

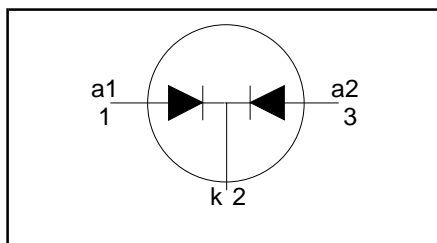
# Dual rectifier diodes ultrafast

# BYV74F series

## FEATURES

- Low forward volt drop
- Fast switching
- Soft recovery characteristic
- High thermal cycling performance
- Isolated mounting tab

## SYMBOL



## QUICK REFERENCE DATA

$V_R = 300\text{ V} / 400\text{ V} / 500\text{ V}$
$V_F \leq 1.12\text{ V}$
$I_{O(AV)} = 20\text{ A}$
$t_{tr} \leq 60\text{ ns}$

## GENERAL DESCRIPTION

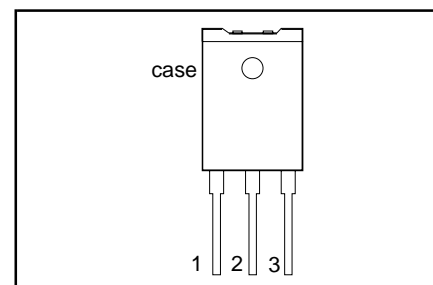
Dual, common cathode, ultra-fast, epitaxial rectifier diodes intended for use as output rectifiers in high frequency switched mode power supplies.

The BYV74F series is supplied in the conventional leaded SOT199 package.

## PINNING

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

## SOT199



## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.			UNIT
		<b>BYV74F</b>					
$V_{RRM}$	Peak repetitive reverse voltage		-	<b>-300</b>	<b>-400</b>	<b>-500</b>	V
$V_{RWM}$	Crest working reverse voltage		-	300	400	500	V
$V_R$	Continuous reverse voltage	$T_{mb} \leq 117^\circ\text{C}$	-	300	400	500	V
$I_{O(AV)}$	Average rectified output current (both diodes conducting) <sup>1</sup>	square wave; $\delta = 0.5$ ;	-	20			A
$I_{FRM}$	Repetitive peak forward current per diode	$T_{hs} \leq 54^\circ\text{C}$ $t = 25\ \mu\text{s}$ ; $\delta = 0.5$ ;	-	30			A
$I_{FSM}$	Non-repetitive peak forward current per diode.	$T_{hs} \leq 54^\circ\text{C}$ $t = 10\text{ ms}$ $t = 8.3\text{ ms}$ sinusoidal; with reapplied	-	150			A
$T_{stg}$	Storage temperature	$V_{RRM(max)}$	-40	150			$^\circ\text{C}$
$T_j$	Operating junction temperature		-	150			$^\circ\text{C}$

## ISOLATION LIMITING VALUE & CHARACTERISTIC

$T_{hs} = 25^\circ\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{isol}$	Repetitive peak voltage from all three terminals to external heatsink	R.H. $\leq 65\%$ ; clean and dustfree	-	-	2500	V
$C_{isol}$	Capacitance from T2 to external heatsink	$f = 1\text{ MHz}$	-	22	-	pF

<sup>1</sup> 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	both diodes conducting with heatsink compound	-	-	4.0	K/W
		without heatsink compound per diode	-	-	8.0	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient	with heatsink compound	-	-	5.0	K/W
		without heatsink compound in free air.	-	35	9.0	K/W

