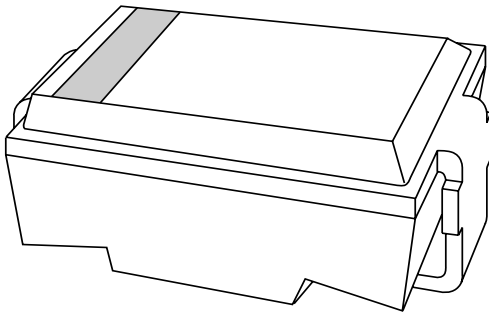


# DATA SHEET



## **BAQ806** AM PIN diode

Product specification  
File under Discrete Semiconductors, SC10

1998 Aug 03

**AM PIN diode**

**BAQ806**

**FEATURES**

- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- UL 94V-O classified plastic package
- Shipped in 12 mm embossed tape.

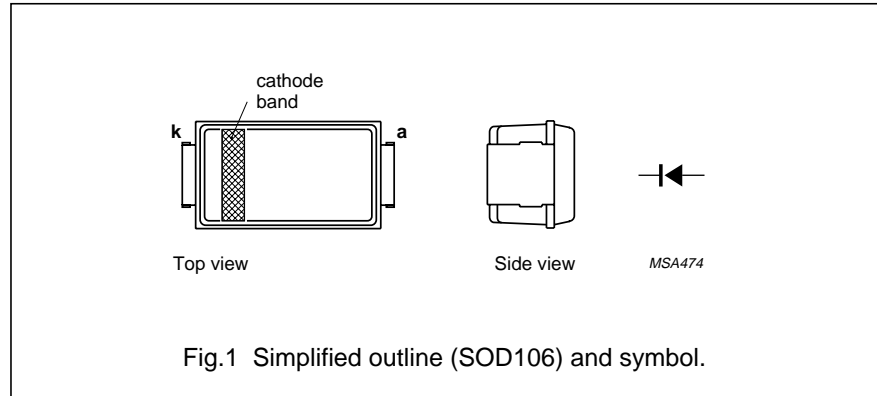
**APPLICATIONS**

- RF attenuator with low distortion for frequencies above 100 kHz.

**DESCRIPTION**

DO-214AC surface mountable package with glass passivated chip.

The well-defined void-free case is of a transfer-moulded thermo-setting plastic.



**LIMITING VALUES**

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

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
$V_{RRM}$	repetitive peak reverse voltage	–	100	V
$V_R$	continuous reverse voltage	–	100	V
$T_{stg}$	storage temperature	–65	+175	°C
$T_j$	junction temperature	–65	+150	°C

## AM PIN diode

## BAQ806

**ELECTRICAL CHARACTERISTICS**

$T_j = 25\text{ }^\circ\text{C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_F$	forward voltage	$I_F = 100\text{ mA}$ ; see Figs 2 and 3	–	0.9	1.1	V
		$I_F = 100\text{ mA}$ ; $T_j = T_{j\text{max}}$ ; see Figs 2 and 3	–	0.7	0.9	V
$I_R$	reverse current	$V_R = 100\text{ V}$ ; see Fig. 4	–	–	0.1	$\mu\text{A}$
		$V_R = 100\text{ V}$ ; $T_j = 125\text{ }^\circ\text{C}$ ; see Fig. 4	–	–	30	$\mu\text{A}$
$\tau$	charge carrier life time	when switched from $I_F = 10\text{ mA}$ to $I_R = 6\text{ mA}$ ; measured at 10% of $I_R$ ; see Fig. 13	15	25	–	$\mu\text{s}$
$C_d$	diode capacitance	$f = 1\text{ MHz}$ ; see Figs 5, 6, 7 and 8 $V_R = 0\text{ V}$	–	9	11	pF
		$V_R = 2\text{ V}$	–	5	6	pF
$r_D$	diode forward resistance	$f = 100\text{ kHz}$ ; see Figs 9 and 14	–	–	–	–
		$I_F = 10\text{ }\mu\text{A}$	–	3300	6000	$\Omega$
		$I_F = 100\text{ }\mu\text{A}$	–	560	900	$\Omega$
		$I_F = 1\text{ mA}$	–	62	90	$\Omega$
$r_s$	diode series resistance	$f = 100\text{ kHz}$ ; see Figs 10, 11 and 12	–	–	–	–
		$V_R = 0\text{ V}$	1000	2100	–	k $\Omega$
		$V_R = 2\text{ V}$	5000	12000	–	k $\Omega$
		$f = 1\text{ MHz}$ ; see Figs 10, 11 and 12	–	–	–	–
		$V_R = 0\text{ V}$	25	50	–	k $\Omega$
		$V_R = 2\text{ V}$	100	250	–	k $\Omega$

