

# Silicon Diode

## **BYV26C**

600V/1A

# DATASHEET

OEM – Philips

Source: Philips Databook 1999

## Fast soft-recovery controlled avalanche rectifiers

## BYV26 series

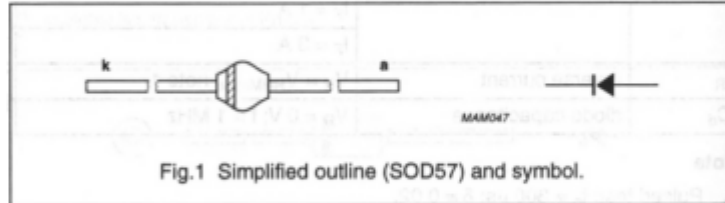
### FEATURES

- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- Guaranteed avalanche energy absorption capability
- Available in ammo-pack.

### DESCRIPTION

Rugged glass SOD57 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.



### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{RRM}$	repetitive peak reverse voltage				
	BYV26A		–	200	V
	BYV26B		–	400	V
	BYV26C		–	600	V
	BYV26D		–	800	V
	BYV26E		–	1000	V
	BYV26F		–	1200	V
	BYV26G		–	1400	V
$V_R$	continuous reverse voltage				
	BYV26A		–	200	V
	BYV26B		–	400	V
	BYV26C		–	600	V
	BYV26D		–	800	V
	BYV26E		–	1000	V
	BYV26F		–	1200	V
	BYV26G		–	1400	V
$I_{F(AV)}$	average forward current	$T_{ip} = 85\text{ °C}$ ; lead length = 10 mm; see Figs 2 and 3; averaged over any 20 ms period; see also Figs 10 and 11	–	1.00	A
	BYV26A to E		–	1.05	A
$I_{F(AV)}$	average forward current	$T_{amb} = 60\text{ °C}$ ; PCB mounting (see Fig.19); see Figs 4 and 5; averaged over any 20 ms period; see also Figs 10 and 11	–	0.65	A
	BYV26A to E		–	0.68	A
$I_{FRM}$	repetitive peak forward current	$T_{ip} = 85\text{ °C}$ ; see Figs 6 and 7	–	10.0	A
	BYV26A to E		–	9.6	A
	BYV26F and G				

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SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_{FRM}$	repetitive peak forward current BYV26A to E	$T_{amb} = 60\text{ °C}$ ; see Figs 8 and 9	–	6.0	A
	BYV26F and G		–	6.4	A
$I_{FSM}$	non-repetitive peak forward current	$t = 10\text{ ms}$ half sine wave; $T_j = T_{j\max}$ prior to surge; $V_R = V_{RRM\max}$	–	30	A
$E_{RSM}$	non-repetitive peak reverse avalanche energy	$I_R = 400\text{ mA}$ ; $T_j = T_{j\max}$ 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 BYV26A to E	$I_F = 1\text{ A}$ ; $T_j = T_{j\max}$ ; see Figs 14 and 15	–	–	1.3	V
	BYV26F and G		–	–	1.3	V
$V_F$	forward voltage BYV26A to E	$I_F = 1\text{ A}$ ; see Figs 14 and 15	–	–	2.50	V
	BYV26F and G		–	–	2.15	V
$V_{(BR)R}$	reverse avalanche breakdown voltage	$I_R = 0.1\text{ mA}$				
	BYV26A		300	–	–	V
	BYV26B		500	–	–	V
	BYV26C		700	–	–	V
	BYV26D		900	–	–	V
	BYV26E		1100	–	–	V
	BYV26F BYV26G		1300 1500	–	–	V V
$I_R$	reverse current	$V_R = V_{RRM\max}$ ; see Fig.16	–	–	5	$\mu\text{A}$
		$V_R = V_{RRM\max}$ ; $T_j = 165\text{ °C}$ ; see Fig.16	–	–	150	$\mu\text{A}$
$t_{rr}$	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
	BYV26A to C		–	–	75	ns
	BYV26D and E BYV26F and G		–	–	150	ns
$C_d$	diode capacitance	$f = 1\text{ MHz}$ ; $V_R = 0\text{ V}$ ; see Figs 17 and 18	–	45	–	pF
	BYV26A to C		–	40	–	pF
	BYV26D and E BYV26F and G		–	35	–	pF

