

Rectifier diodes ultrafast, rugged

BYV72E series

GENERAL DESCRIPTION

Glass passivated high efficiency rugged dual rectifier diodes in a plastic envelope, featuring low forward voltage drop, ultra-fast recovery times and soft recovery characteristic. These devices can withstand reverse voltage transients and have guaranteed reverse surge and ESD capability. They are intended for use in switched mode power supplies and high frequency circuits in general where low conduction and switching losses are essential.

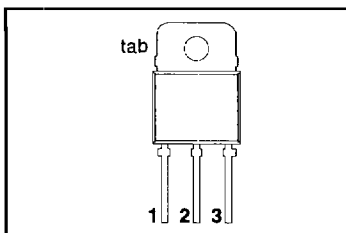
QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	MAX.	MAX.	UNIT
V_{RRM}	Repetitive peak reverse voltage	100	150	200	V
		100	150	200	
V_F	Forward voltage	0.90	0.90	0.90	V
$I_{O(AV)}$	Output current (both diodes conducting)	30	30	30	A
t_{rr}	Reverse recovery time	28	28	28	ns
I_{RRM}	Repetitive peak reverse current per diode	0.2	0.2	0.2	A

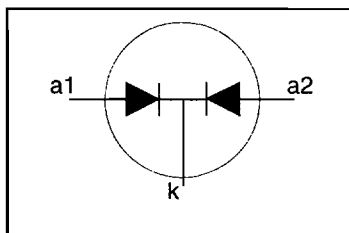
PINNING - SOT93

PIN	DESCRIPTION
1	Anode 1 (a)
2	Cathode (k)
3	Anode 2 (a)
tab	Cathode (k)

PIN CONFIGURATION



SYMBOL



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.			MAX.			UNIT
V_{RRM}	Repetitive peak reverse voltage	square wave $\delta = 0.5$; $T_{mb} \leq 104^\circ\text{C}$ sinusoidal; $a = 1.57$; $T_{mb} \leq 107^\circ\text{C}$	-	-100	-150	-200			V
V_{RWM}	Crest working reverse voltage		-	100	150	200			V
V_R	Continuous reverse voltage ¹		-	100	150	200			V
$I_{O(AV)}$	Output current (both diodes conducting) ²		-	30					A
$I_{O(RMS)}$	RMS forward current		-	43					A
I_{FRM}	Repetitive peak forward current per diode	$t = 25 \mu\text{s}$; $\delta = 0.5$; $T_{mb} \leq 104^\circ\text{C}$	-	30					A
I_{FSM}	Non-repetitive peak forward current per diode	$t = 10 \text{ ms}$	-	150					A
		$t = 8.3 \text{ ms}$ sinusoidal; with reapplied	-	160					A
I^2t	I^2t for fusing	$V_{RWM(max)}$ $t = 10 \text{ ms}$	-	112					A ² s
I_{RRM}	Repetitive peak reverse current per diode	$t_p = 2 \mu\text{s}$; $\delta = 0.001$	-	0.2					A
I_{RSM}	Non-repetitive peak reverse current per diode	$t_p = 100 \mu\text{s}$	-	0.2					A
T_{stg}	Storage temperature		-40	150					$^\circ\text{C}$
T_j	Operating junction temperature		-	150					$^\circ\text{C}$

1 $T_{mb} \leq 144^\circ\text{C}$ for thermal stability.

2 Neglecting switching and reverse current losses.

For output currents in excess of 20 A, connection should be made to the exposed metal mounting base.

**Rectifier diodes
ultrafast, rugged**
BYV72E series
ESD LIMITING VALUE

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_C	Electrostatic discharge capacitor voltage	Human body model; $C = 250 \text{ pF}$; $R = 1.5 \text{ k}\Omega$	-	8	kV

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th \text{ j-mb}}$	Thermal resistance junction to mounting base	per diode both diodes conducting	-	-	2.4	K/W
$R_{th \text{ j-a}}$	Thermal resistance junction to ambient	in free air	-	45	-	K/W

