Product data sheet

1. General description

Low-power voltage regulator diodes in a SOT663 ultra small plastic SMD package.

2. Features and benefits

- Total power dissipation: ≤ 425 mW
- Approximately 5% V_Z tolerance
- Ultra small flat plastic SMD package
- Working voltage range nominal 2.4 to 15 V (E24 range)

3. Applications

- · General regulation functions
- ESD and surge protection

4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions		Min	Тур	Max	Unit
V _F	forward voltage	I _F = 10 mA	[1]	-	-	0.9	V
P _{tot}	total power dissipation	2 diodes loaded; T _{amb} ≤ 25 °C	[2]	-	-	425	mW
		1 diode loaded; T _{amb} ≤ 25 °C	[2]	-	-	265	mW

- [1] Pulse test: $t_p \le 300 \ \mu s$; $\delta \le 0.02$.
- [2] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.



5. Pinning information

Table 2. Pinning

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K1	cathode 1	3	CA
2	K2	cathode 2		
3	CA	common anode	1 2	K1 K2 aaa-033766

6. Ordering information

Table 3. Ordering information

Type number	Package					
	Name	Description	Version			
BZB984-C2V4 to BZB984-C15 [1]	-	plastic surface-mounted package; 3 leads	SOT663			

^[1] The series consists of 20 types with nominal working voltages from 2.4 V to 15 V.

7. Marking

Table 4. Marking codes

Type number	Marking code						
BZB984-C2V4	91	BZB984-C3V9	96	BZB984-C6V2	9B	BZB984-C10	9G
BZB984-C2V7	92	BZB984-C4V3	97	BZB984-C6V8	9C	BZB984-C11	9H
BZB984-C3V0	93	BZB984-C4V7	98	BZB984-C7V5	9D	BZB984-C12	9J
BZB984-C3V3	94	BZB984-C5V1	99	BZB984-C8V2	9E	BZB984-C13	9K
BZB984-C3V6	95	BZB984-C5V6	9A	BZB984-C9V1	9F	BZB984-C15	9L

Voltage regulator double diodes

8. Limiting values

Table 5. Limiting values

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

Symbol	Parameter	Conditions		Min	Max	Unit
I _F	forward current			-	200	mA
I _{ZSM}	non-repetitive peak reverse current	t_p = 100 µs; square wave; T_{amb} = 25 °C		see Table 1	•	
P _{ZSM}	non-repetitive peak reverse power dissipation	t_p = 100 µs; square wave; T_{amb} = 25 °C		-	40	W
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C 2 diodes loaded	[1]	-	425	mW
		T _{amb} ≤ 25 °C 1 diode loaded	[1]	-	265	mW
Tj	junction temperature			-	150	°C
T _{amb}	ambient temperature			-55	+150	°C
T _{stg}	storage temperature			-65	+150	°C

^[1] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions		Min	Тур	Max	Unit
R _{th(j-a)}	thermal resistance from junction to ambient	in free air; 2 diodes loaded	[1]	-	-	294	K/W
		in free air; 1 diode loaded	[1]	-	-	472	K/W
$R_{th(j-sp)}$	thermal resistance from junction	2 diodes loaded	[2]	-	-	125	K/W
	to solder point	1 diode loaded	[2]	-	-	230	K/W

^[1] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

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^[2] Soldering point of cathode tab.

10. Characteristics

Table 7. Characteristics

 T_i = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions		Min	Тур	Max	Unit
V _F	forward voltage	I _F = 10 mA	[1]	-	-	0.9	V

^[1] Pulse test: $t_p \le 300 \ \mu s$; $\delta \le 0.02$.

Table 8. Characteristics per type; BZB984-C2V4 to BZB984-C15

 T_j = 25 °C unless otherwise specified.

