

DATA SHEET

BYV79E series
Rectifier diodes
ultrafast, rugged

Product specification

September 2018



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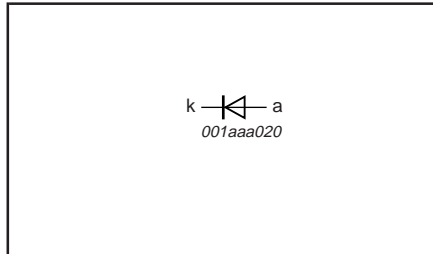
**Rectifier diodes
ultrafast, rugged**

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

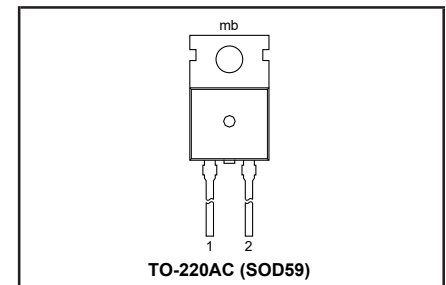
Ultra-fast, epitaxial rectifier diodes intended for use as output rectifiers in high frequency switched mode power supplies.

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
				BYV79E		
V_{RRM}	Peak repetitive reverse voltage	$T_{mb} \leq 145\text{ }^\circ\text{C}$	-	-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 $\delta = 0.5; T_{mb} \leq 120\text{ }^\circ\text{C}$	-	14		A
I_{FRM}	Repetitive peak forward current	$t = 25\text{ }\mu\text{s}; \delta = 0.5;$ $T_{mb} \leq 120\text{ }^\circ\text{C}$	-	28		A
I_{FSM}	Non-repetitive peak forward current	$t = 10\text{ ms}$	-	150		A
		$t = 8.3\text{ ms}$ sinusoidal; with reapplied	-	160		A
I_{RRM}	Repetitive peak reverse current	$V_{RWM(max)}$ $t_p = 2\text{ }\mu\text{s}; \delta = 0.001$	-	0.2		A
I_{RSM}	Non-repetitive peak reverse current	$t_p = 100\text{ }\mu\text{s}$	-	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

