

Dual rectifier diodes ultrafast

BYV34 series

GENERAL DESCRIPTION

Glass passivated, high efficiency rectifier diodes in a plastic envelope featuring low forward voltage drop, ultra fast reverse recovery times and soft recovery characteristic. They are intended for use in switched mode power supplies and high frequency circuits in general, where both low conduction losses and low switching losses are essential.

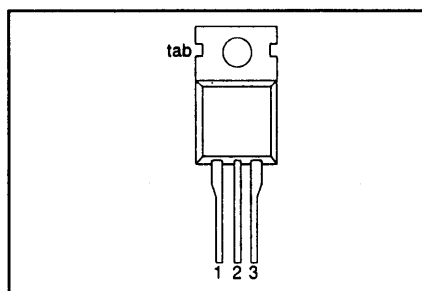
QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	MAX.	MAX.	UNIT
V_{RRM}	BYV34- Repetitive peak reverse voltage	300 300	400 400	500 500	V
V_F	Forward voltage	1.05	1.05	1.05	V
$I_{O(AV)}$	Average output current (both diodes conducting)	20	20	20	A
t_{rr}	Reverse recovery time	60	60	60	ns

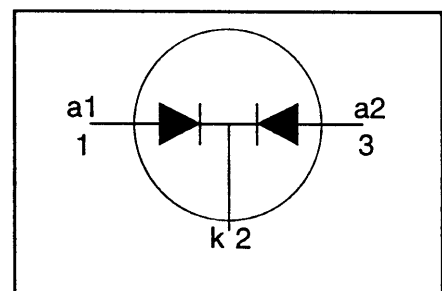
PINNING - TO220AB

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	$T_{mb} \leq 138^\circ\text{C}$	-	-300	-400	-500	V
V_{RWM}	Crest working reverse voltage		-	300	400	500	V
V_R	Continuous reverse voltage		-	300	400	500	V
$I_{O(AV)}$	Average output current (both diodes conducting) ¹	square wave; $\delta = 0.5$; $T_{mb} \leq 115^\circ\text{C}$ sinusoidal; $a = 1.57$; $T_{mb} \leq 116^\circ\text{C}$	-	20			A
$I_{O(RMS)}$	RMS output current (both diodes conducting)		-	18			A
I_{FRM}	Repetitive peak forward current per diode		-	28			A
I_{FSM}	Non-repetitive peak forward current per diode.	$t = 25 \mu\text{s}$; $\delta = 0.5$; $T_{mb} \leq 115^\circ\text{C}$ $t = 10 \text{ ms}$ $t = 8.3 \text{ ms}$ sinusoidal; with reapplied $V_{RRM(max)}$ $t = 10 \text{ ms}$	-	20			A
I_{FSM}	Non-repetitive peak forward current per diode.		-	120			A
I_{FSM}	Non-repetitive peak forward current per diode.		-	132			A
I^2t	I^2t for fusing	$t = 10 \text{ ms}$	-	72			A^2s
T_{stg}	Storage temperature		-40	150			$^\circ\text{C}$
T_j	Operating junction temperature		-	150			$^\circ\text{C}$

C/c: 302-3310

¹ Neglecting switching and reverse current losses

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THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-hs}$	Thermal resistance junction to heatsink	per diode	-	-	2.4	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient	both diodes conducting in free air.	-	-	1.6	K/W
			-	60	-	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)	$I_F = 10\text{ A}$; $T_j = 150\text{ }^{\circ}\text{C}$	-	0.87	1.05	V
I_R	Reverse current (per diode)	$I_F = 20\text{ A}$	-	1.10	1.35	V
		$V_R = V_{RRM}$	-	10	50	mA
		$V_R = V_{RRM}$; $T_j = 100\text{ }^{\circ}\text{C}$	-	0.2	0.6	mA

