

BYV34G-600

Dual rectifier diode, ultrafast

Rev. 01 — 25 February 2009

Product data sheet

1. Product profile

1.1 General description

Ultrafast, dual common cathode, epitaxial rectifier diode in a SOT226 (I2PAK), low-profile plastic package.

1.2 Features

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

1.3 Applications

- Output rectifiers in high frequency switched-mode power supplies
- Discontinuous Current Mode (DCM) Power Factor Correction (PFC)

1.4 Quick reference data

- $V_{RRM} \leq 600 \text{ V}$
- $V_F \leq 1.16 \text{ V}$
- $I_{O(AV)} \leq 20 \text{ A}$
- $t_{rr} \leq 60 \text{ ns}$

2. Pinning information

Table 1. Pinning

Pin	Description	Simplified outline	Graphic symbol
1	anode 1		
2	cathode		
3	anode 2		
mb	mounting base; cathode		

SOT226 (I2PAK)

3. Ordering information

Table 2. Ordering information

Type number	Package		Version
	Name	Description	
BYV34G-600	I2PAK	plastic single-ended package (I2PAK); low-profile 3-lead TO-220AB	SOT226

4. Limiting values

Table 3. Limiting values

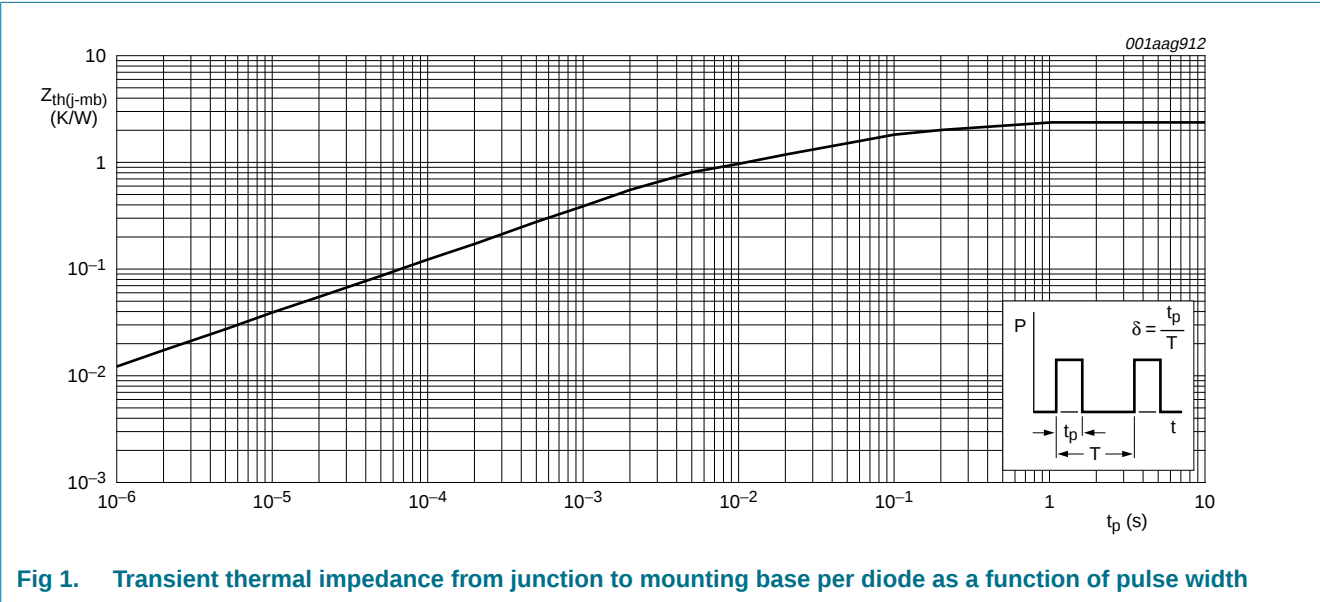
In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Min	Max	Unit
V_{RRM}	repetitive peak reverse voltage		-	600	V
V_{RWM}	crest working reverse voltage		-	600	V
V_R	reverse voltage	DC; $T_{mb} \leq 138\text{ }^{\circ}\text{C}$	-	600	V
$I_{O(AV)}$	average output current	square waveform; $\delta = 0.5$; $T_{mb} \leq 107\text{ }^{\circ}\text{C}$; both diodes conducting	-	20	A
I_{FRM}	repetitive peak forward current	$t_p = 25\text{ }\mu\text{s}$ square waveform; $\delta = 0.5$; $T_{mb} \leq 107\text{ }^{\circ}\text{C}$; per diode	-	20	A
I_{FSM}	non-repetitive peak forward current	$t_p = 10\text{ ms}$; sinusoidal waveform; per diode	-	120	A
		$t_p = 8.3\text{ ms}$; sinusoidal waveform; per diode	-	132	A
T_{stg}	storage temperature		-40	+150	$^{\circ}\text{C}$
T_j	junction temperature		-	150	$^{\circ}\text{C}$

