

# Silicon Diode

## **BYM26B**

400V/2.3A

# DATASHEET

OEM – Philips

Source: Philips Databook 1999

## Fast soft-recovery controlled avalanche rectifiers

## BYM26 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 SOD64 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.

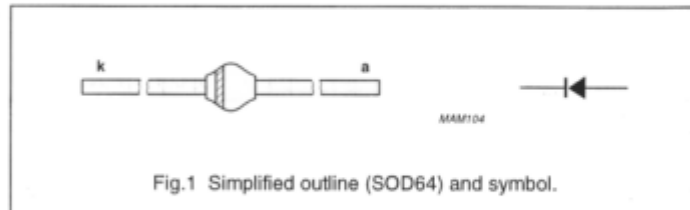


Fig.1 Simplified outline (SOD64) and symbol.

### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{RRM}$	repetitive peak reverse voltage				
	BYM26A		–	200	V
	BYM26B		–	400	V
	BYM26C		–	600	V
	BYM26D		–	800	V
	BYM26E		–	1000	V
	BYM26F BYM26G		–	1200 1400	V
$V_R$	continuous reverse voltage				
	BYM26A		–	200	V
	BYM26B		–	400	V
	BYM26C		–	600	V
	BYM26D		–	800	V
	BYM26E		–	1000	V
	BYM26F BYM26G		–	1200 1400	V
$I_{F(AV)}$	average forward current	$T_{ip} = 55\text{ °C}$ ; lead length = 10 mm; see Figs 2 and 3; averaged over any 20 ms period; see also Figs 10 and 11			
	BYM26A to E BYM26F and G		–	2.30 2.40	A
$I_{F(AV)}$	average forward current	$T_{amb} = 65\text{ °C}$ ; PCB mounting (see Fig.19); see Figs 4 and 5; averaged over any 20 ms period; see also Figs 10 and 11			
	BYM26A to E BYM26F and G		–	1.05 1.00	A

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SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_{FRM}$	repetitive peak forward current	$T_{ip} = 55\text{ °C}$ ; see Figs 6 and 7	-	19	A
	BYM26A to E			21	A
$I_{FRM}$	repetitive peak forward current	$T_{amb} = 65\text{ °C}$ ; see Figs 8 and 9	-	8.0	A
	BYM26A to E			8.5	A
$I_{FSM}$	non-repetitive peak forward current	$t = 10\text{ ms}$ half sine wave; $T_j = T_{j,max}$ prior to surge; $V_R = V_{RRMmax}$	-	45	A
$E_{RSM}$	non-repetitive peak reverse avalanche energy	$L = 120\text{ mH}$ ; $T_j = T_{j,max}$ prior to surge; inductive load switched off	-	10	mJ
$T_{stg}$	storage temperature		-65	+175	°C
$T_j$	junction temperature	see Figs 12 and 13	-65	+175	°C

## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT				
$V_F$	forward voltage	$I_F = 2\text{ A}$ ; $T_j = T_{j,max}$ ; see Figs 14 and 15	-	-	1.34	V				
	BYM26A to E				1.34	V				
$V_F$	forward voltage	$I_F = 2\text{ A}$ ; see Figs 14 and 15	-	-	2.65	V				
	BYM26A to E				2.30	V				
$V_{(BR)R}$	reverse avalanche breakdown voltage	$I_R = 0.1\text{ mA}$								
	BYM26A						300	-	-	V
	BYM26B						500	-	-	V
	BYM26C						700	-	-	V
	BYM26D						900	-	-	V
	BYM26E						1100	-	-	V
	BYM26F						1300	-	-	V
	BYM26G						1500	-	-	V
$I_R$	reverse current	$V_R = V_{RRMmax}$ ; see Fig.16	-	-	10	μA				
		$V_R = V_{RRMmax}$ ; $T_j = 165\text{ °C}$ ; see Fig.16	-	-	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.20	-	-	30	ns				
					BYM26A to C	75	ns			
					BYM26D and E	150	ns			

