

# Silicon Diode

## **BYM56D**

800V/3.5A

# DATASHEET

OEM – Philips

Source: Philips Databook 1999

## Controlled avalanche rectifiers

## BYM56 series

## FEATURES

- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- Guaranteed avalanche energy absorption capability
- Available in ammo-pack
- Also available with preformed leads for easy insertion.

## DESCRIPTION

Rugged glass package, using a high temperature alloyed construction.

This package is hermetically sealed and fatigue free as coefficients of expansion of all used parts are matched.

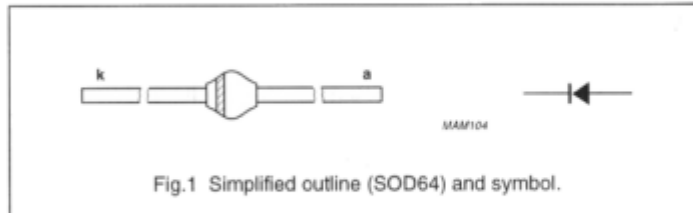


Fig.1 Simplified outline (SOD64) and symbol.

## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{RRM}$	repetitive peak reverse voltage				
	BYM56A		–	200	V
	BYM56B		–	400	V
	BYM56C		–	600	V
	BYM56D		–	800	V
	BYM56E		–	1000	V
$V_{RWM}$	crest working reverse voltage				
	BYM56A		–	200	V
	BYM56B		–	400	V
	BYM56C		–	600	V
	BYM56D		–	800	V
	BYM56E		–	1000	V
$V_R$	continuous reverse voltage				
	BYM56A		–	200	V
	BYM56B		–	400	V
	BYM56C		–	600	V
	BYM56D		–	800	V
	BYM56E		–	1000	V
$I_{F(AV)}$	average forward current	$T_{ip} = 60\text{ }^\circ\text{C}$ ; lead length = 10 mm; averaged over any 20 ms period; see Figs 2 and 4	–	3.5	A
		$T_{amb} = 65\text{ }^\circ\text{C}$ ; PCB mounting (see Fig.9); averaged over any 20 ms period; see Figs 3 and 4	–	1.4	A
$I_{FSM}$	non-repetitive peak forward current	$t = 10\text{ ms}$ half sinewave; $T_j = T_{jmax}$ prior to surge; $V_R = V_{RRMmax}$	–	80	A

## Controlled avalanche rectifiers

## BYM56 series

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$E_{RSM}$	non-repetitive peak reverse avalanche energy	$L = 120 \text{ mH}$ ; $T_j = T_{j,max}$ prior to surge; inductive load switched off	–	20	mJ
$T_{stg}$	storage temperature		–65	+175	°C
$T_j$	junction temperature	see Fig.5	–65	+175	°C

## ELECTRICAL CHARACTERISTICS

$T_j = 25 \text{ °C}$ ; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
$V_F$	forward voltage	$I_F = 3 \text{ A}$ ; $T_j = T_{j,max}$ ; see Fig.6	–	–	0.95	V	
		$I_F = 3 \text{ A}$ ; see Fig.6	–	–	1.15	V	
$V_{(BR)R}$	reverse avalanche breakdown voltage	$I_R = 0.1 \text{ mA}$					
			BYM56A	225	–	–	V
			BYM56B	450	–	–	V
			BYM56C	650	–	–	V
			BYM56D	900	–	–	V
$I_R$	reverse current	$V_R = V_{RRM,max}$ ; see Fig.7	–	–	1	µA	
		$V_R = V_{RRM,max}$ ; $T_j = 165 \text{ °C}$ ; see Fig.7	–	–	150	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.10	–	3	–	µs	
$C_d$	diode capacitance	$V_R = 0 \text{ V}$ ; $f = 1 \text{ MHz}$ ; see Fig.8	–	90	–	pF	

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-tp)}$	thermal resistance from junction to tie-point	lead length = 10 mm	25	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient	note 1	75	K/W