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SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$\left  \frac{dI_R}{dt} \right $	maximum slope of reverse recovery current	when switched from $I_F = 1$ A to $V_R \geq 30$ V and $dI_F/dt = -1$ A/ $\mu$ s; see Fig.21	-	-	7	A/ $\mu$ s
	BYV26A to C		-	-	6	A/ $\mu$ s
	BYV26D and E BYV26F and G		-	-	5	A/ $\mu$ s

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-ip}$	thermal resistance from junction to tie-point	lead length = 10 mm	46	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	100	K/W

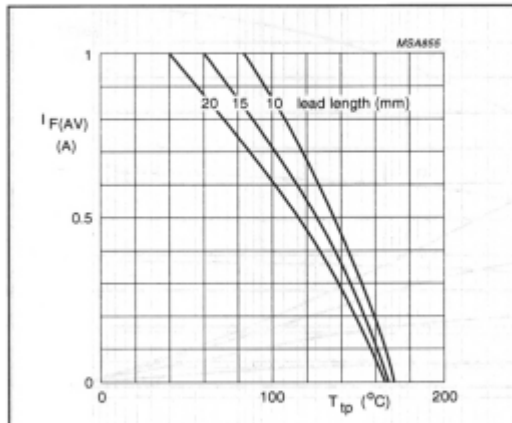
## Note

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

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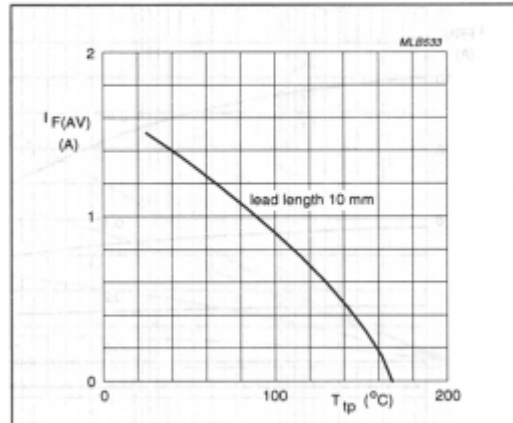
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### GRAPHICAL DATA



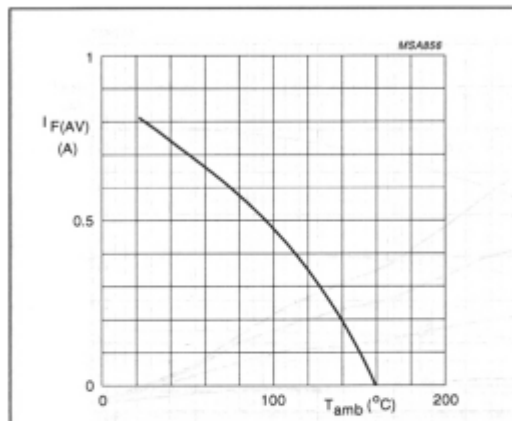
**BYV26A to E**  
 $a = 1.42$ ;  $V_R = V_{RRMmax}$ ;  $\delta = 0.5$ .  
 Switched mode application.

**Fig.2** Maximum average forward current as a function of tie-point temperature (including losses due to reverse leakage).



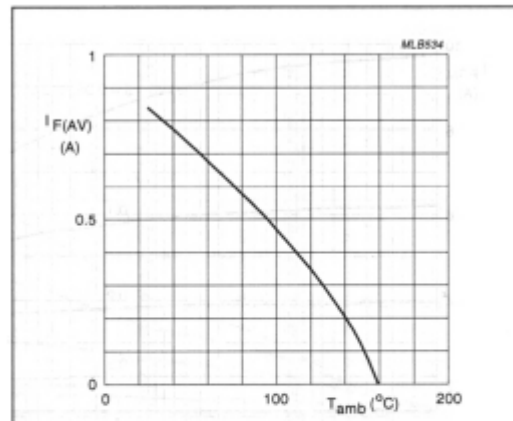
**BYV26F and G**  
 $a = 1.42$ ;  $V_R = V_{RRMmax}$ ;  $\delta = 0.5$ .  
 Switched mode application.

