

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.

WWW - For www.nxp.com use www.ween-semi.com

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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

BYR29 series Rectifier diodes ultrafast

Product specification

September 1998



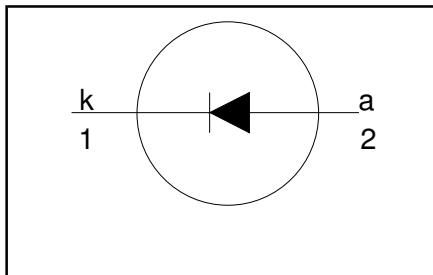
Rectifier diodes ultrafast

BYR29 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

$V_R = 500 \text{ V} / 600 \text{ V} / 700 \text{ V} / 800 \text{ V}$
$V_F \leq 1.5 \text{ V}$
$I_{F(AV)} = 8 \text{ A}$
$t_{tr} \leq 75 \text{ ns}$

GENERAL DESCRIPTION

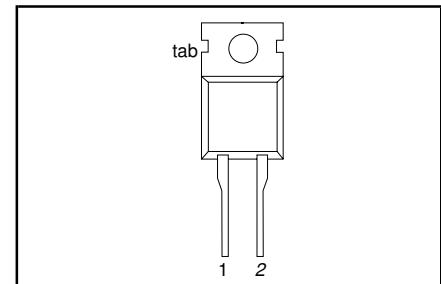
Ultra-fast, epitaxial rectifier diodes intended for use as output rectifiers in high frequency switched mode power supplies.

The BYR29 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	BYR29	-	-500	-600	-700	-800	V
V_{RWM}	Crest working reverse voltage		500	600	700	800		V
V_R	Continuous reverse voltage		500	600	700	800		V
$I_{F(AV)}$	Average forward current ¹	square wave; $\delta = 0.5$; $T_{mb} \leq 115 \text{ }^\circ\text{C}$ $t = 25 \mu\text{s}$; $\delta = 0.5$; $T_{mb} \leq 115 \text{ }^\circ\text{C}$ $t = 10 \text{ ms}$ $t = 8.3 \text{ ms}$ sinusoidal; with reapplied $V_{RRM(\text{max})}$	-	8				A
I_{FRM}	Repetitive peak forward current		-	16				A
I_{FSM}	Non-repetitive peak forward current		-	60				A
T_{stg}	Storage temperature		-40	150				°C
T_i	Operating junction temperature		-	150				°C

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th j-mb}$	Thermal resistance junction to mounting base		-	-	2.5	K/W
$R_{th j-a}$	Thermal resistance junction to ambient	in free air.	-	60	-	K/W