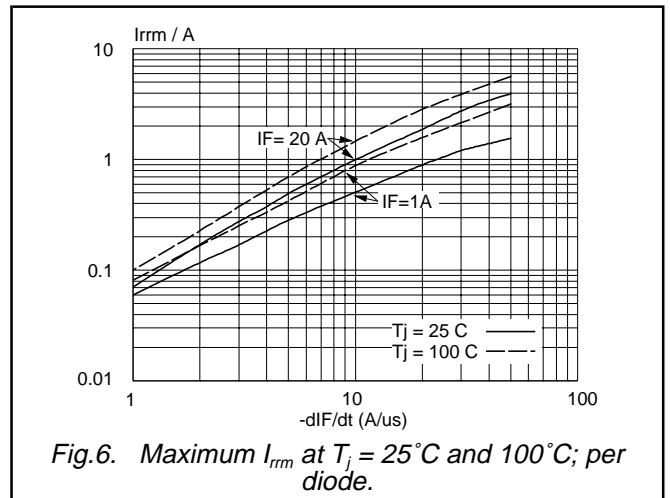
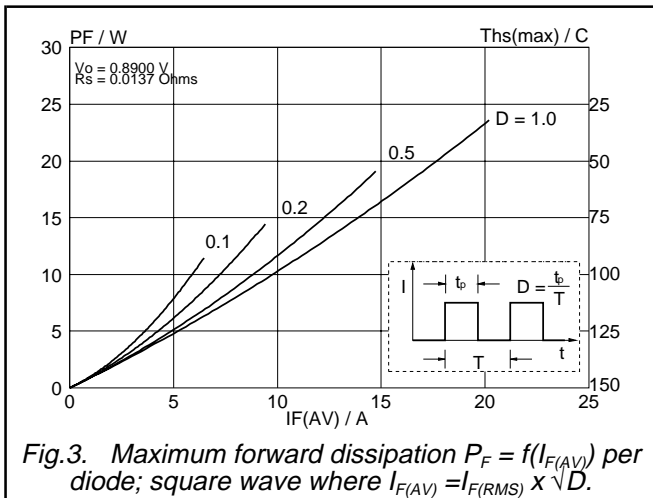
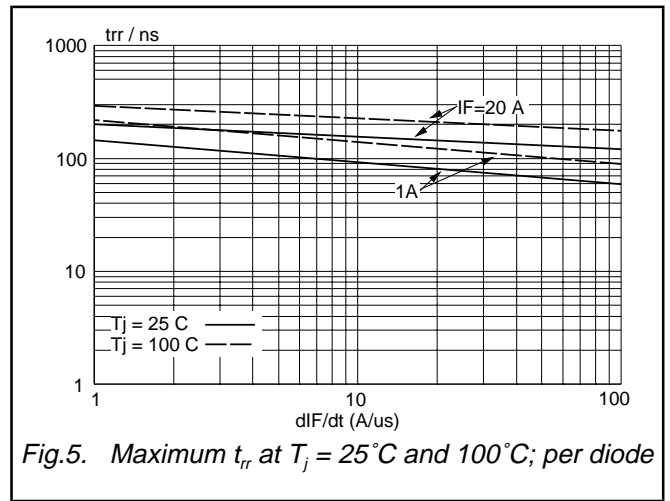
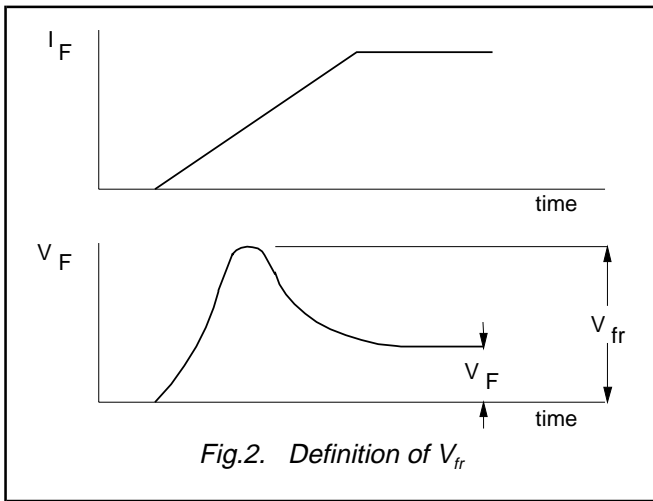
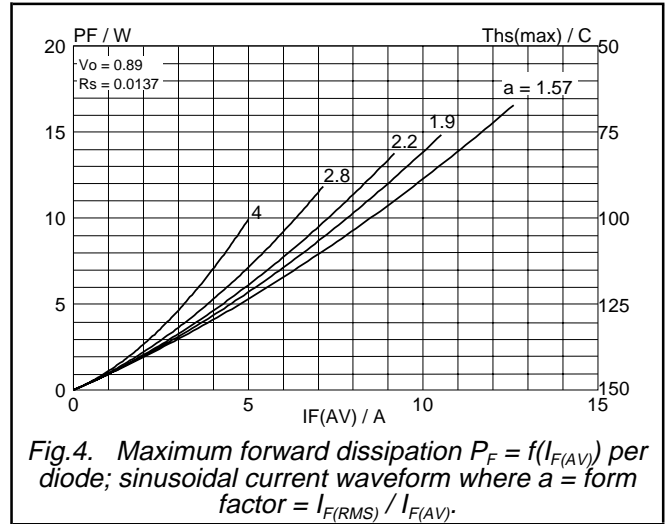
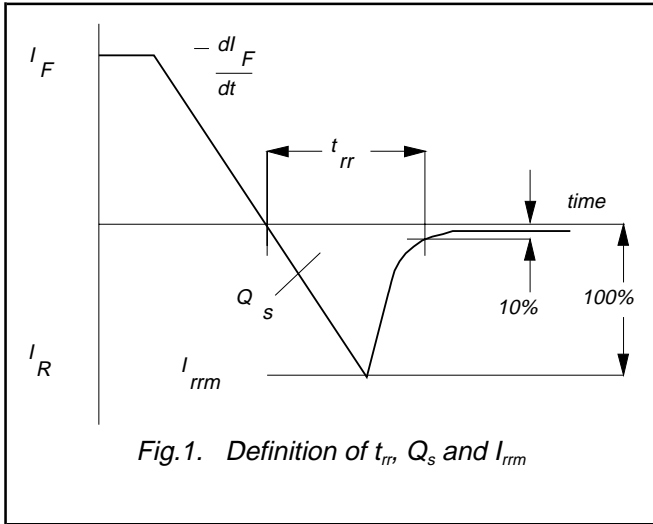
**ELECTRICAL CHARACTERISTICS**