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\text{ j-tp}}$	thermal resistance from junction to tie-point		25	K/W
$R_{th\text{ j-a}}$	thermal resistance from junction to ambient	note 1	100	K/W
		note 2	150	K/W

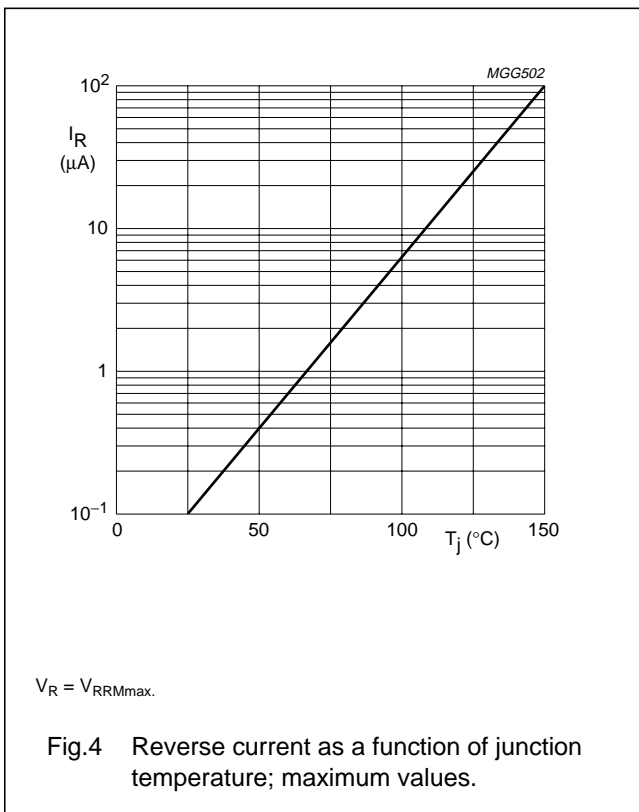
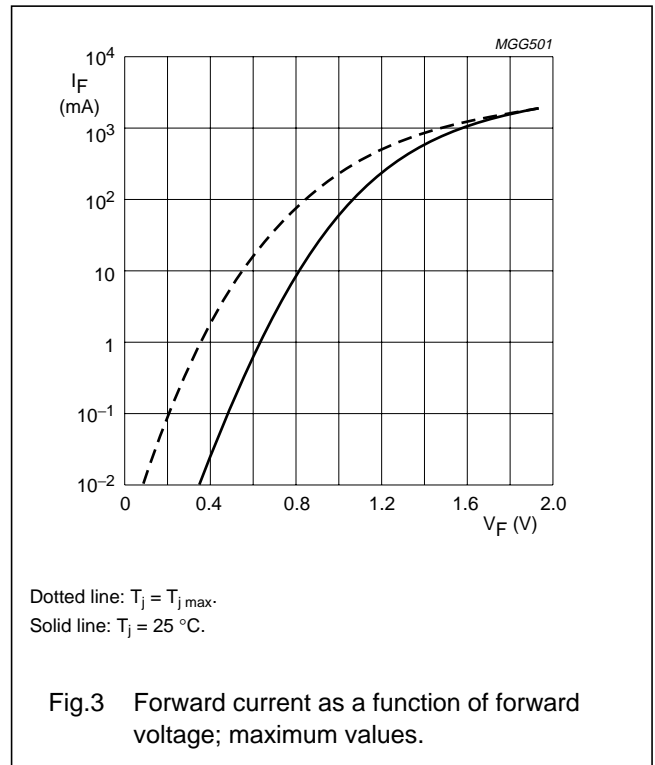
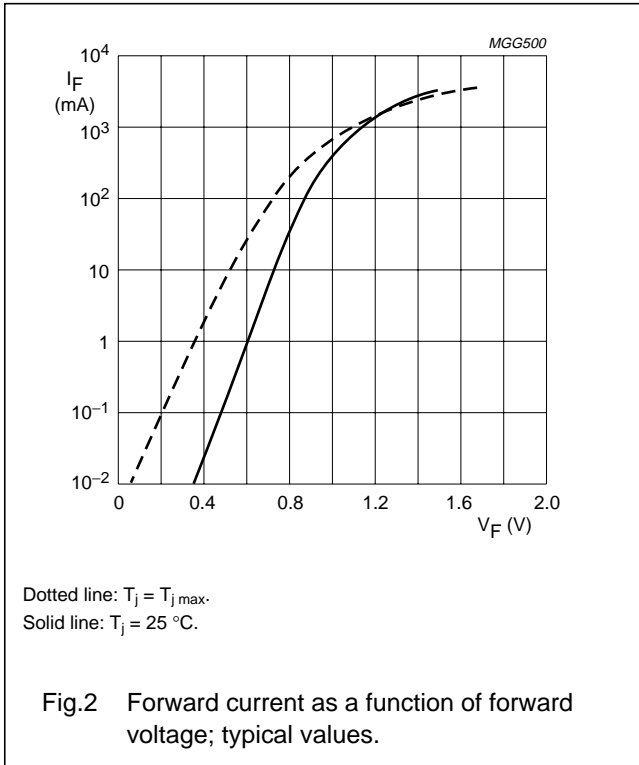
**Note**