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SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$C_d$	diode capacitance	$f = 1 \text{ MHz}; V_R = 0 \text{ V};$ see Figs 17 and 18	-	85	-	pF
	BYM26A to C					
	BYM26D and E					
	BYM26F and G		-	65	-	pF
$\left  \frac{dI_R}{dt} \right $	maximum slope of reverse recovery current	when switched from $I_F = 1 \text{ A}$ to $V_R \geq 30 \text{ V}$ and $dI_F/dt = -1 \text{ A}/\mu\text{s};$ see Fig.21	-	-	7	$\text{A}/\mu\text{s}$
	BYM26A to C					
	BYM26D and E					
	BYM26F and G		-	-	5	$\text{A}/\mu\text{s}$

## THERMAL CHARACTERISTICS

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

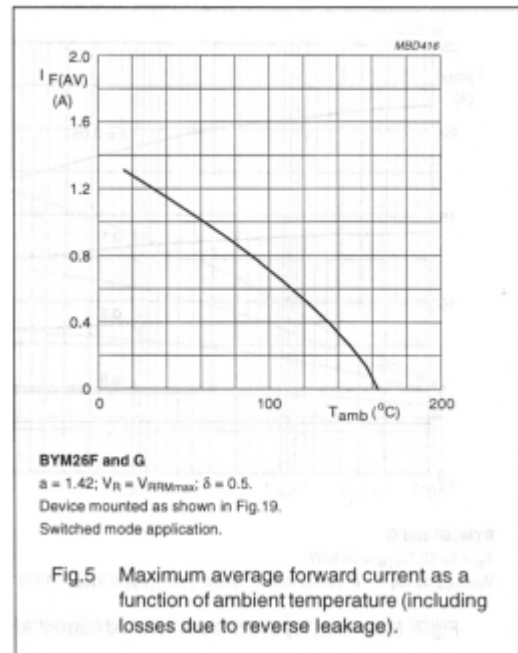
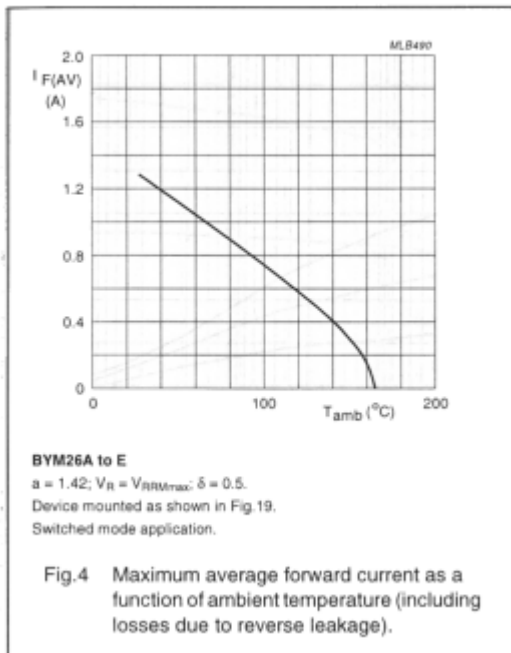
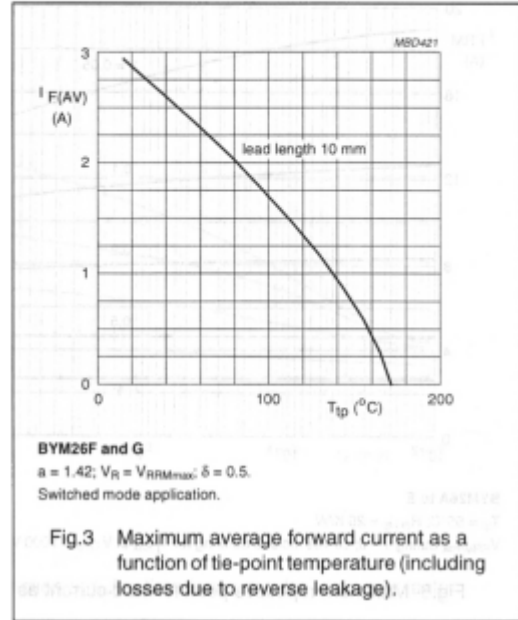
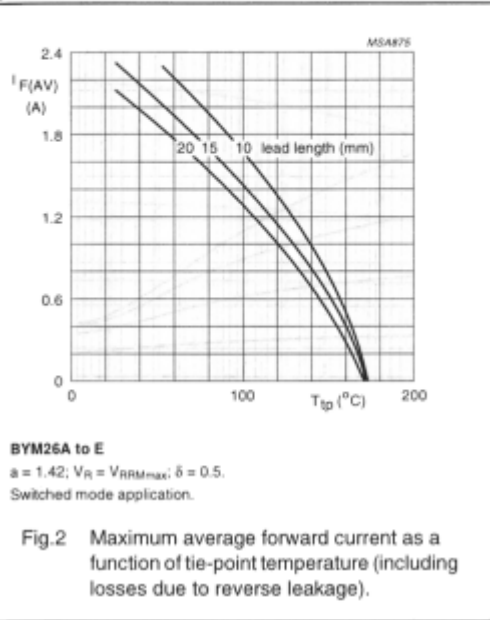
## Note