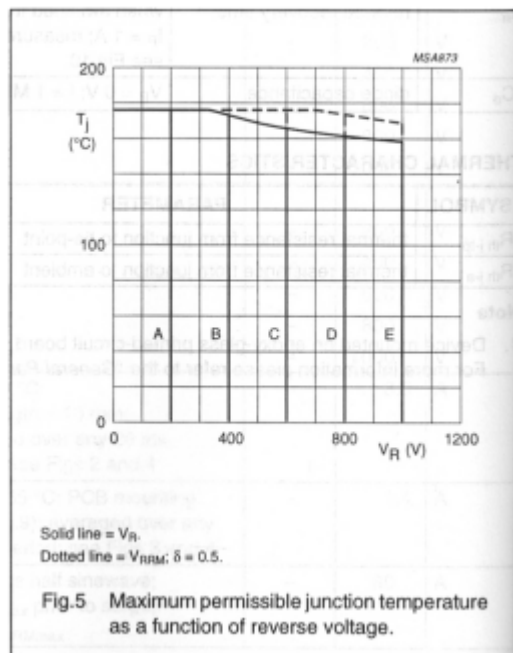
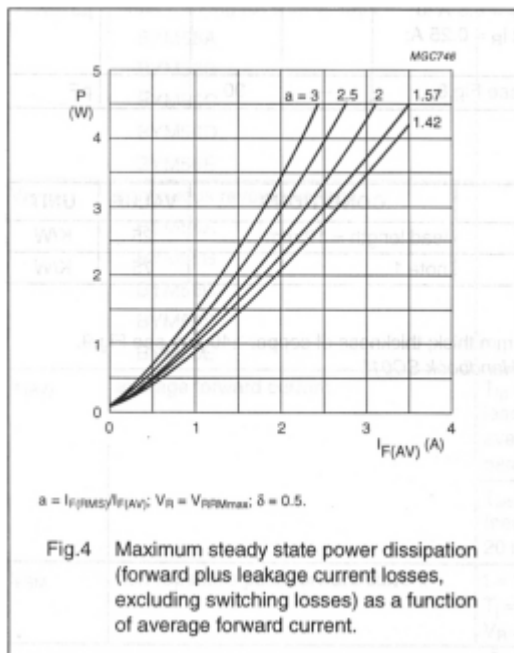
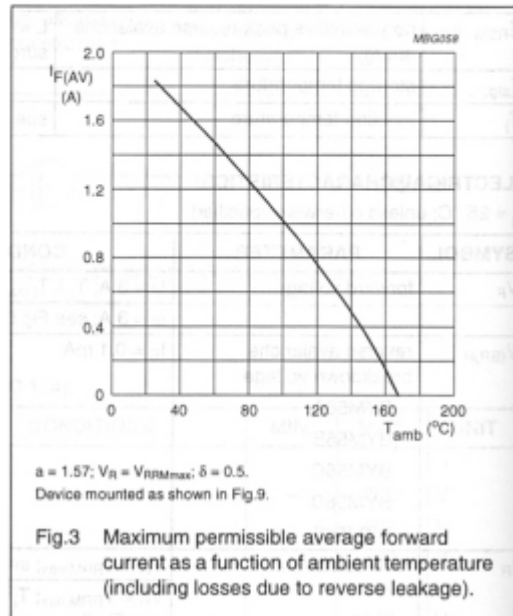
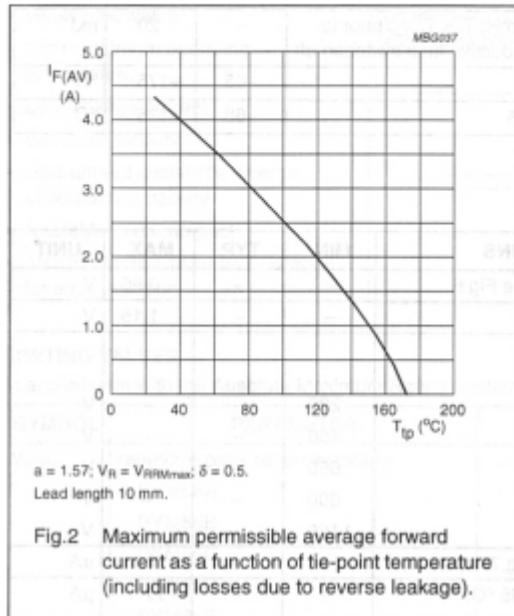
## Note

- Device mounted on epoxy-glass printed-circuit board, 1.5 mm thick; thickness of copper  $\geq 40 \text{ µm}$ , see Fig.9. For more information please refer to the "General Part of Handbook SC01".

