

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

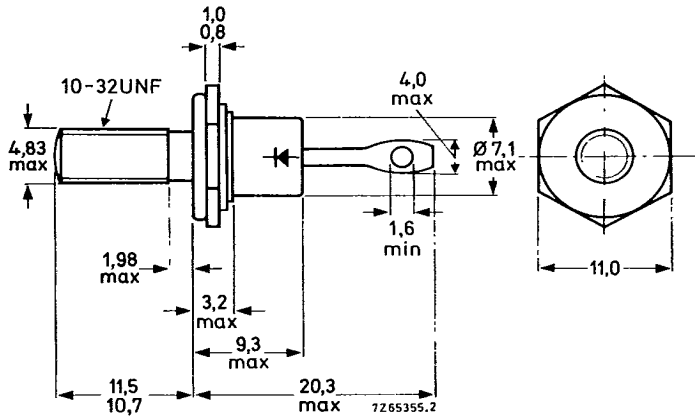
QUICK REFERENCE DATA

		BYX38-300(R) 600(R) 1200(R)		
		max. 300	600	1200 V
Repetitive peak reverse voltage	V_{RRM}			
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:
 see ACCESSORIES section

Torque on nut: min. 0,9 Nm
 (9 kg cm)
 max. 1,7 Nm
 (17 kg cm)

Supplied with device: 1 nut, 1 lock washer
 Nut dimensions across the flats: 9,5 mm
 The mark shown applies to normal polarity types.

Products approved to CECC 50 009-019 available on request.

PHILIPS INTERNATIONAL

56E D ■ 7110826 0041615 226 ■ PHIN

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 $V_{RWM} \text{ max}$	I_{FSM}	max.	50	A
I^2t for fusing ($t = 10$ ms)	I^2t	max.	13	A ² 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

Forward voltage

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

Reverse current

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

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.

