



IMPORTANT NOTICE

10 December 2015

1. Global joint venture starts operations as WeEn Semiconductors

Dear customer,

As from November 9th, 2015 NXP Semiconductors N.V. and Beijing JianGuang Asset Management Co. Ltd established Bipolar Power joint venture (JV), **WeEn Semiconductors**, which will be used in future Bipolar Power documents together with new contact details.

In this document where the previous NXP references remain, please use the new links as shown below.

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If you have any questions related to this document, please contact our nearest sales office via e-mail or phone (details via salesaddresses@ween-semi.com).

Thank you for your cooperation and understanding,

WeEn Semiconductors

DATA SHEET

BYV79E series
Rectifier diodes
ultrafast, rugged

Product specification

July 1998



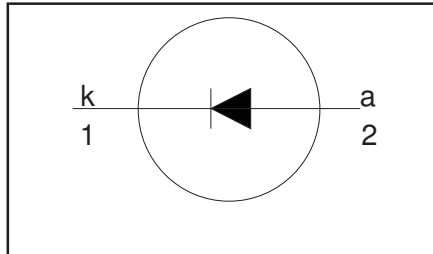
Rectifier diodes ultrafast, rugged

BYV79E 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

$$V_R = 150 \text{ V} / 200 \text{ V}$$

$$V_F \leq 0.9 \text{ V}$$

$$I_{F(AV)} = 14 \text{ A}$$

$$I_{RRM} \leq 0.2 \text{ A}$$

$$t_r \leq 30 \text{ ns}$$

GENERAL DESCRIPTION

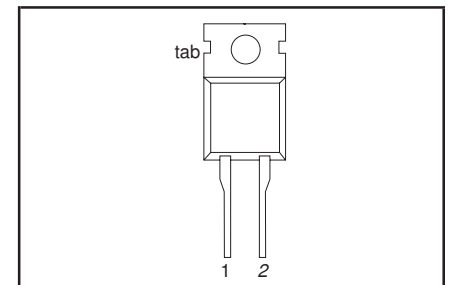
Ultra-fast, epitaxial rectifier diodes intended for use as output rectifiers in high frequency switched mode power supplies.

The BYV79E 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
V_{RRM}	Peak repetitive reverse voltage	BYV79E $T_{mb} \leq 145^\circ\text{C}$	-	-150	-200	V
V_{RWM}	Crest working reverse voltage		-	150	200	V
V_R	Continuous reverse voltage		-	150	200	V
$I_{F(AV)}$	Average forward current ¹	square wave $\delta = 0.5$; $T_{mb} \leq 120^\circ\text{C}$	-	14		A
I_{FRM}	Repetitive peak forward current	$t = 25 \mu\text{s}$; $\delta = 0.5$; $T_{mb} \leq 120^\circ\text{C}$	-	28		A
I_{FSM}	Non-repetitive peak forward current	$t = 10 \text{ ms}$	-	150		A
		$t = 8.3 \text{ ms}$ sinusoidal; with reappplied $V_{RWM(max)}$	-	160		A
I_{RRM}	Repetitive peak reverse current	$t_p = 2 \mu\text{s}$; $\delta = 0.001$	-	0.2		A
I_{RSM}	Non-repetitive peak reverse current	$t_p = 100 \mu\text{s}$	-	0.2		A
T_{stg}	Storage temperature		-40	150		$^\circ\text{C}$
T_j	Operating junction temperature		-	150		$^\circ\text{C}$

1. Neglecting switching and reverse current losses.

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

Rectifier diodes ultrafast, rugged

BYV79E series

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-mb}$	Thermal resistance junction to mounting base	in free air	-	-	2	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient		-	60	-	K/W

