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BYW92 SERIES

ULTRA FAST RECOVERY RECTIFIER DIODES

Glass-passivated, high-efficiency epitaxial rectifier diodes in DO-5 metal 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 low conduction and switching losses are essential. The series consists of normal polarity (cathode to stud) types.

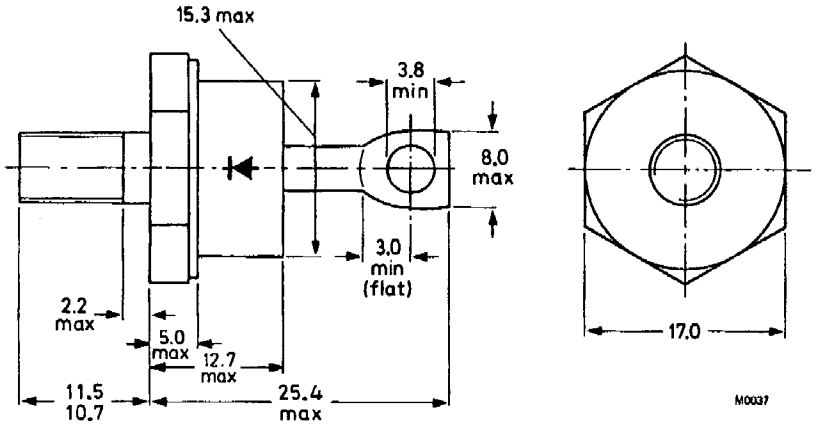
QUICK REFERENCE DATA

		BYW92–	50	100	150	200	
Repetitive peak reverse voltage	V_{RRM}	max.	50	100	150	200	V
Average forward current	$I_{F(AV)}$	max.		40			A
Forward voltage	V_F	<		0.8			V
Reverse recovery time	t_{rr}	<		40			ns

MECHANICAL DATA

Dimensions in mm

Fig.1 DO-5: with metric M6 stud (ϕ 6 mm); e.g. BYW92-50.
with ¼ in x 28 UNF stud (ϕ 6.35 mm); e.g. BYW92–50U.



Net mass: 22 g
Diameter of clearance hole: max. 6.5 mm
Accessories supplied on request:
see ACCESSORIES section.

Supplied with device: 1 nut, 1 lock washer
Torque on nut: min. 1.7 Nm (17 kg cm)
max. 3.5 Nm (35 kg cm)
Nut dimensions across the flats:
M6: 10 mm; ¼ in x 28 UNF: 11.1 mm

RATINGS

Limiting values in accordance with the Absolute Maximum System

Voltages		BYW92–	50	100	150	200	
Repetitive peak reverse voltage	V_{RRM}	max.	50	100	150	200	V
Crest working reverse voltage	V_{RWM}	max.	50	100	150	200	V
Continuous reverse voltage*	V_R	max.	50	100	150	200	V
Currents							
Average forward current; switching losses negligible up to 500 kHz							
square wave; $\delta = 0.5$; up to $T_{mb} = 110\ ^oC$	$I_{F(AV)}$			max.		40	A
up to $T_{mb} = 125\ ^oC$	$I_{F(AV)}$			max.		27	A
sinusoidal; up to $T_{mb} = 115\ ^oC$	$I_{F(AV)}$			max.		35	A
up to $T_{mb} = 125\ ^oC$	$I_{F(AV)}$			max.		26	A
R.M.S. forward current	$I_{F(RMS)}$			max.		55	A
Repetitive peak forward current $t_p = 20\ \mu s$; $\delta = 0.02$	I_{FRM}			max.		800	A
Non-repetitive peak forward current half sine-wave; $T_j = 150\ ^oC$ prior to surge; with reapplied V_{RWMmax};							
$t = 10$ ms	I_{FSM}			max.		500	A
$t = 8.3$ ms	I_{FSM}			max.		600	A
I^2t for fusing ($t = 10$ ms)	I^2t			max.		1250	A^2s
Temperatures							
Storage temperature	T_{stg}				−55 to +150		^oC
Junction temperature	T_j			max.		150	^oC

THERMAL RESISTANCE

From junction to mounting base	$R_{th\ j\text{-}mb}$	=	1.0	K/W
From mounting base to heatsink				
a. with heatsink compound	$R_{th\ mb\text{-}h}$	=	0.3	K/W
b. without heatsink compound	$R_{th\ mb\text{-}h}$	=	0.5	K/W
Transient thermal impedance; $t = 1$ ms	$Z_{th\ j\text{-}mb}$	=	0.2	K/W

MOUNTING INSTRUCTIONS

The top connector should be neither 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.

CHARACTERISTICS

Forward voltage				
I_F = 35 A; T_j = 150 °C	V_F	<	0.8	V*
I_F = 100 A; T_j = 25 °C	V_F	<	1.3	V*
Reverse current				
$V_R = V_{RRMmax}$; T_j = 100 °C	I_R	<	2.5	mA
T_j = 25 °C	I_R	<	100	μA
Reverse recovery when switched from				
I_F = 1 A to $V_R \geq$ 30 V with $-dI_F/dt$ = 100 A/μs; T_j = 25 °C; recovery time	t_{rr}	<	40	ns
I_F = 2 A to $V_R \geq$ 30 V with $-dI_F/dt$ = 20 A/μs; T_j = 25 °C; recovered charge	Q_s	<	20	nC
I_F = 10 A to $V_R \geq$ 30 V with $-dI_F/dt$ = 50 A/μs; T_j = 100 °C; peak recovery current	I_{RRM}	<	4.5	A
Forward recovery when switched to I_F = 10 A with dI_F/dt = 10 A/μs; T_j = 25 °C	V_{fr}	typ.	1.0	V