BAT85

Schottky barrier single diode

24 July 2012 **Product data sheet**

1. Product profile

1.1 General description

Planar Schottky barrier diode with an integrated guard ring for stress protection, encapsulated in a hermetically-sealed subminiature SOD68 (DO-34) package. The diode is suitable for mounting on a 2 E (5.08 mm) pitch.

1.2 Features and benefits

- Low forward voltage
- Guard ring protected
- Hermetically-sealed leaded glass package

1.3 Applications

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Blocking diodes

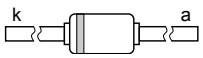
1.4 Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$I_{F(AV)}$	average forward current	$\delta \leq 0.5$; f = 20 kHz; PCB mounting, lead length = 4 mm; half sine wave		-	-	200	mA
V_R	reverse voltage			-	-	30	V
V_F	forward voltage	I_F = 10 mA; T_{amb} = 25 °C		-	-	400	mV

2. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode	 **DO-34 (SOD68)**	 *aaa-003679*
2	A	anode		

3. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BAT85	DO-34	hermetically sealed glass package; axial leaded; 2 leads	SOD68

4. Marking

Table 4. Marking codes

Type number	Marking code
BAT85	marking band

5. Limiting values

Table 5. Limiting values

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

Symbol	Parameter	Conditions		Min	Max	Unit
V_R	reverse voltage			-	30	V
I_F	forward current			-	200	mA
$I_{F(AV)}$	average forward current	$\delta \leq 0.5$; f = 20 kHz; PCB mounting, lead length = 4 mm; half sine wave		-	200	mA
I_{FRM}	repetitive peak forward current	$t_p \leq 1$ s; $\delta \leq 0.5$		-	300	mA
I_{FSM}	non-repetitive peak forward current	$t_p \leq 10$ ms; $T_{j(init)} = 25$ °C		-	5	A
T_j	junction temperature			-	125	°C
T_{amb}	ambient temperature			-65	125	°C
T_{stg}	storage temperature			-65	150	°C

6. Thermal characteristics

Table 6. Thermal characteristics

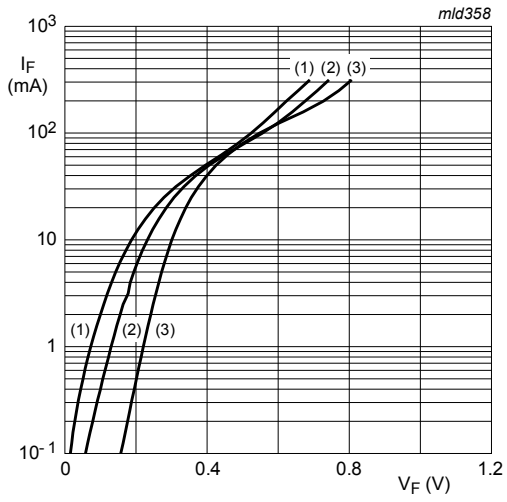
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	-	320	K/W

[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

7. Characteristics

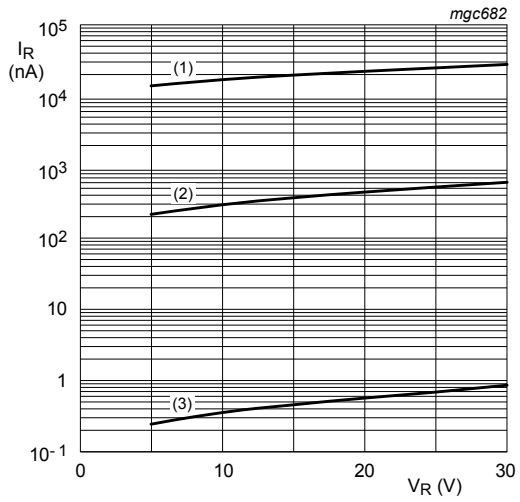
Table 7. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_F	forward voltage	I_F = 0.1 mA; T_{amb} = 25 °C		-	-	240	mV
		I_F = 1 mA; T_{amb} = 25 °C		-	-	320	mV
		I_F = 10 mA; T_{amb} = 25 °C		-	-	400	mV
		I_F = 30 mA; T_{amb} = 25 °C		-	-	500	mV
		I_F = 100 mA; T_{amb} = 25 °C		-	-	800	mV
I_R	reverse current	V_R = 25 V; T_{amb} = 25 °C		-	-	2	µA
C_d	diode capacitance	f = 1 MHz; T_{amb} = 25 °C; V_R = 1 V		-	-	10	pF
t_{rr}	reverse recovery time	I_F = 10 mA; I_R = 10 mA; R_L = 100 Ω; $I_{R(meas)}$ = 1 mA; T_{amb} = 25 °C		-	-	4	ns