**Fig.3** Maximum average forward current as a function of tie-point temperature (including losses due to reverse leakage).



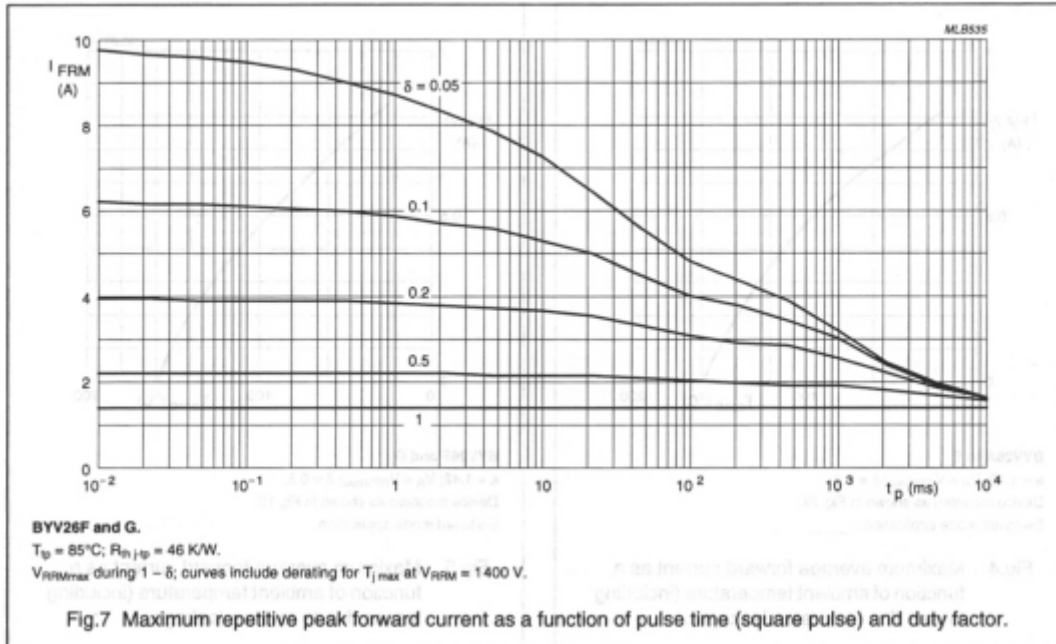
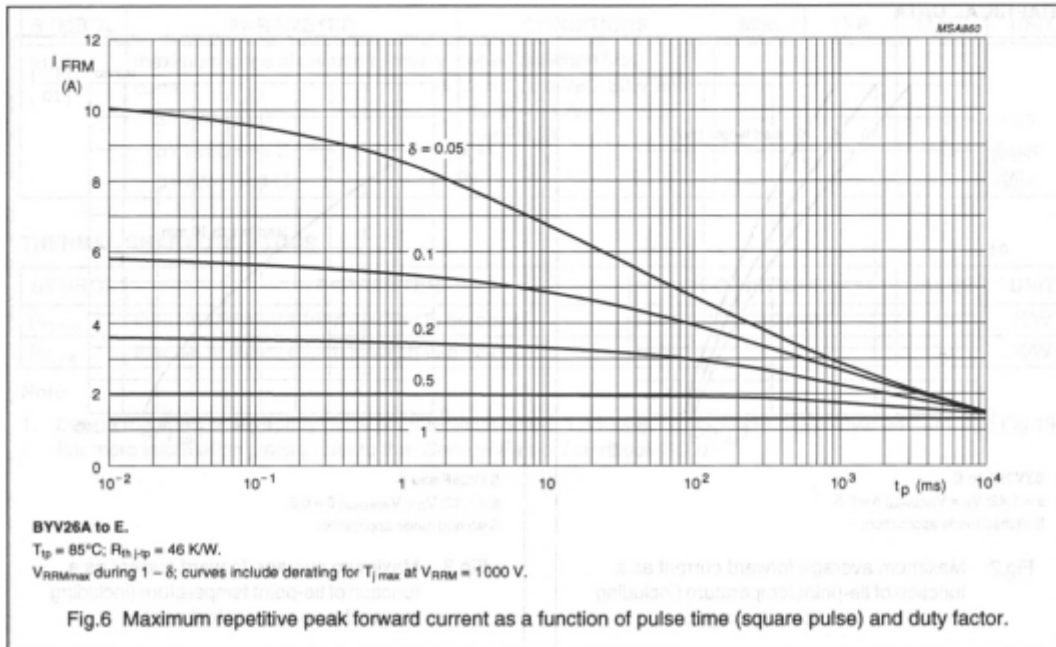
**BYV26A to E**  
 $a = 1.42$ ;  $V_R = V_{RRMmax}$ ;  $\delta = 0.5$ .  
 Device mounted as shown in Fig. 19.  
 Switched mode application.

