

1. General description

Dual ultrafast power diode in a SOT226A (I2PAK) low-profile plastic package.

2. Features and benefits

- High reverse voltage surge capability
- High thermal cycling performance
- Low thermal resistance
- Very low on-state loss
- Soft recovery characteristic minimizes power consuming oscillations

3. Applications

- Output rectifiers in high-frequency switched-mode power supplies

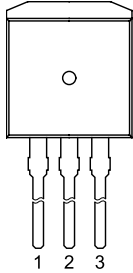
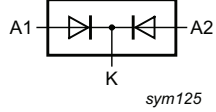
4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Values			Unit
Absolute maximum rating						
V_{RRM}	repetitive peak reverse voltage		200			V
$I_{O(AV)}$	average output current	$\delta = 0.5$; square-wave pulse; $T_{mb} \leq 115\text{ }^{\circ}\text{C}$; both diodes conducting; Fig. 1 ; Fig. 2	20			A
I_{RRM}	repetitive peak reverse current	$\delta = 0.001$; $t_p = 2\text{ }\mu\text{s}$;	0.2			A
V_{ESD}	electrostatic discharge voltage	HBM; $C = 250\text{ pF}$; $R = 1.5\text{ k}\Omega$; all pins	8			kV
I_{FRM}	repetitive peak forward current	$\delta = 0.5$; $t_p = 25\text{ }\mu\text{s}$; $T_{mb} \leq 115\text{ }^{\circ}\text{C}$; per diode	20			A
I_{FSM}	non-repetitive peak forward current	$t_p = 10\text{ ms}$; sine-wave pulse; $T_{j(\text{init})} = 25\text{ }^{\circ}\text{C}$; per diode	125			A
		$t_p = 8.3\text{ ms}$; sine-wave pulse; $T_{j(\text{init})} = 25\text{ }^{\circ}\text{C}$; per diode	137			A
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
V_F	forward voltage	$I_F = 8\text{ A}$; $T_j = 150\text{ }^{\circ}\text{C}$; Fig. 4	-	0.72	0.85	V
Dynamic characteristics						
t_{rr}	reverse recovery time	$I_F = 1\text{ A}$; $V_R = 30\text{ V}$; $di_F/dt = 100\text{ A}/\mu\text{s}$; $T_j = 25\text{ }^{\circ}\text{C}$; ramp recovery; Fig. 5	-	20	25	ns
		$I_F = 0.5\text{ A}$ to $I_R = 1\text{ A}$; $T_j = 25\text{ }^{\circ}\text{C}$; measured at $I_R = 0.25\text{ A}$; step recovery; Fig. 6	-	10	20	ns

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A1	anode 1		
2	K	cathode		
3	A2	anode 2		
mb	K	mounting base; connected to cathode		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BYV32G-200	I2PAK	plastic single-ended package (I2PAK); TO-262	SOT226A

7. Marking

Table 4. Marking codes

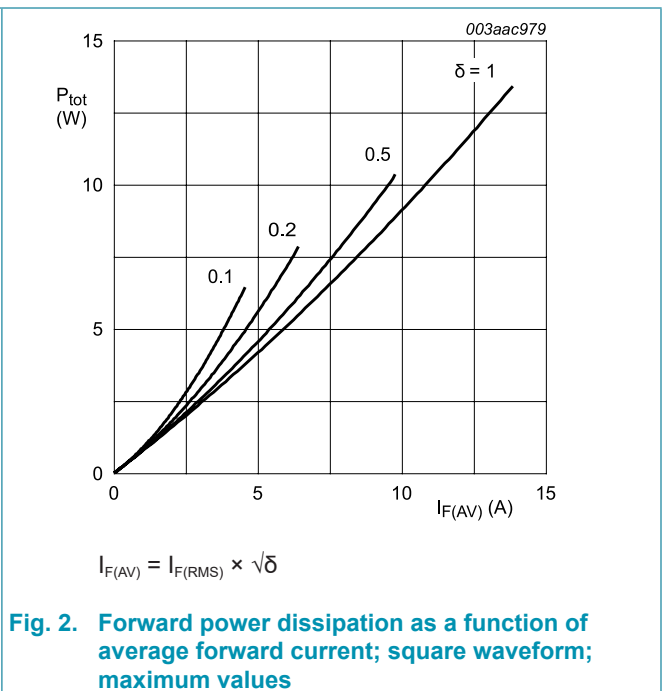
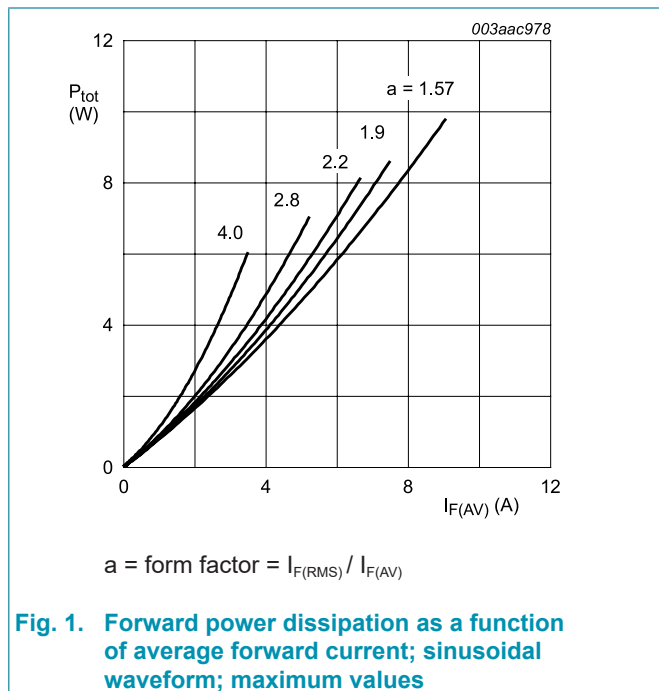
Type number	Marking codes
BYV32G-200	BYV32G-200

