

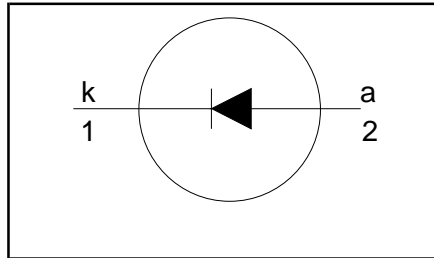
# Rectifier diodes ultrafast, rugged

# BYW29E series

## FEATURES

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

## SYMBOL



## QUICK REFERENCE DATA

$V_R = 100V/ 150 V/ 200 V$
$V_F \leq 0.895 V$
$I_{F(AV)} = 8 A$
$I_{RRM} \leq 0.2 A$
$t_{rr} \leq 25 ns$

## GENERAL DESCRIPTION

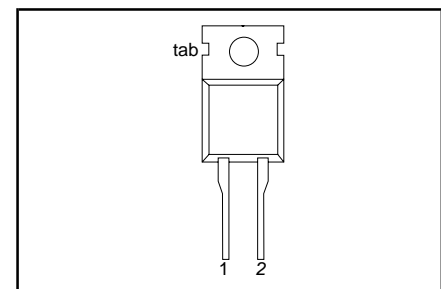
Ultra-fast, epitaxial rectifier diodes intended for use as output rectifiers in high frequency switched mode power supplies.

The BYW29E series is supplied in the conventional leaded SOD59 (TO220AC) package.

## PINNING

PIN	DESCRIPTION
1	cathode
2	anode
tab	cathode

## SOD59 (TO220AC)



## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.			UNIT
				-100	-150	-200	
$V_{RRM}$	Peak repetitive reverse voltage	<b>BYW29E</b>	-	100	150	200	V
$V_{RWM}$	Working peak reverse voltage		-	100	150	200	V
$V_R$	Continuous reverse voltage		-	100	150	200	V
$I_{F(AV)}$	Average rectified forward current	square wave; $\delta = 0.5$ ; $T_{mb} \leq 128 \text{ }^\circ\text{C}$	-	8			A
$I_{FRM}$	Repetitive peak forward current	square wave; $\delta = 0.5$ ; $T_{mb} \leq 128 \text{ }^\circ\text{C}$	-	16			A
$I_{FSM}$	Non-repetitive peak forward current	$t = 10 \text{ ms}$	-	80			A
		$t = 8.3 \text{ ms}$	-	88			A
$I_{RRM}$	Peak repetitive reverse surge current	sinusoidal; with reapplied $V_{RRM(max)}$ $t_p = 2 \text{ } \mu\text{s}$ ; $\delta = 0.001$	-	0.2			A
$I_{RSM}$	Peak non-repetitive reverse surge current	$t_p = 100 \text{ } \mu\text{s}$	-	0.2			A
$T_j$	Operating junction temperature		-	150			$^\circ\text{C}$
$T_{stg}$	Storage temperature		- 40	150			$^\circ\text{C}$

## 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

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### THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-mb}$	Thermal resistance junction to mounting base	in free air	-	-	2.7	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient		-	60	-	K/W