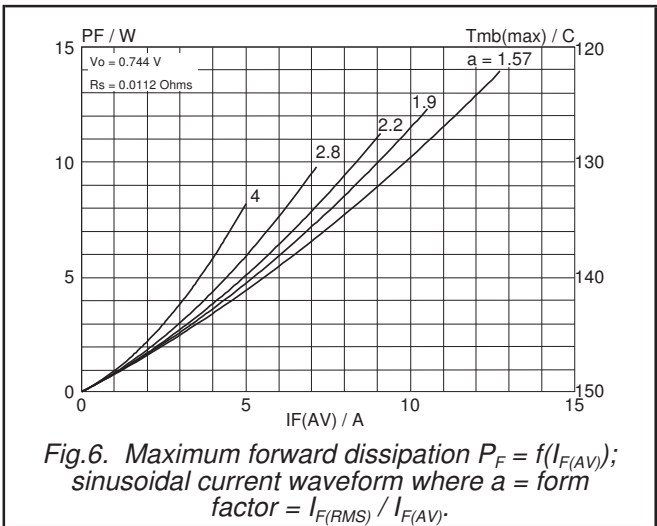
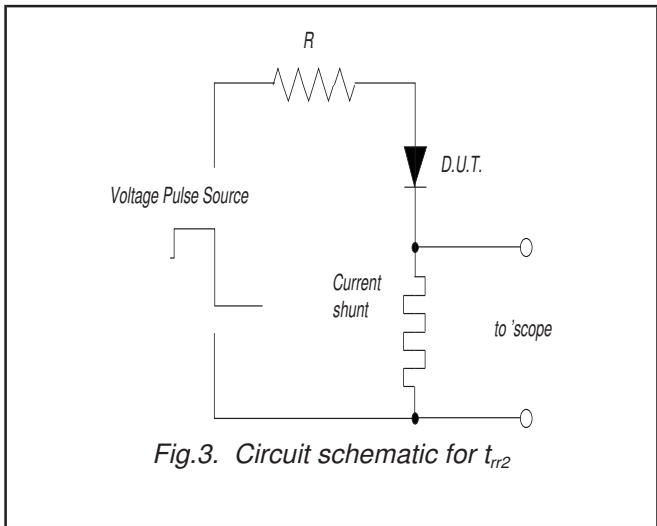
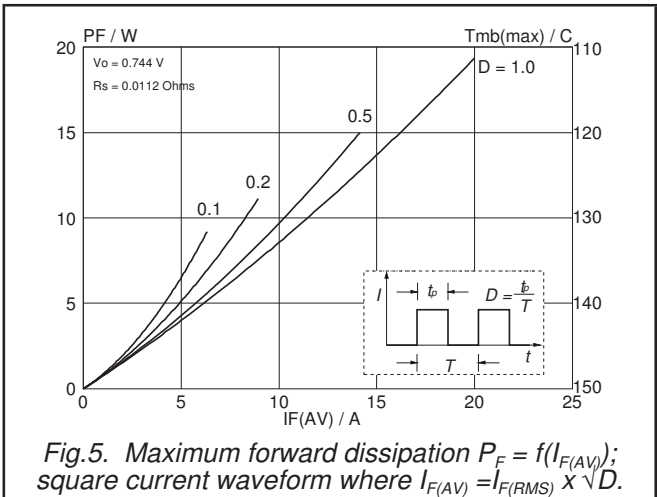
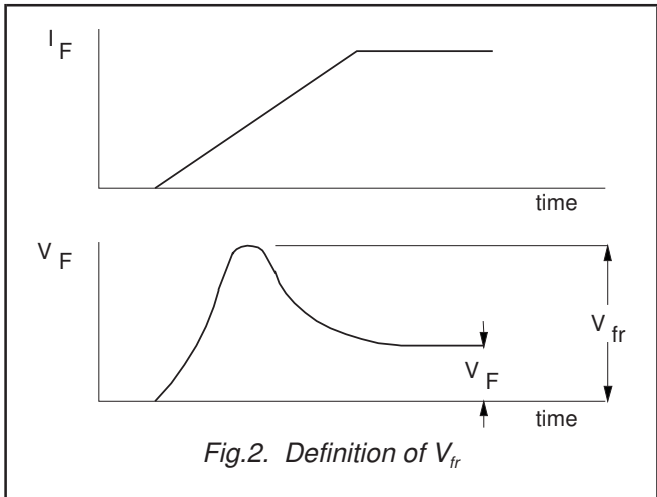
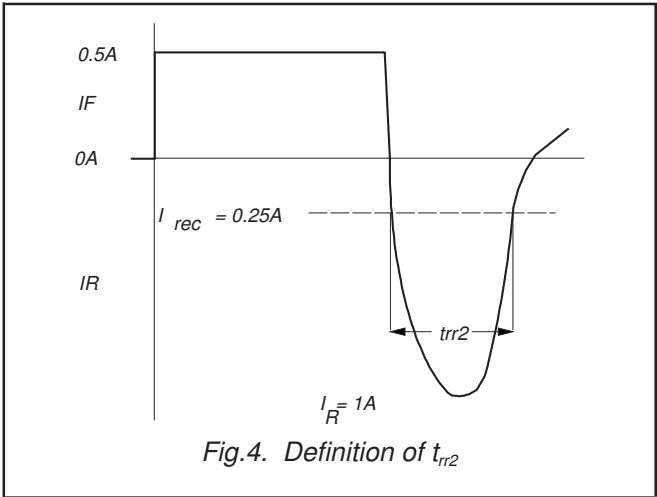
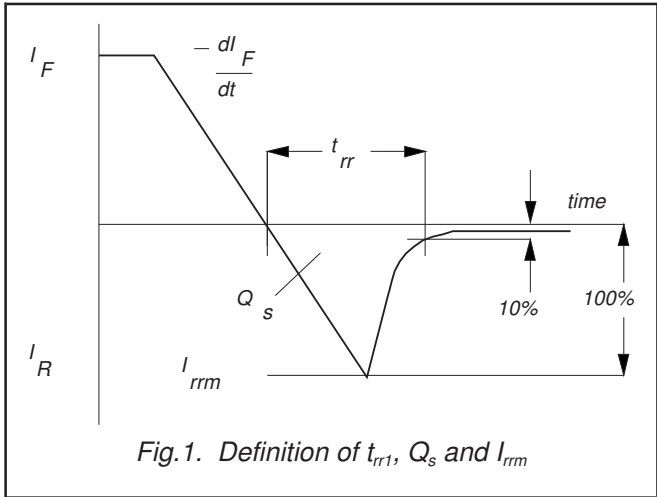
STATIC CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage	$I_F = 14\ \text{A}; T_j = 150\ ^\circ\text{C}$	-	0.83	0.90	V
		$I_F = 14\ \text{A}$	-	0.95	1.05	V
		$I_F = 50\ \text{A}$	-	1.2	1.4	V
I_R	Reverse current	$V_R = V_{RWM}; T_j = 100\ ^\circ\text{C}$	-	0.5	1.3	mA
		$V_R = V_{RWM}$	-	5	50	μA
Q_s	Reverse recovery charge	$I_F = 2\ \text{A}; V_R \geq 30\ \text{V}; -dI_F/dt = 20\ \text{A}/\mu\text{s}$	-	6	15	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	30	ns
t_{rr2}	Reverse recovery time	$I_F = 0.5\ \text{A to } I_R = 1\ \text{A}; I_{rec} = 0.25\ \text{A}$	-	13	22	ns
V_{fr}	Forward recovery voltage	$I_F = 1\ \text{A}; dI_F/dt = 10\ \text{A}/\mu\text{s}$	-	1	-	V

