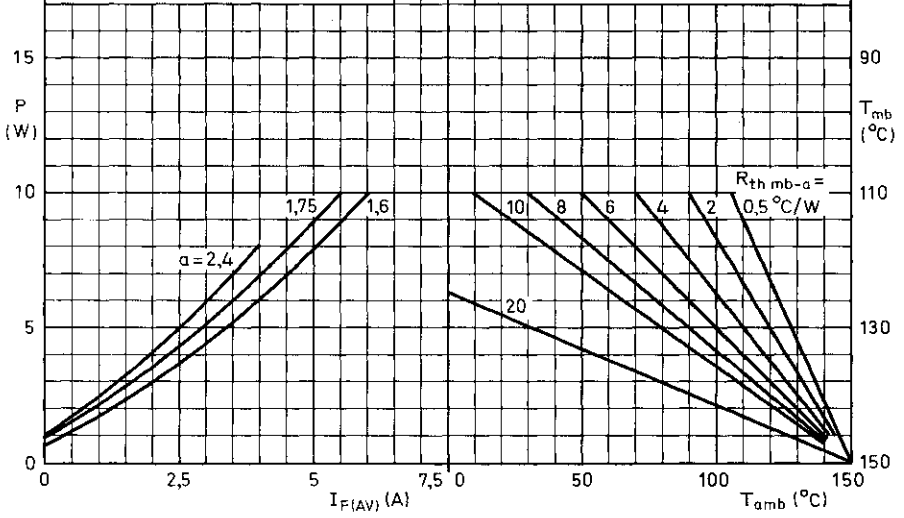
**BYX38  
SERIES**

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single phase:  $a = 1,6$   
 3-phase :  $a = 1,75$   
 6-phase :  $a = 2,4$

$a = \frac{I_F(RMS)}{I_F(AV)}$

interrelation between the power (derived from the left-hand graph) and the maximum permissible temperatures



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