1. Device mounted on  $\text{Al}_2\text{O}_3$  printed-circuit board, 0.7 mm thick; thickness of copper  $\geq 35\text{ }\mu\text{m}$ , see Fig. 15
2. Device mounted on epoxy-glass printed-circuit board, 1.5 mm thick; thickness of copper  $\geq 40\text{ }\mu\text{m}$ , see Fig. 15.  
For more information please refer to the 'General Part of Handbook SC10'

AM PIN diode

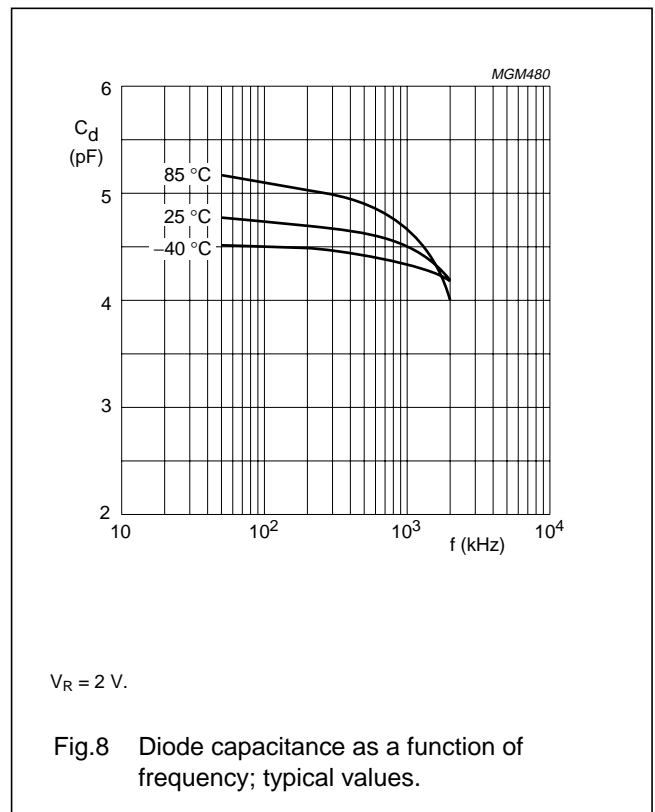
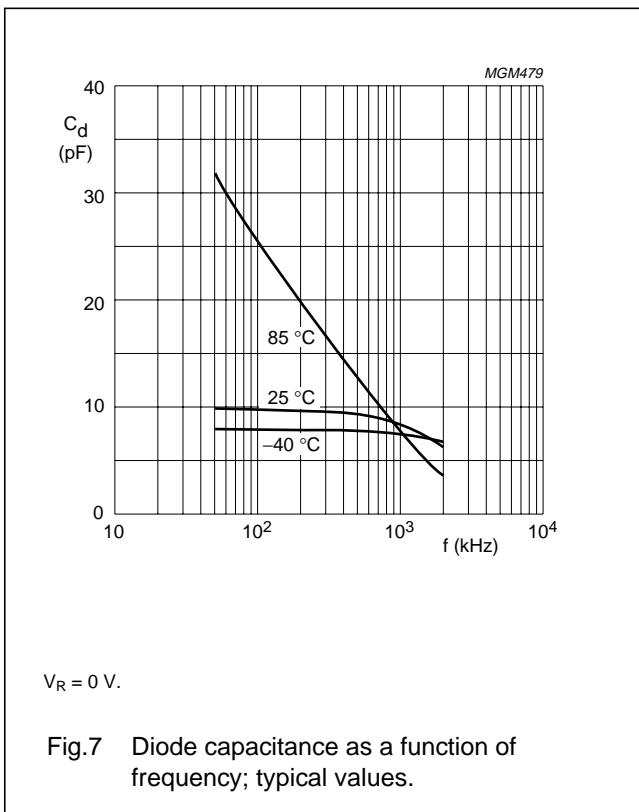
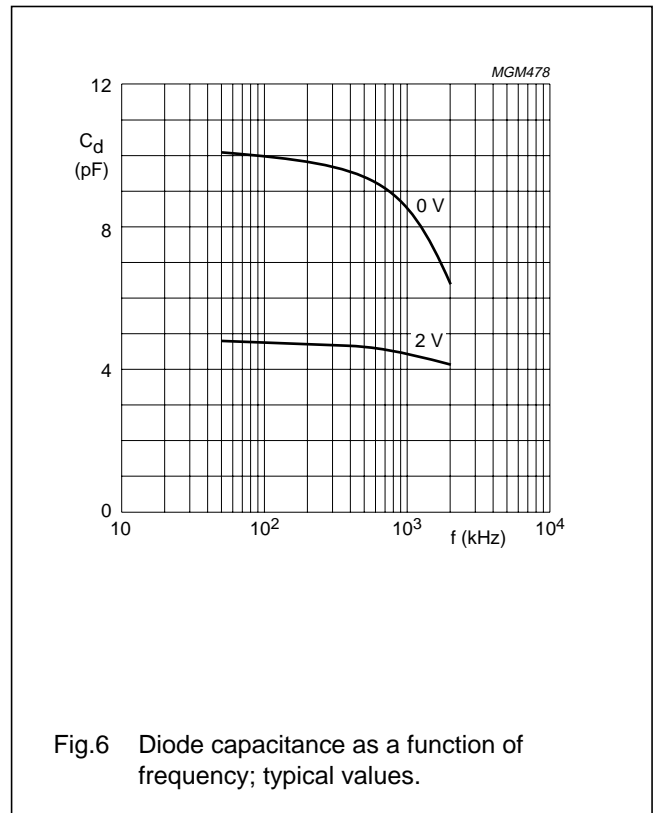
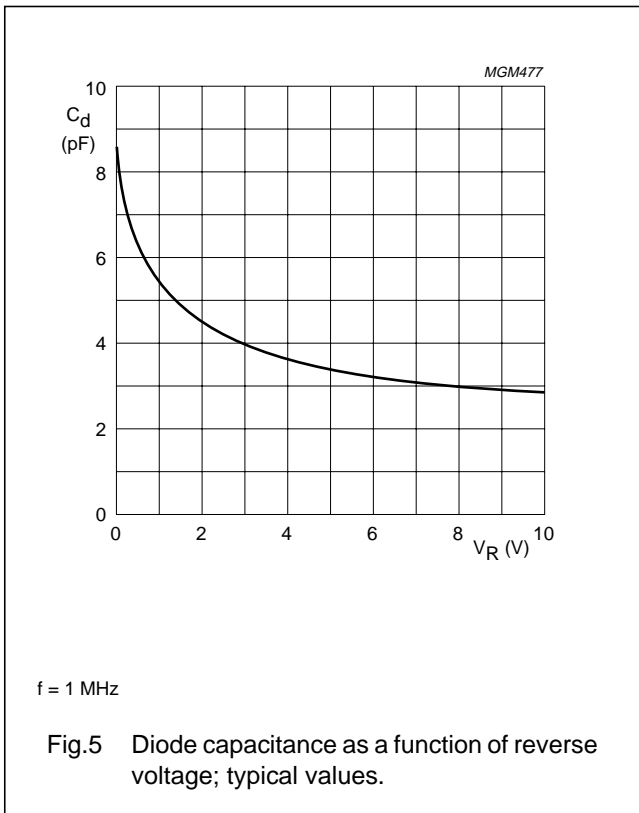
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GRAPHICAL DATA