BZB984 -xxx	Sel	Worki voltaç V _Z (V)	ge	-	num di ance r _c		al	Rever currer (µA)		Temperature coefficient S _Z (mV/K);	Diode capacitance C _d (pF) [1]	Non- repetitive peak reverse current I _{ZSM} (A) [2]
		I _Z = 5 Tol. 5		I _Z = 1	mA	I _Z = 5	mA	I _F = 10) mA	I _{Ztest} = 5 mA		
		Min	Max	Тур	Max	Тур	Max	Max	V _R (V)	Тур	Max	Max
2V4	С	2.2	2.6	275	600	70	100	50	1	-1.3	450	6.0
2V7	С	2.5	2.9	300	600	75	100	20	1	-1.4	450	6.0
3V0	С	2.8	3.2	325	600	80	95	10	1	-1.6	450	6.0
3V3	С	3.1	3.5	350	600	85	95	5	1	-1.8	450	6.0
3V6	С	3.4	3.8	375	600	85	90	5	1	-1.9	450	6.0
3V9	С	3.7	4.1	400	600	85	90	3	1	-1.9	450	6.0
4V3	С	4.0	4.6	410	600	80	90	3	1	-1.7	450	6.0
4V7	С	4.4	5.0	425	500	50	80	3	2	-1.2	300	6.0
5V1	С	4.8	5.4	400	480	40	60	2	2	-0.5	300	6.0
5V6	С	5.2	6.0	80	400	15	40	1	2	1.0	300	6.0
6V2	С	5.8	6.6	40	150	6	10	3	4	2.2	200	6.0
6V8	С	6.4	7.2	30	80	6	15	2	4	3.0	200	6.0
7V5	С	7.0	7.9	30	80	6	15	1	5	3.6	150	4.0
8V2	С	7.7	8.7	40	80	6	15	0.7	5	4.3	150	4.0
9V1	С	8.5	9.6	40	100	6	15	0.5	6	5.2	150	3.0
10	С	9.4	10.6	50	150	8	20	0.2	7	6.0	90	3.0
11	С	10.4	11.6	50	150	10	20	0.1	8	6.9	90	2.5
12	С	11.4	12.7	50	150	10	25	0.1	8	7.9	85	2.5
13	С	12.4	14.1	50	170	10	30	0.1	8	8.8	80	2.5
15	С	13.8	15.6	50	200	10	30	0.05	10.5	10.7	75	2.0

^[1] $f = 1 \text{ MHz}; V_R = 0 \text{ V}$

^[2] $t_p = 100 \mu s$; $T_{amb} = 25 °C$

Voltage regulator double diodes

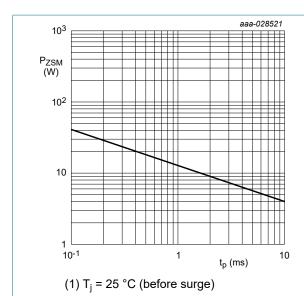
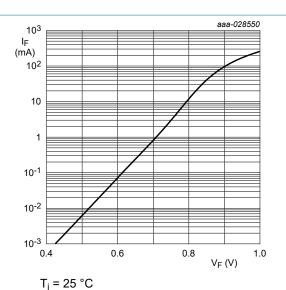


Fig. 1. Non-repetitive peak reverse power dissipation as a function of pulse duration; maximum values



voltage; typical values (BZB984-C2V4)

Fig. 2. Forward current as a function of forward

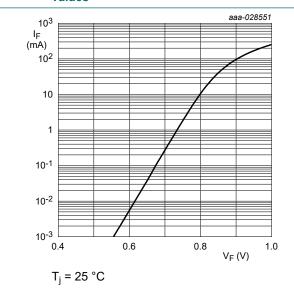


Fig. 3. Forward current as a function of forward voltage; typical values (BZB984-C6V8)

