

BYT79-600

Rectifier diode ultrafast

Rev. 01.mm — 5 April 2006

Preliminary data sheet

1. Product profile

1.1 General description

Ultrafast epitaxial rectifier diode in a SOD59 (2-lead TO-220AC) package

1.2 Features

- Low forward voltage drop
- Soft recovery characteristics
- Low thermal resistance
- Fast switching
- Low switching loss
- High thermal cycling performance

1.3 Applications

- Out put rectifiers in high frequency switched-mode power supplies
- DCM PFC

1.4 Quick reference data

- $V_R \leq 600 \text{ V}$
- $V_F \leq 1.05 \text{ V}$
- $I_{F(AV)} \leq 15 \text{ A}$
- $t_{rr} \leq 60 \text{ ns}$

2. Pinning information

Table 1: Pinning

Pin	Description	Simplified outline	Symbol
1	cathode		
2	anode		
mb	cathode		

3. Ordering information

Table 2: Ordering information

Type number	Package		
	Name	Description	Version
BYT79-600	2-lead TO220AC	plastic single-ended package; heatsink mounted; 1 mounting hole; 2-lead TO-220AC	SOD59

4. Limiting values

Table 3: Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Min	Max	Unit
V_{RRM}	repetitive peak reverse voltage		-	600	V
V_R	continuous reverse voltage	$T_{mb} = 147\text{ °C}$	-	600	V
$I_{F(AV)}$	average forward current	square wave; $\delta = 0.5$; $T_{mb} = 115\text{ °C}$	-	15	A
I_{FSM}	non-repetitive peak forward current	$t = 10\text{ ms}$; sinusoidal	-	130	A
		$t = 8.3\text{ ms}$; sinusoidal	-	143	A
T_{stg}	storage temperature		-40	+150	°C
T_j	junction temperature		-	150	°C

5. Thermal characteristics

Table 4: Thermal characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{th(j-h)}$	thermal resistance from junction to heatsink		-	-	2.0	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	-	60	-	K/W

6. Characteristics

Table 5: Characteristics

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
V_F	forward voltage	$I_F = 15\text{ A}; T_j = 150\text{ °C}$	-	0.9	1.05	V
		$I_F = 15\text{ A}$	-	1.17	1.38	V
I_R	reverse current	$V_R = V_{RRM};$	-	5	50	μA
		$V_R = V_{RRM}; T_j = 100\text{ °C}$	-	0.2	0.8	mA
Dynamic characteristics						
Q_S	reverse recovery charge	$I_F = 2\text{ A to } V_R \geq 30\text{ V}; dI_F/dt = 20\text{ A}/\mu\text{s}$	-	40	70	nC
t_{rrt}	reverse recovery time	$I_F = 1\text{ A to } V_R \geq 30\text{ V}; dI_F/dt = 100\text{ A}/\mu\text{s}$	-	50	60	ns
I_{rrm}	peak reverse recovery current	$I_F = 10\text{ A to } V_R \geq 30\text{ V}; dI_F/dt = 50\text{ A}/\mu\text{s}; T_j = 100\text{ °C}$	-	3.0	5.2	A
V_{fr}	forward recovery voltage	$I_F = 10\text{ A}; dI_F/dt = 10\text{ A}/\mu\text{s}$	-	3.2	-	V



7. Revision history

Table 6: Revision history

Document ID	Release date	Data sheet status	Change notice	Doc. number	Supersedes
BYT79-600_1		Preliminary text only data sheet		-	

8. Data sheet status

Level	Data sheet status ^[1]	Product status ^{[2] [3]}	Definition
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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