¹ Neglecting switching and reverse current losses

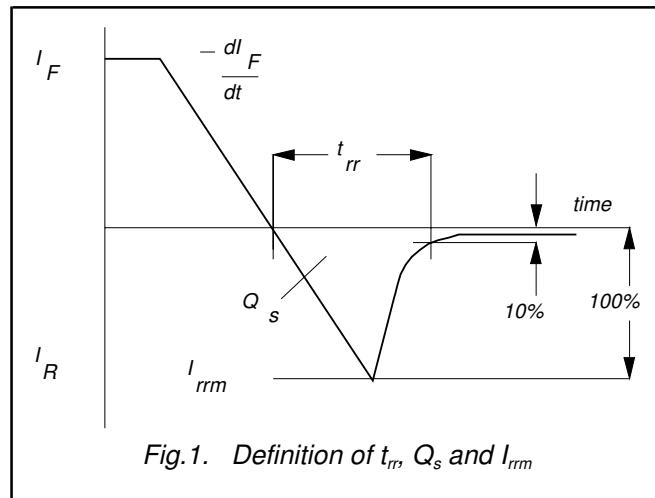
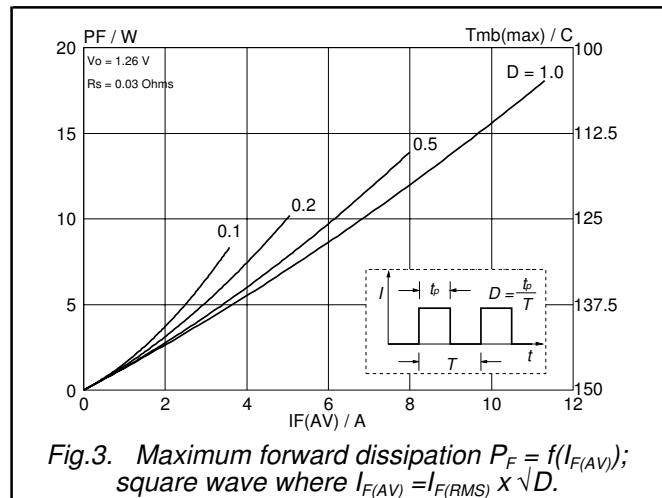
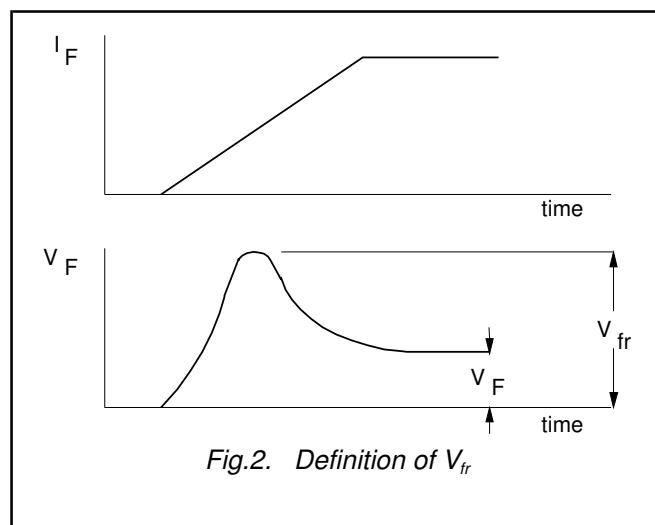
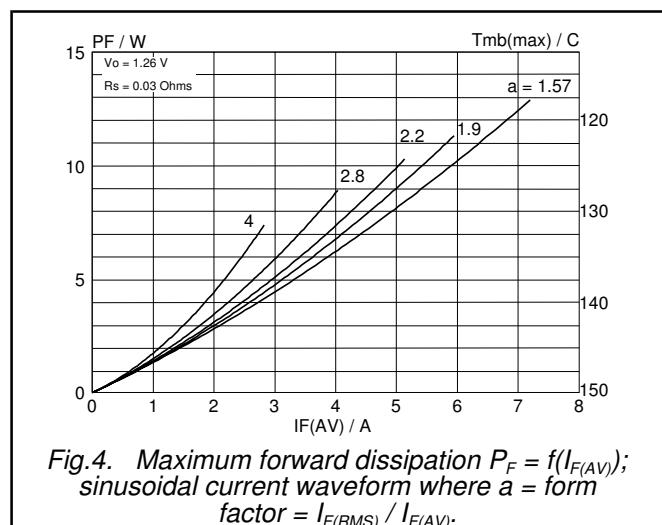
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ELECTRICAL CHARACTERISTICS