1. Device mounted on an epoxy-glass printed-circuit board, 1.5 mm thick; thickness of Cu-layer  $\geq 40 \mu\text{m}$ , see Fig.19. For more information please refer to the 'General Part of Handbook SC01'.

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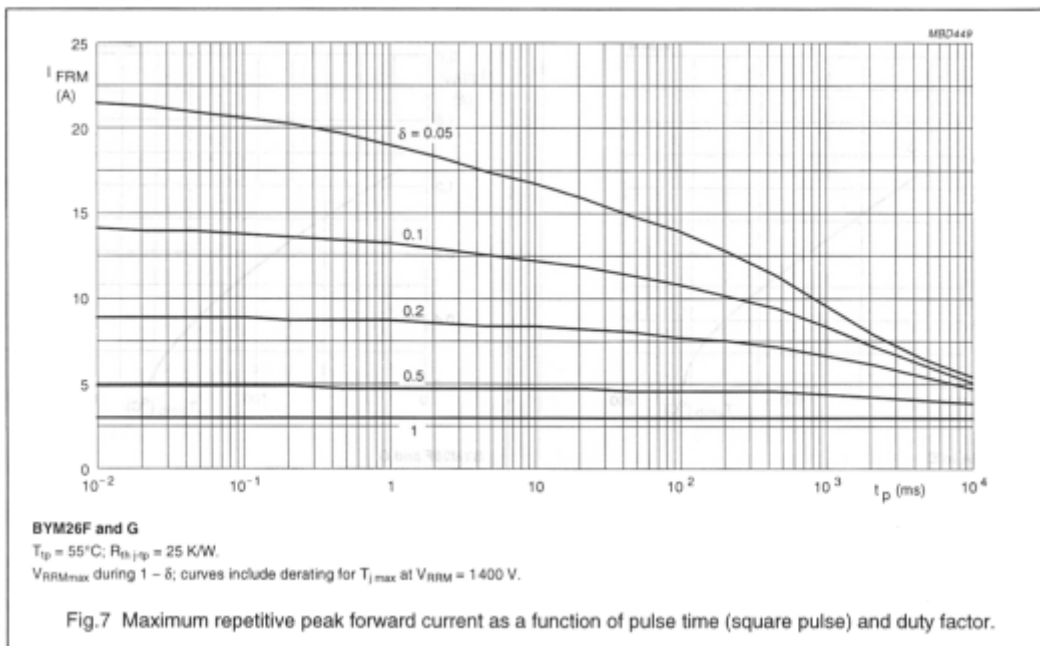
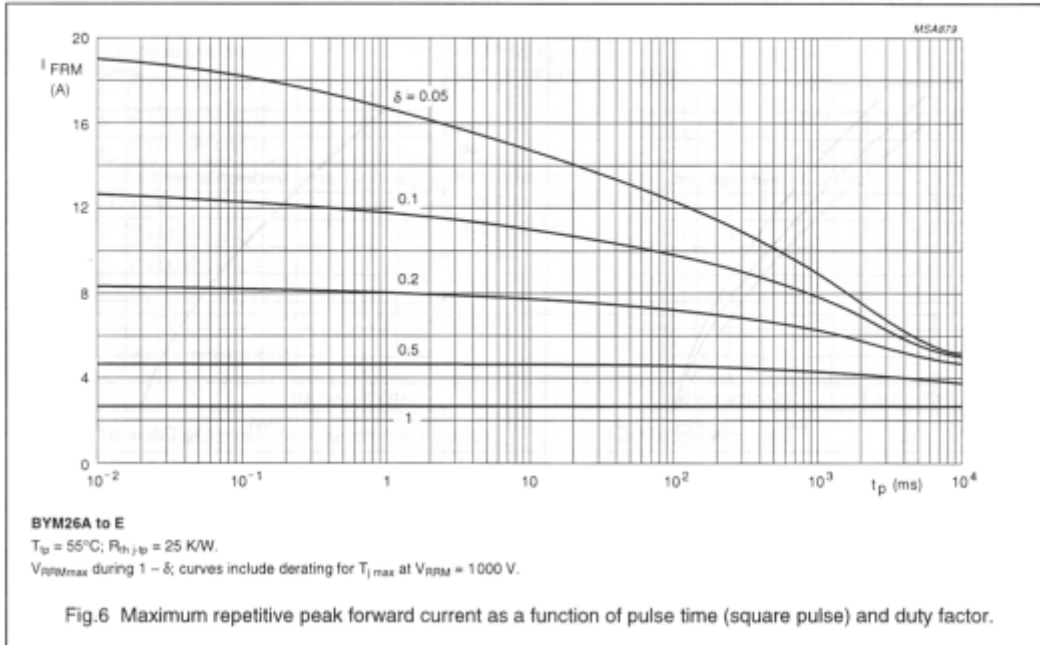
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GRAPHICAL DATA



