

CONTROLLED AVALANCHE RECTIFIER DIODES

Also available to BS9333-F004

Diffused silicon diodes in a DO-1 metal envelope, capable of absorbing transients. They are intended for rectifier applications and particularly suited for series operation.

The series consists of the following reverse polarity types (anode to case):

BYX45-600R, BYX45-800R, BYX45-1000R, BYX45-1200R and BYX45-1400R.

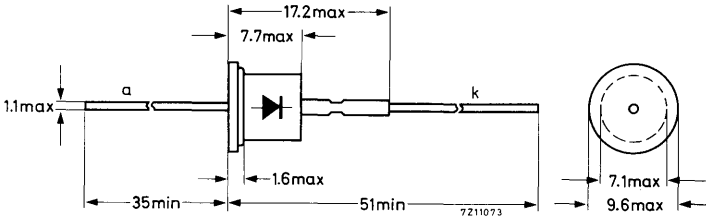
QUICK REFERENCE DATA

		BYX45-600R   800R   1000R   1200R   1400R				
Crest working reverse voltage	$V_{RWM}$ max.	600	800	1000	1200	1400 V
Reverse breakdown voltage	$V_{(BR)R}$ >	750	1000	1250	1450	1650 V
Average forward current	$I_{F(AV)}$ max.	1.5			A	
Non repetitive peak forward current	$I_{FSM}$ max.	40			A	
Non repetitive peak reverse power	$P_{RSM}$ max.	2.5			kW	

MECHANICAL DATA

Dimensions in mm

Fig. 1 DO-1



## RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC134)

### → Voltages

		BYX45-600R	800R	1000R	1200R	1400R	
Crest working reverse voltage	$V_{RWM}$	max. 600	800	1000	1200	1400	V
Continuous reverse voltage	$V_R$	max. 600	800	1000	1200	1400	V

### Currents

Average forward current (averaged over any 20 ms period)		$I_F(AV)$	max.	1.5	A
R.M.S. forward current		$I_F(RMS)$	max.	2.4	A
Repetitive peak forward current		$I_{FRM}$	max.	15	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.	40	A
$I^2 t$ for fusing ( $t = 10$ ms)		$I^2 t$	max.	8	A <sup>2</sup> s

### Reverse power dissipation

Repetitive peak reverse power dissipation $t = 10$ $\mu$ s (square-wave; $f = 50$ Hz); $T_j = 125$ °C		$P_{RRM}$	max.	800	W
Non-repetitive peak reverse power dissipation $t = 10$ $\mu$ s (square-wave) $T_j = 25$ °C prior to surge $T_j = 150$ °C prior to surge		$P_{RSM}$ $P_{RSM}$	max. max.	2.5 800	kW W

### Temperatures

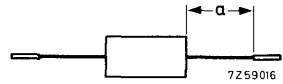
Storage temperature		$T_{stg}$		-55 to +150	°C
Junction temperature		$T_j$	max.	150	°C

## THERMAL RESISTANCE

Effect of mounting on thermal resistance  $R_{th\ j-a}$ 

The quoted values apply when no other leads run to the tie-points. If leads of other dissipating components share the same tie-points, the thermal resistance will be higher than that quoted.

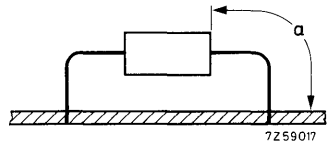
1. Mounted on solder tags at a lead-length  $a = 10$  mm.  $R_{th\ j-a} = 60$  °C/W



2. Mounted on solder tags at  $a =$  maximum lead-length.  $R_{th\ j-a} = 70$  °C/W

3. Mounted on printed-wiring board at  $a =$  maximum lead-length.  $R_{th\ j-a} = 80$  °C/W

4. Mounted on printed-wiring board at a lead-length  $a = 10$  mm.  $R_{th\ j-a} = 90$  °C/W



## SOLDERING AND MOUNTING NOTES

1. At a soldering iron or bath temperature of up to 245 °C, the maximum permissible soldering time is 10 s if the joint is 5 mm from the seal, 3 s if it is 1.5 mm from the seal.
2. At a temperature between 245 °C and 400 °C (max.), the joint must be more than 5 mm from the seal and soldering time must not exceed 5 s.
3. Leads should not be bent less than 1.5 mm from the seal; exert no axial pull when bending.