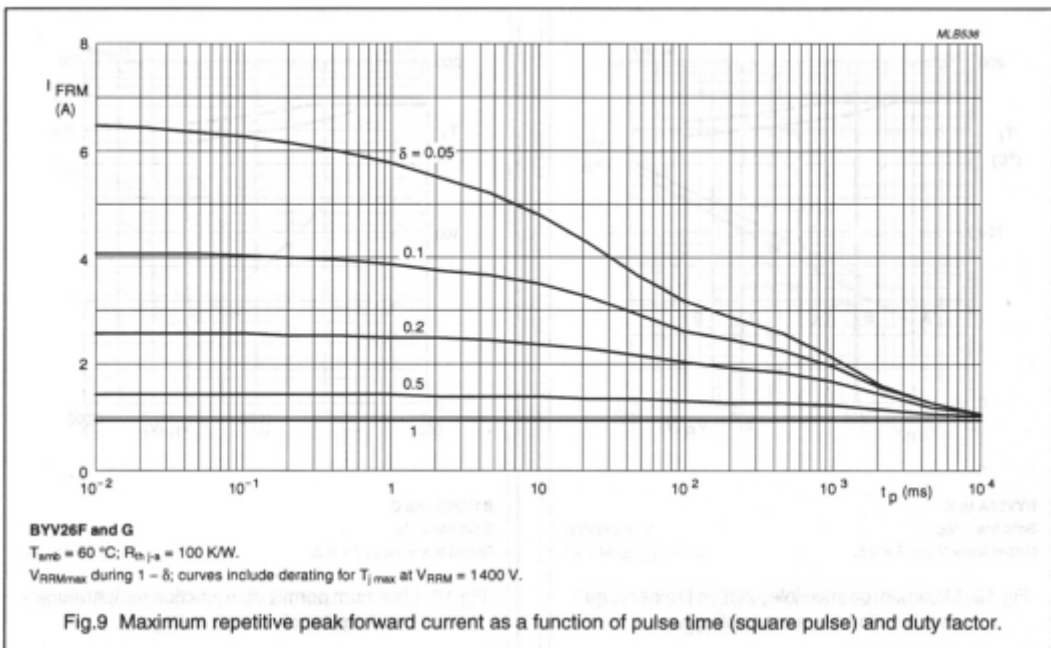
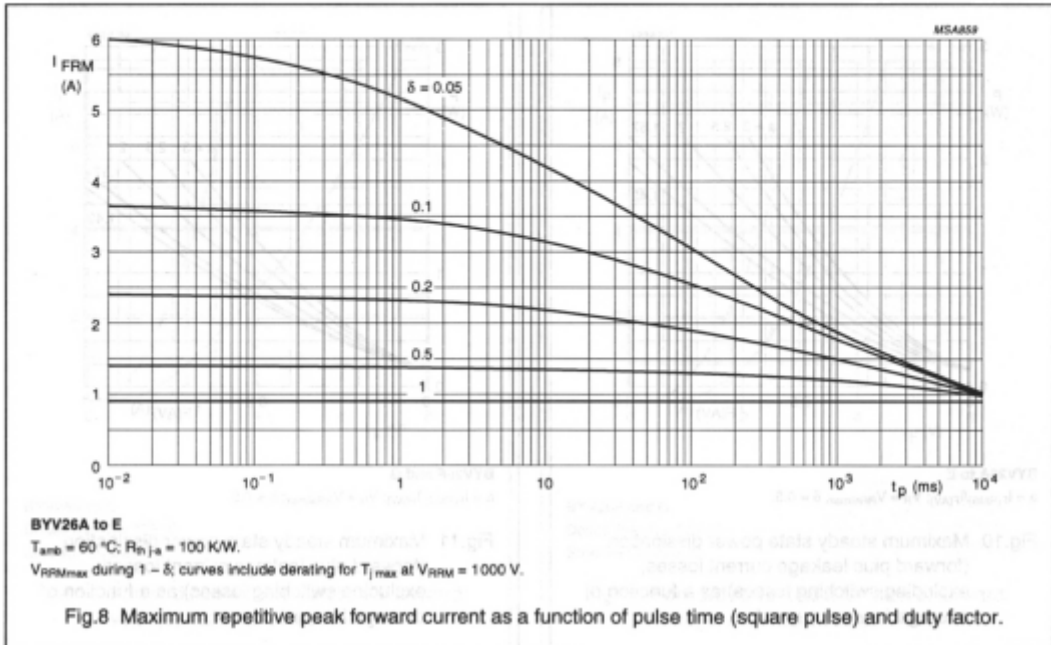
**Fig.4** Maximum average forward current as a function of ambient temperature (including losses due to reverse leakage).