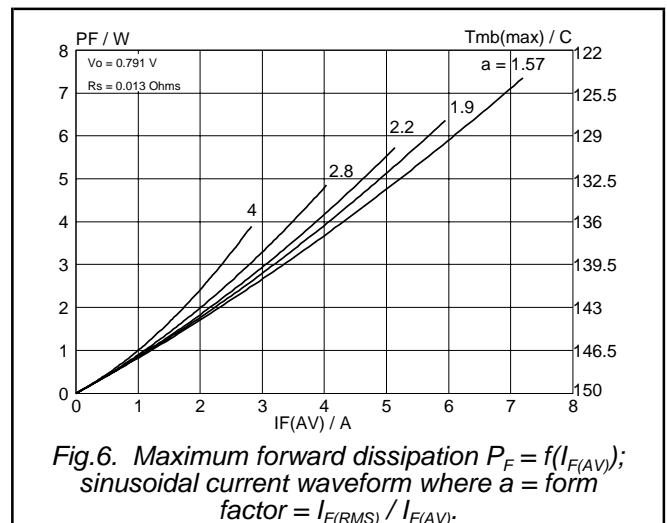
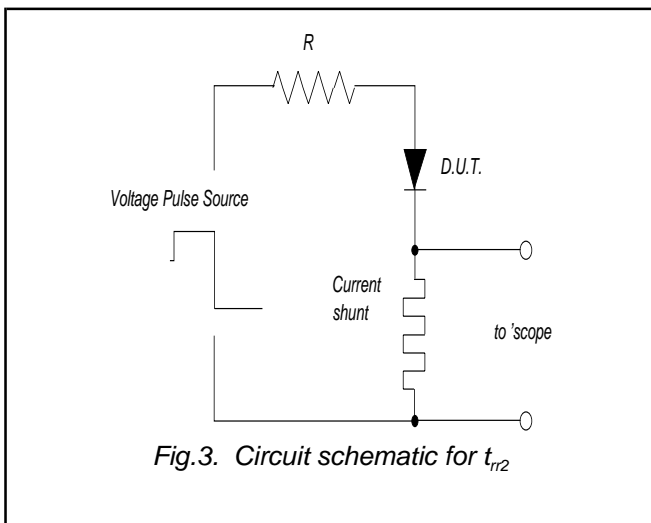
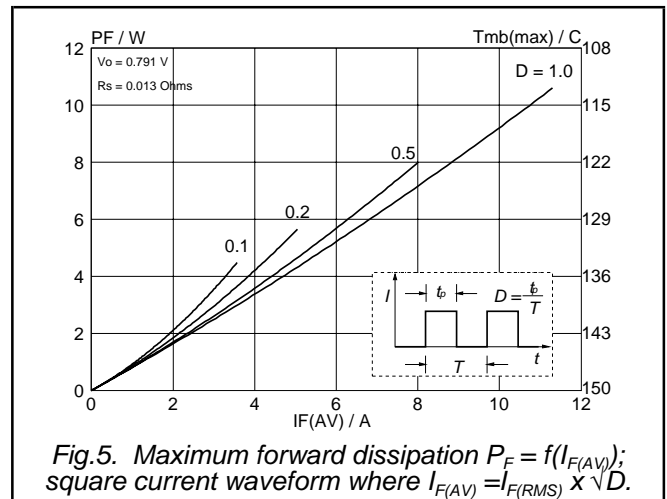
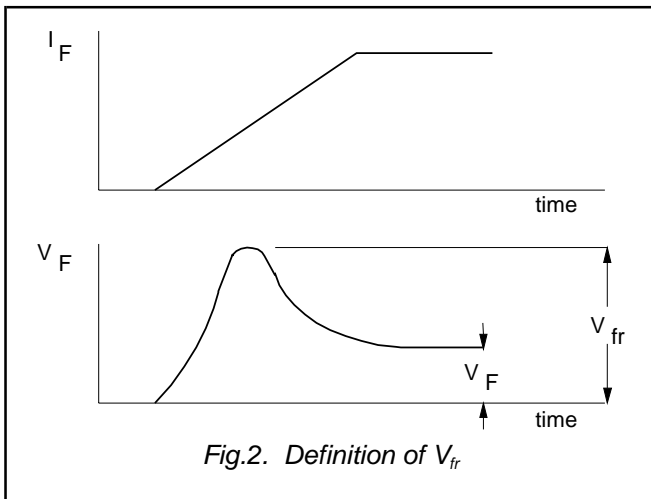
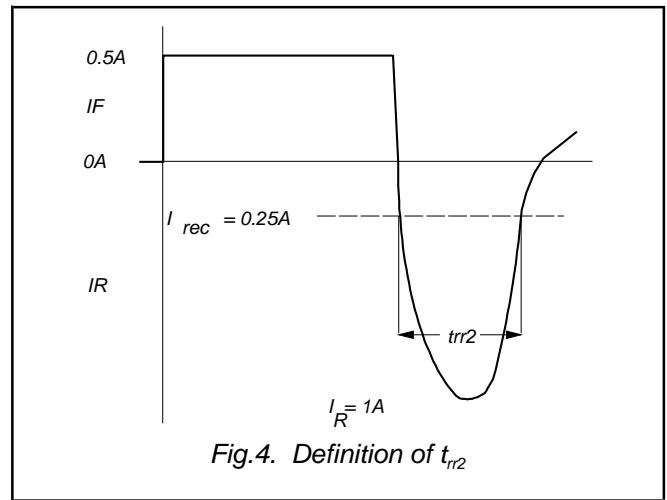
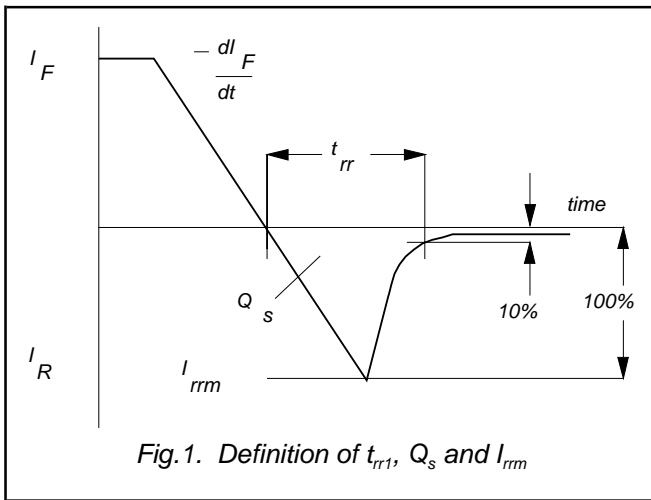
### ELECTRICAL CHARACTERISTICS