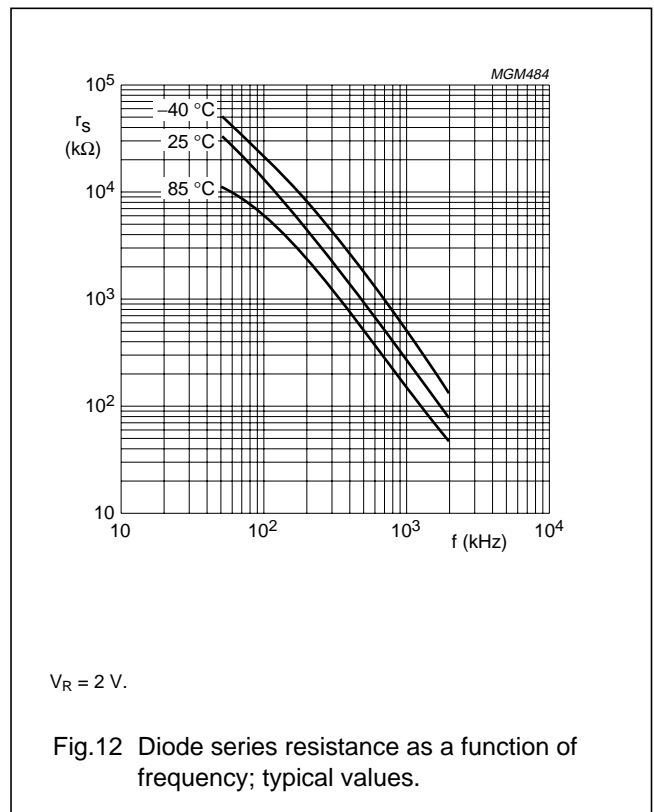
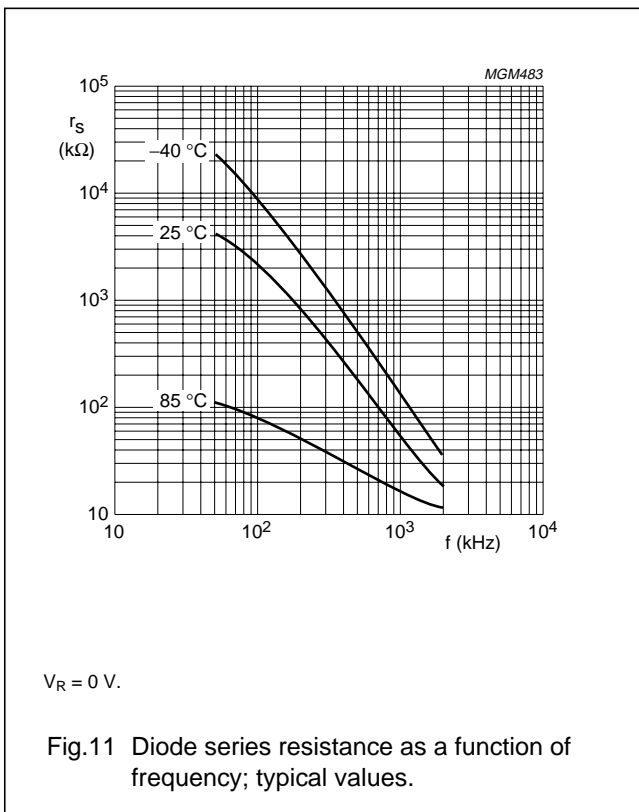
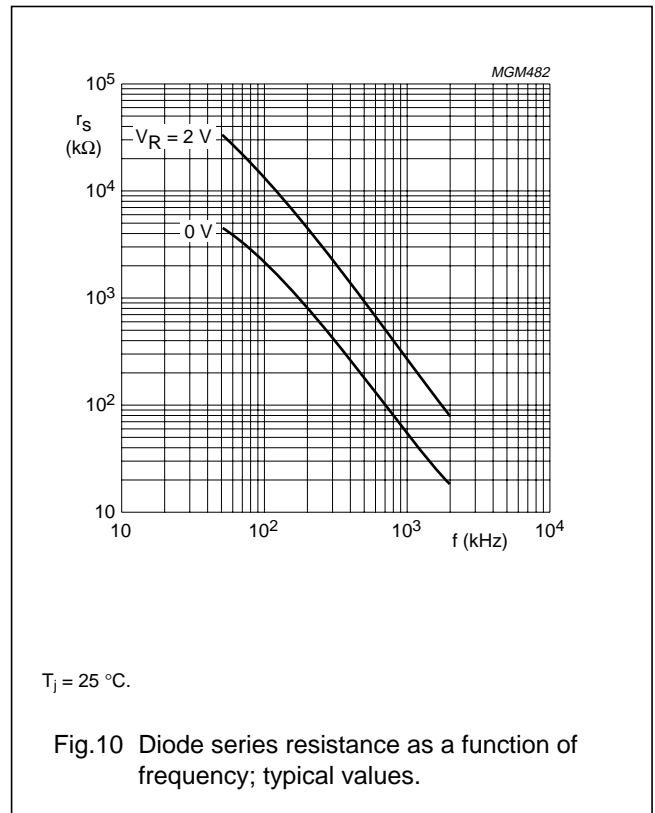
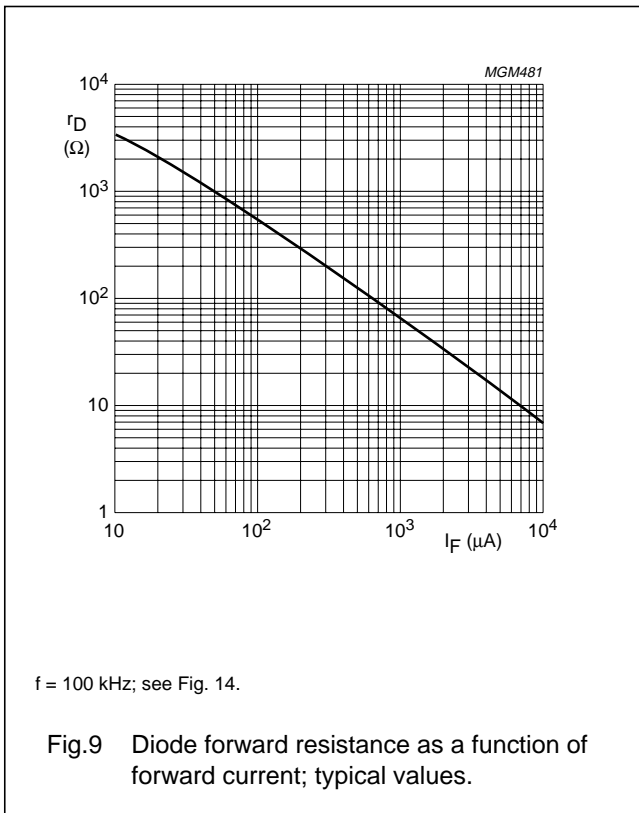
AM PIN diode