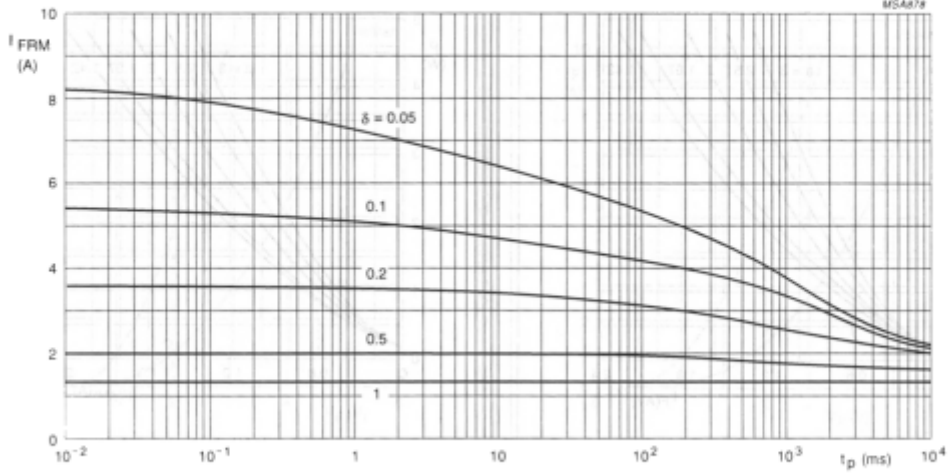
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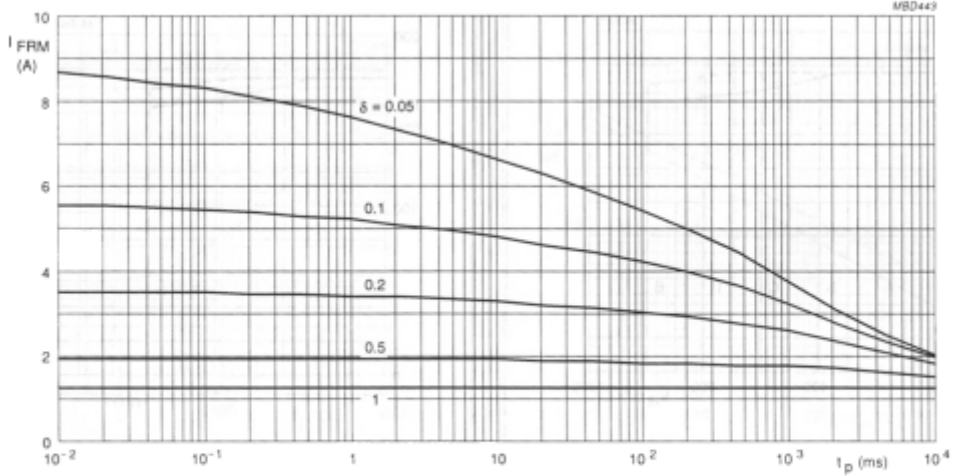


