

T-01-19

RECTIFIER DIODES

Also available to BS9331-F129

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

The series consists of the following types:

Normal polarity (cathode to stud): BYX96-300 to 1600.

Reverse polarity (anode to stud): BYX96-300R to 1600R.

QUICK REFERENCE DATA

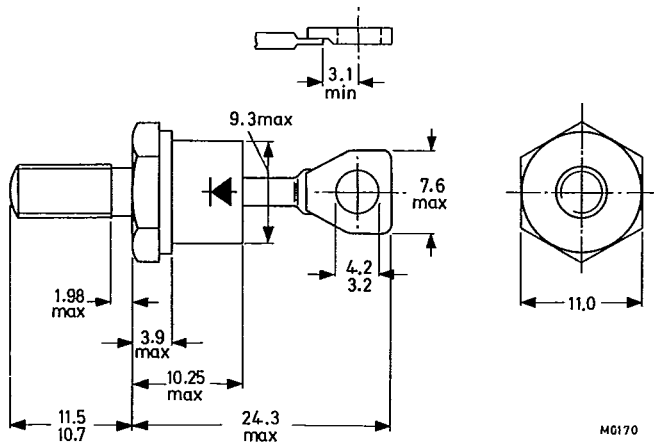
		BYX96-300(R)	600(R)	1200(R)	1600(R)	
Repetitive peak reverse voltage	V_{RRM}	max. 300	600	1200	1600	V
Average forward current	$I_F(AV)$	max.			30	A
Non-repetitive peak forward current	I_{FSM}	max.			400	A

MECHANICAL DATA

Dimensions in mm

Fig.1 DO-4: with metric M5 stud (ϕ 5 mm); e.g. BYX96-300(R).

Types with 10-32 UNF stud (ϕ 4,83 mm) are available on request. These are indicated by the suffix U; e.g. BYX96-300U(RU).



Supplied with device: 1 nut, 1 lock-washer

Nut dimensions across the flats, M5 thread: 8 mm, 10-32 UNF thread: 9.5 mm

Net mass: 7 g

Diameter of clearance hole: max. 5.2 mm

Supplied on request: see ACCESSORIES section
a version with insulated flying leads

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)

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

<u>Voltages</u> ¹⁾		BYX96-300(R)	600(R)	1200(R)	1600(R)	
Non-repetitive peak reverse voltage ($t \leq 10$ ms)	V_{RSM}	max. 300	600	1200	1600	V
Repetitive peak reverse voltage ($\delta \leq 0,01$)	V_{RRM}	max. 300	600	1200	1600	V
Crest working reverse voltage	V_{RWM}	max. 200	400	800	800	V
Continuous reverse voltage	V_R	max. 200	400	800	800	V

Currents

Average forward current (averaged over any 20 ms period) up to $T_{mb} = 125$ °C	$I_{F(AV)}$	max.	30	A
R. M. S. forward current	$I_{F(RMS)}$	max.	48	A
Repetitive peak forward current	I_{FRM}	max.	400	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.	400	A
I^2t for fusing ($t = 10$ ms)	I^2t	max.	800	A ² s

Temperatures

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

THERMAL RESISTANCE

From junction to mounting base	$R_{th j-mb}$	=	1,0	°C/W
From mounting base to heatsink without heatsink compound	$R_{th mb-h}$	=	0,5	°C/W
with heatsink compound	$R_{th mb-h}$	=	0,3	°C/W
Transient thermal impedance; $t = 1$ ms	$Z_{th j-mb}$	=	0,2	°C/W

¹⁾ To ensure thermal stability: $R_{th j-a} \leq 2$ °C/W (continuous reverse voltage) or ≤ 8 °C/W (a. c.)

For smaller heatsinks T_{jmax} should be derated. For a. c. see page 4.

For continuous reverse voltage: if $R_{th j-a} = 4$ °C/W, then $T_{jmax} = 138$ °C,

if $R_{th j-a} = 6$ °C/W, then $T_{jmax} = 125$ °C.