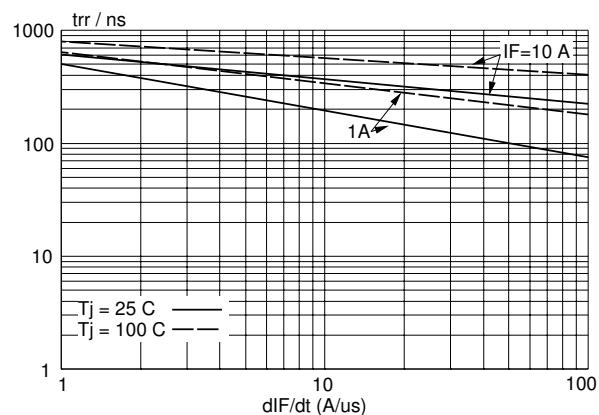
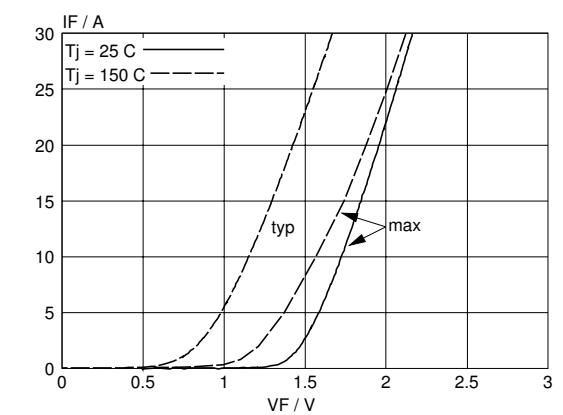
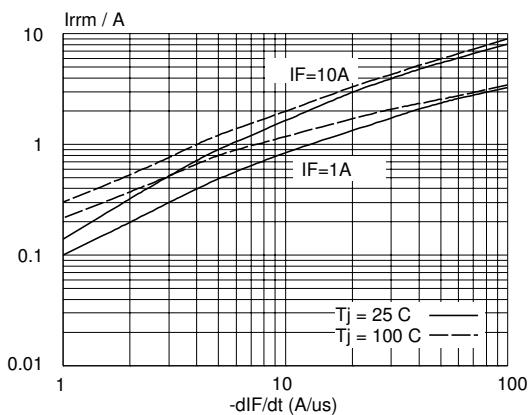
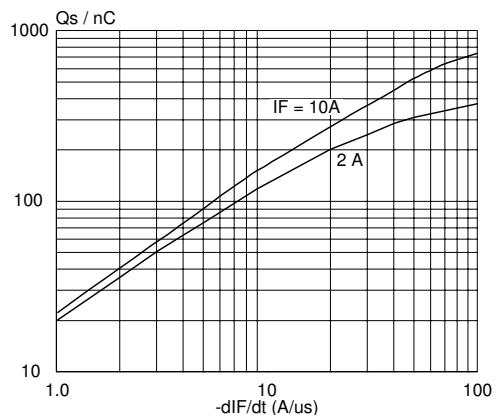
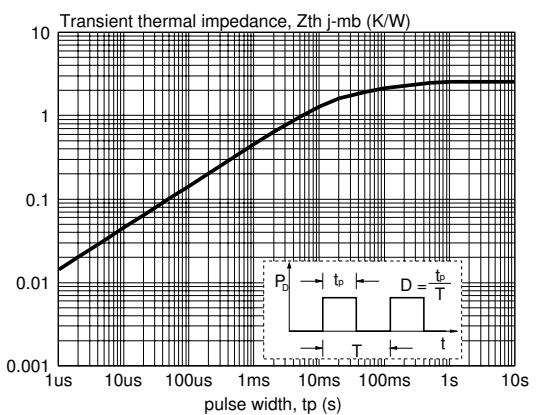
 $T_j = 25^\circ\text{C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage	$I_F = 8 \text{ A}; T_j = 150^\circ\text{C}$	-	1.07	1.50	V
		$I_F = 20 \text{ A}$	-	1.75	1.95	V
I_R	Reverse current	$V_R = V_{RRM}$	-	1.0	10	μA
Q_s	Reverse recovery charge	$V_R = V_{RRM}; T_j = 100^\circ\text{C}$	-	0.1	0.2	mA
t_{rr}	Reverse recovery time	$I_F = 2 \text{ A} \text{ to } V_R \geq 30 \text{ V};$ $dI_F/dt = 20 \text{ A}/\mu\text{s}$	-	150	200	nC
		$I_F = 1 \text{ A} \text{ to } V_R \geq 30 \text{ V};$ $dI_F/dt = 100 \text{ A}/\mu\text{s}$	-	60	75	ns
I_{rrm}	Peak reverse recovery current	$I_F = 10 \text{ A} \text{ to } V_R \geq 30 \text{ V};$ $dI_F/dt = 50 \text{ A}/\mu\text{s}; T_j = 100^\circ\text{C}$	-	-	6	A
V_{fr}	Forward recovery voltage	$I_F = 10 \text{ A}; dI_F/dt = 10 \text{ A}/\mu\text{s}$	-	5.0	-	V

Fig.1. Definition of t_{rr} , Q_s and I_{rrm} Fig.3. Maximum forward dissipation $P_F = f(I_{F(AV)})$;
square wave where $I_{F(AV)} = I_{F(RMS)} \times \sqrt{D}$.Fig.2. Definition of V_{fr} Fig.4. Maximum forward dissipation $P_F = f(I_{F(AV)})$;
sinusoidal current waveform where $a = \text{form factor} = I_{F(RMS)} / I_{F(AV)}$.