**BYM26A to E**

$T_{amb} = 65\text{ }^{\circ}\text{C}$ ;  $R_{th(j-a)} = 75\text{ K/W}$ .

$V_{RRMmax}$  during  $1 - \delta$ ; curves include derating for  $T_{jmax}$  at  $V_{RRM} = 1000\text{ V}$ .

Fig.8 Maximum repetitive peak forward current as a function of pulse time (square pulse) and duty factor.



**BYM26F and G**

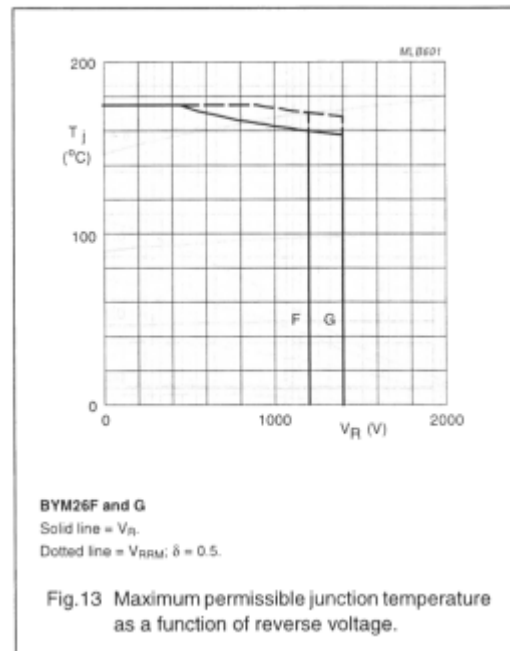
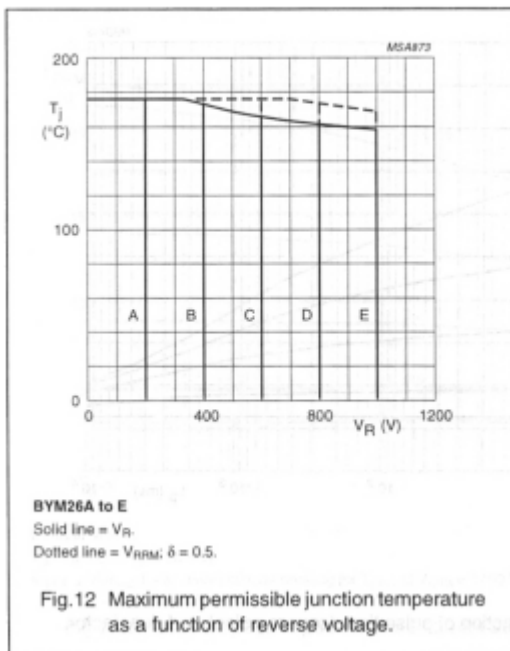