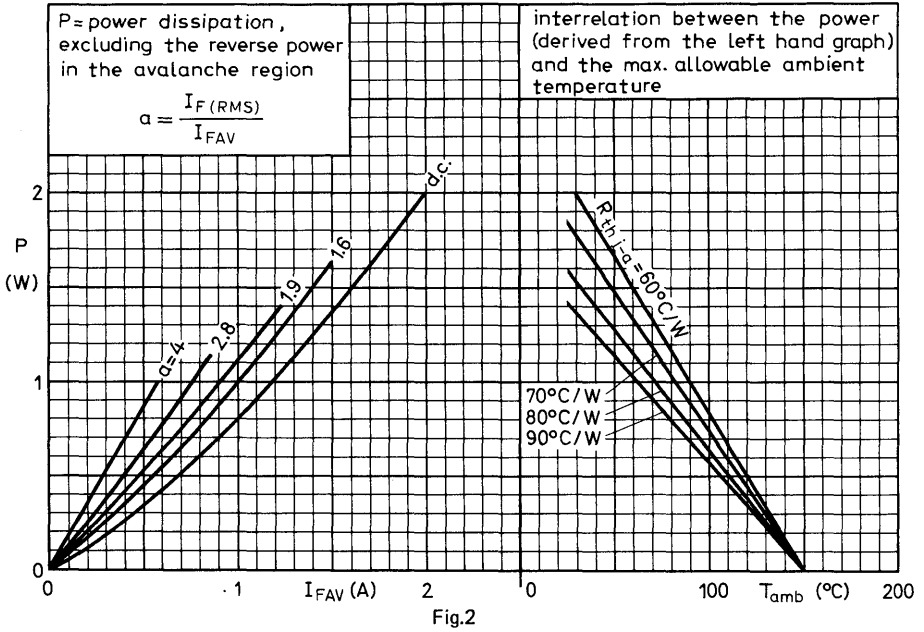
# BYX45 SERIES

## CHARACTERISTICS

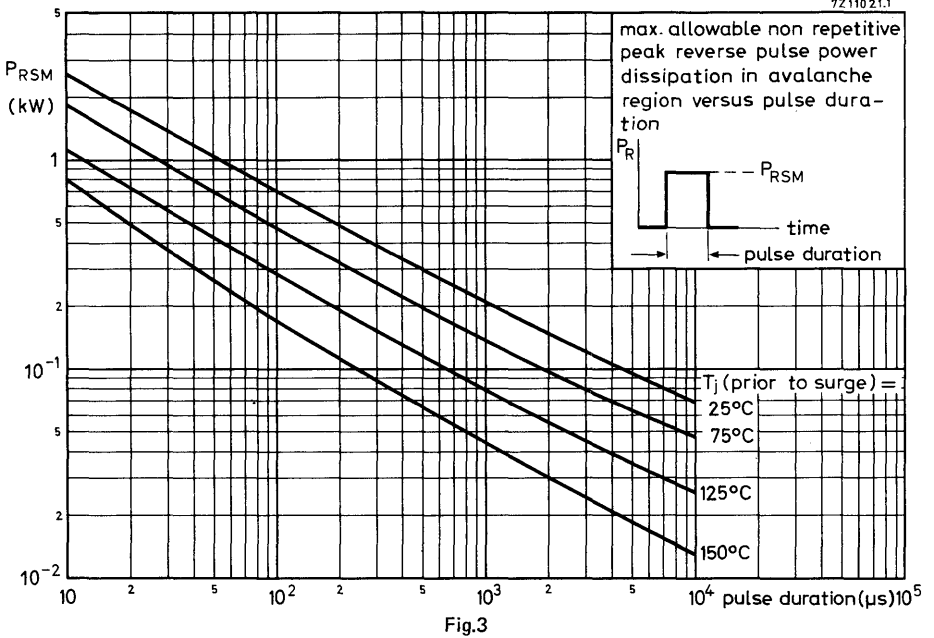
			BYX45-600R	800R	1000R	1200R	1400R	
Forward voltage	$V_F$	<	1.45	1.45	1.45	1.45	1.45	V*
$I_F = 5 \text{ A}; T_j = 25 \text{ }^\circ\text{C}$								
Reverse avalanche breakdown voltage	$V_{(BR)R}$	>	750	1000	1250	1450	1650	V
$I_R = 1 \text{ mA}; T_j = 25 \text{ }^\circ\text{C}$								
Reverse current	$I_R$	<	100	100	100	100	100	$\mu\text{A}$
$V_R = V_{RWMmax}; T_j = 125 \text{ }^\circ\text{C}$								

