

## ULTRA FAST RECOVERY RECTIFIER DIODES

Glass-passivated, high-efficiency epitaxial rectifier diodes in DO-4 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

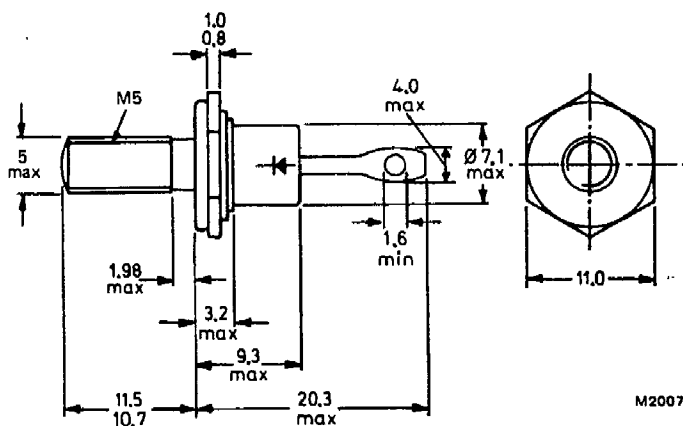
			BYV30-300	400	500		
Repetitive peak reverse voltage	$V_{RRM}$	max.	300	400	500		V
Average forward current	$I_{F(AV)}$	max.	14				A
Forward voltage	$V_F$	<	1.05				V
Reverse recovery time	$t_{rr}$	<	50				ns

### MECHANICAL DATA

Dimensions in mm

Fig.1 DO-4 with metric (M5) stud as standard.

10-32 UNF is available upon request with suffix U (e.g. BYV30-400U).



Net mass: 6 g

Diameter of clearance hole: max. 5.2 mm

Accessories supplied on request: see data sheets

Mounting instructions and Accessories  
for DO-4 envelopes.

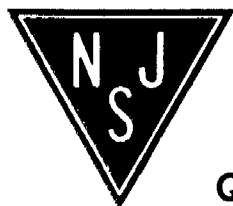
Supplied with device: 1 nut, 1 lock washer.

Nut dimensions across the flats: 9.5 mm

Torque on nut:

min. 0.9 Nm (9 kg cm)

max. 1.7 Nm (17 kg cm)



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## RATINGS

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

Voltages		BYV30-300	400	500	V
→ Non-repetitive peak reverse voltage	$V_{RSM}$	max. 350	450	550	V
Repetitive peak reverse voltage	$V_{RRM}$	max. 300	400	500	V
Crest working reverse voltage	$V_{RWM}$	max. 200	300	400	V
Continuous reverse voltage*	$V_R$	max. 200	300	400	V
<b>Currents</b>					
Average forward current; switching losses negligible up to 100 kHz					
square wave; $\delta = 0.5$ ; up to $T_{mb} = 113\text{ }^{\circ}\text{C}$	$I_{F(AV)}$	max.	14		A
up to $T_{mb} = 125\text{ }^{\circ}\text{C}$	$I_{F(AV)}$	max.	10		A
sinusoidal; up to $T_{mb} = 118\text{ }^{\circ}\text{C}$	$I_{F(AV)}$	max.	12.5		A
up to $T_{mb} = 125\text{ }^{\circ}\text{C}$	$I_{F(AV)}$	max.	10		A
R.M.S. forward current	$I_{F(RMS)}$	max.	20		A
Repetitive peak forward current $t_p = 20\text{ }\mu\text{s}$ ; $\delta = 0.02$	$I_{FRM}$	max.	320		A
Non-repetitive peak forward current half sine-wave; $T_j = 150\text{ }^{\circ}\text{C}$ prior to surge; with reapplied $V_{RWMmax}$ ;					
$t = 10\text{ ms}$	$I_{FSM}$	max.	150		A
$t = 8.3\text{ ms}$	$I_{FSM}$	max.	180		A
$I^2t$ for fusing ( $t = 10\text{ ms}$ )	$I^2t$	max.	112		$\text{A}^2\text{s}$
<b>Temperatures</b>					
Storage temperature	$T_{stg}$		-65 to +175		$^{\circ}\text{C}$
Junction temperature	$T_j$	max.	150		$^{\circ}\text{C}$
<b>THERMAL RESISTANCE</b>					
From junction to mounting base	$R_{th\ j-mb}$	=	2.0		K/W
From mounting base to heatsink with heatsink compound	$R_{th\ mb-h}$	=	0.3		K/W
From junction to ambient in free air	$R_{th\ j-a}$	=	50		K/W

## CHARACTERISTICS

Forward voltage					
$I_F = 15\text{ A}$ ; $T_j = 150\text{ }^{\circ}\text{C}$	$V_F$	<	1.05		$\text{V}^*$
$I_F = 50\text{ A}$ ; $T_j = 25\text{ }^{\circ}\text{C}$	$V_F$	<	1.40		$\text{V}^*$
Reverse current					
$V_R = V_{RWM\ max}$ ; $T_j = 100\text{ }^{\circ}\text{C}$	$I_R$	<	0.8		$\text{mA}$
$T_j = 25\text{ }^{\circ}\text{C}$	$I_R$	<	50		$\mu\text{A}$
Reverse recovery when switched from					
$I_F = 1\text{ A}$ to $V_R \geq 30\text{ V}$ with $-dI_F/dt = 100\text{ A}/\mu\text{s}$ ; $T_j = 25\text{ }^{\circ}\text{C}$ ; recovery time	$t_{rr}$	<	50		ns
$I_F = 2\text{ A}$ to $V_R \geq 30\text{ V}$ with $-dI_F/dt = 20\text{ A}/\mu\text{s}$ ; $T_j = 25\text{ }^{\circ}\text{C}$ ; recovered charge	$Q_s$	<	50		nC
$I_F = 10\text{ A}$ to $V_R \geq 30\text{ V}$ with $-dI_F/dt = 50\text{ A}/\mu\text{s}$ ; $T_j = 100\text{ }^{\circ}\text{C}$ ; peak recovery current	$I_{RRM}$	<	5.2		A
Forward recovery when switched to $I_F = 10\text{ A}$ with $dI_F/dt = 10\text{ A}/\mu\text{s}$ ; $T_j = 25\text{ }^{\circ}\text{C}$	$V_{fr}$	typ.	2.5		V