8. Limiting values

Table 5. Limiting values

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

Symbol	Parameter	Conditions	Values	Unit
V_{RRM}	repetitive peak reverse voltage		200	V
V_{RWM}	crest working reverse voltage		200	V
V_R	reverse voltage	DC	200	V
$I_{O(AV)}$	average output current	$\delta = 0.5$; square-wave pulse; $T_{mb} \leq 115\text{ °C}$; both diodes conducting; Fig 1; Fig 2	20	A
I_{FRM}	repetitive peak forward current	$\delta = 0.5$; $t_p = 25\ \mu\text{s}$; $T_{mb} \leq 115\text{ °C}$; per diode	20	A
I_{FSM}	non-repetitive peak forward current	$t_p = 10\text{ ms}$; sine-wave pulse; $T_{j(\text{init})} = 25\text{ °C}$; per diode	125	A
		$t_p = 8.3\text{ ms}$; sine-wave pulse; $T_{j(\text{init})} = 25\text{ °C}$; per diode	137	A
I_{RRM}	repetitive peak reverse current	$\delta = 0.001$; $t_p = 2\ \mu\text{s}$; per diode	0.2	A
I_{RSM}	non-repetitive peak reverse current	$t_p = 100\ \mu\text{s}$; per diode	0.2	A
T_{stg}	storage temperature		-40 to 150	°C
T_j	junction temperature		150	°C
V_{ESD}	electrostatic discharge voltage	HBM; all pins; C = 250 pF; R = 1.5 kΩ	8	kV



9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{th(j-mb)}$	thermal resistance from junction to mounting base	with heatsink compound; both diodes conducting	-	-	1.6	K/W
		with heatsink compound; per diode; Fig 3	-	-	2.4	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient		-	60	-	K/W

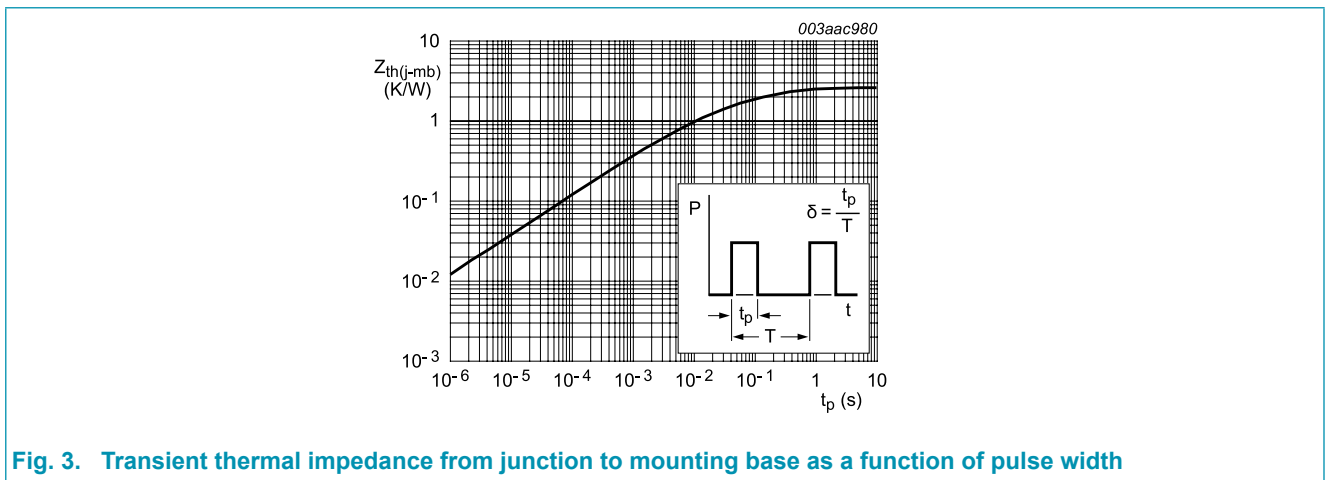
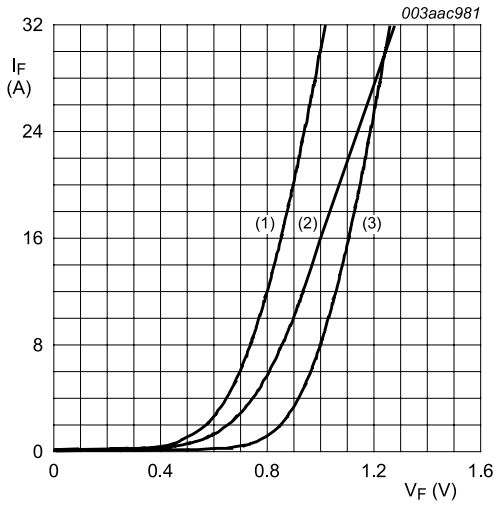