5. Thermal characteristics

Table 4. Thermal characteristics

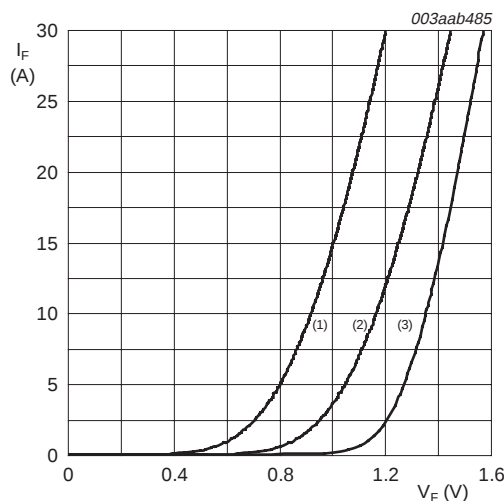
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{th(j-mb)}$	thermal resistance from junction to mounting base	with heatsink compound per diode; see Figure 1	-	-	2.4	K/W
		with heatsink compound; both diodes conducting	-	-	1.6	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	-	60	-	K/W



6. Characteristics

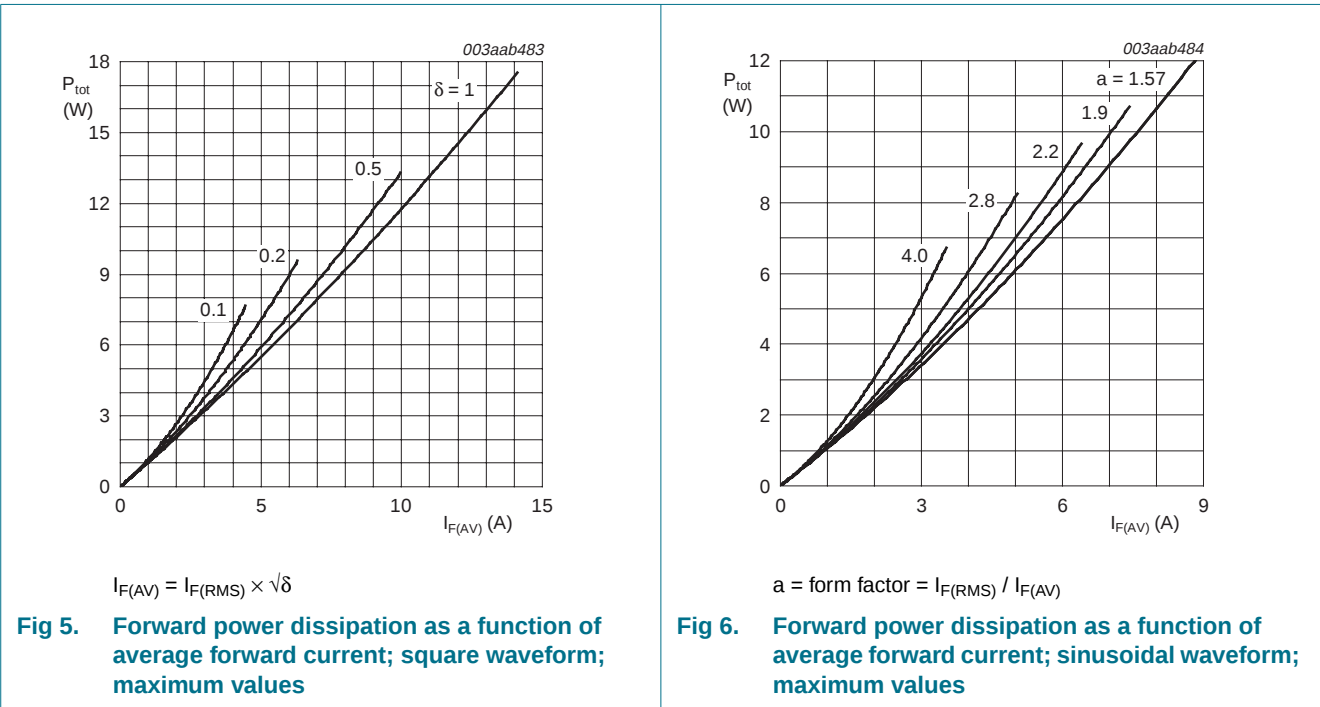
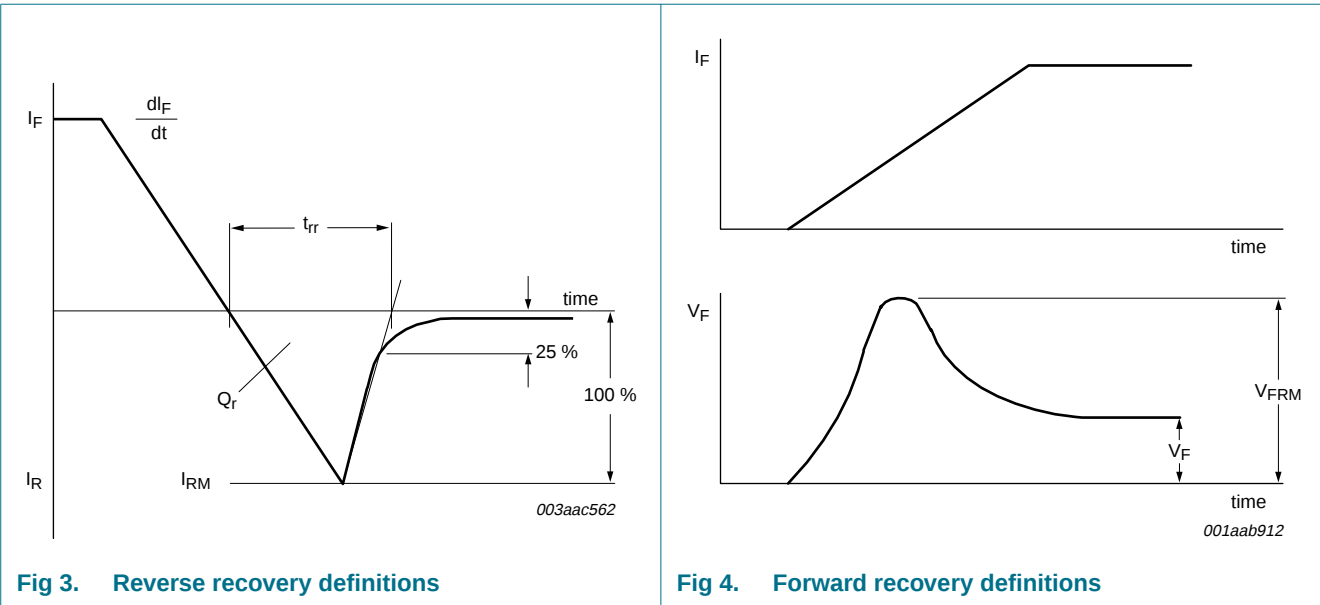
Table 5. Characteristics
T_j = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
V _F	forward voltage	I _F = 10 A; T _j = 150 °C; see Figure 2	-	0.92	1.16	V
		I _F = 20 A	-	1.07	1.48	V
I _R	reverse current	V _R = 600 V	-	10	50	μA
		V _R = 600 V; T _j = 100 °C	-	0.2	0.6	mA
Dynamic characteristics						
Q _r	recovered charge	I _F = 2 A to V _R = 30 V; dI _F /dt = 20 A/μs; see Figure 3	-	40	70	nC
t _{rr}	reverse recovery time	I _F = 1 A to V _R = 30 V; dI _F /dt = 100 A/μs; ramp recovery; see Figure 3	-	50	60	ns
I _{RM}	peak reverse recovery current	I _F = 10 A to V _R = 30 V; dI _F /dt = 50 A/μs; T _j = 100 °C; see Figure 3	-	3	5	A
V _{FR}	forward recovery voltage	I _F = 10 A; dI _F /dt = 10 A/μs; see Figure 4	-	3.2	-	V



- (1) T_j = 150 °C; typical values
- (2) T_j = 150 °C; maximum values
- (3) T_j = 25 °C; maximum values