**BYV26F and G**  
 $a = 1.42$ ;  $V_R = V_{RRMmax}$ ;  $\delta = 0.5$ .  
 Device mounted as shown in Fig. 19.  
 Switched mode application.

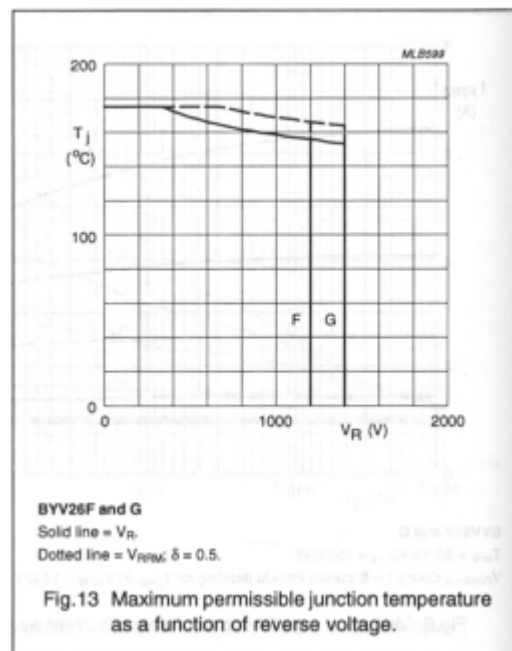
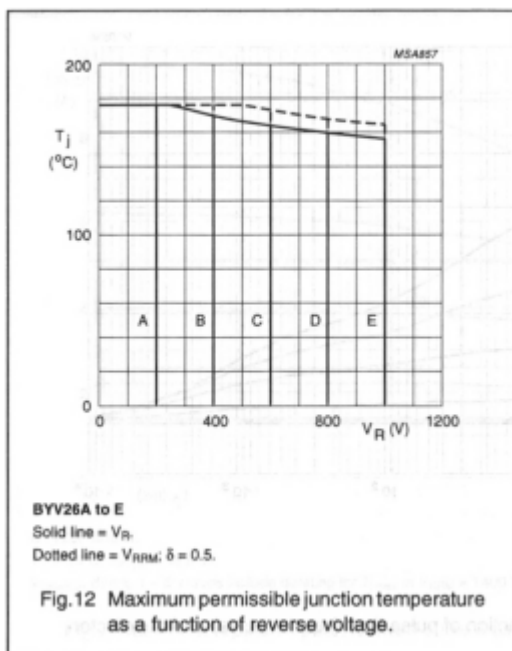
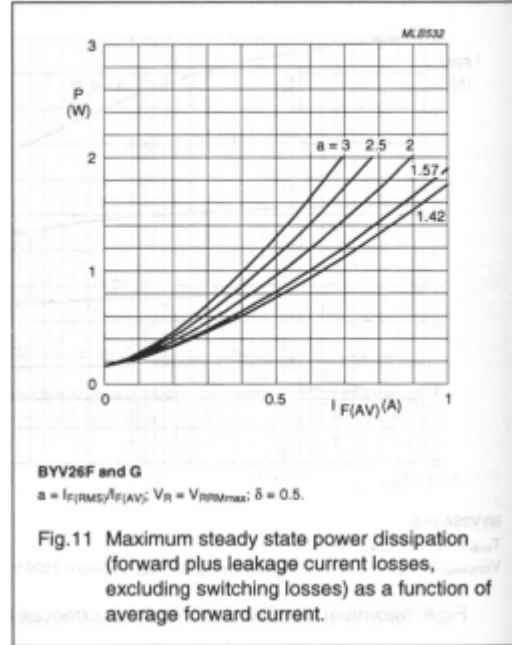
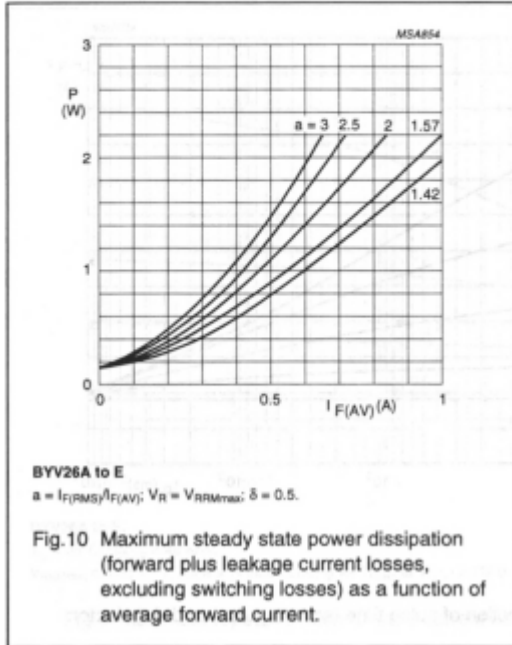
**Fig.5** Maximum average forward current as a function of ambient temperature (including losses due to reverse leakage).