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

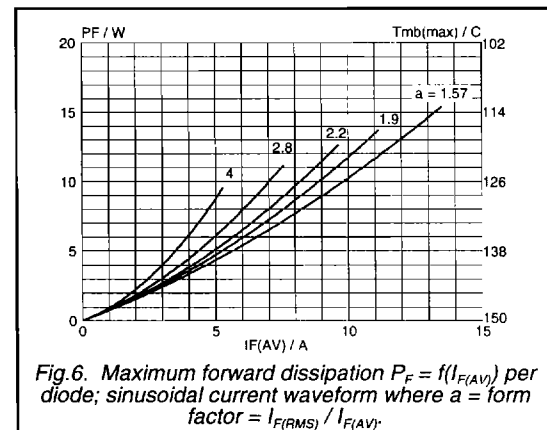
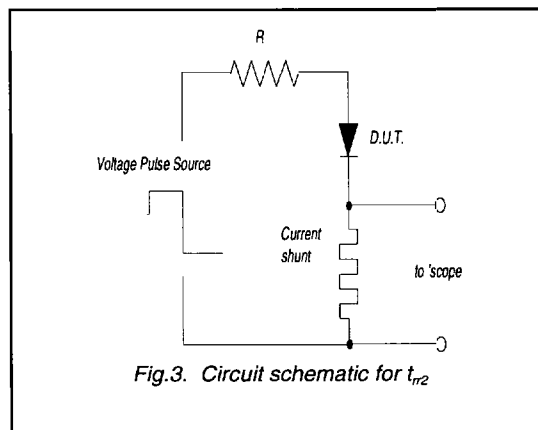
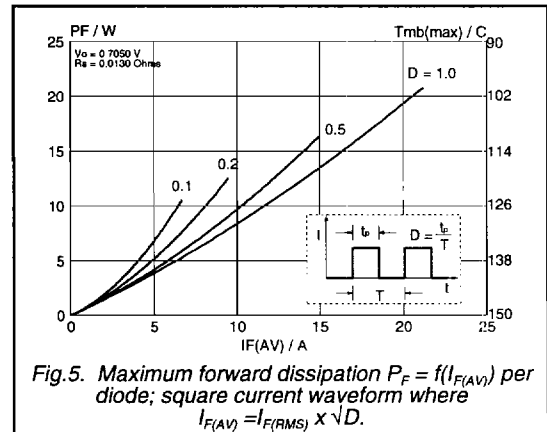
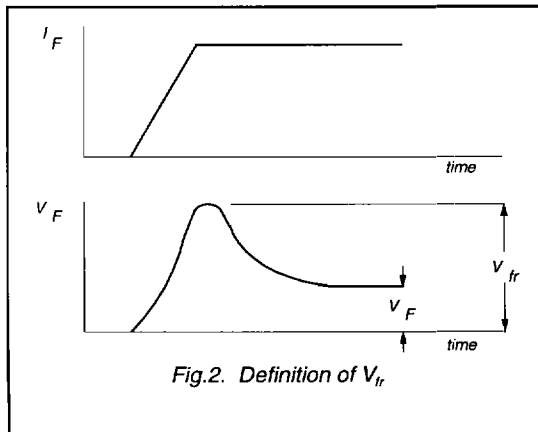
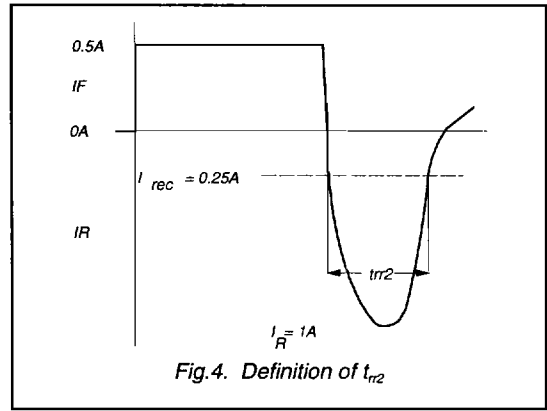
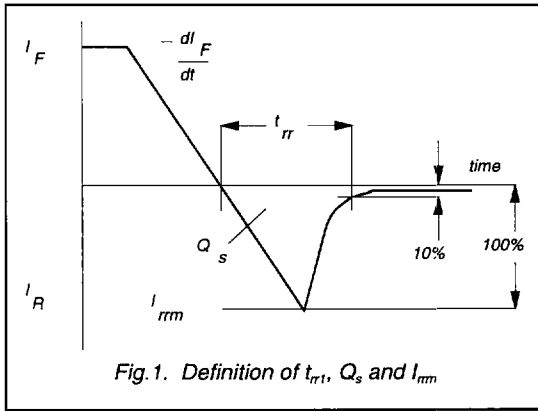
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage (per diode)	$I_F = 15 \text{ A}$; $T_j = 150 \text{ }^\circ\text{C}$	-	0.83	0.90	V
		$I_F = 15 \text{ A}$	-	0.95	1.05	V
		$I_F = 30 \text{ A}$	-	1.00	1.20	V
I_R	Reverse current (per diode)	$V_R = V_{RWM}$; $T_j = 100 \text{ }^\circ\text{C}$	-	0.5	1	mA
		$V_R = V_{RWM}$	-	10	100	μA

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Q_s	Reverse recovery charge (per diode)	$I_F = 2 \text{ A}$; $V_R \geq 30 \text{ V}$; $-di_F/dt = 20 \text{ A}/\mu\text{s}$	-	6	15	nC
t_{rr1}	Reverse recovery time (per diode)	$I_F = 1 \text{ A}$; $V_R \geq 30 \text{ V}$; $-di_F/dt = 100 \text{ A}/\mu\text{s}$	-	20	28	ns
t_{rr2}	Reverse recovery time (per diode)	$I_F = 0.5 \text{ A}$ to $I_R = 1 \text{ A}$; $I_{rec} = 0.25 \text{ A}$	-	13	22	ns
V_{tr}	Forward recovery voltage (per diode)	$I_F = 1 \text{ A}$; $di_F/dt = 10 \text{ A}/\mu\text{s}$	-	1	-	V

Rectifier diodes
ultrafast, rugged

BYV72E series



Rectifier diodes
ultrafast, rugged

BYV72E series

