

# Silicon Dual Diode

## **BYV79E-200**

200V/14A

# DATASHEET

OEM – Philips

Source: Philips Databook 1999

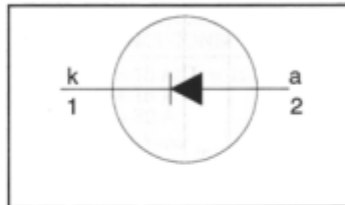
## Rectifier diodes ultrafast, rugged

## 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

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

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

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

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

$$t_{rr} \leq 30 \text{ ns}$$

### GENERAL DESCRIPTION

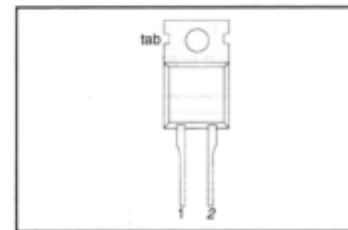
Ultra-fast, epitaxial rectifier diodes intended for use as output rectifiers in high frequency switched mode power supplies.

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		-	-150	-200	V
$V_{RWM}$	Crest working reverse voltage		-	150	200	V
$V_R$	Continuous reverse voltage	$T_{mb} \leq 145^\circ\text{C}$	-	150	200	V
$I_{F(AV)}$	Average forward current <sup>1</sup>	square wave	-	14		A
$I_{FRM}$	Repetitive peak forward current	$\delta = 0.5$ ; $T_{mb} \leq 120^\circ\text{C}$ $t = 25 \mu\text{s}$ ; $\delta = 0.5$ ;	-	28		A
$I_{FSM}$	Non-repetitive peak forward current	$T_{mb} \leq 120^\circ\text{C}$ $t = 10 \text{ ms}$ $t = 8.3 \text{ ms}$ sinusoidal; with reapplied	-	150		A
$I_{RRM}$	Repetitive peak reverse current	$V_{RWM(max)}$ $t_p = 2 \mu\text{s}$ ; $\delta = 0.001$	-	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

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### THERMAL RESISTANCES

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

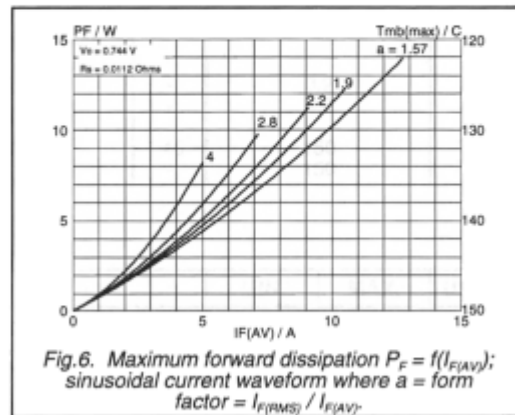
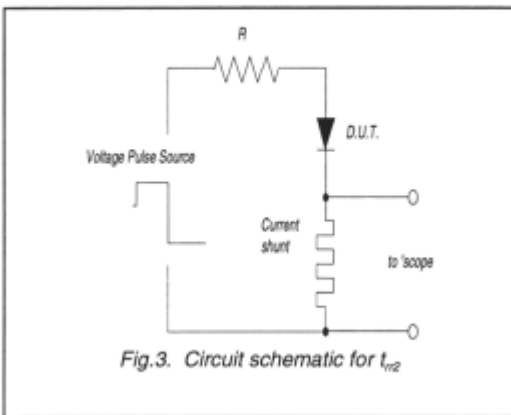
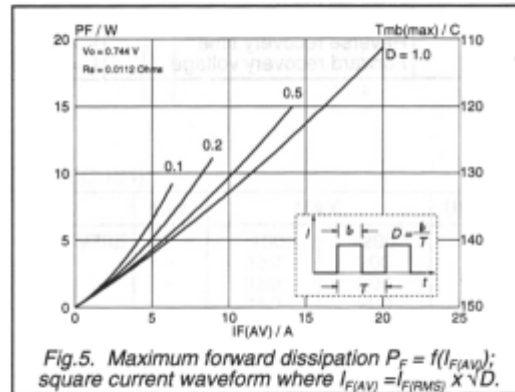
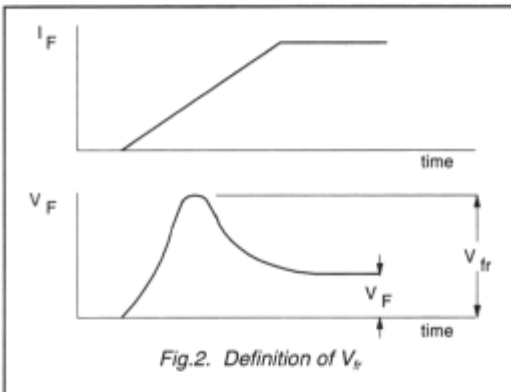
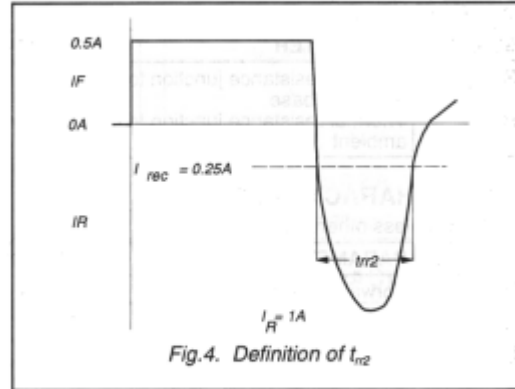
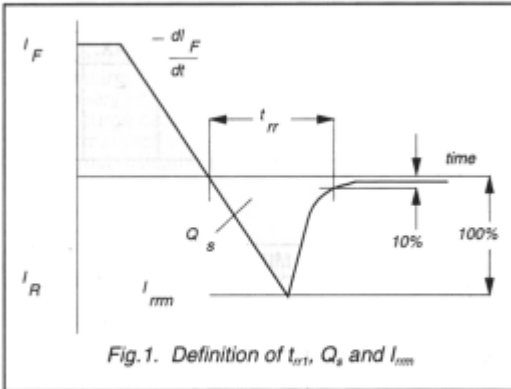
### STATIC CHARACTERISTICS

$T_j = 25\text{ °C}$  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	$\mu\text{A}$
$Q_s$	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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