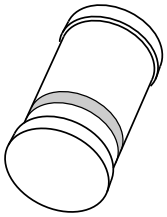
DATA SHEET



BA682; BA683
Band-switching diodes

Product specification
Supersedes data of April 1992
File under Discrete Semiconductors, SC01

1996 Mar 13

Philips
Semiconductors

PHILIPS

Band-switching diodes BA682; BA683

FEATURES

- Continuous reverse voltage: max. 35 V
- Continuous forward current: max. 100 mA
- Low diode capacitance: max. 1.5 pF
- Low diode forward resistance: max. 0.7 to 1.2 Ω.

APPLICATION

- Band-switching in VHF television tuners.

DESCRIPTION

Planar high performance band-switching diodes in a glass SOD80 SMD package.

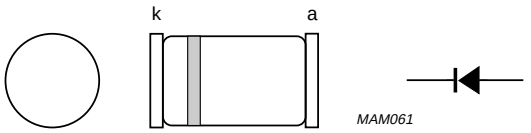


Fig.1 Simplified outline (SOD80) and symbol.

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V_R	continuous reverse voltage	–	35	V
I_F	continuous forward current	–	100	mA
T_{stg}	storage temperature	–65	+150	°C
T_j	junction temperature	–	150	°C

ELECTRICAL CHARACTERISTICS

T_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
V_F	forward voltage	I_F = 100 mA; see Fig.2	1.0	V
I_R	reverse current	see Fig.3		
		V_R = 20V	50	nA
		V_R = 20 V; T_j = 75 °C	1	µA
C_d	diode capacitance	f = 1 MHz; V_R = 1 V; see Fig.4	1.5	pF
C_d	diode capacitance	f = 1 MHz; V_R = 3 V; see Fig.4		
	BA682		1.25	pF
	BA683		1.20	pF
r_D	diode forward resistance	I_F = 3 mA; f = 200 MHz; see Fig.5		
	BA682		0.7	Ω
	BA683		1.2	Ω
r_D	diode forward resistance	I_F = 10 mA; f = 200 MHz; see Fig.5		
	BA682		0.5	Ω
	BA683		0.9	Ω

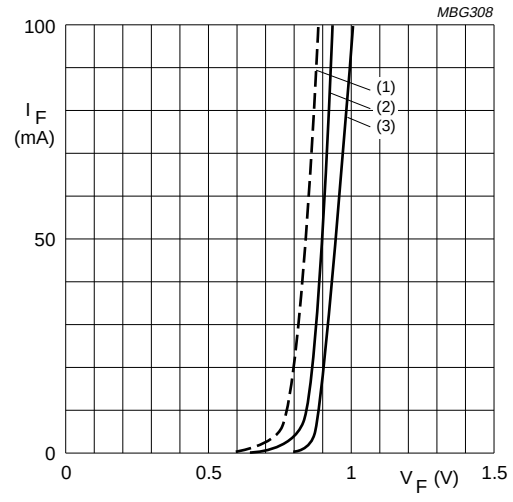
THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}tp}$	thermal resistance from junction to tie-point		300	K/W
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	note 1	600	K/W

Note

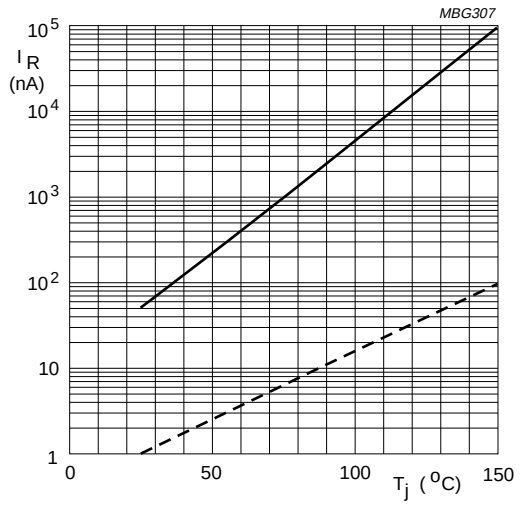
1. Device mounted on a FR4 printed-circuit board.

GRAPHICAL DATA



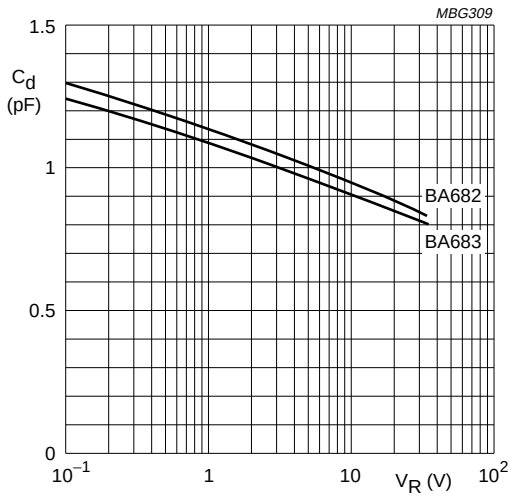
(1) T_j = 75 °C; typical values.
(2) T_j = 25 °C; typical values.
(3) T_j = 25 °C; maximum values.

Fig.2 Forward current as a function of forward voltage.



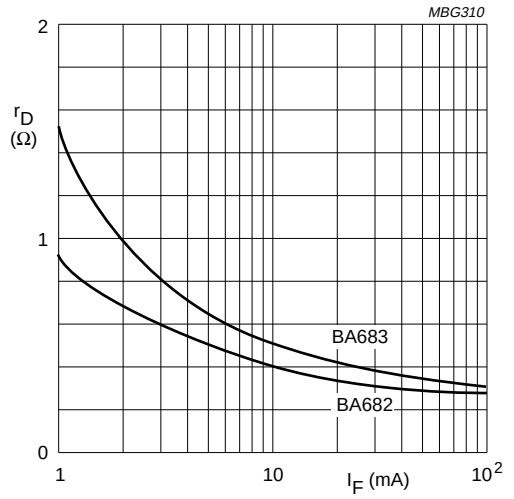
V_R = 20 V.
Solid line: maximum values.
Dotted line: typical values.

Fig.3 Reverse current as a function of junction temperature.



f = 1 MHz; T_j = 25 °C.

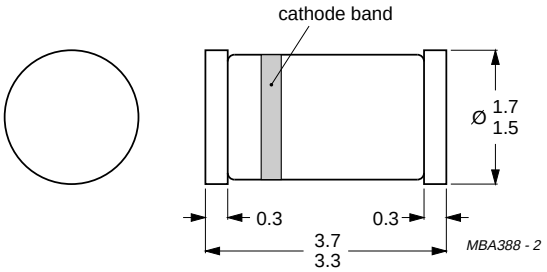
Fig.4 Diode capacitance as a function of reverse voltage; typical values.



f = 200 MHz; T_j = 25 °C.

Fig.5 Diode forward resistance as a function of forward current; typical values.

PACKAGE OUTLINE



Dimensions in mm.
The cathode is indicated by a red band.

Fig.6 SOD80.

DEFINITIONS

Data Sheet Status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.