BAQ806



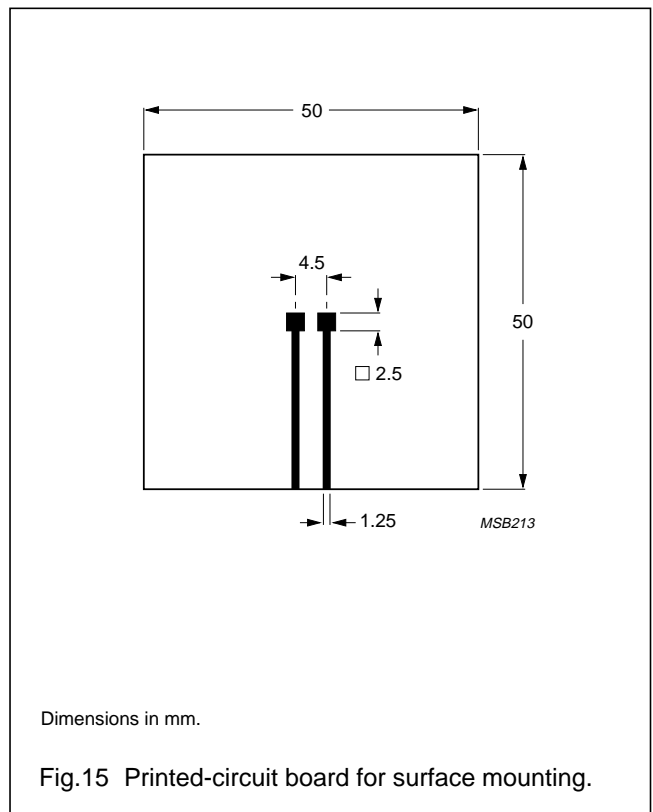
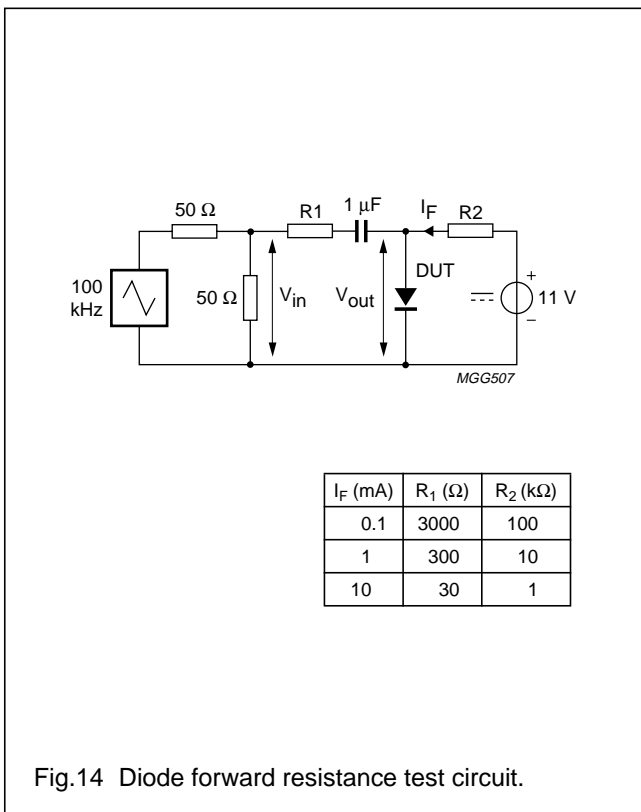
