

DATA SHEET

BYV44 series Dual rectifier diodes ultrafast

Product specification

October 1998



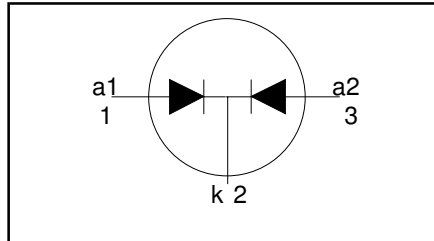
Dual rectifier diodes ultrafast

BYV44 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

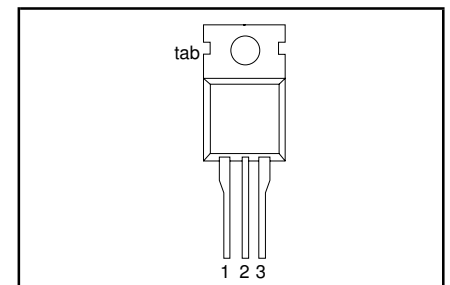
Dual, common cathode, ultra-fast, epitaxial rectifier diodes intended for use as output rectifiers in high frequency switched mode power supplies.

The BYV44 series is supplied in the conventional leaded SOT78 (TO220AB) package.

PINNING

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

SOT78 (TO220AB)



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.			UNIT