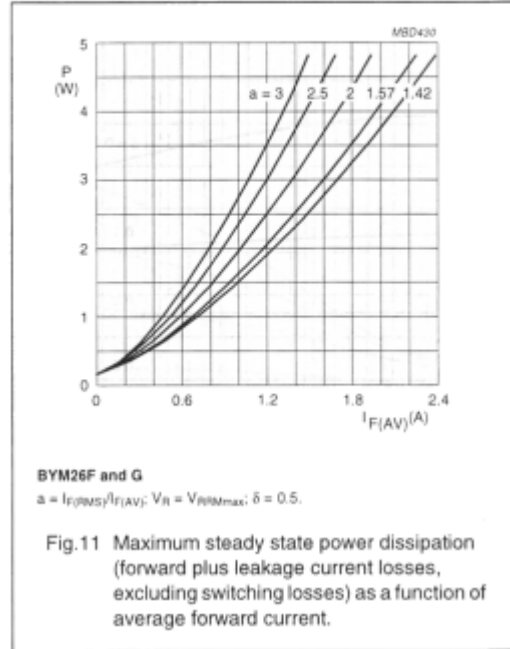
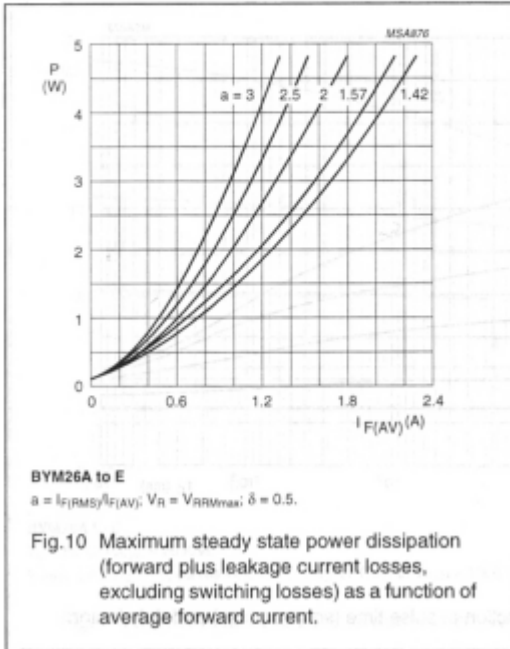
$T_{amb} = 65\text{ }^{\circ}\text{C}$ ;  $R_{th(j-a)} = 75\text{ K/W}$ .

$V_{RRMmax}$  during  $1 - \delta$ ; curves include derating for  $T_{jmax}$  at  $V_{RRM} = 1400\text{ V}$ .

Fig.9 Maximum repetitive peak forward current as a function of pulse time (square pulse) and duty factor.

