

## ULTRA FAST-RECOVERY DOUBLE RECTIFIER DIODES

Glass-passivated, high-efficiency epitaxial rectifier diodes in ISOTOP envelopes, featuring low forward voltage drop, ultra fast reverse recovery times, very low stored charge and soft-recovery characteristic. They are intended for use in switched-mode power supplies and high-frequency circuits in general, where both low conduction and low switching losses are essential. Their electrical isolation makes them ideal for mounting on a common heatsink alongside other components without the need for additional insulators.

### QUICK REFERENCE DATA

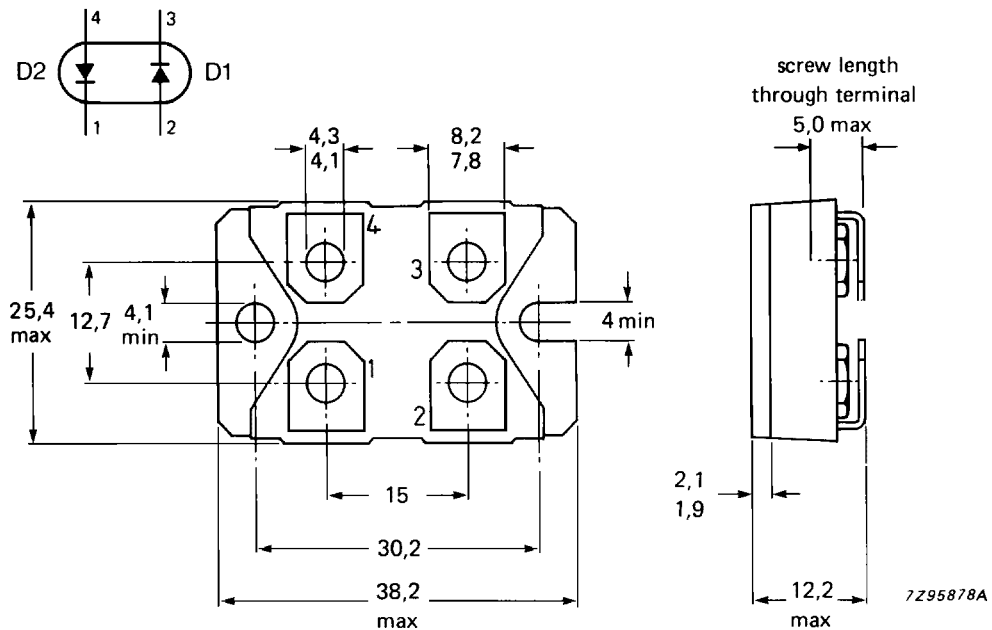
		BYT230PIV- 600   700   800			
Repetitive peak reverse voltage	$V_{RRM}$	max.	600   700   800		V
Average forward current	$I_F(AV)$	max.	2 x 30		A
Forward voltage	$V_F$	<	1.8		V
Reverse recovery time	$t_{rr}$	<	55		ns

### MECHANICAL DATA

Dimensions in mm

Fig.1 SOT-227B.

Types with Faston terminals are available on request (see overleaf).



Baseplate is electrically isolated.  
Isolation voltage: 2500 V RMS.  
Capacitance: 45 pF.

Supplied with device: 4 x M4 screws.

**RATINGS**

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

**→ Voltages**

		BYT230PIV- 600	700	800
Repetitive peak reverse voltage	$V_{RRM}$	max. 600	700	800 V
Non repetitive peak reverse voltage	$V_{RSM}$	max. 640	750	850 V

**Currents (per diode)**

Average forward current; switching losses negligible up to 100 kHz square-wave, $\delta = 0.5$ , up to $T_{mb} = 50\text{ }^{\circ}\text{C}$	$I_{F(AV)}$	max.	30	A
RMS forward current	$I_{F(RMS)}$	max.	70	A
Repetitive peak forward current $t_p = 20\text{ }\mu\text{s}$ , $\delta = 0.02$	$I_{FRM}$	max.	375	A
Non-repetitive peak forward current half sine-wave $t = 10\text{ ms}$	$I_{FSM}$	max.	200	A
$t = 8.3\text{ ms}$	$I_{FSM}$	max.	240	A
$I^2 t$ for fusing ( $t = 10\text{ ms}$ )	$I^2 t$	max.	200	$\text{A}^2\text{s}$

**Temperatures**

Storage temperature	$T_{stg}$	-40 to +150	$^{\circ}\text{C}$
Junction temperature	$T_j$	-40 to +150	$^{\circ}\text{C}$

**THERMAL RESISTANCE**

From junction to mounting base per diode	$R_{th\ j-mb}$	=	1.5	K/W
From junction to mounting base total	$R_{th\ j-mb}$	=	0.8	K/W
From mounting base to heatsink with heatsink compound	$R_{th\ mb-h}$	=	0.1	K/W

**ORDERING NOTE**

Types with Faston terminals are available on request (see Fig.2).

Omit suffix V from the type number when ordering, e.g. BYT230PI-600.