Fig. 3. Transient thermal impedance from junction to mounting base as a function of pulse width

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
V_F	forward voltage	$I_F = 8 \text{ A}; T_j = 150 \text{ }^\circ\text{C};$ Fig. 4	-	0.72	0.85	V
		$I_F = 20 \text{ A}; T_j = 25 \text{ }^\circ\text{C}$	-	1	1.15	V
I_R	reverse current	$V_R = 200 \text{ V}; T_j = 25 \text{ }^\circ\text{C}$	-	6	30	μA
		$V_R = 200 \text{ V}; T_j = 100 \text{ }^\circ\text{C}$	-	0.2	0.6	mA
Dynamic characteristics						
Q_r	recovered charge	$I_F = 2 \text{ A}; V_R = 30 \text{ V}; dI_F/dt = 20 \text{ A}/\mu\text{s};$ $T_j = 25 \text{ }^\circ\text{C}$	-	8	12.5	nC
t_{rr}	reverse recovery time	$I_F = 1 \text{ A}; V_R = 30 \text{ V}; dI_F/dt = 100 \text{ A}/\mu\text{s};$ $T_j = 25 \text{ }^\circ\text{C};$ ramp recovery; Fig. 5	-	20	25	ns
		$I_F = 0.5 \text{ A to } I_R = 1 \text{ A}; T_j = 25 \text{ }^\circ\text{C};$ measured at $I_R = 0.25 \text{ A};$ step recovery; Fig. 6	-	10	20	ns
V_{FR}	forward recovery voltage	$I_F = 1 \text{ A}; dI_F/dt = 10 \text{ A}/\mu\text{s}; T_j = 25 \text{ }^\circ\text{C};$ Fig. 7	-	-	1	V