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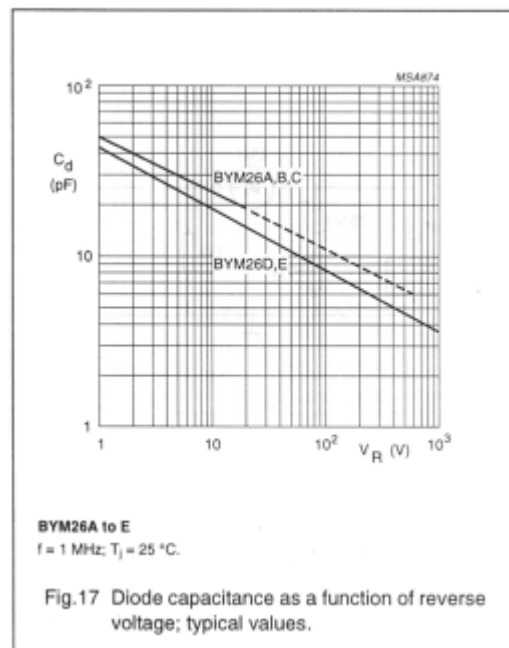
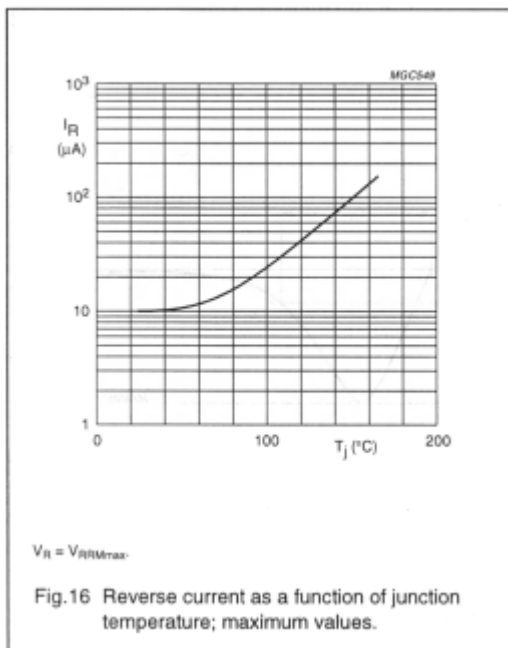
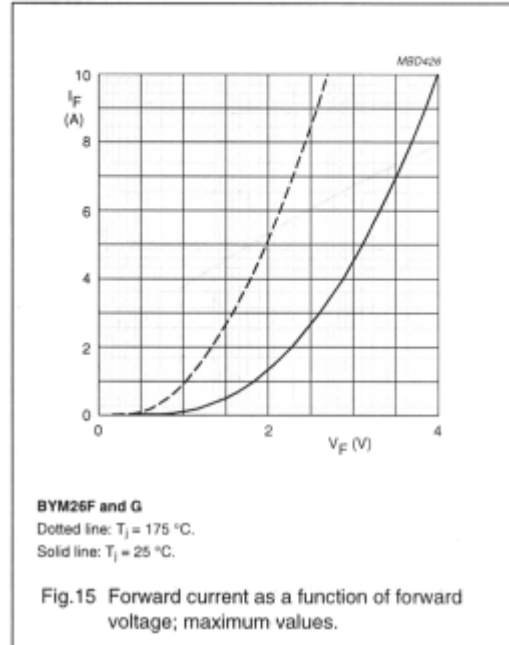
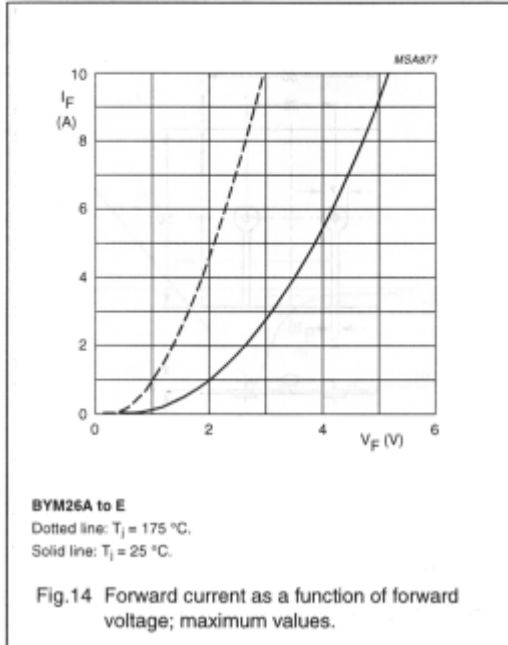