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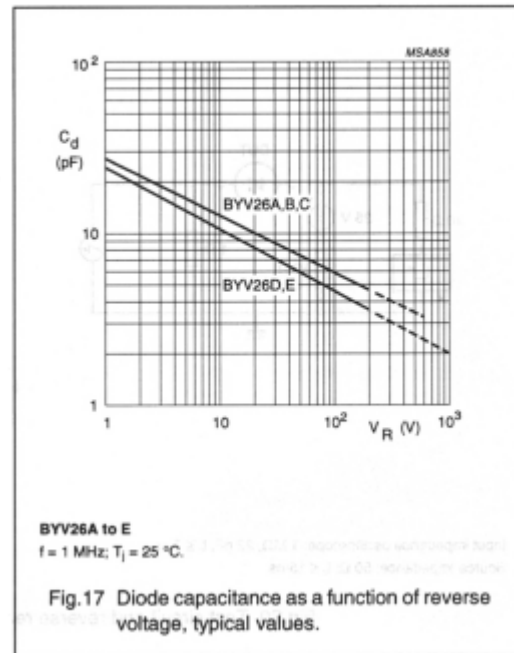
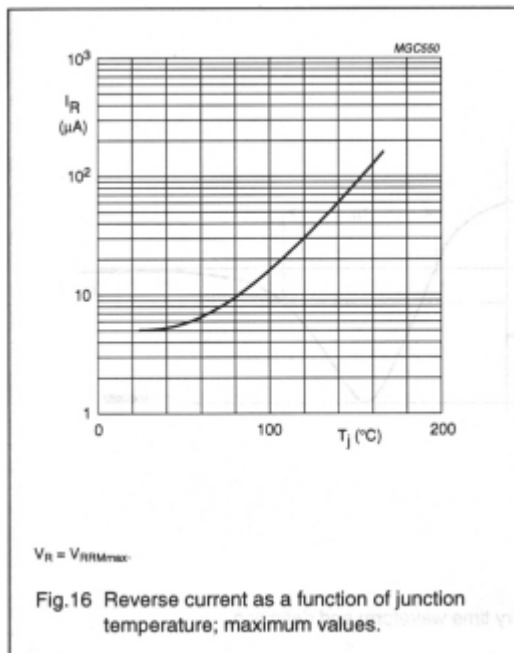
