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

- $V_{RRM} \le 600 \text{ V}$
- V_F ≤ 1.16 V

- $I_{O(AV)} \le 20 \text{ A}$
- $t_{rr} \le 60 \text{ ns}$

2. Pinning information

Table 1. Pinning

Pin	Description	Simplified outline	Graphic symbol
1	anode 1		
2	cathode	mb	1
3	anode 2		2
mb	mounting base; cathode		sym084
		SOT226 (I2PAK)	

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3. Ordering information

Table 2. Ordering information

Type number	Package		
	Name	Description	Version
BYV34G-600	I2PAK	plastic single-ended package (I2PAK); low-profile 3-lead TO-220AB	SOT226B

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} ≤ 138 °C	-	600	V
I _{O(AV)}	average output current	square waveform; δ = 0.5; $T_{mb} \leq$ 107 °C; both diodes conducting	-	20	Α
I _{FRM}	repetitive peak forward current	t_p = 25 µs square waveform; δ = 0.5; $T_{mb} \le$ 107 °C; per diode	-	20	Α
I _{FSM}	non-repetitive peak forward current	t _p = 10 ms; sinusoidal waveform; per diode	-	120	Α
		t _p = 8.3 ms; sinusoidal waveform; per diode	-	132	Α
T _{stg}	storage temperature		-40	+150	°C
Tj	junction temperature		-	150	°C

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5. Thermal characteristics

Table 4. Thermal characteristics

Symbol	Parameter	Conditions	Min	Тур	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

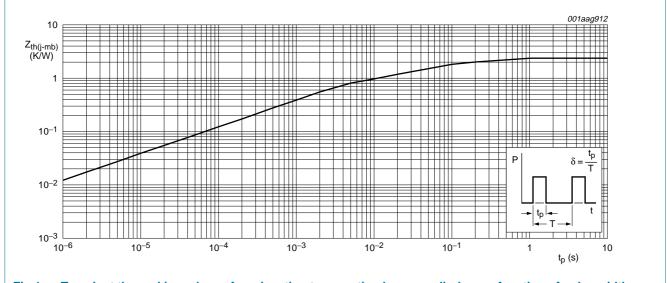


Fig 1. Transient thermal impedance from junction to mounting base per diode as a function of pulse width

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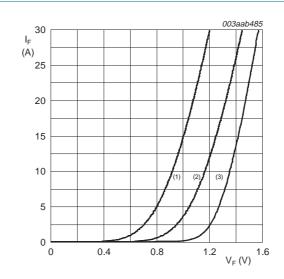
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6. Characteristics

Table 5. Characteristics

 $T_i = 25 \,^{\circ}C$ unless otherwise specified.

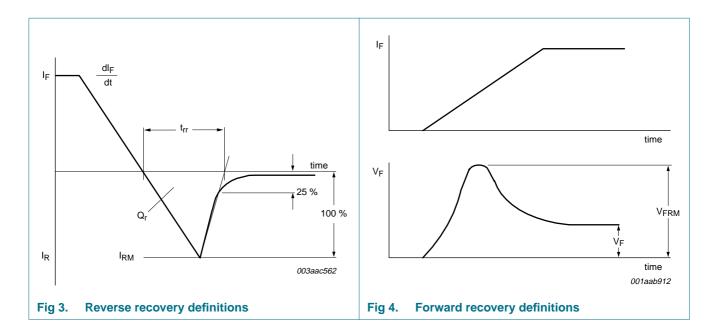
Symbol	Parameter	Conditions	Min	Тур	Max	Unit
Static cha	racteristics					
V_{F}	forward voltage	$I_F = 10 \text{ A}; T_j = 150 ^{\circ}\text{C}; \text{ see } \frac{\text{Figure 2}}{}$	-	0.92	1.16	V
		I _F = 20 A	-	1.07	1.48	V
I _R	reverse current	V _R = 600 V	-	10	50	μΑ
		$V_R = 600 \text{ V}; T_j = 100 ^{\circ}\text{C}$	-	0.2	0.6	mA
Dynamic o	haracteristics					
Q _r	recovered charge	I_F = 2 A to V_R = 30 V; dI_F/dt = 20 A/ μ s; 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/ μ s; 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/ μ s; T_j = 100 °C; see Figure 3	-	3	5	Α
V_{FR}	forward recovery voltage	$I_F = 10 \text{ A}$; $dI_F/dt = 10 \text{ A/}\mu\text{s}$; see Figure 4	-	3.2	-	V



- (1) $T_j = 150 \,^{\circ}\text{C}$; typical values
- (2) $T_j = 150 \,^{\circ}\text{C}$; maximum values
- (3) $T_j = 25 \,^{\circ}C$; maximum values

Fig 2. Forward current as a function of forward voltage

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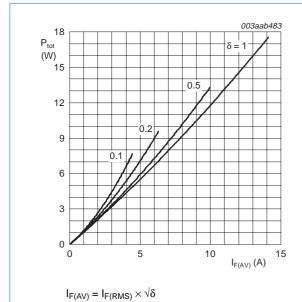


Fig 5. Forward power dissipation as a function of average forward current; square waveform; maximum values

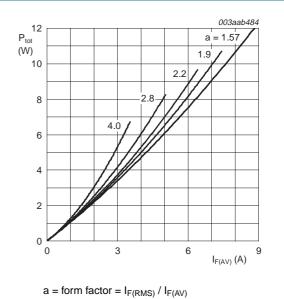
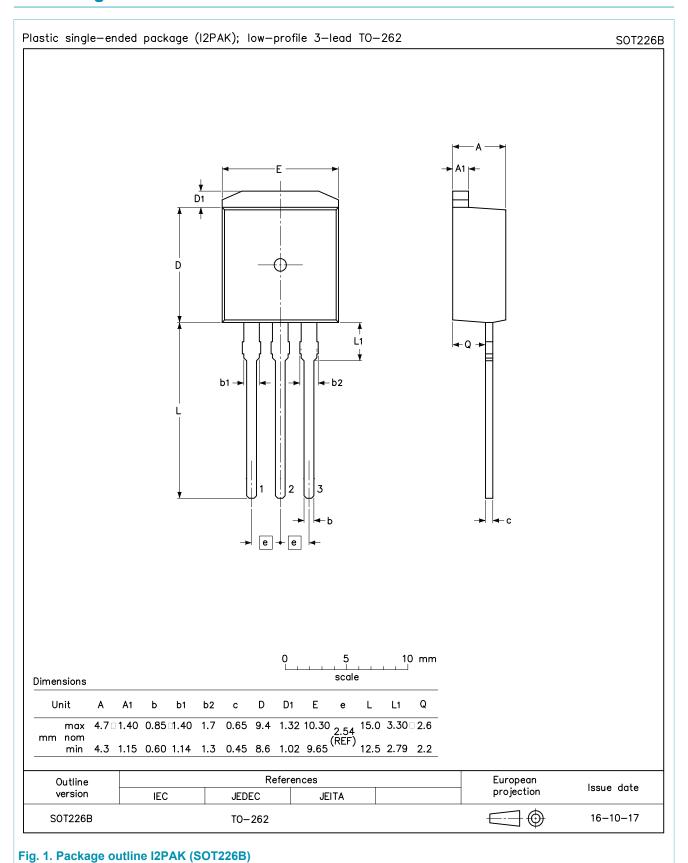


Fig 6. Forward power dissipation as a function of average forward current; sinusoidal waveform; maximum values

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7. Package outline



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8. Revision history

Table 6. Revision history

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

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9. 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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