V_{RRM}	Peak repetitive reverse voltage	BYV44 $T_{mb} \leq 136^\circ\text{C}$	-	-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		-	30			A
I_{FRM}	Repetitive peak forward current per diode		-	30			A
I_{FSM}	Non-repetitive peak forward current per diode.	$t = 25 \mu\text{s}; \delta = 0.5;$ $T_{mb} \leq 94^\circ\text{C}$	-	150			A
		$t = 10 \text{ ms}$ $t = 8.3 \text{ ms}$ 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	-	-	2.4	K/W
$R_{th j-a}$	Thermal resistance junction to ambient	both diodes conducting	-	-	1.4	K/W
		in free air.	-	60	-	K/W

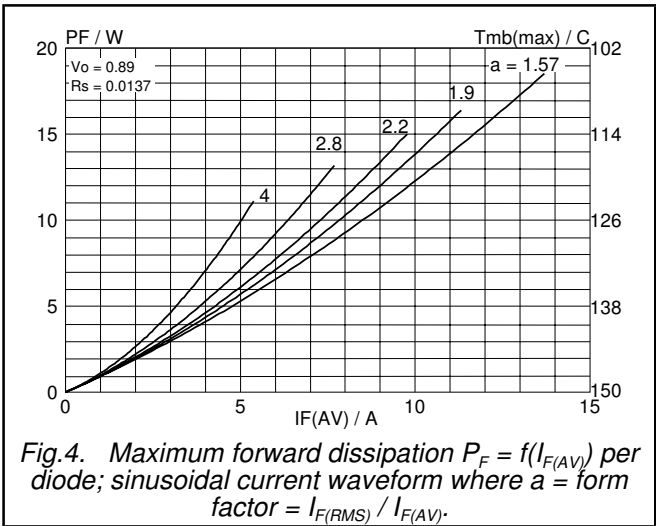
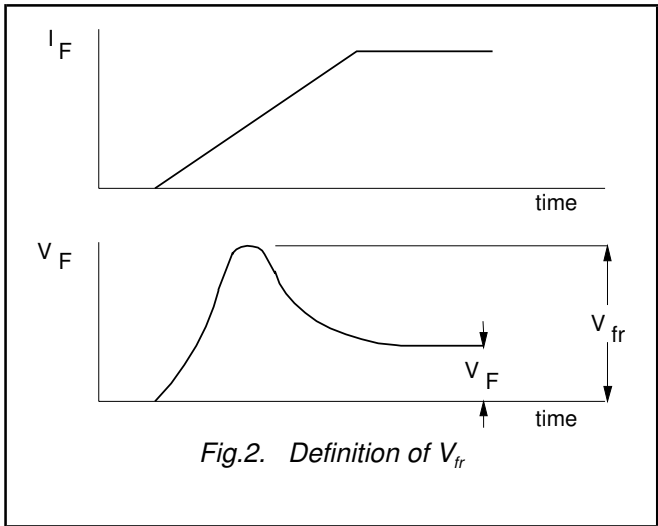
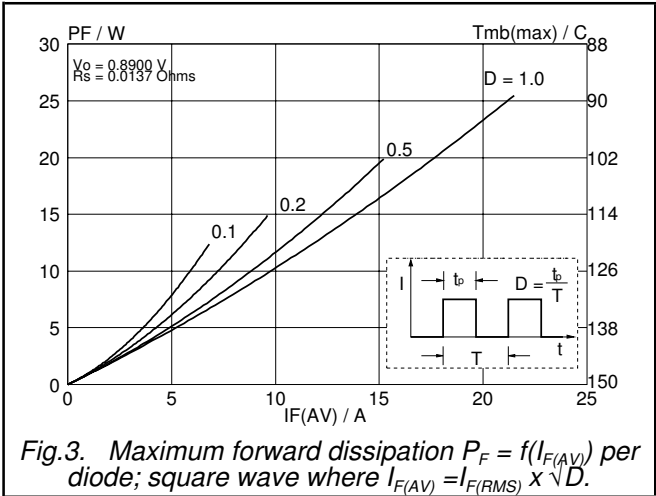
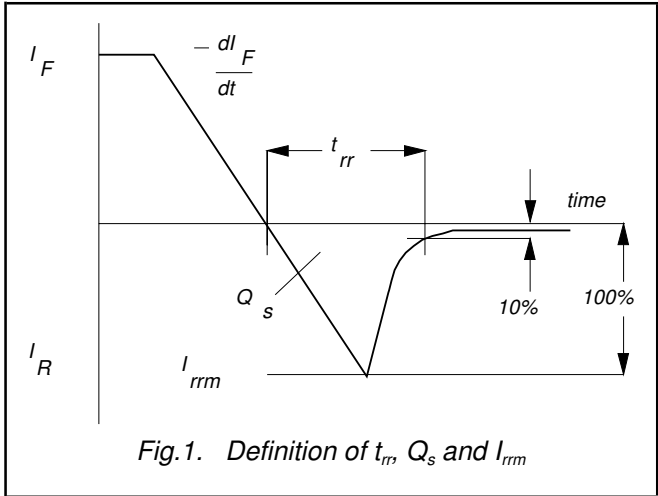
¹ Neglecting switching and reverse current losses.

