

Silicon Dual Diode

BYV74W-400

400V/30A

DATASHEET

OEM – Philips

Source: Philips Databook 1999

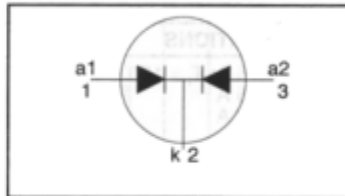
Dual rectifier diodes ultrafast

BYV74W series

FEATURES

- Low forward volt drop
- Fast switching
- Soft recovery characteristic
- High thermal cycling performance
- Low thermal resistance

SYMBOL



QUICK REFERENCE DATA

$$V_R = 300 \text{ V} / 400 \text{ V} / 500 \text{ V}$$

$$V_F \leq 1.12 \text{ V}$$

$$I_{O(AV)} = 30 \text{ A}$$

$$t_{rr} \leq 60 \text{ ns}$$

GENERAL DESCRIPTION

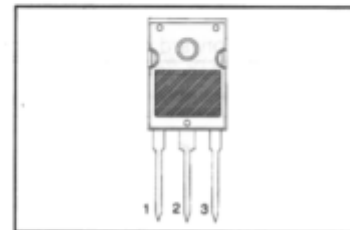
Dual, common cathode, ultra-fast, epitaxial rectifier diodes intended for use as output rectifiers in high frequency switched mode power supplies.

The BYV74W series is supplied in the conventional leaded SOT429 (TO247) package.

PINNING

PIN	DESCRIPTION
1	anode 1
2	cathode
3	anode 2
tab	cathode

SOT429 (TO247)



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.			UNIT
				BYV74W			
V_{RRM}	Peak repetitive reverse voltage	$T_{mb} \leq 136^\circ\text{C}$	-	-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 rectified output current (both diodes conducting) ¹	square wave; $\delta = 0.5$; $T_{mb} \leq 94^\circ\text{C}$	-	30			A
I_{FRM}	Repetitive peak forward current per diode	$t = 25 \mu\text{s}$; $\delta = 0.5$; $T_{mb} \leq 94^\circ\text{C}$	-	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 $V_{RRM(max)}$	-	160			A
T_{stg}	Storage temperature		-40	150			$^\circ\text{C}$
T_j	Operating junction temperature		-	150			$^\circ\text{C}$

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th(j-hs)}$	Thermal resistance junction to heatsink	per diode both diodes conducting	-	-	2.4	K/W
$R_{th(j-a)}$	Thermal resistance junction to ambient	in free air.	-	45	1.4	K/W

¹ Neglecting switching and reverse current losses.

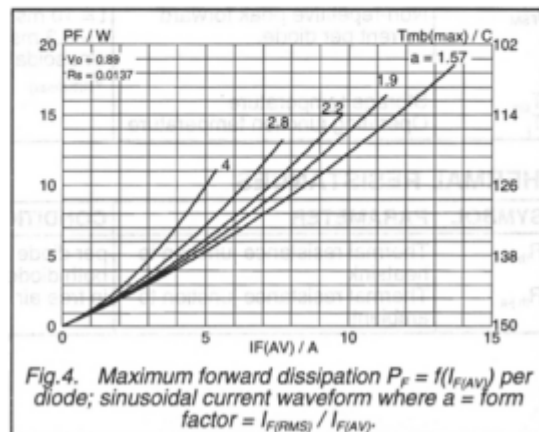
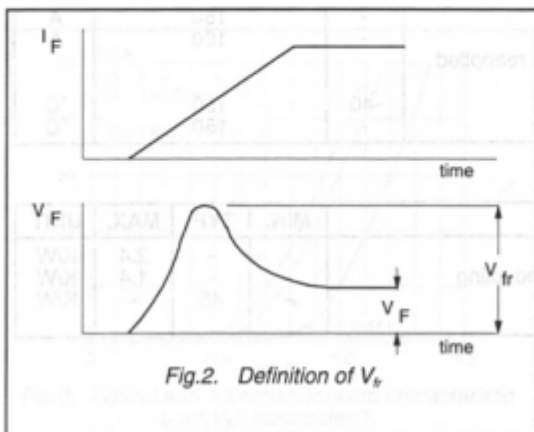
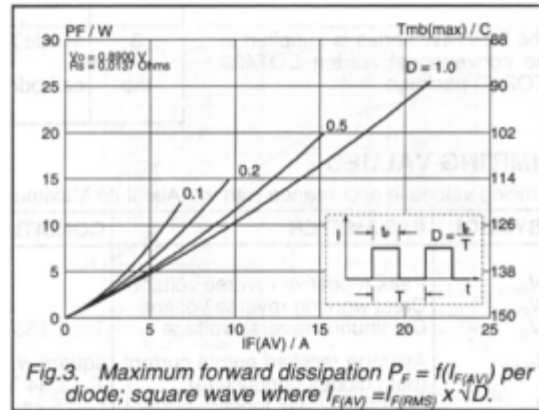
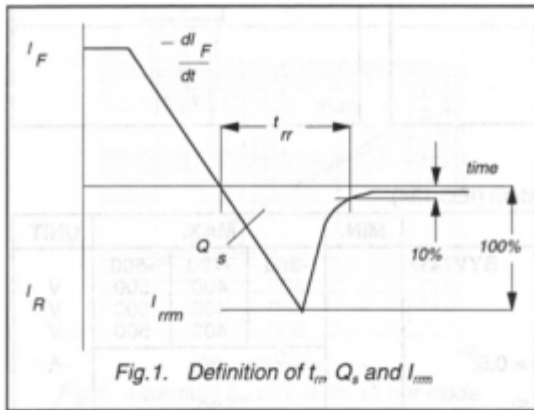
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ELECTRICAL CHARACTERISTICS

characteristics are per diode at $T_j = 25^\circ\text{C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage	$I_F = 15\text{ A}; T_j = 150^\circ\text{C}$	-	0.95	1.12	V
		$I_F = 15\text{ A}$	-	1.08	1.25	V
		$I_F = 30\text{ A}$	-	1.15	1.36	V
I_R	Reverse current	$V_R = V_{RRM}$	-	10	50	μA
Q_s	Reverse recovery charge	$V_R = V_{RRM}; T_j = 100^\circ\text{C}$ $I_F = 2\text{ A to } V_R \geq 30\text{ V};$ $di_F/dt = 20\text{ A}/\mu\text{s}$	-	0.3	0.8	nA
t_{rr}	Reverse recovery time	$I_F = 1\text{ A to } V_R \geq 30\text{ V};$ $di_F/dt = 100\text{ A}/\mu\text{s}$	-	50	60	ns
I_{rrm}	Peak reverse recovery current	$I_F = 10\text{ A to } V_R \geq 30\text{ V};$ $di_F/dt = 50\text{ A}/\mu\text{s}; T_j = 100^\circ\text{C}$	-	4.2	5.2	A
V_{fr}	Forward recovery voltage	$I_F = 10\text{ A}; di_F/dt = 10\text{ A}/\mu\text{s}$	-	2.5	-	V



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