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

Fig. 4. Forward current as a function of forward voltage

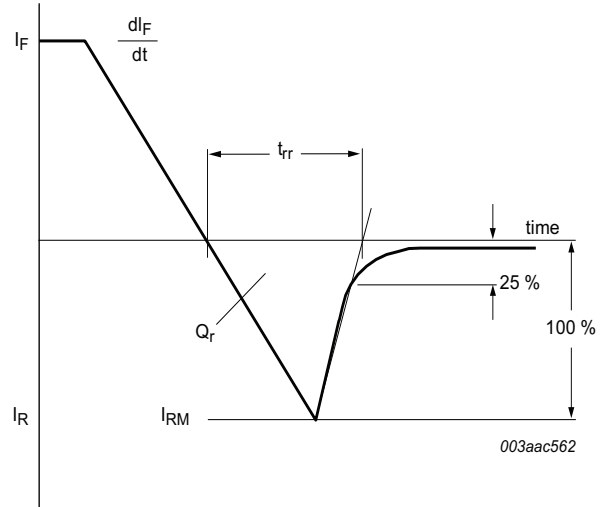


Fig. 5. Reverse recovery definitions; ramp recovery

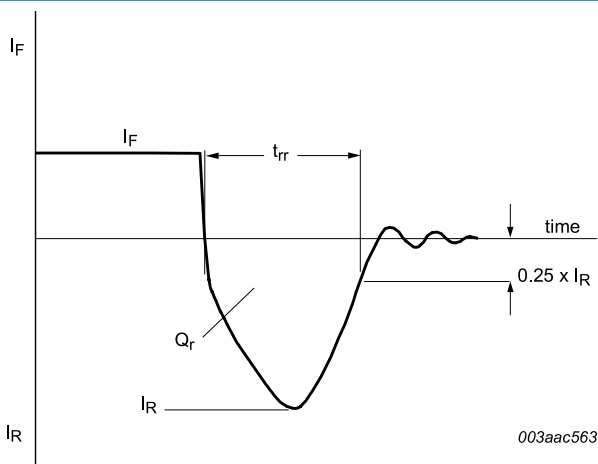


Fig. 6. Reverse recovery definitions; step recovery

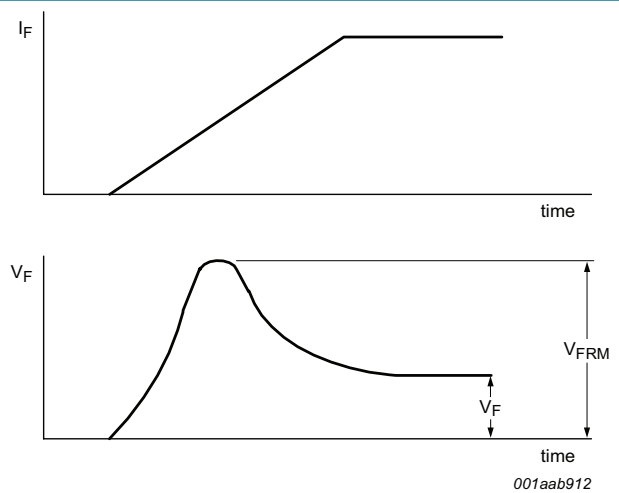
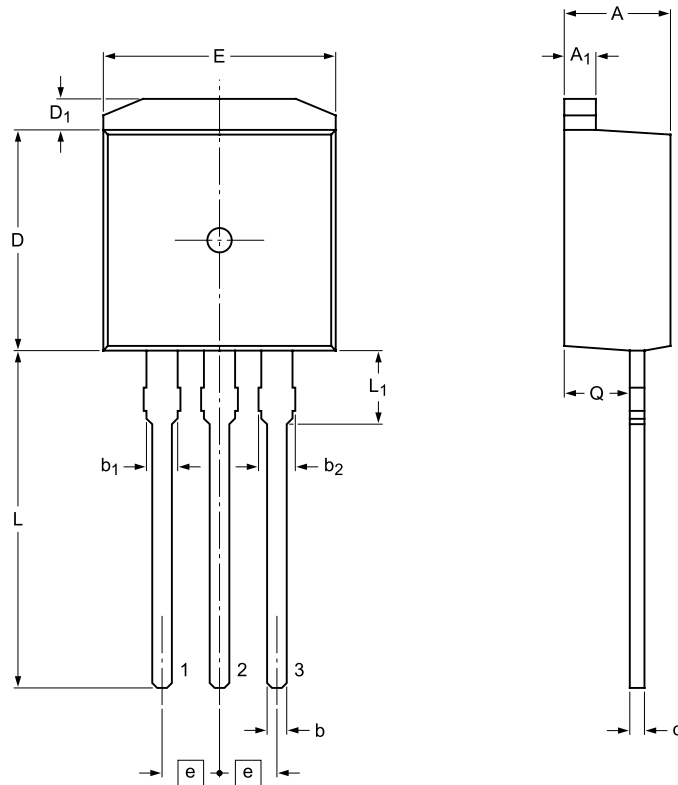


Fig. 7. Forward recovery definitions

11. Package outline

Plastic single-ended package (I2PAK); low-profile 3-lead TO-262

SOT226A



Dimensions

Unit	A	A ₁	b	b ₁	b ₂	c	D	D ₁	E	e	L	L ₁	Q
max	4.7	1.40	0.95	1.40	1.7	0.65	9.4	1.32	10.30	2.54	15.0	3.0	2.6
nom										(REF)		(REF)	
min	4.3	1.15	0.70	1.14	1.3	0.45	8.6	1.02	9.65		12.5		2.2

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Outline version	References			European projection	Issue date
	IEC	JEDEC	JEITA		
SOT226A		TO-262			09-08-17 09-08-25

12. Revision history

Table 8. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BYV32G-200 v.2	20180307	Product data sheet	-	BYV32G-200 v.1
Modifications:		Change from NXP version to WeEn version		
BYV32G-200 v.1	20110111	Product data sheet	-	-

13. 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.

- [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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