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Fig.5. Maximum t_{rr} at $T_j = 25^\circ\text{C}$ and 100°C .Fig.7. Typical and maximum forward characteristic
 $I_F = f(V_F)$; parameter T_j Fig.6. Maximum I_{rrm} at $T_j = 25^\circ\text{C}$ and 100°C .Fig.8. Maximum Q_s at $T_j = 25^\circ\text{C}$ Fig.9. Transient thermal impedance $Z_{th} = f(t_p)$

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MECHANICAL DATA

Dimensions in mm

Net Mass: 2 g

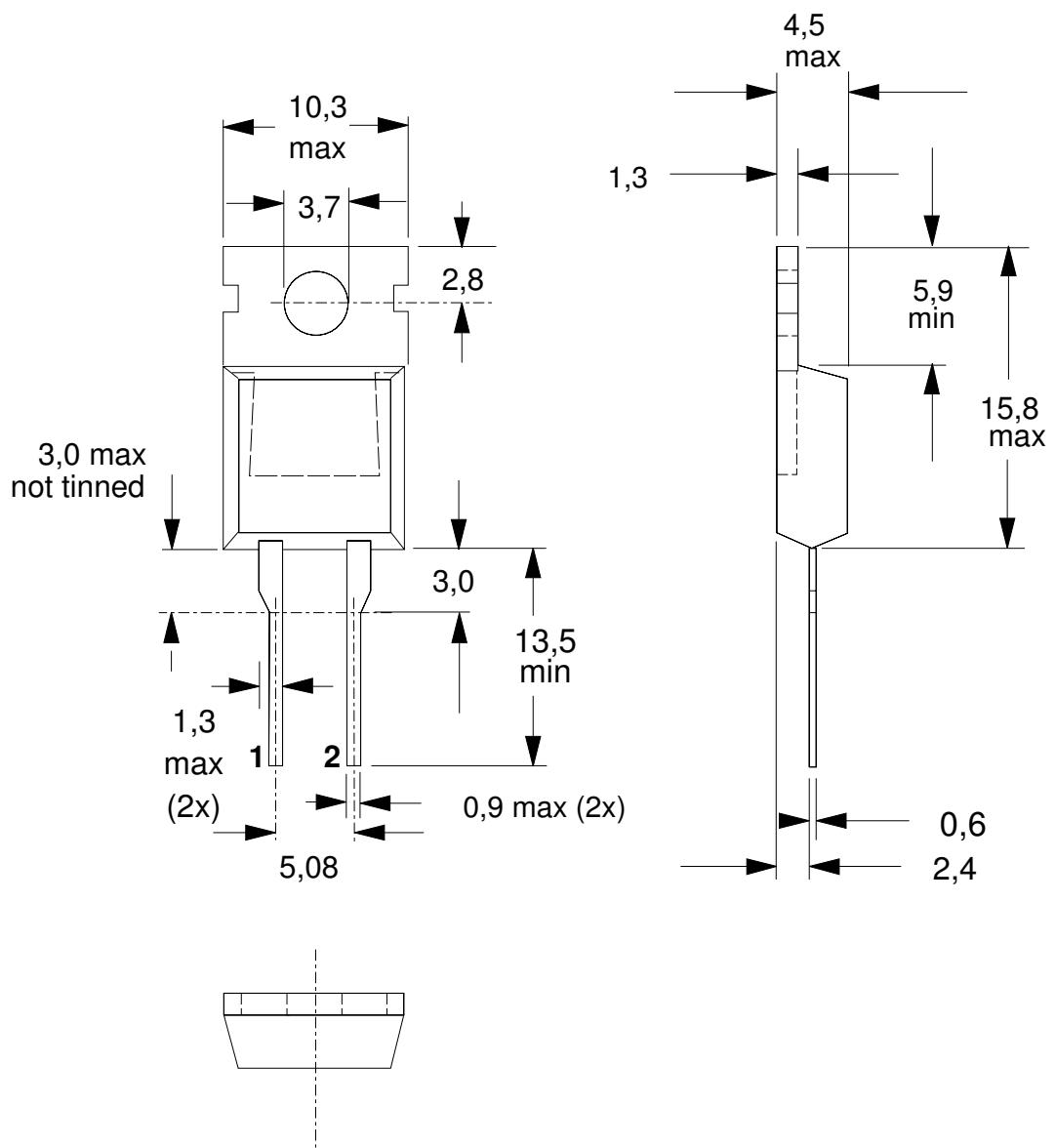


Fig.10. SOD59 (TO220AC). pin 1 connected to mounting base.

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.

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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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