Fig 2. Forward current as a function of forward voltage



7. Package outline

Plastic single-ended package (I2PAK); low-profile 3-lead TO-220AB

SOT226

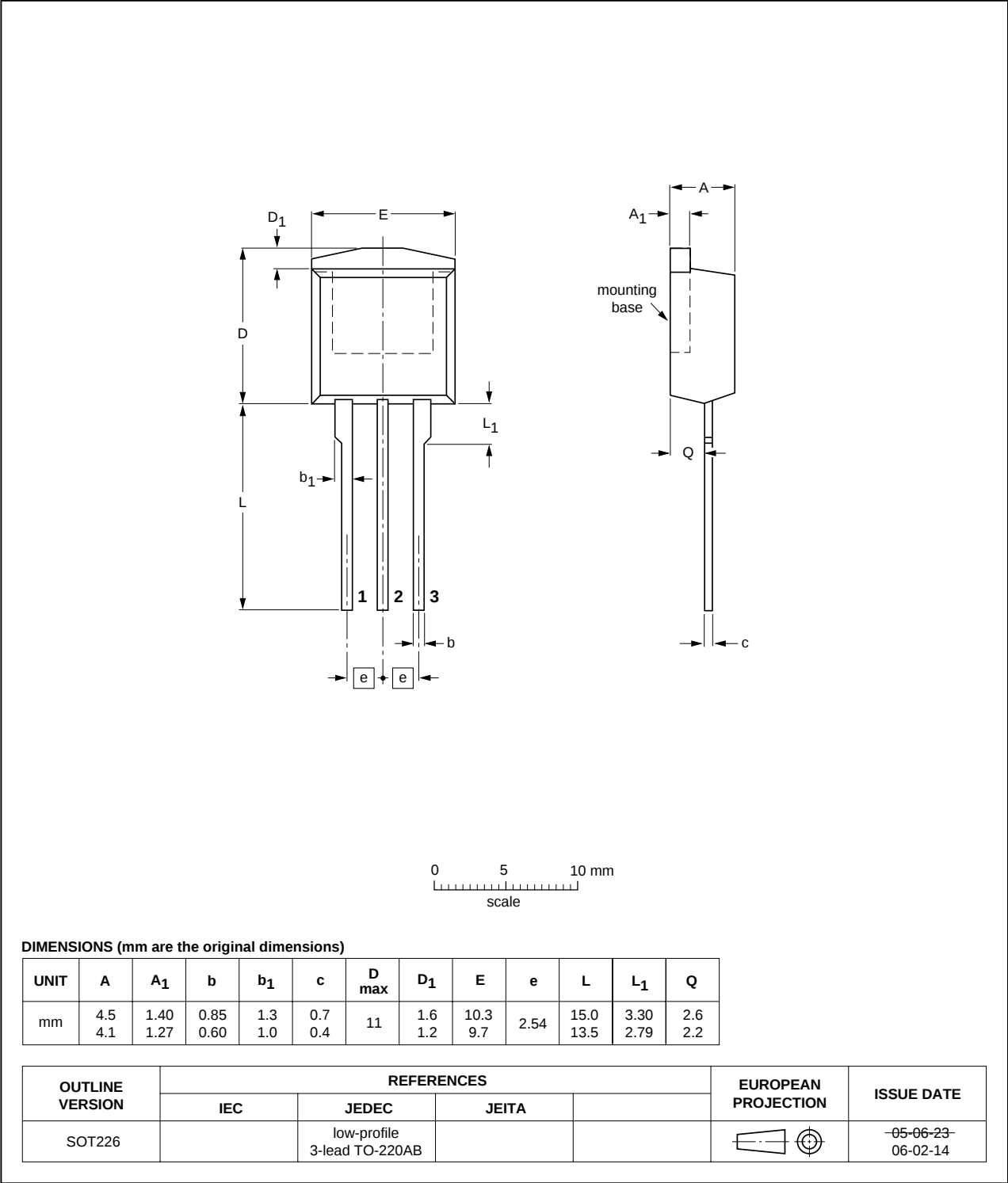


Fig 7. Package outline SOT226 (low-profile 3-lead TO-220AB)

8. Revision history

Table 6. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BYV34G-600_1	20090225	Product data sheet	-	-

9. Legal information

9.1 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.

[1] Please consult the most recently issued document before initiating or completing a design.

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

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