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

ELECTRICAL CHARACTERISTICS

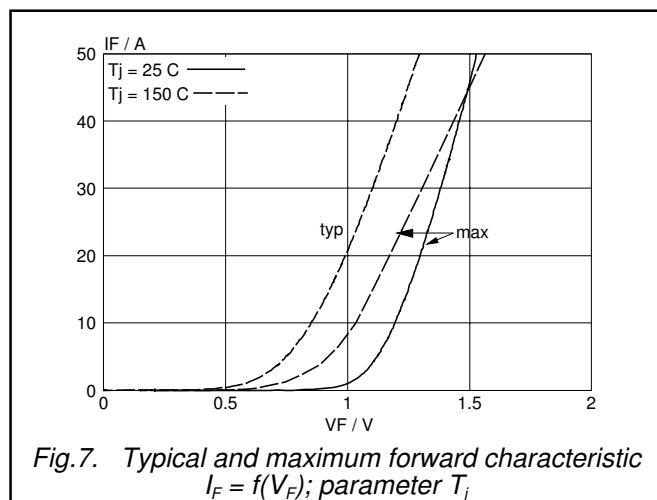
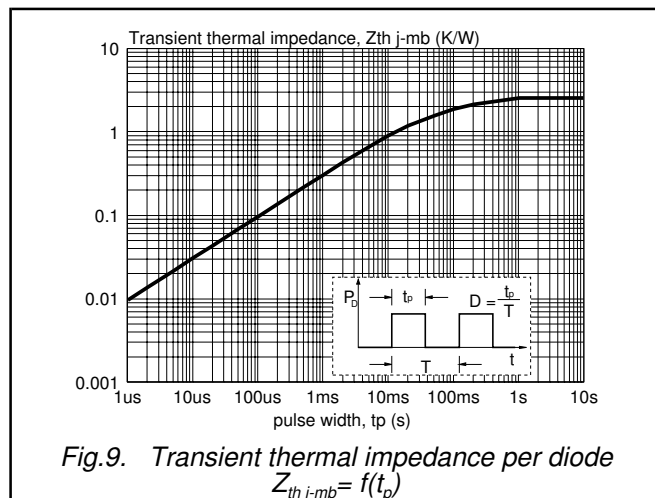
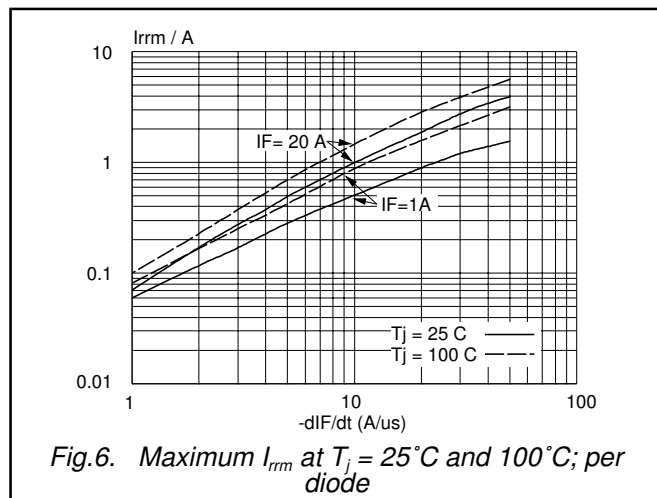
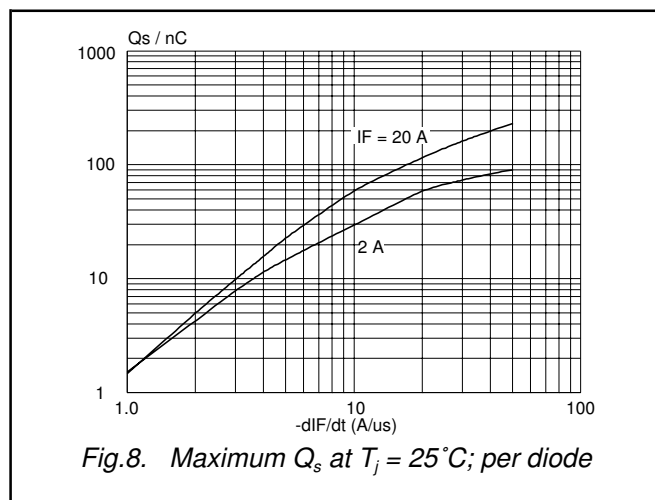
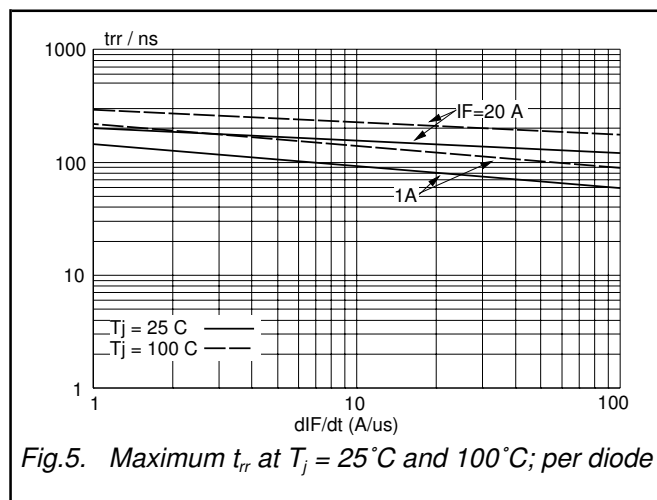
characteristics are per diode at Tj = 25 °C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
VF	Forward voltage	IF = 15 A; Tj = 150 °C	-	0.95	1.12	V
		IF = 15 A	-	1.08	1.25	V
		IF = 30 A	-	1.15	1.36	V
IR	Reverse current	VR = VRRM	-	10	50	µA
		VR = VRRM; Tj = 100 °C	-	0.3	0.8	mA
Qs	Reverse recovery charge	IF = 2 A to VR ≥ 30 V; dIF/dt = 20 A/µs	-	40	60	nC
ttr	Reverse recovery time	IF = 1 A to VR ≥ 30 V; dIF/dt = 100 A/µs	-	50	60	ns
Irrm	Peak reverse recovery current	IF = 10 A to VR ≥ 30 V; dIF/dt = 50 A/µs; Tj = 100 °C	-	4.2	5.2	A
Vfr	Forward recovery voltage	IF = 10 A; dIF/dt = 10 A/µs	-	2.5	-	V