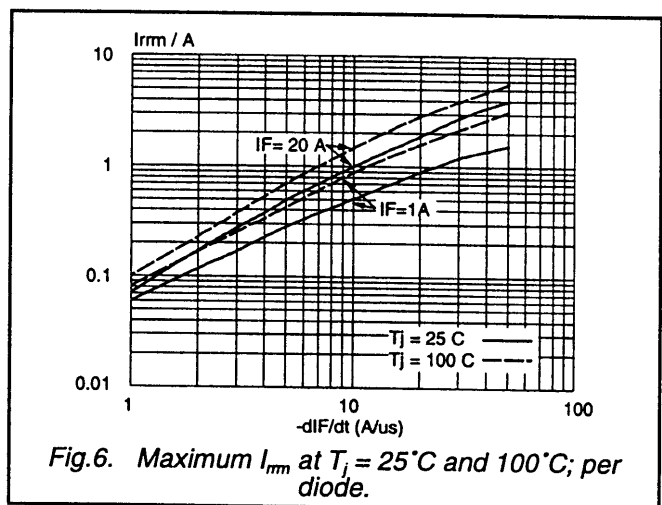
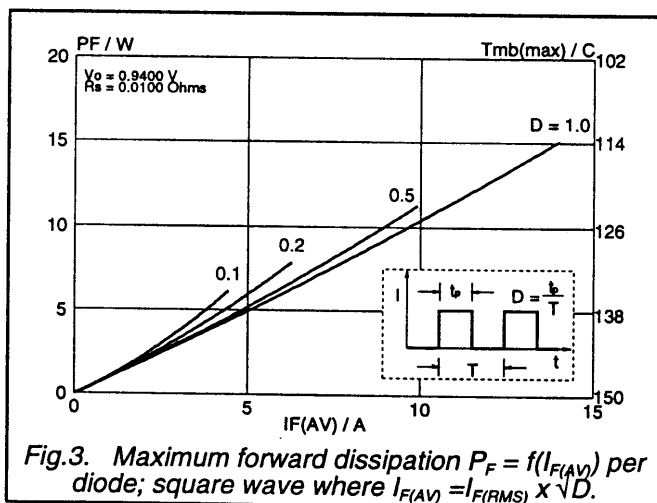
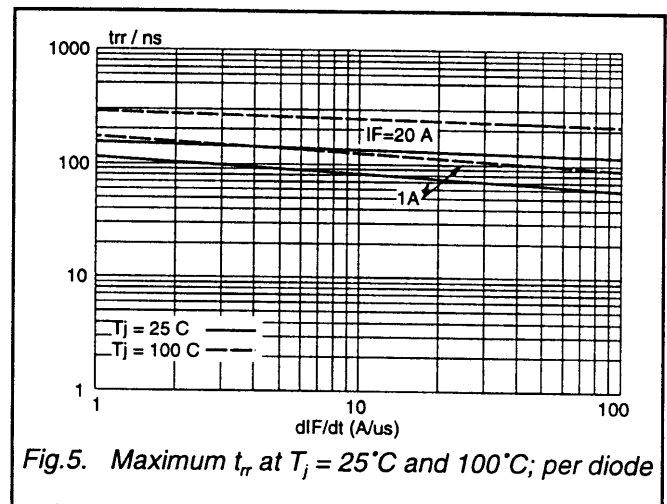
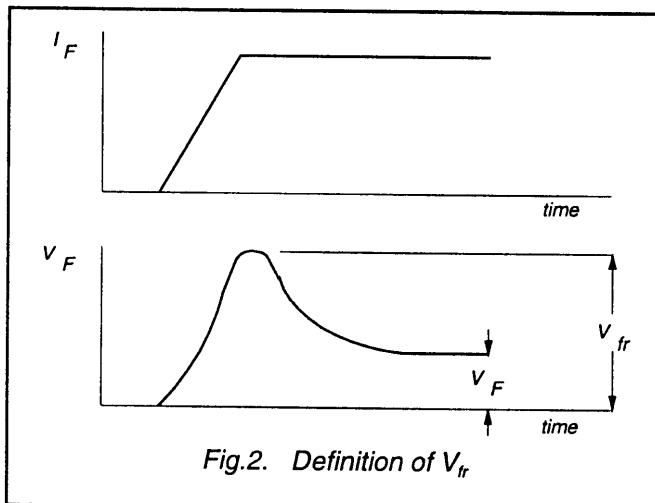
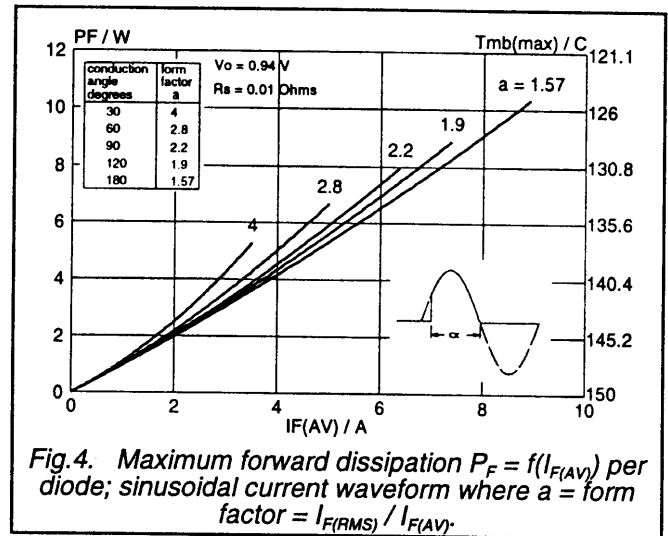
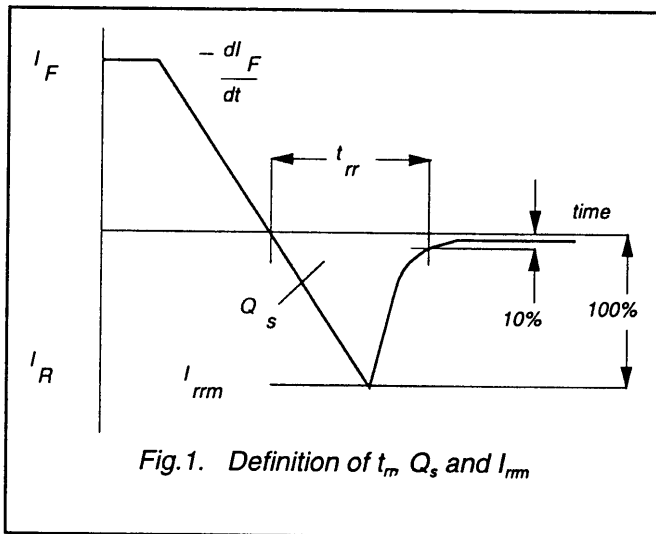
DYNAMIC CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Q_s	Reverse recovery charge (per diode)	$I_F = 2\text{ A}$ to $V_R \geq 30\text{ V}$; $di_F/dt = 20\text{ A}/\mu\text{s}$	-	50	60	nC
t_{rr}	Reverse recovery time (per diode)	$I_F = 1\text{ A}$ to $V_R \geq 30\text{ V}$; $di_F/dt = 100\text{ A}/\mu\text{s}$	-	50	60	ns
I_{rm}	Peak reverse recovery current (per diode)	$I_F = 10\text{ A}$ to $V_R \geq 30\text{ V}$; $di_F/dt = 50\text{ A}/\mu\text{s}$; $T_j = 100\text{ }^{\circ}\text{C}$	-	4.0	5.0	A
V_{tr}	Forward recovery voltage (per diode)	$I_F = 10\text{ A}$; $di_F/dt = 10\text{ A}/\mu\text{s}$	-	2.5	-	V

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