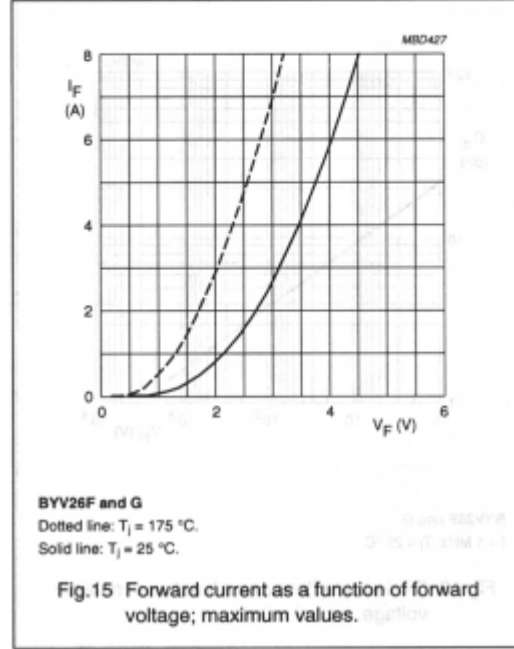
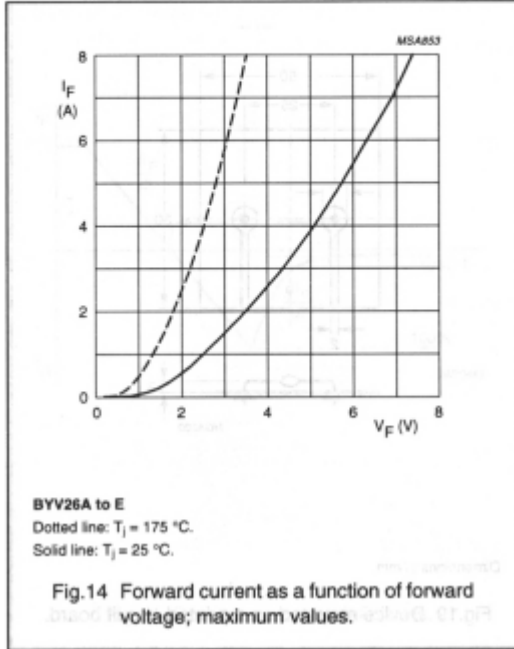
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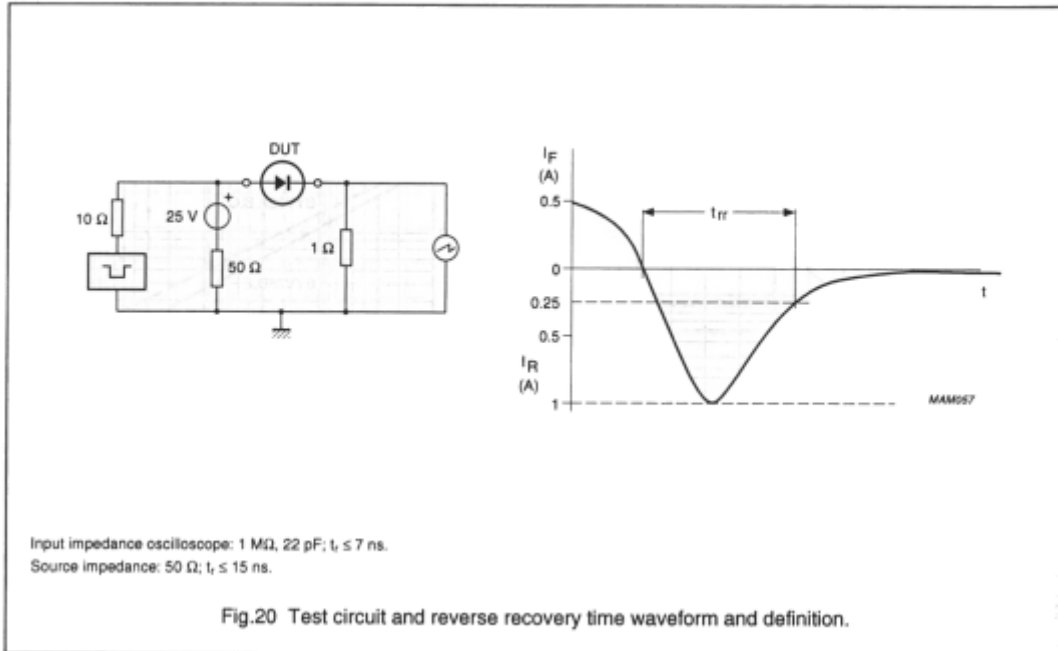