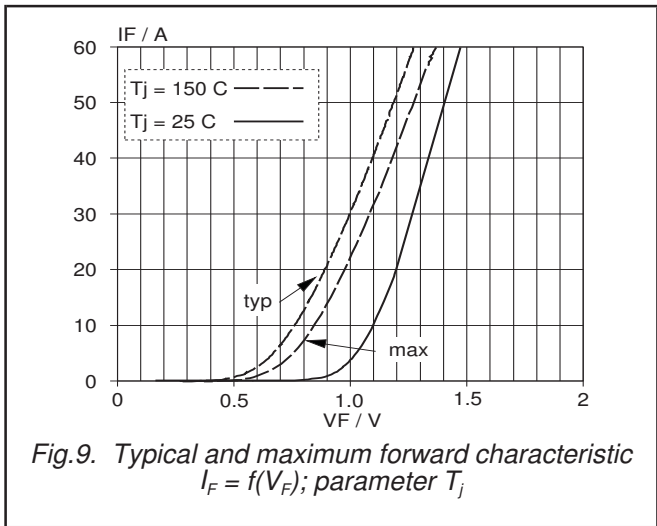
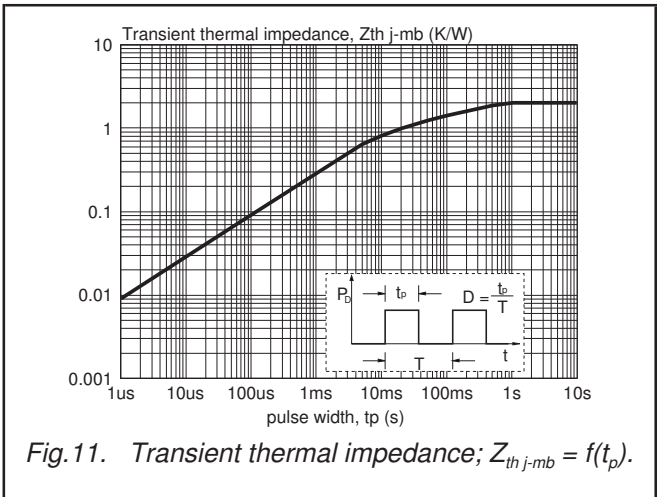
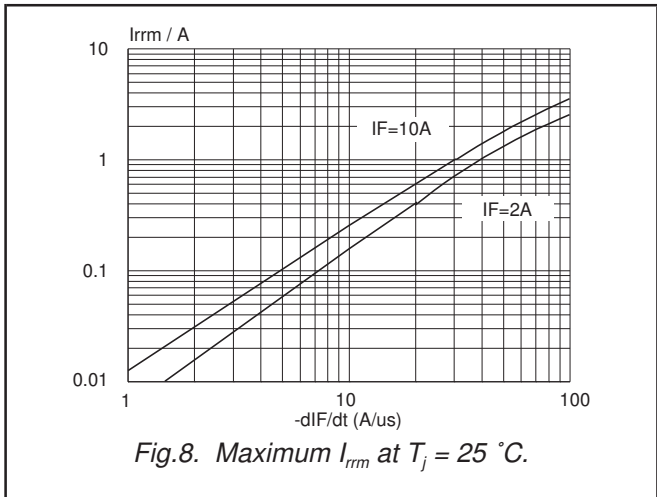
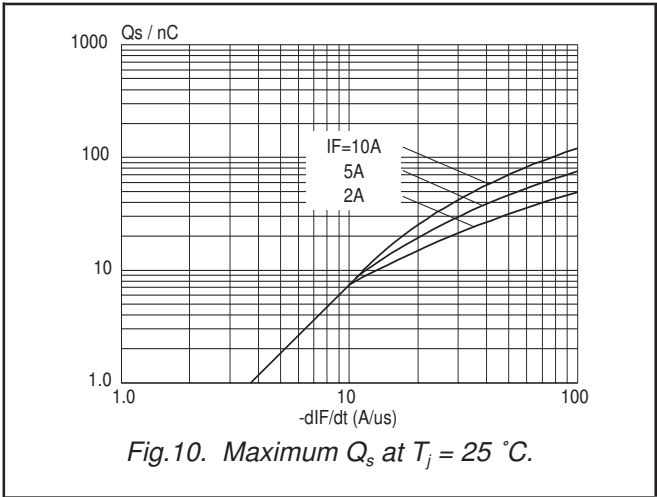
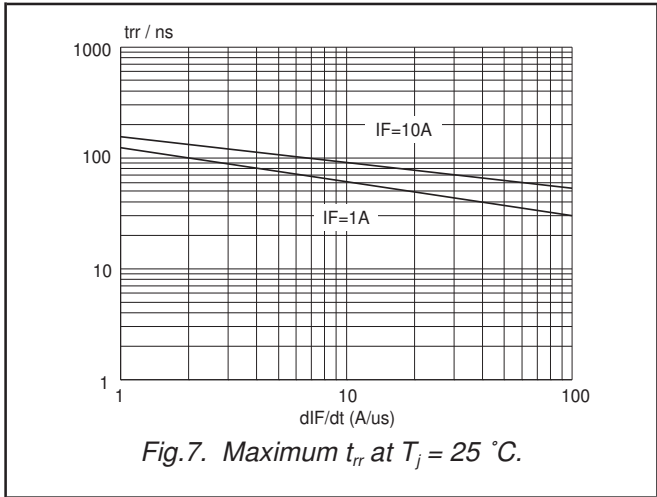
Rectifier diodes
ultrafast, rugged