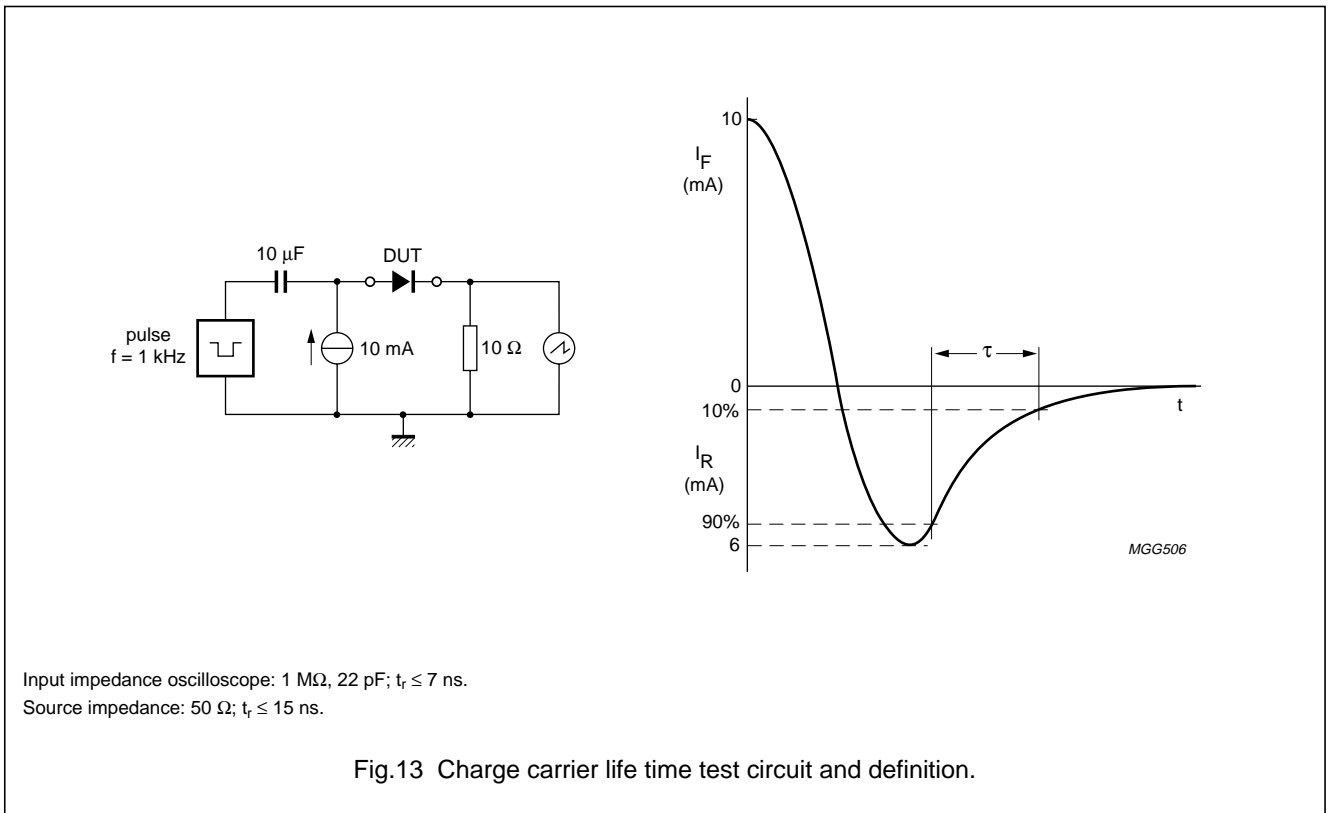
AM PIN diode

