

# Silicon Diode

## **BYG70D**

200V/390mA

# DATASHEET

OEM – Philips

Source: Philips Databook 1999

## Fast soft-recovery controlled avalanche rectifiers

## BYG70 series

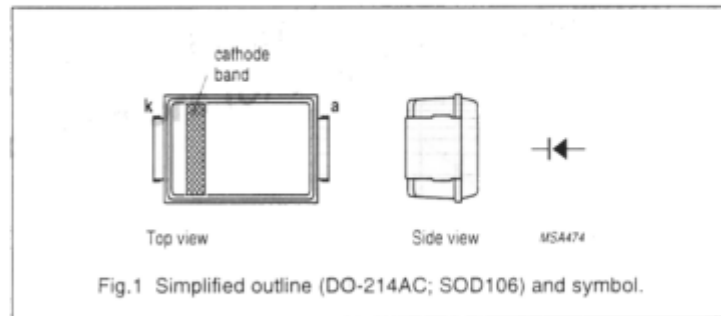
### FEATURES

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

### 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	CONDITIONS	MIN.	MAX.	UNIT
$V_{RRM}$	repetitive peak reverse voltage				
	BYG70D		–	200	V
	BYG70G		–	400	V
	BYG70J		–	600	V
$V_R$	continuous reverse voltage				
	BYG70D		–	200	V
	BYG70G		–	400	V
	BYG70J		–	600	V
$I_{F(AV)}$	average forward current	averaged over any 20 ms period; $T_{ip} = 100\text{ °C}$ ; see Fig.2	–	1.00	A
		averaged over any 20 ms period; $Al_2O_3$ PCB mounting (see Fig.7); $T_{amb} = 60\text{ °C}$ ; see Fig.3	–	0.53	A
		averaged over any 20 ms period; epoxy PCB mounting (see Fig.7); $T_{amb} = 60\text{ °C}$ ; see Fig.3	–	0.39	A
$I_{FSM}$	non-repetitive peak forward current	$t = 10\text{ ms}$ half sine wave; $T_j = T_{jmax}$ prior to surge; $V_R = V_{RRMmax}$	–	20	A
$E_{RSM}$	non-repetitive peak reverse avalanche energy	$L = 120\text{ mH}$ ; $T_j = T_{jmax}$ prior to surge; inductive load switched off	–	10	mJ
$T_{stg}$	storage temperature		–65	+175	°C
$T_j$	junction temperature	see Fig.4	–65	+175	°C

**Fast soft-recovery  
controlled avalanche rectifiers**

BYG70 series

**ELECTRICAL CHARACTERISTICS**

T = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 1 A; T <sub>J</sub> = T <sub>Jmax</sub> ; see Fig.5	–	–	2.1	V	
		I <sub>F</sub> = 1 A; see Fig.5	–	–	3.6	V	
V <sub>(BR)R</sub>	reverse avalanche breakdown voltage	I <sub>R</sub> = 0.1 mA					
			BYG70D	300	–	–	V
			BYG70G	500	–	–	V
	BYG70J	700	–	–	V		
I <sub>R</sub>	reverse current	V <sub>R</sub> = V <sub>RRMmax</sub> ; see Fig.6	–	–	5	μA	
		V <sub>R</sub> = V <sub>RRMmax</sub> ; T <sub>J</sub> = 165 °C; see Fig.6	–	–	100	μA	
t <sub>rr</sub>	reverse recovery time	when switched from I <sub>F</sub> = 0.5 A to I <sub>R</sub> = 1 A; measured at I <sub>R</sub> = 0.25 A; see Fig.8	–	–	30	ns	
C <sub>d</sub>	diode capacitance	V <sub>R</sub> = 0 V; f = 1 MHz	–	30	–	pF	

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th j-tp</sub>	thermal resistance from junction to tie-point		25	K/W
R <sub>th j-a</sub>	thermal resistance from junction to ambient	note 1	100	K/W
		note 2	150	K/W

