

Silicon Diode

BYG70J

600V/390mA

DATASHEET

OEM – Philips

Source: Philips Databook 1999

Fast soft-recovery controlled avalanche rectifiers

BYG70 series

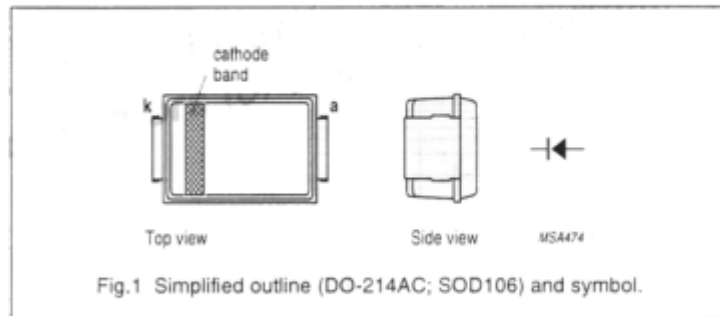
FEATURES

- 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; $T_{tp} = 100\text{ °C}$; 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

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ELECTRICAL CHARACTERISTICS
 $T = 25\text{ °C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
V_F	forward voltage	$I_F = 1\text{ A}; T_j = T_{j\text{max}}$; see Fig.5	–	–	2.1	V	
		$I_F = 1\text{ A}$; see Fig.5	–	–	3.6	V	
$V_{(BR)R}$	reverse avalanche breakdown voltage	$I_R = 0.1\text{ mA}$					
			BYG70D	300	–	–	V
			BYG70G	500	–	–	V
	BYG70J	700	–	–	V		
I_R	reverse current	$V_R = V_{RRM\text{max}}$; see Fig.6	–	–	5	μA	
		$V_R = V_{RRM\text{max}}; T_j = 165\text{ °C}$; see Fig.6	–	–	100	μA	
t_{rr}	reverse recovery time	when switched from $I_F = 0.5\text{ A}$ to $I_R = 1\text{ A}$; measured at $I_R = 0.25\text{ A}$; see Fig.8	–	–	30	ns	
C_d	diode capacitance	$V_R = 0\text{ V}; f = 1\text{ MHz}$	–	30	–	pF	

THERMAL CHARACTERISTICS

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

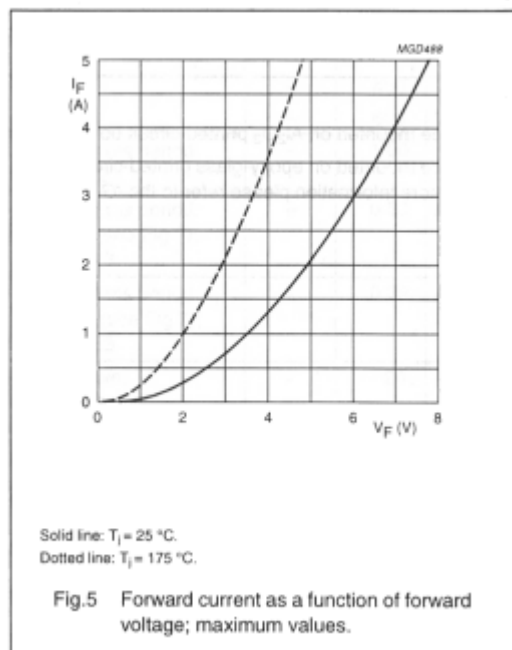
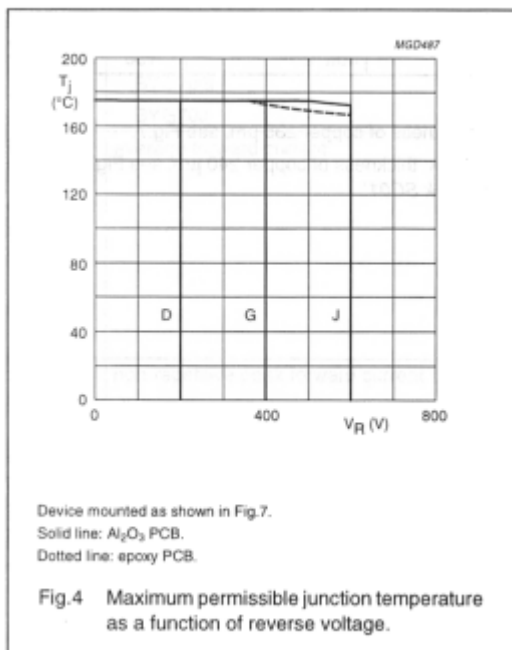
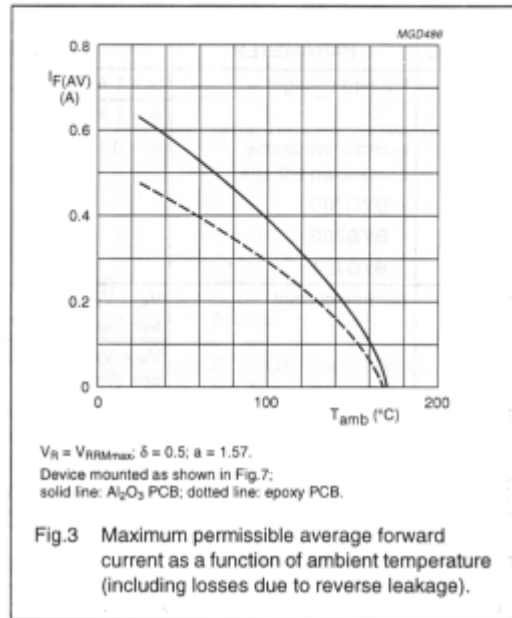
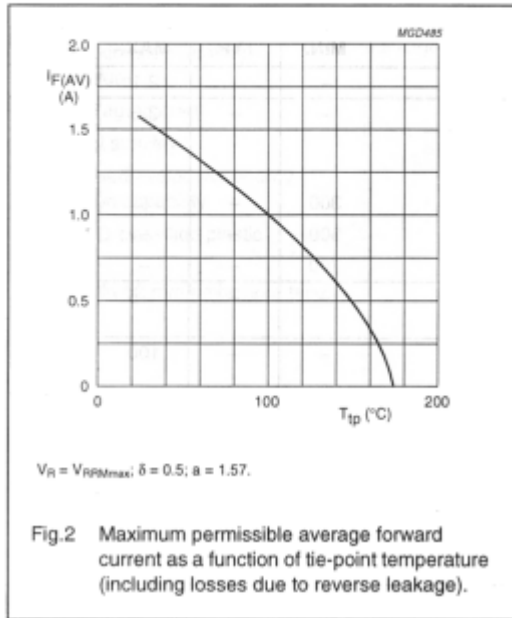
Notes

- Device mounted on Al_2O_3 printed-circuit board, 0.7 mm thick; thickness of copper $\geq 35\ \mu\text{m}$, see Fig.7.
- Device mounted on epoxy-glass printed-circuit board, 1.5 mm thick; thickness of copper $\geq 40\ \mu\text{m}$, see Fig.7.
For more information please refer to the 'General Part of Handbook SC01'.

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GRAPHICAL DATA



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