$T_j = 25\text{ °C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_F$	Forward voltage	$I_F = 8\text{ A}; T_j = 150\text{ °C}$	-	0.8	0.895	V
		$I_F = 8\text{ A}$	-	0.92	1.05	V
		$I_F = 20\text{ A}$	-	1.1	1.3	V
$I_R$	Reverse current	$V_R = V_{RWM}$	-	2	10	$\mu\text{A}$
		$V_R = V_{RWM}; T_j = 100\text{ °C}$	-	0.2	0.6	mA
$Q_{rr}$	Reverse recovered charge	$I_F = 2\text{ A}; V_R \geq 30\text{ V}; -di_F/dt = 20\text{ A}/\mu\text{s}$	-	4	11	nC
$t_{rr1}$	Reverse recovery time	$I_F = 1\text{ A}; V_R \geq 30\text{ V}; -di_F/dt = 100\text{ A}/\mu\text{s}$	-	20	25	ns
$t_{rr2}$	Reverse recovery time	$I_F = 0.5\text{ A to } I_R = 1\text{ A}; I_{rec} = 0.25\text{ A}$	-	15	20	ns
$V_{fr}$	Forward recovery voltage	$I_F = 1\text{ A}; di_F/dt = 10\text{ A}/\mu\text{s}$	-	1	-	V