Controlled avalanche rectifiers

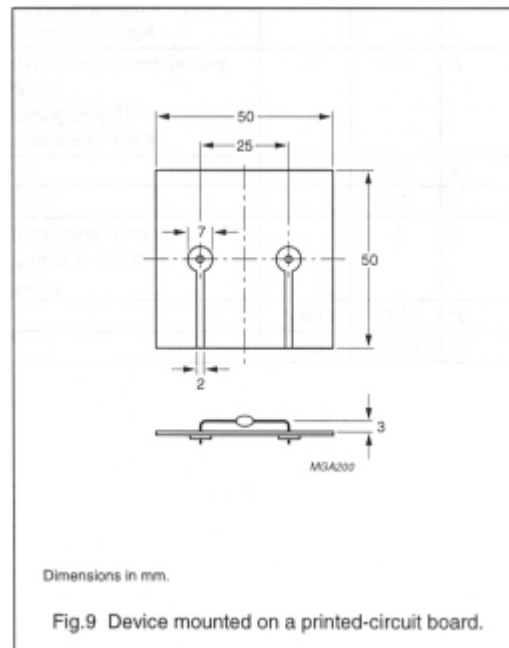
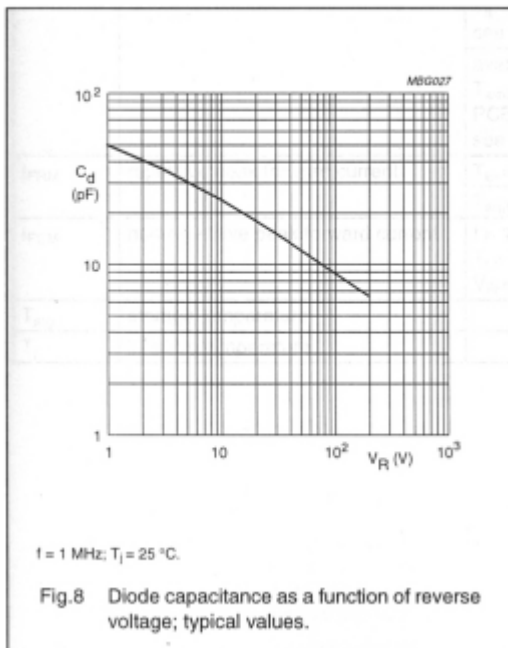
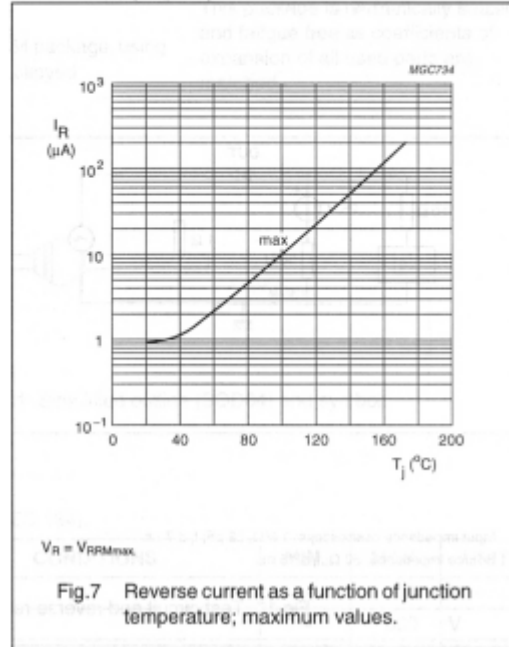
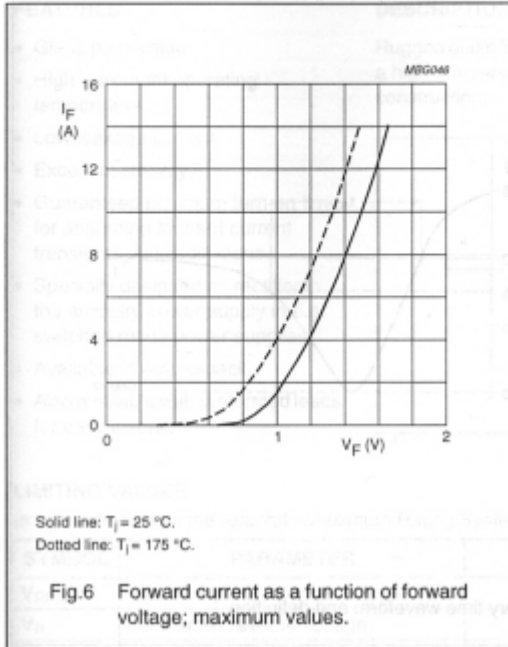
BYM56 series

GRAPHICAL DATA



Controlled avalanche rectifiers

BYM56 series



## Controlled avalanche rectifiers

## BYM56 series