\*Measured under pulse conditions to avoid excessive dissipation.

7Z11022.2



7Z11021.1



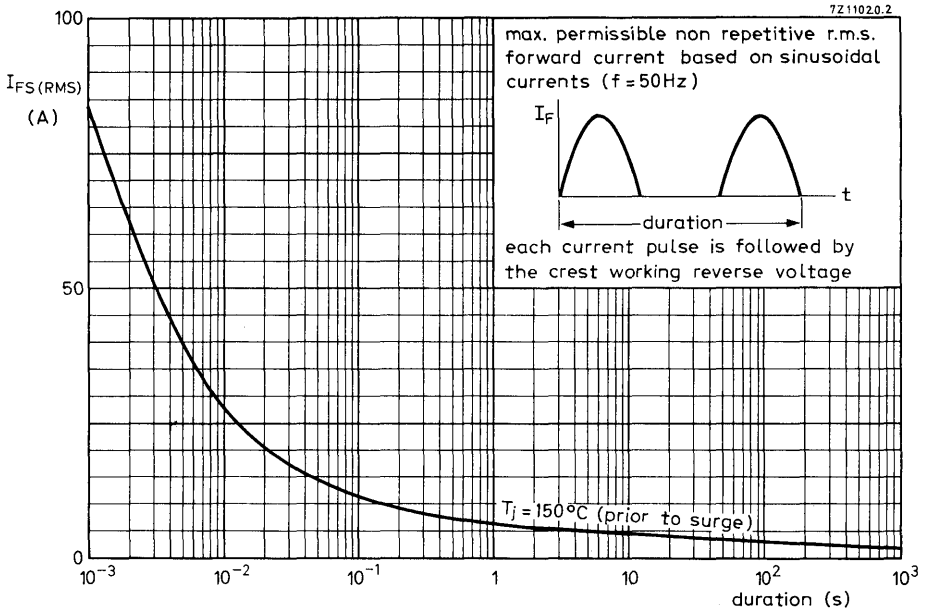


Fig.4

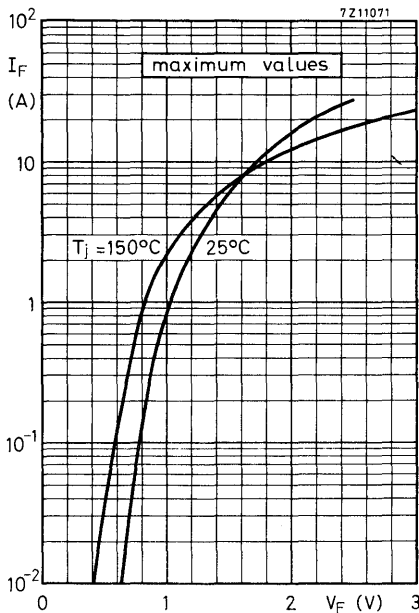


Fig.5