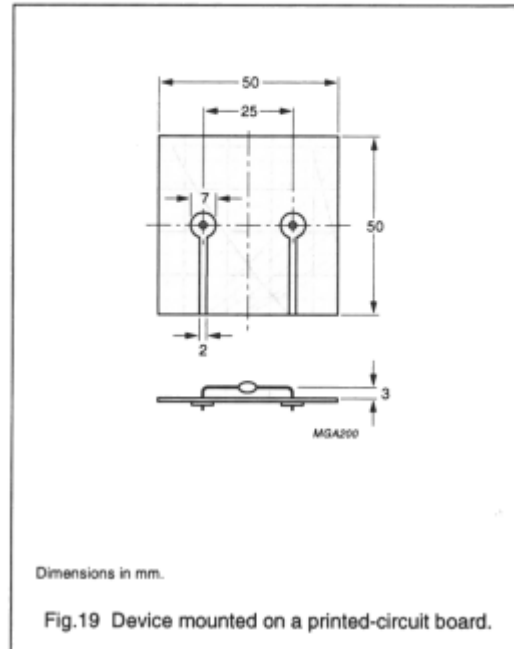
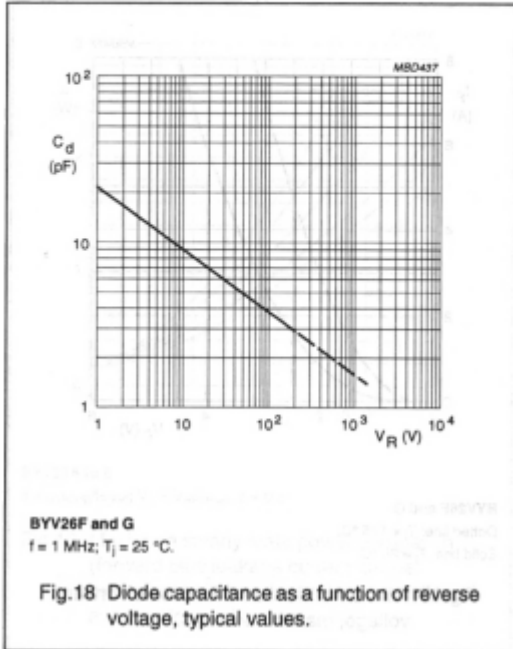
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