

Silicon Diode

BYW29F-150

150V/8A

DATASHEET

OEM – Philips

Source: Philips Databook 1999

Rectifier diodes ultrafast

BYW29F series

GENERAL DESCRIPTION

Glass passivated high efficiency rectifier diodes in full pack, plastic envelopes, featuring low forward voltage drop, ultra-fast recovery times and soft recovery characteristic. They are intended for use in switched mode power supplies and high frequency circuits in general where low conduction and switching losses are essential.

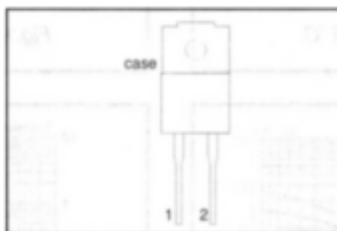
QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	MAX.	MAX.	UNIT
V_{RRM}	Repetitive peak reverse voltage	100	150	200	V
V_F	Forward voltage	0.895	0.895	0.895	V
$I_{F(AV)}$	Forward current	8	8	8	A
t_{rr}	Reverse recovery time	25	25	25	ns

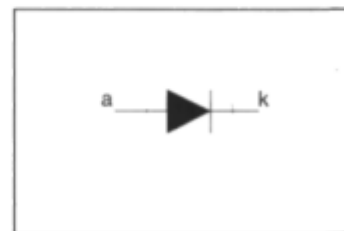
PINNING - SOD100

PIN	DESCRIPTION
1	cathode
2	anode
case	isolated

PIN CONFIGURATION



SYMBOL



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.			UNIT
V_{RRM}	Repetitive peak reverse voltage		-	-100	-150	-200	V
V_{RWM}	Crest working reverse voltage		-	100	150	200	V
V_R	Continuous reverse voltage		-	100	150	200	V
$I_{F(AV)}$	Average forward current ²	square wave; $\delta = 0.5$; $T_{ha} \leq 106^\circ\text{C}$ sinusoidal; $a = 1.57$; $T_{ha} \leq 109^\circ\text{C}$	-	8			A
$I_{F(RMS)}$	RMS forward current		-	7.3			A
I_{FRM}	Repetitive peak forward current	$t = 25\ \mu\text{s}$; $\delta = 0.5$; $T_{ha} \leq 109^\circ\text{C}$	-	11.3			A
I_{FSM}	Non-repetitive peak forward current	$t = 10\ \text{ms}$ $t = 8.3\ \text{ms}$ sinusoidal; with reapplied	-	80			A
I^2t	I^2t for fusing	$V_{RWM(max)}$ $t = 10\ \text{ms}$	-	32			A ² s
T_{stg}	Storage temperature		-40	150			$^\circ\text{C}$
T_j	Operating junction temperature		-	150			$^\circ\text{C}$

1 $T_{ha} \leq 141^\circ\text{C}$ for thermal stability.

2 Neglecting switching and reverse current losses

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ISOLATION $T_{hs} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{isol}	Repetitive peak voltage from both terminals to external heatsink	R.H. $\leq 65\%$; clean and dustfree	-	-	1500	V
C_{isol}	Capacitance from cathode to external heatsink	$f = 1\text{ MHz}$	-	12	-	pF

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th(j-hs)}$	Thermal resistance junction to mounting base	with heatsink compound	-	-	5.5	K/W
$R_{th(j-a)}$	Thermal resistance junction to ambient	without heatsink compound in free air	-	55	7.2	K/W

