

Silicon Diode

BYV26A

200V/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.

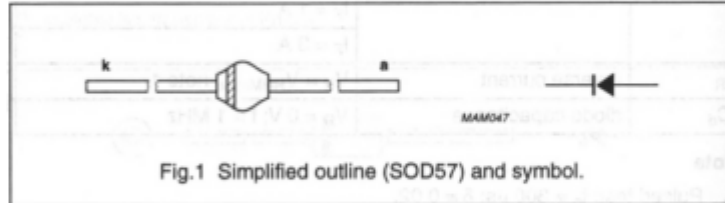


Fig.1 Simplified outline (SOD57) and symbol.

LIMITING VALUES

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

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

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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	μA
		$V_R = V_{RRM\max}$; $T_j = 165\text{ °C}$; 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
	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/ μ s; see Fig.21	-	-	7	A/ μ s
	BYV26A to C		-	-	6	A/ μ s
	BYV26D and E BYV26F and G		-	-	5	A/ μ 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

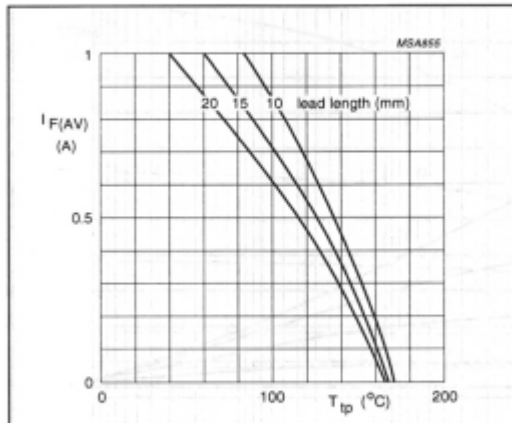
Note

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

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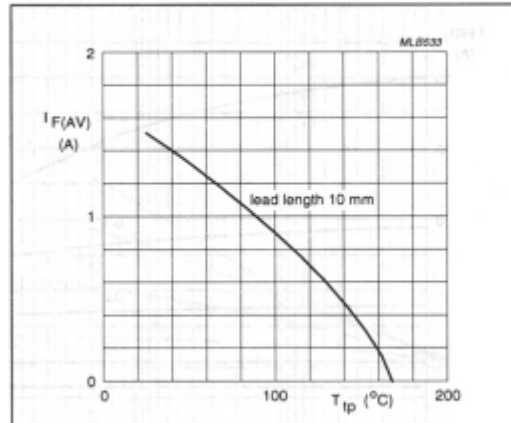
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GRAPHICAL DATA



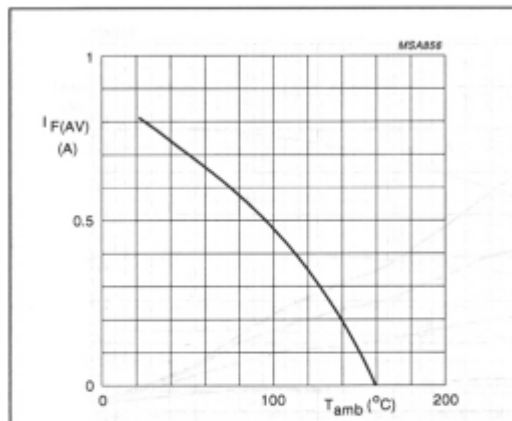
BYV26A to E
 $a = 1.42$; $V_R = V_{RRMmax}$; $\delta = 0.5$.
 Switched mode application.

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



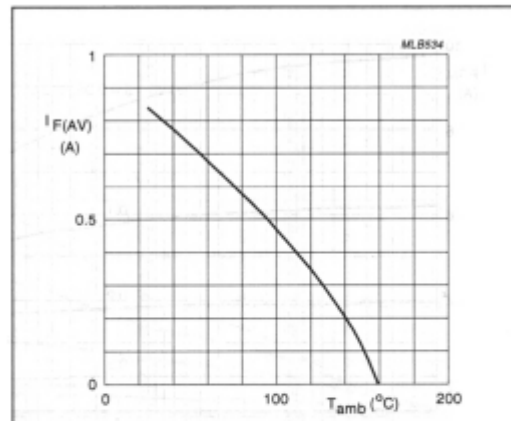
BYV26F and G
 $a = 1.42$; $V_R = V_{RRMmax}$; $\delta = 0.5$.
 Switched mode application.

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).