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THERMAL RESISTANCES

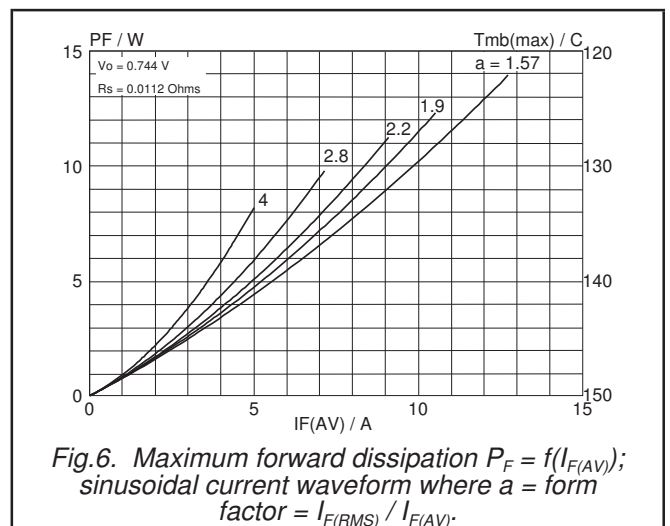
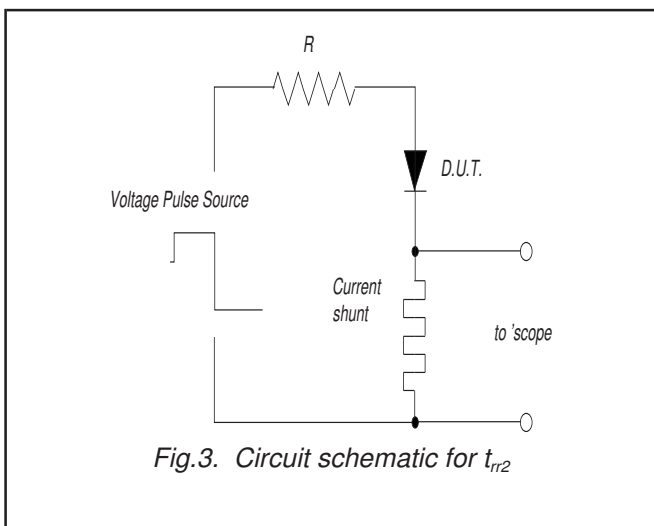
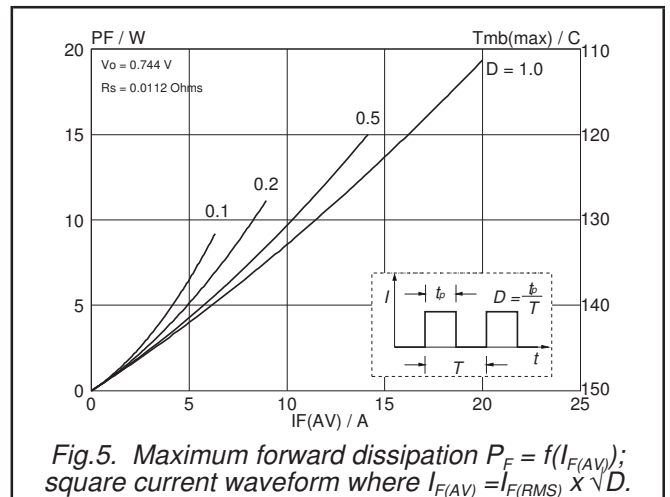
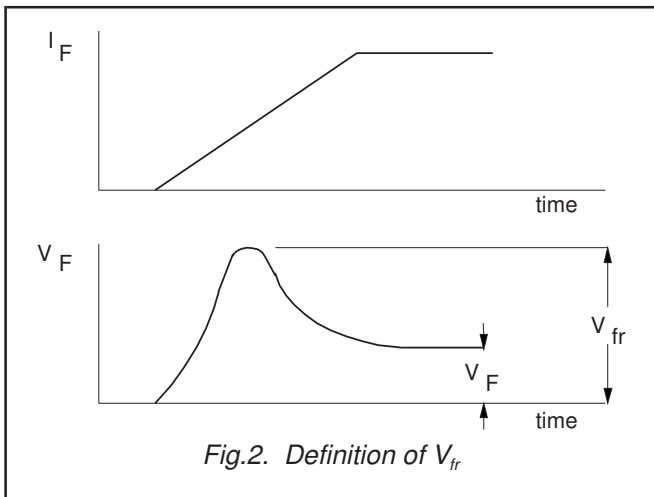
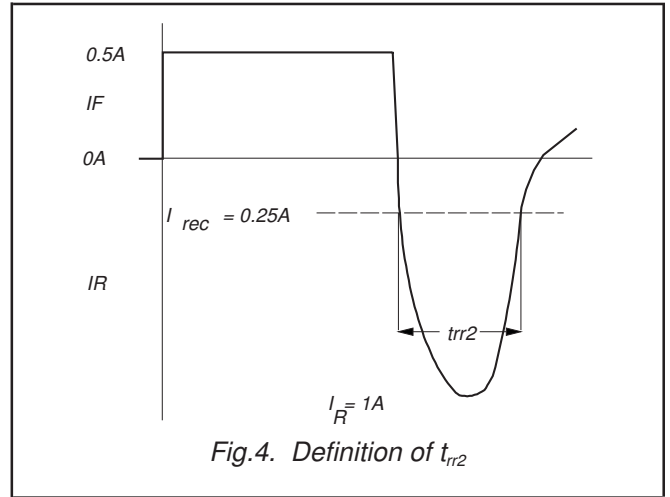
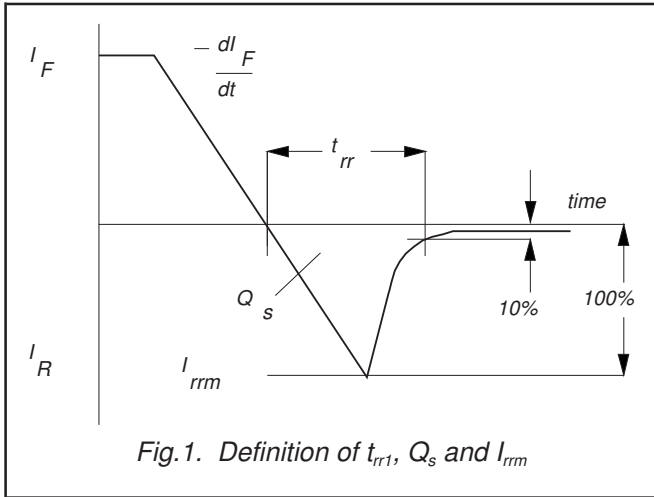
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-mb}$	Thermal resistance junction to mounting base		-	-	2	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient	in free air	-	60	-	K/W