BAQ806



AM PIN diode

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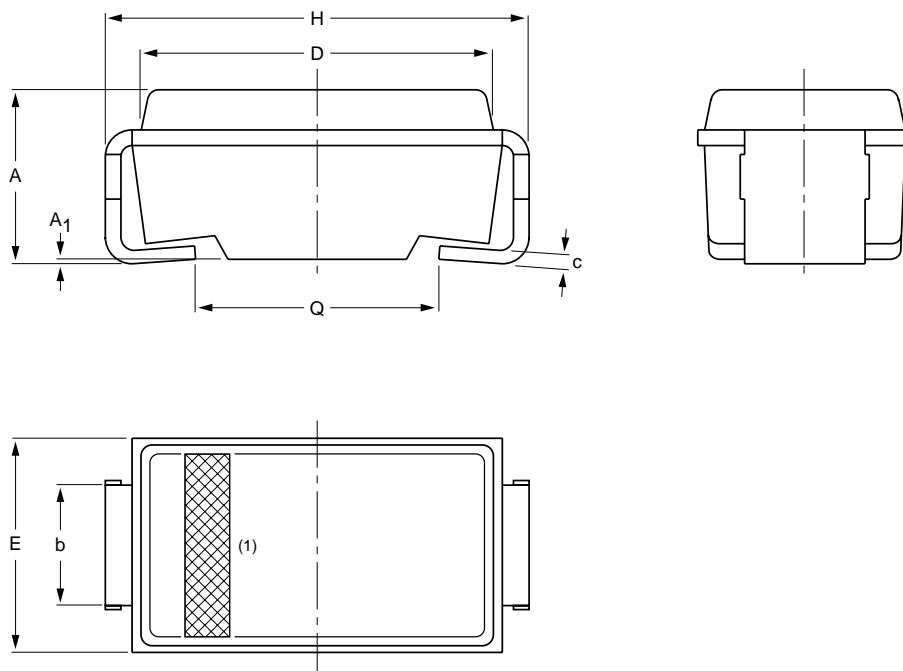
AM PIN diode

BAQ806

PACKAGE OUTLINE

Transfer-moulded thermo-setting plastic small rectangular surface mounted package;  
2 connectors

SOD106



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub>	b	c	D	E	H	Q
mm	2.3 2.0	0.05	1.6 1.4	0.2	4.5 4.3	2.8 2.4	5.5 5.1	3.3 2.7

Note

1. The marking band indicates the cathode.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOD106		DO-214AC				97-06-09



## AM PIN diode

BAQ806

**DEFINITIONS**

<b>Data Sheet Status</b>	
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.
<b>Limiting values</b>	
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.	
<b>Application information</b>	
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.

AM PIN diode

BAQ806

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**NOTES**

AM PIN diode

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**NOTES**

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