

7-01-17



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): BYX99-300 to 1200.

Reverse polarity (anode to stud): BYX99-300R to 1200R.

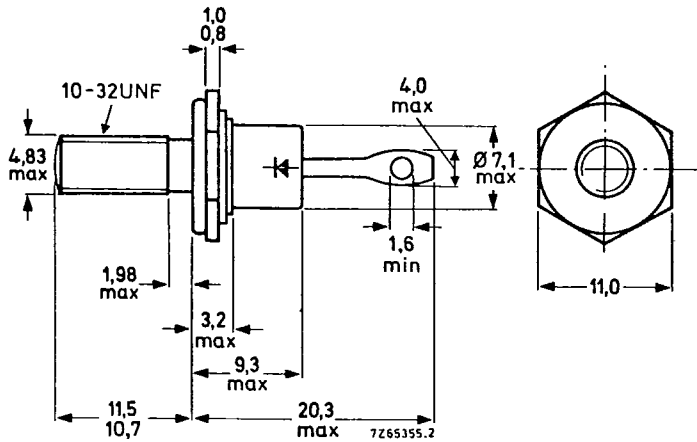
QUICK REFERENCE DATA

		BYX99-300(R) 600(R) 1200(R)			
		max.	300	600	
Repetitive peak reverse voltage	V_{RRM}				V
Average forward current	$I_F(AV)$	max.		15	A
Non-repetitive peak forward current	I_{FSM}	max.		180	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: 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)

Products approved to CECC 50 009-005, available on request

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

<u>Voltages</u>		BYX99-300(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 $T_{mb} = 129$ °C	$I_{F(AV)}$	max.	15	A
R. M. S. forward current	$I_{F(RMS)}$	max.	24	A
Repetitive peak forward current	I_{FRM}	max.	180	A
Non-repetitive peak forward current ($t = 10$ ms; half sine-wave) $T_j = 175$ °C prior to surge; with reapplied V_{RWMmax}	I_{FSM}	max.	180	A
I^2t for fusing ($t = 10$ ms)	I^2t	max.	162	A ² s

Temperatures

Storage temperature	T_{stg}	-55 to +175	°C
Junction temperature	T_j	max. 175	°C

THERMAL RESISTANCE

From junction to ambient in free air	$R_{th j-a}$	=	50	°C/W
From junction to mounting base	$R_{th j-mb}$	=	2,3	°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	$Z_{th j-mb}$	=	0,13	°C/W

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CHARACTERISTICS

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Forward voltage

$I_F = 50 \text{ A}; T_j = 25 \text{ }^\circ\text{C}$

$V_F < 1,55 \text{ V } ^1)$

Reverse current

$V_R = V_{RWMmax}; T_j = 125 \text{ }^\circ\text{C}$

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

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.

¹⁾ Measured under pulse conduction to avoid excessive dissipation.

**BYX99
SERIES**

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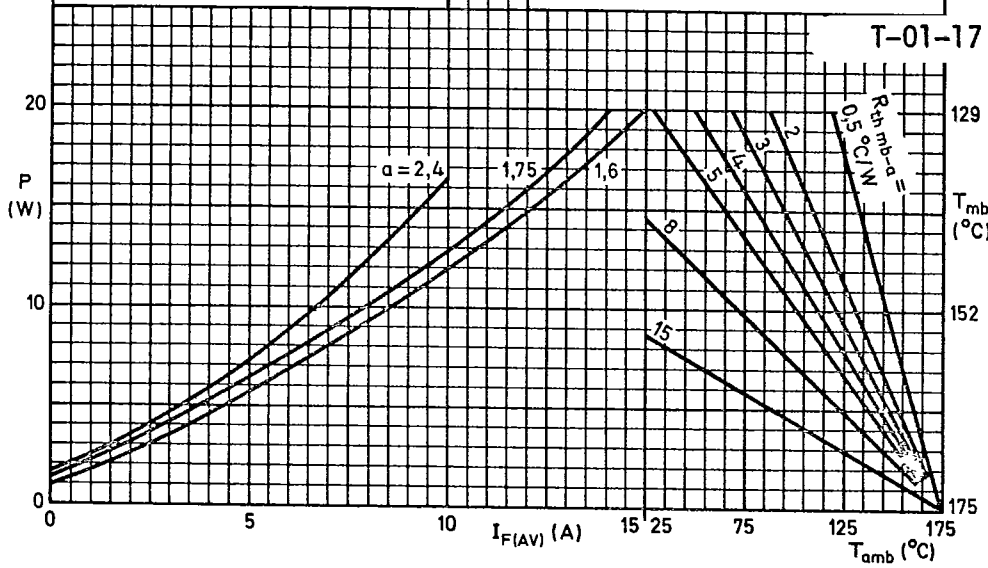
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single phase: $a = 1,6$
 3-phase : $a = 1,75$ $a = \frac{I_F(RMS)}{I_F(AV)}$
 6-phase : $a = 2,4$

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



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