STATIC CHARACTERISTICS $T_j = 25\text{ °C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage	$I_F = 14\text{ A}; T_j = 150\text{ °C}$	-	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	$V_R = V_{RWM}; T_j = 100\text{ °C}$	-	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

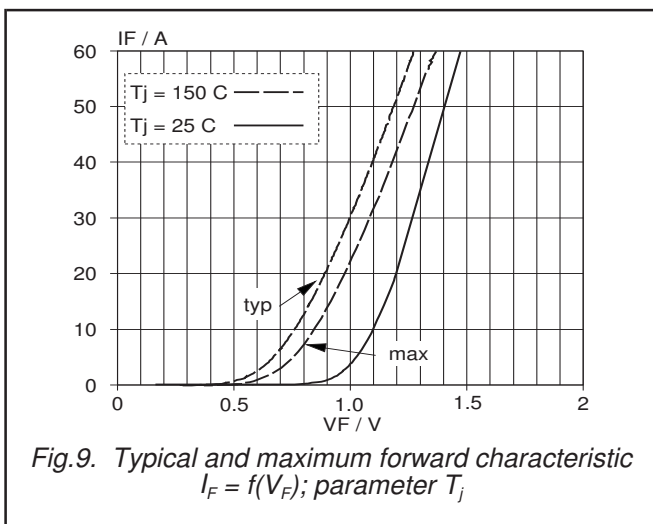
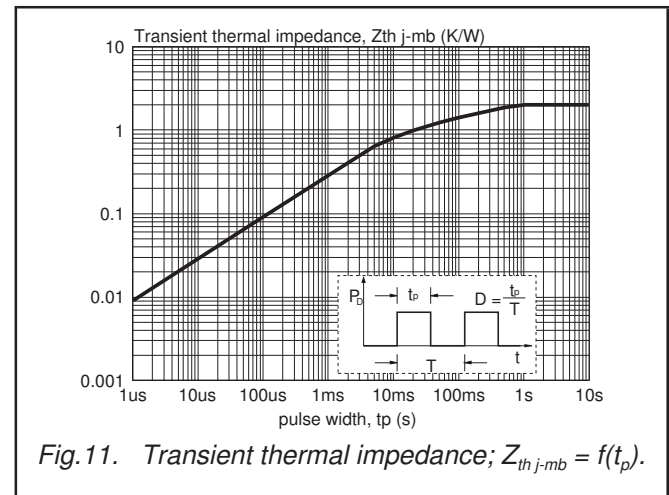
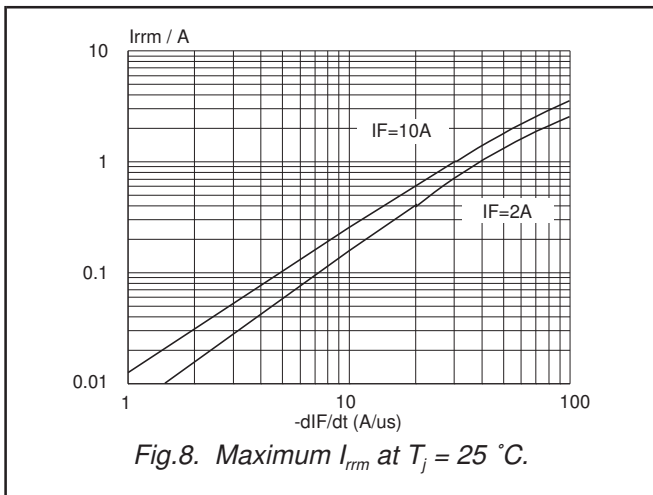
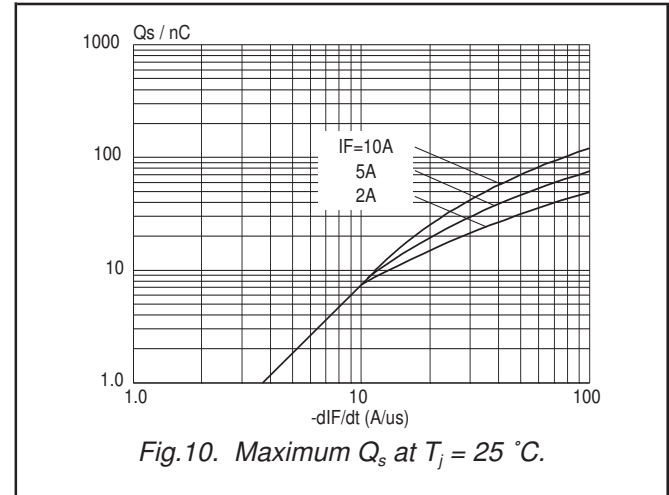
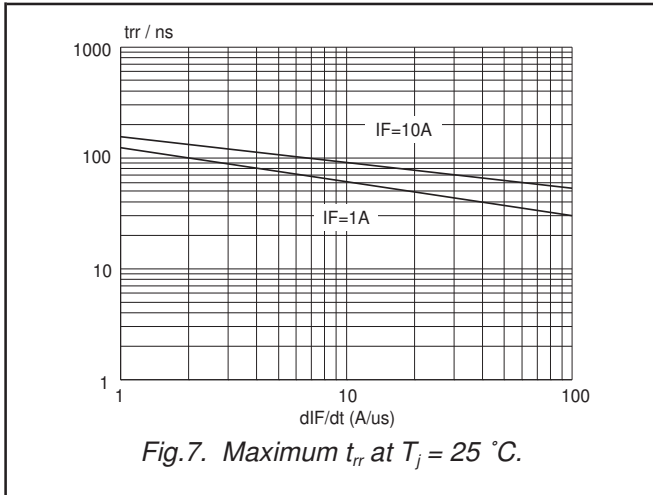
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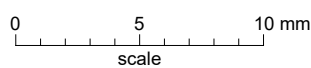
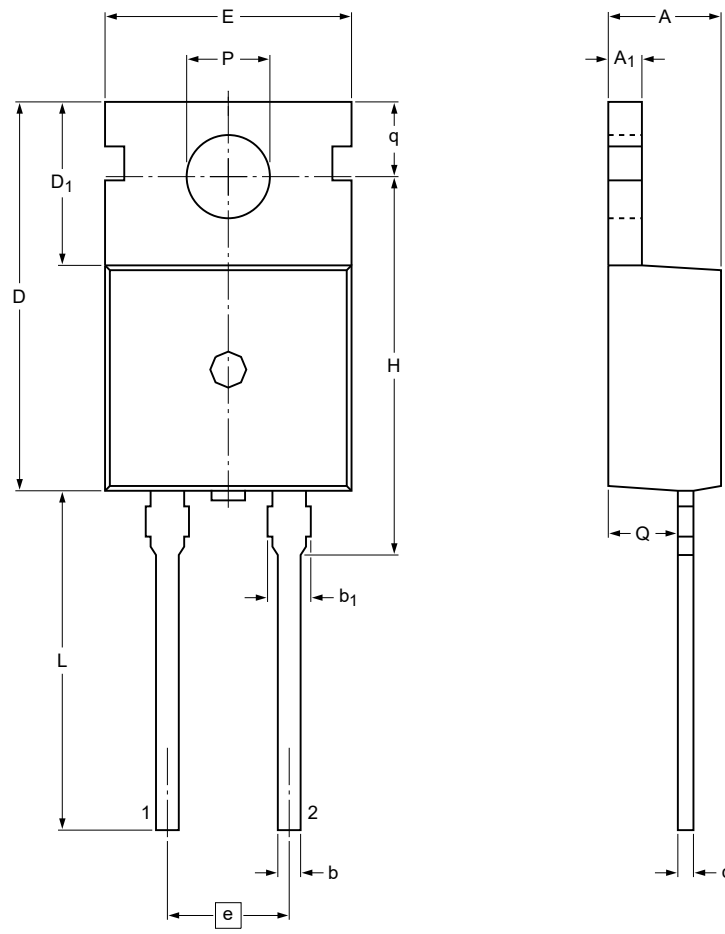
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MECHANICAL DATA

Plastic single-ended package; heatsink mounted; 1 mounting hole; 2-lead TO-220AC

SOD59



Dimensions

Unit	A	A ₁	b	b ₁ (1)	c	D	D ₁	E	e	H	L	P	Q	q	
mm	max	4.7	1.40	0.95	1.7	0.65	15.8	6.8	10.30	5.08	16.25	15.0	3.80	2.6	2.9
	nom									(REF)					
	min	4.3	1.15	0.70	1.3	0.45	15.6	6.4	9.65	15.70	12.5	3.65	2.2	2.7	

Note

1. Protruded dambar are included in the dimension.

sod059_po

Outline version	References			European projection	Issue date
	IEC	JEDEC	JEITA		
SOD59	2-lead TO-220AC				09-08-25 12-11-27

Legal information

Data sheet status

Document status [1][2]	Product status [3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

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- [2] The term 'short data sheet' is explained in section "Definitions".
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