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CHARACTERISTICS

Forward voltage

$I_F = 100 \text{ A}; T_j = 25 \text{ }^\circ\text{C}$

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

Reverse current

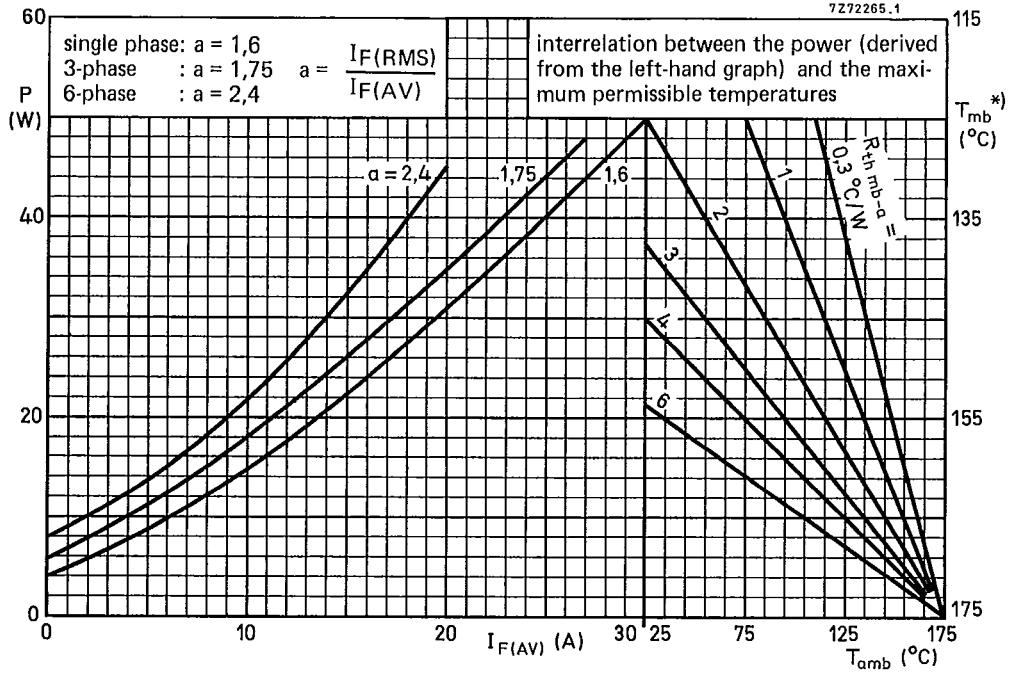
$V_R = V_{RWMmax}; T_j = 125 \text{ }^\circ\text{C}$

$I_R < 1 \text{ mA}$

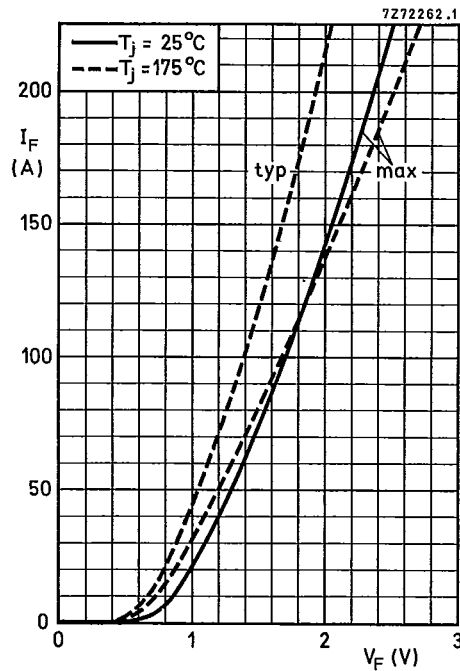
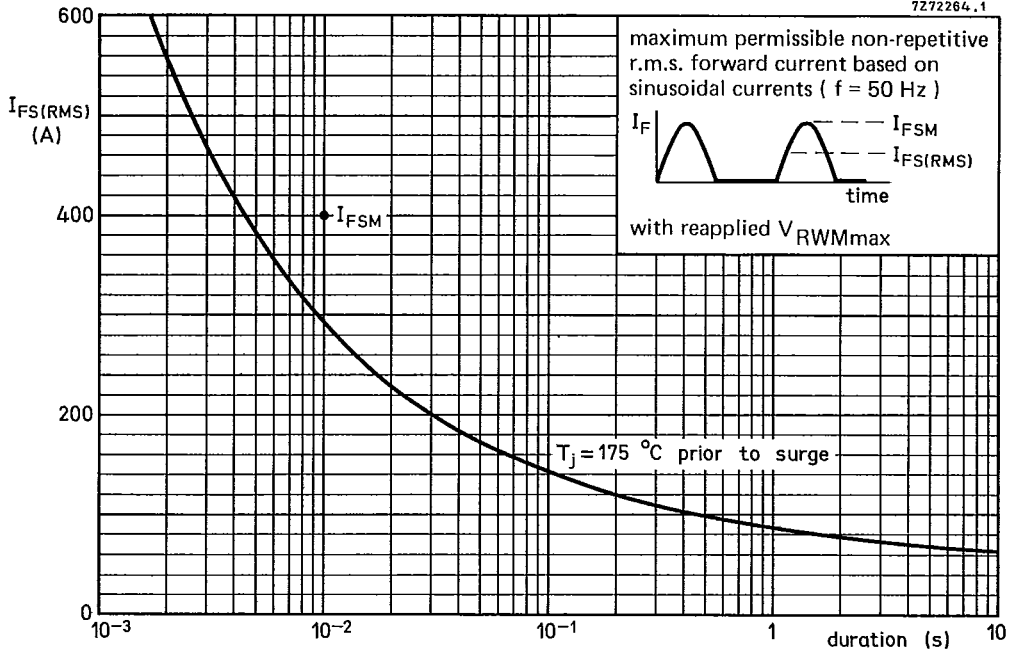
OPERATING NOTES

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 conditions to avoid excessive dissipation.



*) T_{mb}-scale is for comparison purposes only and is correct only for R_{th mb-a} ≤ 6,5 °C/W



BYX96

SERIES

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PHILIPS INTERNATIONAL

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PHIN