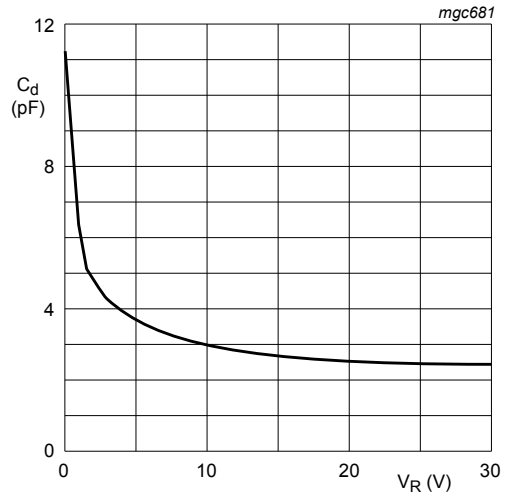
(1) T_{amb} = 125 °C
(2) T_{amb} = 85 °C
(3) T_{amb} = 25 °C

Fig. 1. Forward current as a function of forward voltage; typical values



(1) T_{amb} = 85 °C
(2) T_{amb} = 25 °C
(3) T_{amb} = −40 °C

Fig. 2. Reverse current as a function of reverse voltage; typical values



f = 1 MHz.

Fig. 3. Diode capacitance as a function of reverse voltage; typical values

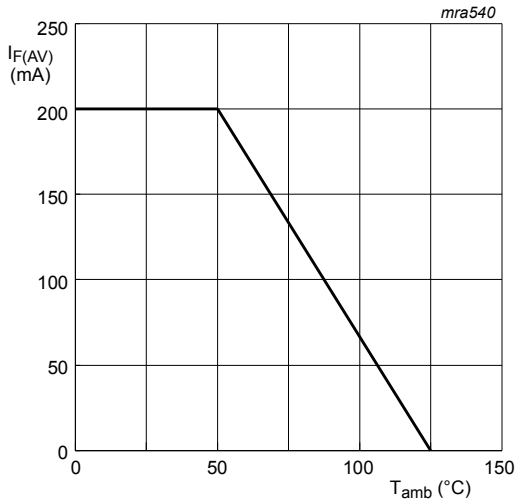
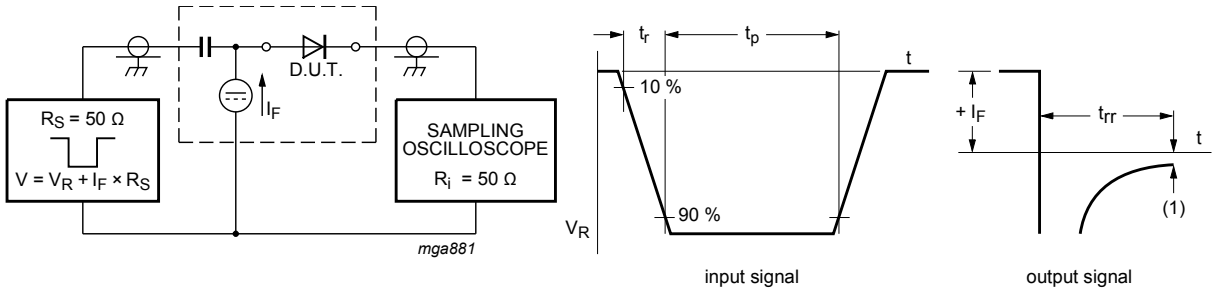


Fig. 4. Average forward current as a function of ambient temperature; typical values

8. Test information



(1) I_R = 1 mA

Fig. 5. Reverse recovery time test circuit and waveforms

9. Package outline

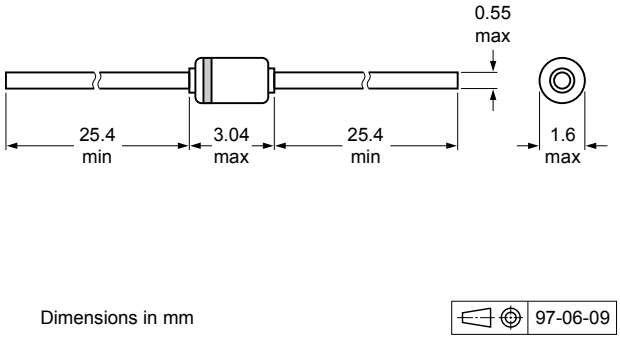


Fig. 6. DO-34 (SOD68)

10. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BAT85 v.5	20120724	Product data sheet	-	BAT85 v.4
Modifications:	• The format of this document has been redesigned to comply with the new identity guidelines of NXP Semiconductors. • Legal texts have been adapted to the new company name where appropriate. • Section "Marking" added • Package outline drawing replaced by minimized package outline drawing • Section "Test information" added			
BAT85 v.4	20000525	Product specification	-	BAT85 v.3
BAT85 v.3	19960320	Product specification	-	-

11. Legal information

11.1 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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