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

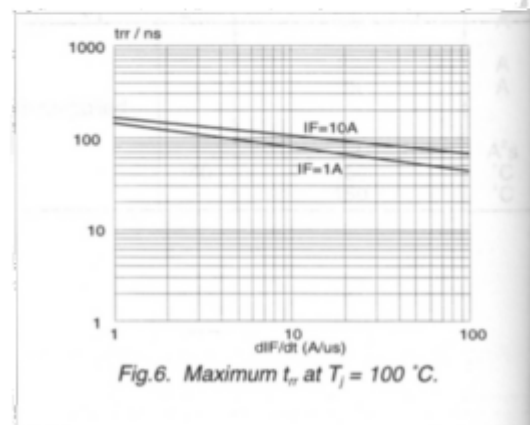
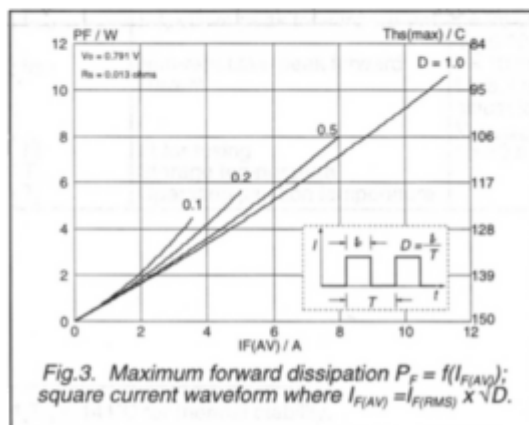
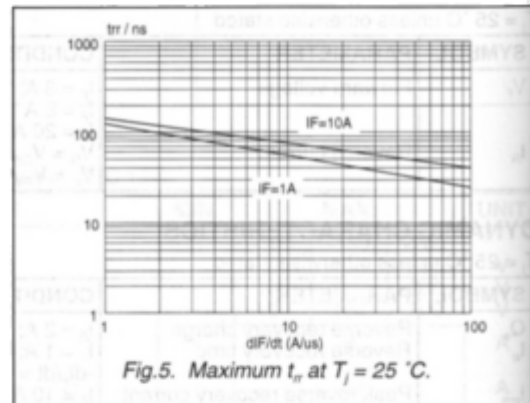
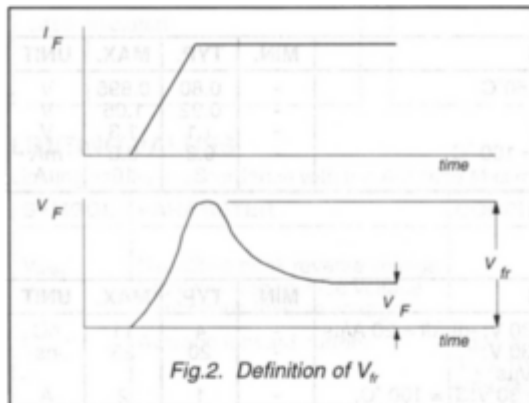
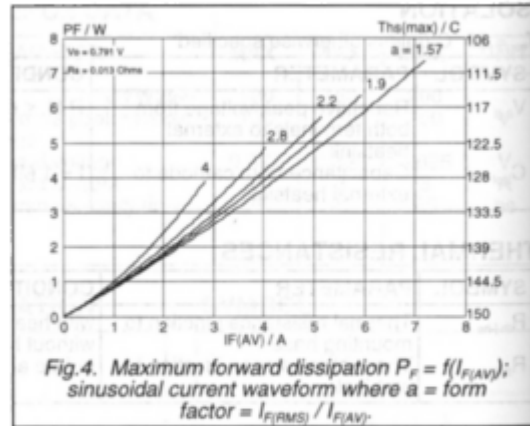
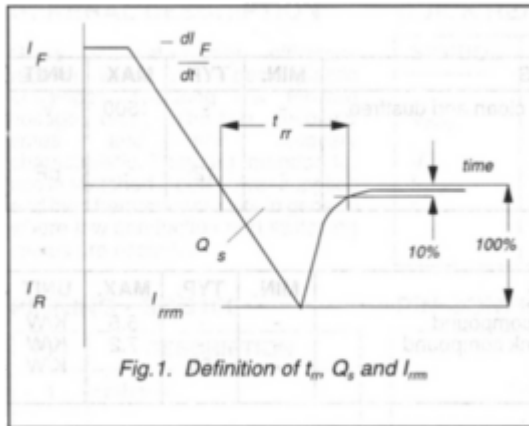
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_f	Forward voltage	$I_f = 8\text{ A}$; $T_j = 150\text{ }^{\circ}\text{C}$	-	0.80	0.895	V
		$I_f = 8\text{ A}$	-	0.92	1.05	V
		$I_f = 20\text{ A}$	-	1.1	1.3	V
I_R	Reverse current	$V_R = V_{RWM}$; $T_j = 100\text{ }^{\circ}\text{C}$	-	0.3	0.6	mA
		$V_R = V_{RWM}$	-	2	10	μA

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Q_s	Reverse recovery charge	$I_f = 2\text{ A}$; $V_R \geq 30\text{ V}$; $-di_f/dt = 20\text{ A}/\mu\text{s}$	-	4	11	nC
t_r	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
I_{rrm}	Peak reverse recovery current	$I_f = 10\text{ A}$; $V_R \geq 30\text{ V}$; $T_j = 100\text{ }^{\circ}\text{C}$; $-di_f/dt = 50\text{ A}/\mu\text{s}$	-	1	2	A
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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