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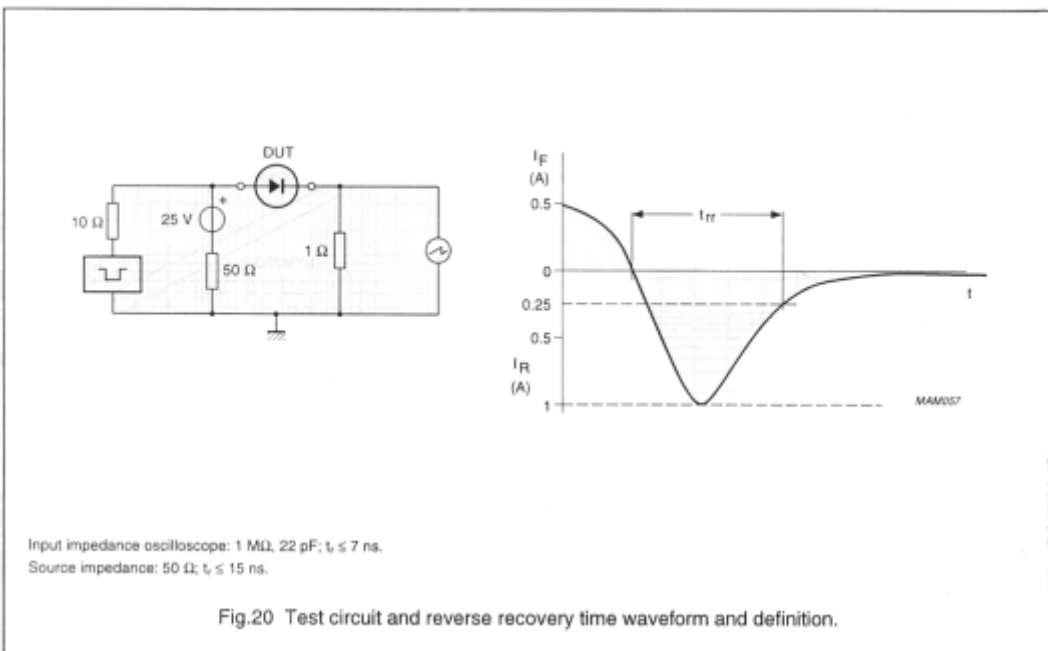
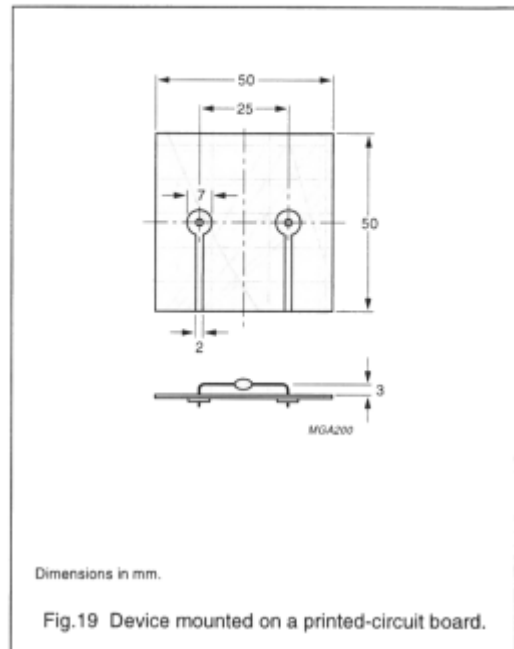
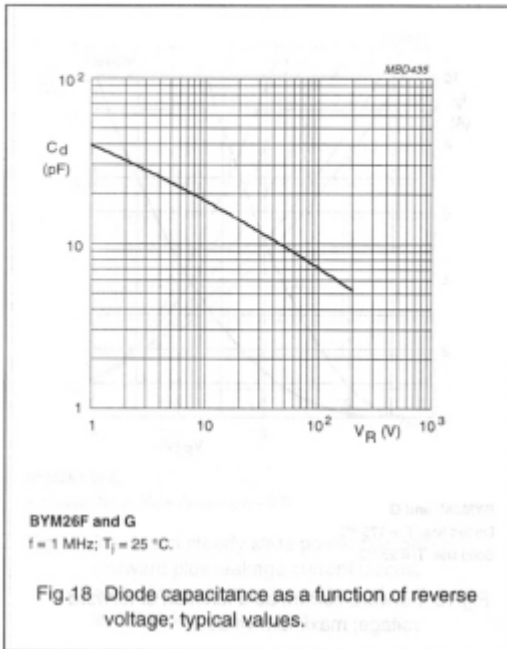
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