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BYV44 series



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MECHANICAL DATA

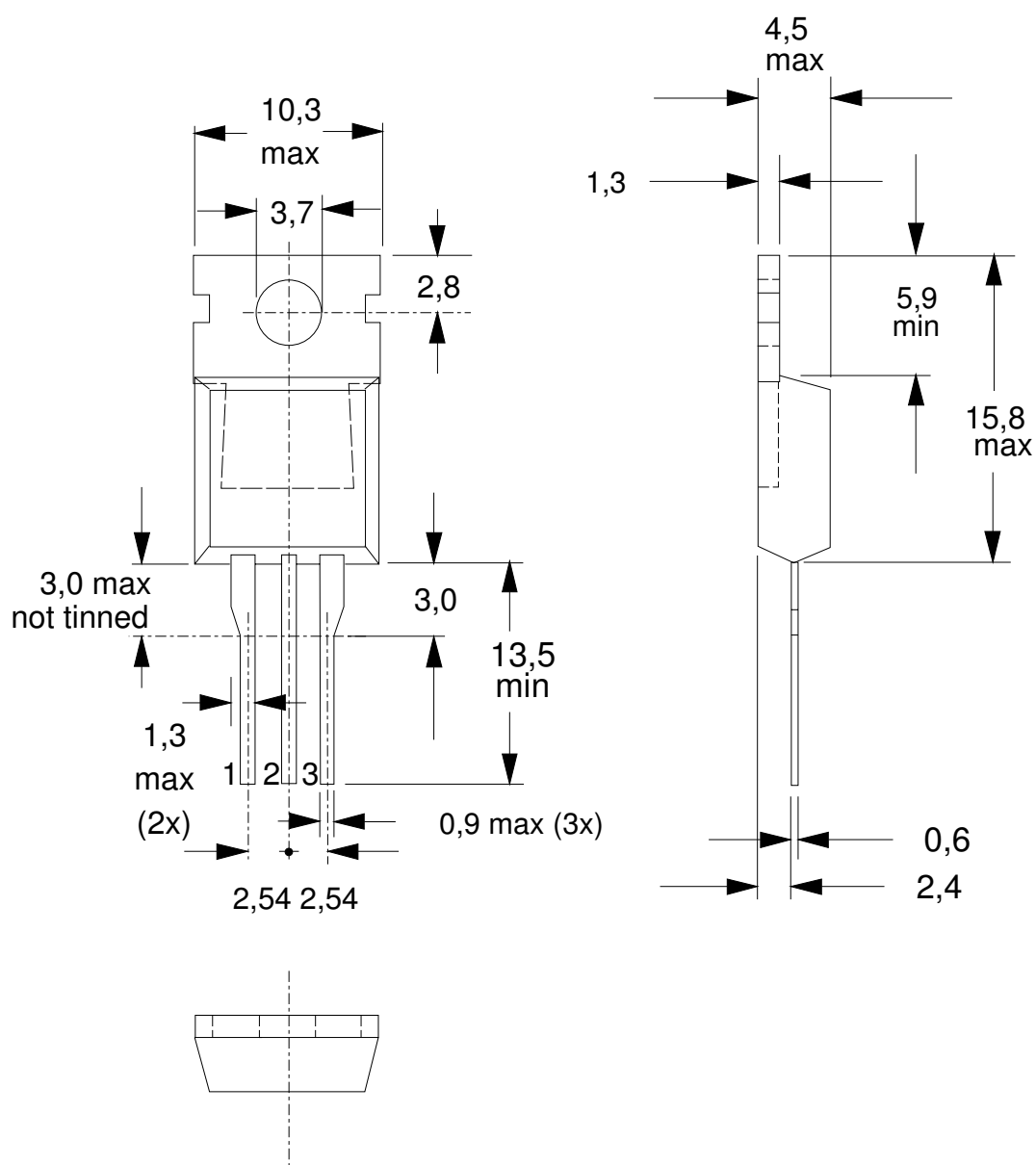
*Dimensions in mm**Net Mass: 2 g*

Fig.10. SOT78 (TO220AB); pin 2 connected to mounting base.

Notes

1. Refer to mounting instructions for SOT78 (TO220) envelopes.
2. Epoxy meets UL94 V0 at 1/8".

Legal information

DATA SHEET STATUS

DOCUMENT STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

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