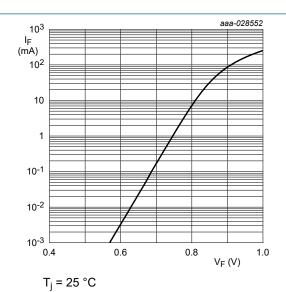
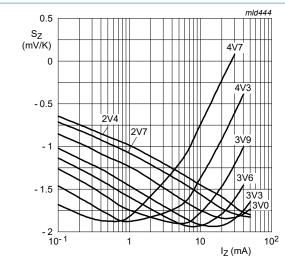


Fig. 4. Forward current as a function of forward voltage; typical values (BZB984-C7V5)

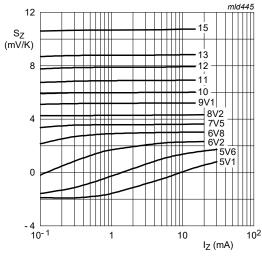
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Voltage regulator double diodes



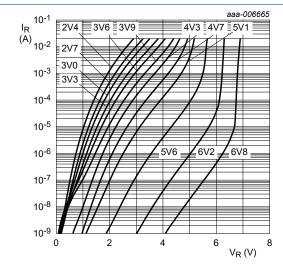
 T_i = 25 °C to 150 °C

Fig. 5. Temperature coefficient as a function of working current; typical values (BZB984-C2V4 to C4V7)



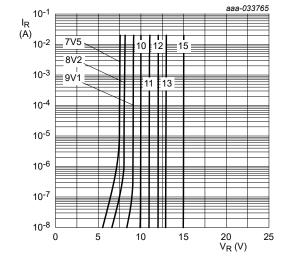
 T_i = 25 °C to 150 °C

Fig. 6. Temperature coefficient as a function of working current; typical values (BZB984-C5V1 to C15)



T_j = 25 °C

Fig. 7. Reverse current as a function of reverse voltage; typical values (BZB984-C2V4 to BZB984-C6V8)

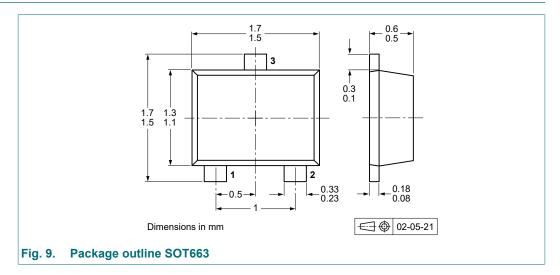


 $T_i = 25 \,^{\circ}C$

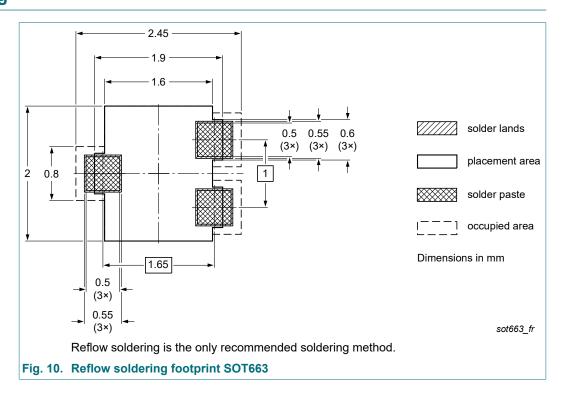
Fig. 8. Reverse current as a function of reverse voltage; typical values (BZB984-C7V5 to BZB984-C15)

Voltage regulator double diodes

11. Package outline



12. Soldering



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Voltage regulator double diodes

13. Revision history

Table 9. Revision history

Table of Reviews										
Document ID	Release date	Data sheet status	Change notice	Supersedes						
BZB984_SER v.3	20221227	Product data sheet	-	BZB984_SER v.2						
Modifications:	 The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia. Legal texts have been adapted to the new company name where appropriate. Product changed to non-automotive qualification. 									
BZB984_SER v.2	2002062	Product data sheet	-	BZB984_SER v.1						
BZB984_SER v.1	20011128	Product data sheet	-	-						

14. 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.

- 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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