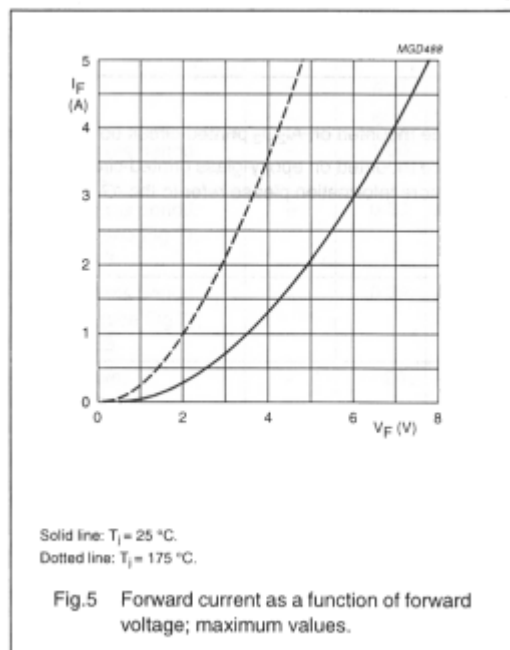
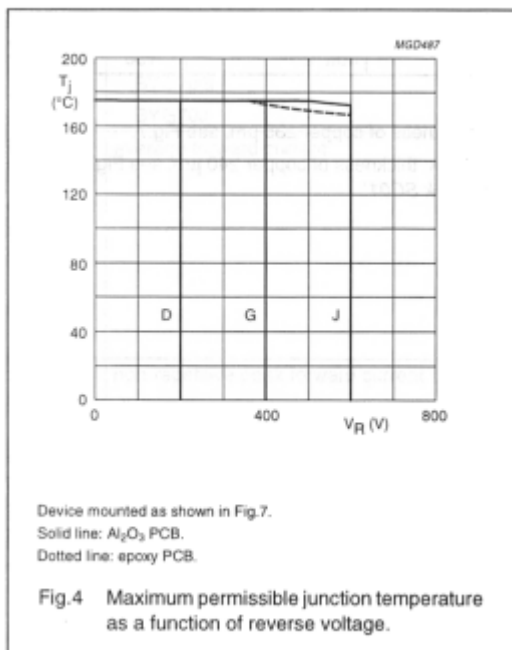
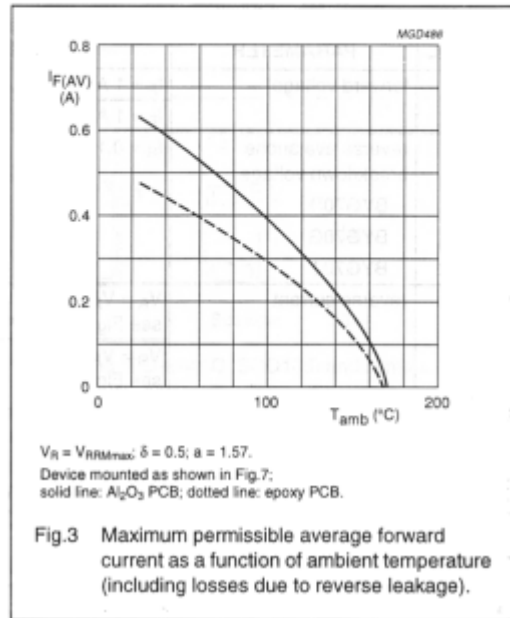
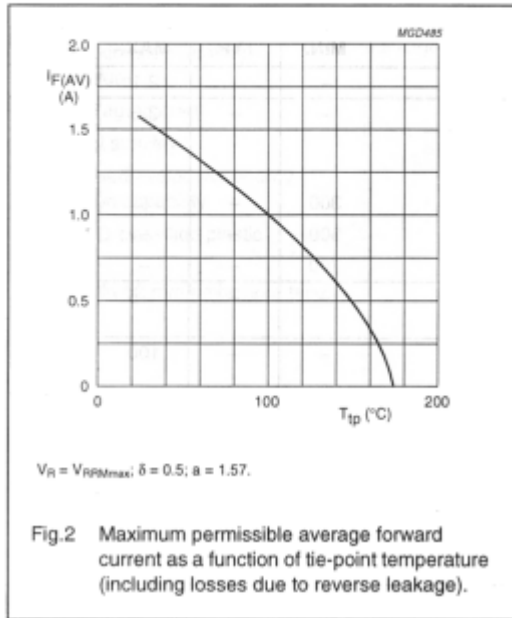
**Notes**

1. Device mounted on Al<sub>2</sub>O<sub>3</sub> printed-circuit board, 0.7 mm thick; thickness of copper ≥35 μm, see Fig.7.
2. Device mounted on epoxy-glass printed-circuit board, 1.5 mm thick; thickness of copper ≥40 μm, see Fig.7.  
For more information please refer to the 'General Part of Handbook SC01'.

Fast soft-recovery  
controlled avalanche rectifiers

BYG70 series

GRAPHICAL DATA



Fast soft-recovery  
controlled avalanche rectifiers

BYG70 series