BYV79E series



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Rectifier diodes
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MECHANICAL DATA

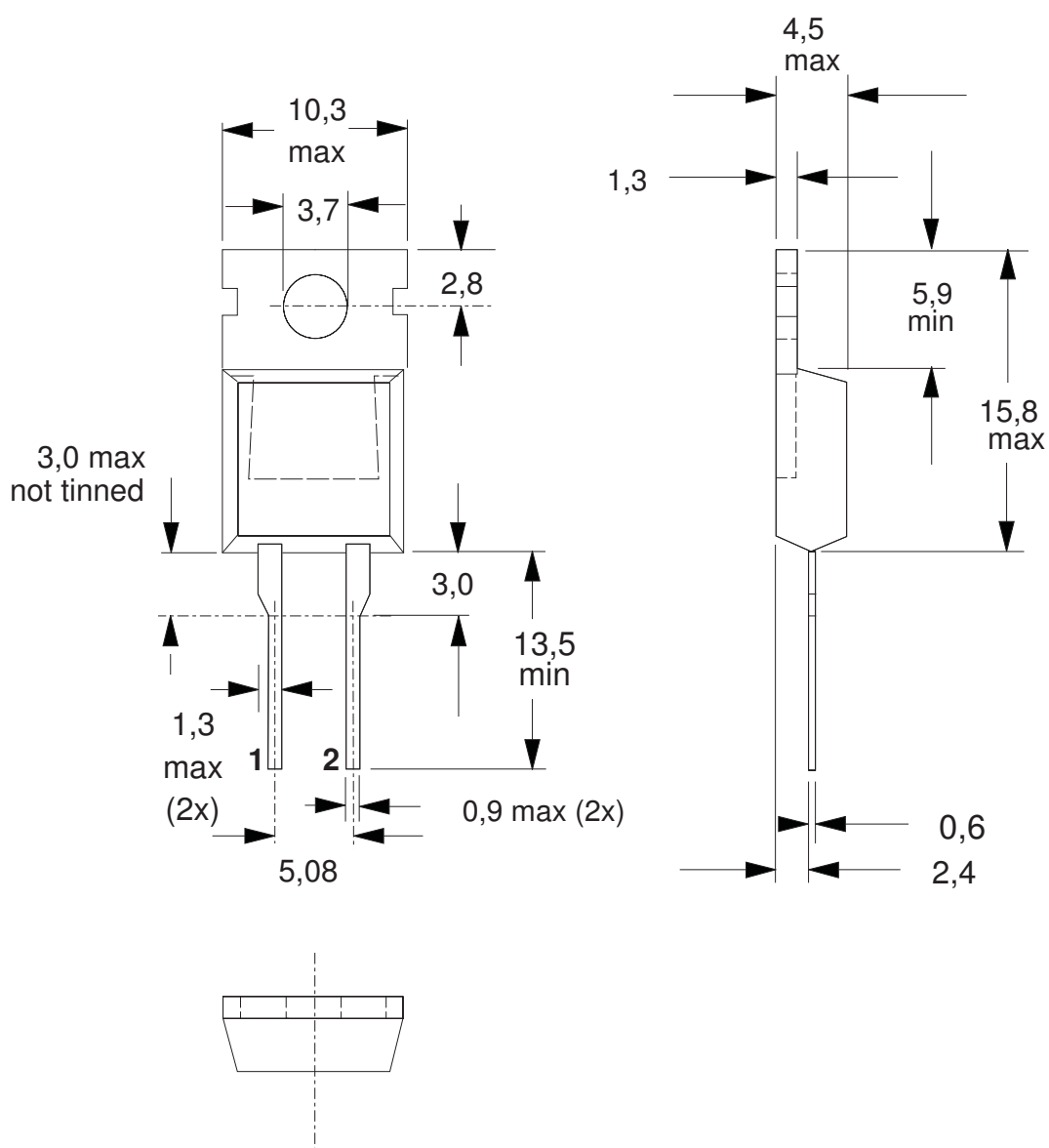
*Dimensions in mm**Net Mass: 2 g*

Fig.12. SOD59 (TO220AC). pin 1 connected to mounting base.

Notes

1. Refer to mounting instructions for 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.

Notes

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Customer notification

This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the content, except for the legal definitions and disclaimers.

Contact information

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