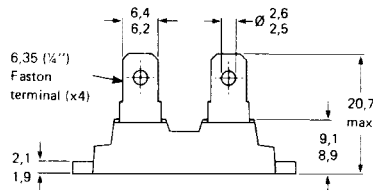
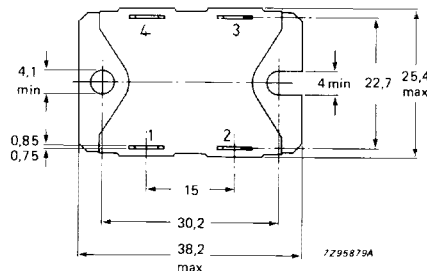
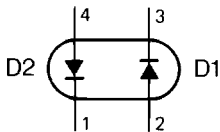


Fig.2 SOT-227A.

Dimensions in mm.



## CHARACTERISTICS

 $T_j = 25\text{ }^\circ\text{C}$  unless otherwise stated.

## Forward voltage

$I_F = 30\text{ A}; T_j = 100\text{ }^\circ\text{C}$

$V_F < 1.8\text{ V}^*$

$I_F = 30\text{ A}$

$V_F < 1.9\text{ V}^*$

## Reverse current

$V_R = V_{RRM\text{ max}}; T_j = 100\text{ }^\circ\text{C}$

$I_R < 5.0\text{ mA}$

$V_R = V_{RRM\text{ max}}$

$I_R < 100\text{ }\mu\text{A}$

## Reverse recovery when switched from

 $I_F = 0.5\text{ A}$  to  $I_R = 1\text{ A}$  measured at  $I_R = 0.25\text{ A}$   
recovery time

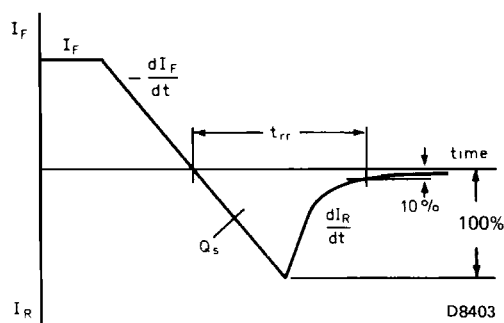
$t_{rr} < 55\text{ ns}$

 $I_F = 1\text{ A}$  to  $V_R \geq 30\text{ V}$  with  $-dI_F/dt = 50\text{ A}/\mu\text{s}$ ;  
recovery time

$t_{rr} < 100\text{ ns}$

 $I_F = 2\text{ A}$  to  $V_R \geq 30\text{ V}$  with  $-dI_F/dt = 20\text{ A}/\mu\text{s}$ ;  
recovered charge

$Q_s < 150\text{ nC}$

Fig.3 Definition of  $t_{rr}$  and  $Q_s$ .

\*Measured under pulse conditions to avoid excessive dissipation.

SQUARE-WAVE OPERATION

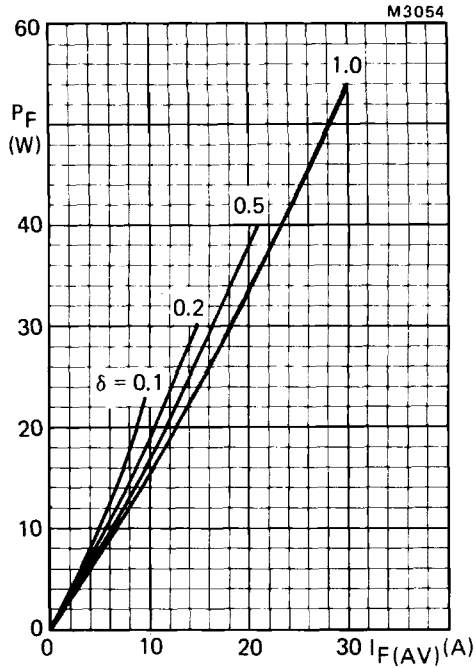
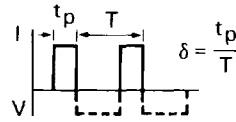


Fig.4 Forward power losses versus average forward current; per diode.



$$I_{F(AV)} = I_{F(RMS)} \times \sqrt{\delta}$$

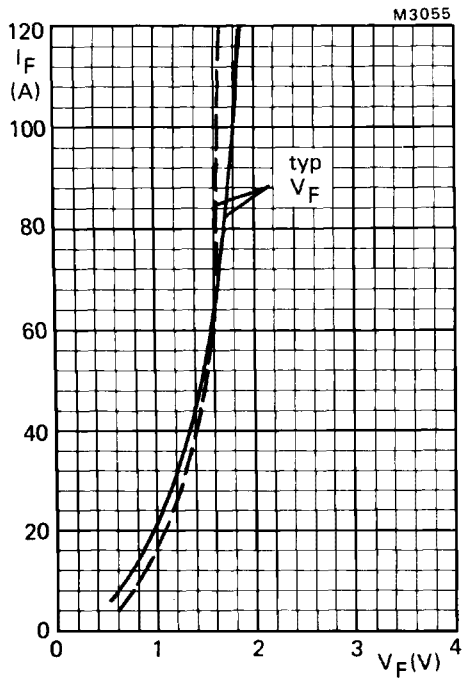


Fig.5 Typical forward voltage versus forward current;  
---  $T_j = 25^\circ\text{C}$ ; —  $T_j = 100^\circ\text{C}$ .