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	$\mu\text{A}$
		$V_R = V_{RRM}; T_j = 100^\circ\text{C}$	-	0.3	0.8	mA
$Q_s$	Reverse recovery charge	$I_F = 2\text{ A to } V_R \geq 30\text{ V};$ $di_F/dt = 20\text{ A}/\mu\text{s}$	-	40	60	nC
$t_{rr}$	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

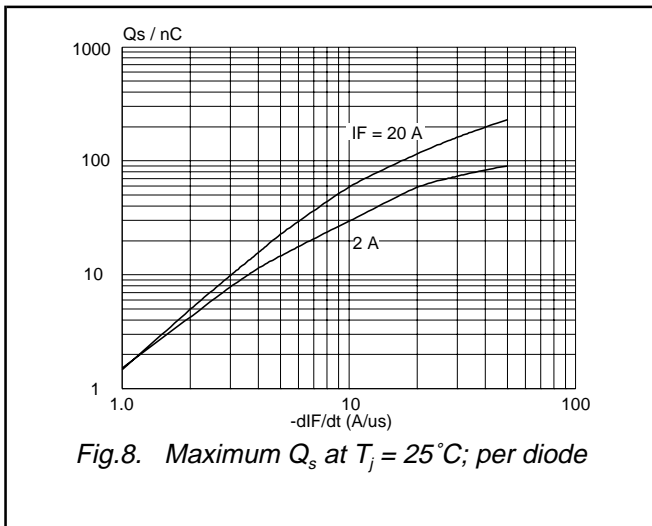
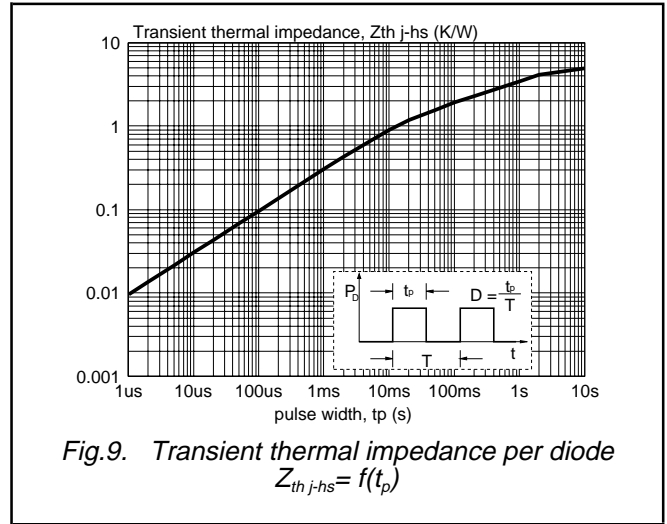
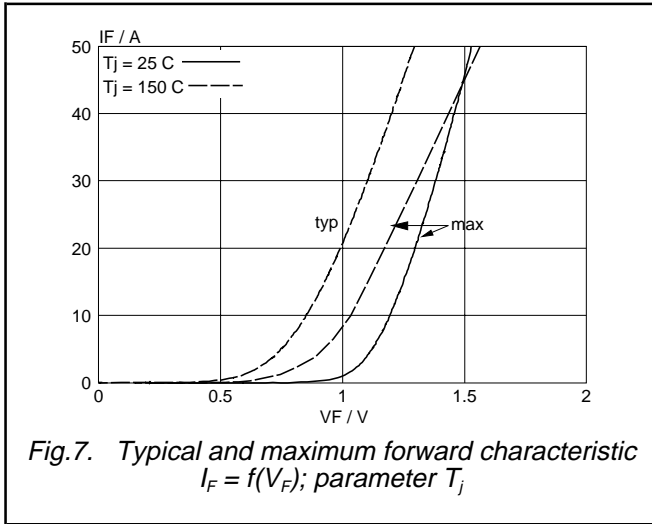
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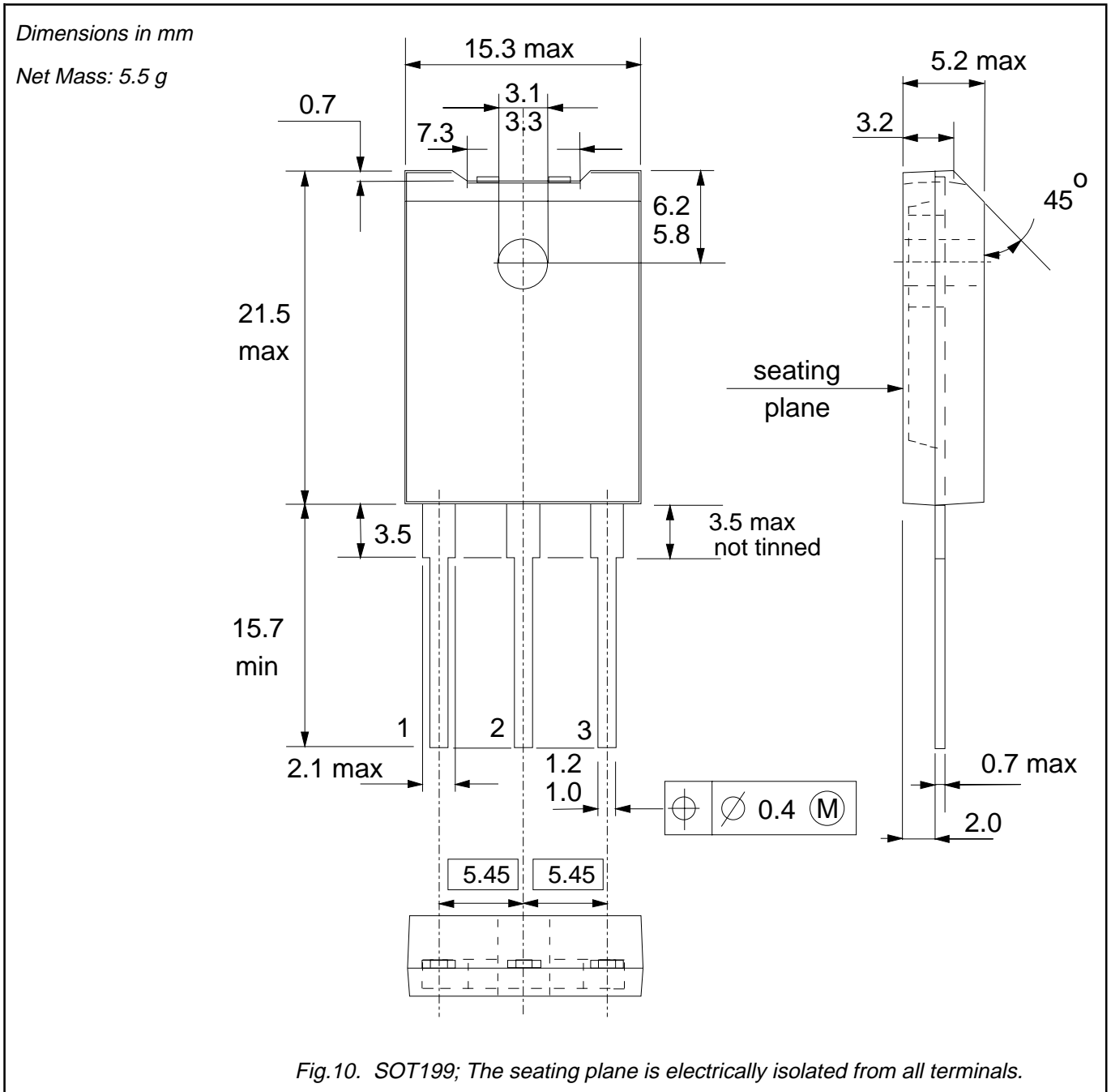
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**MECHANICAL DATA**



**Notes**

- 1. Refer to mounting instructions for F-pack envelopes.
- 2. Epoxy meets UL94 V0 at 1/8".

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**BYV74F series****DEFINITIONS**

<b>Data sheet status</b>	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
<b>Limiting values</b>	
Limiting values are given in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of this specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	
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