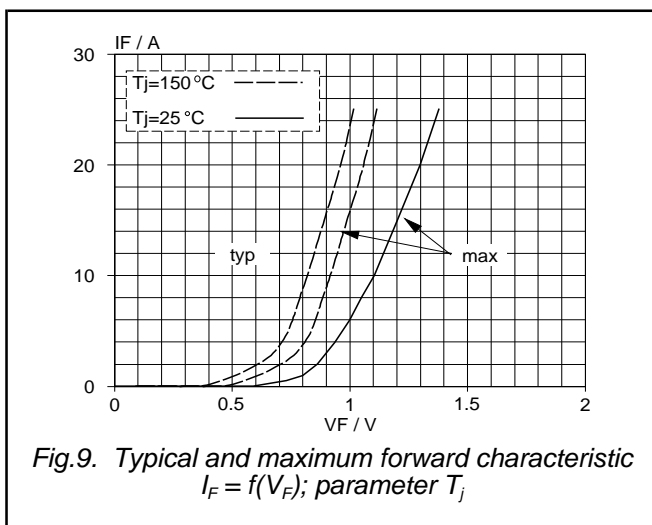
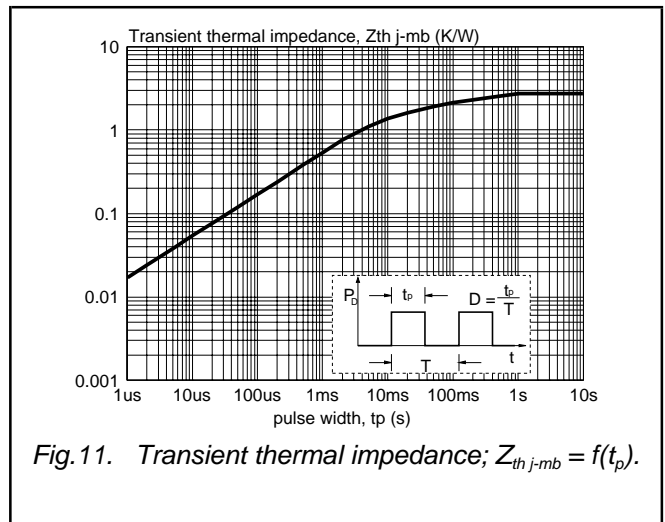
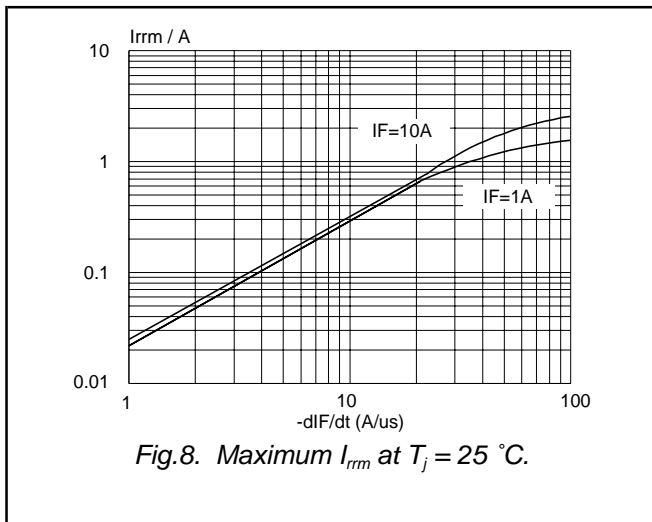
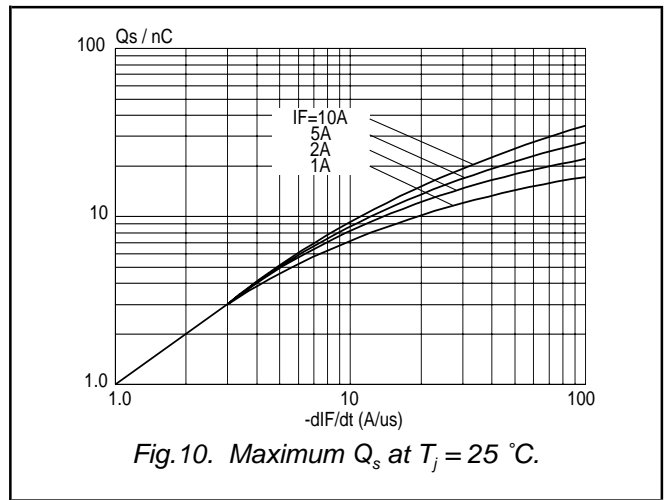
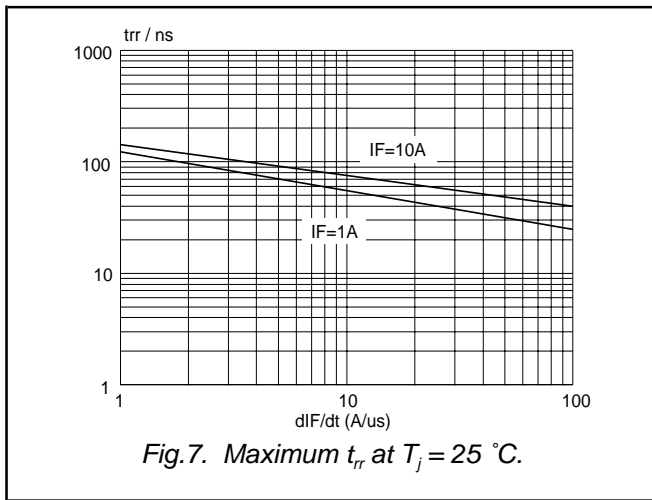
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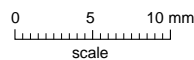
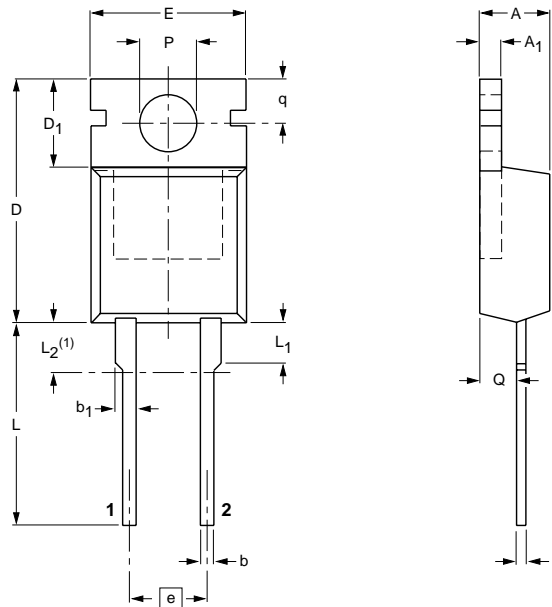
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**MECHANICAL DATA**

Dimensions in mm Plastic single-ended package; heatsink mounted; 1 mounting hole; 2-lead TO-220 SOD59

Net Mass: 2 g



**DIMENSIONS (mm are the original dimensions)**

UNIT	A	A <sub>1</sub>	b	b <sub>1</sub>	c	D	D <sub>1</sub>	E	e	L	L <sub>1</sub>	L <sub>2</sub> <sup>(1)</sup>	P	q	Q
mm	4.5	1.39	0.9	1.3	0.7	15.8	6.4	10.3	5.08	15.0	3.30	3.0	3.8	3.0	2.6
	4.1	1.27	0.7	1.0	0.4	15.2	5.9	9.7		13.5	2.79		3.6	2.7	2.2

**Note**

1. Terminals in this zone are not tinned.

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ		
SOD59		2-lead TO-220			97-06-11

Fig. 12. TO220AC; pin 1 connected to mounting base.

**Notes**

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

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**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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