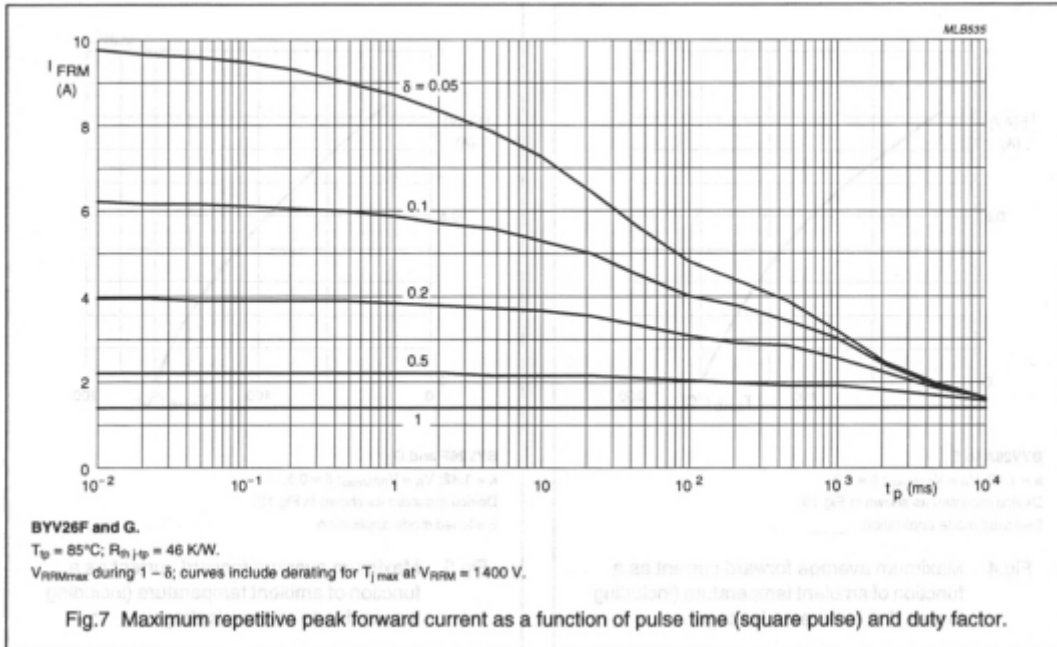
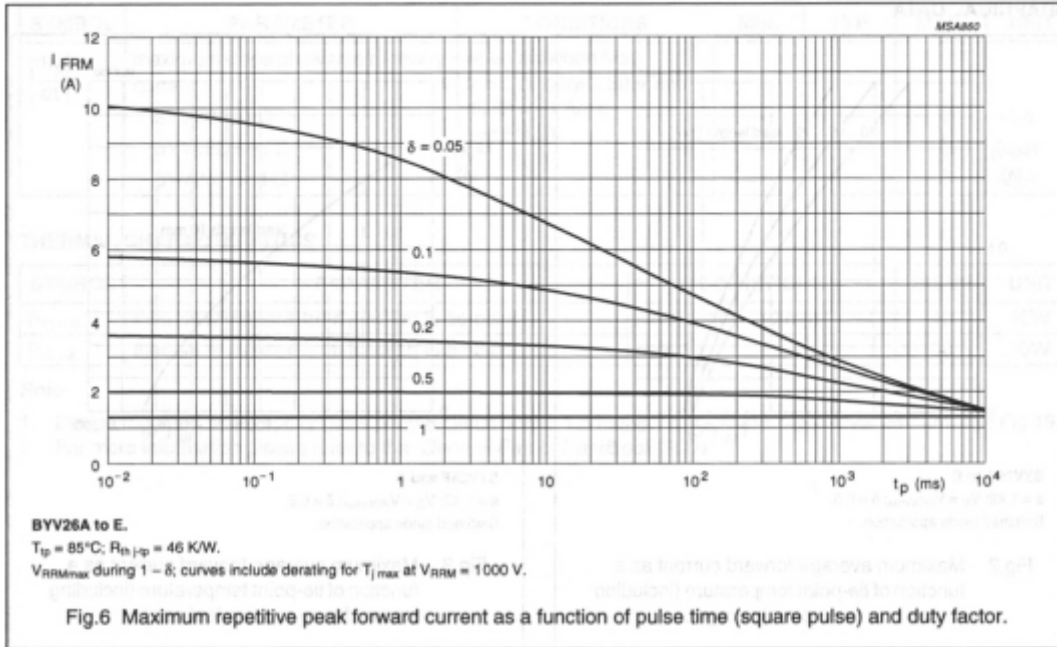


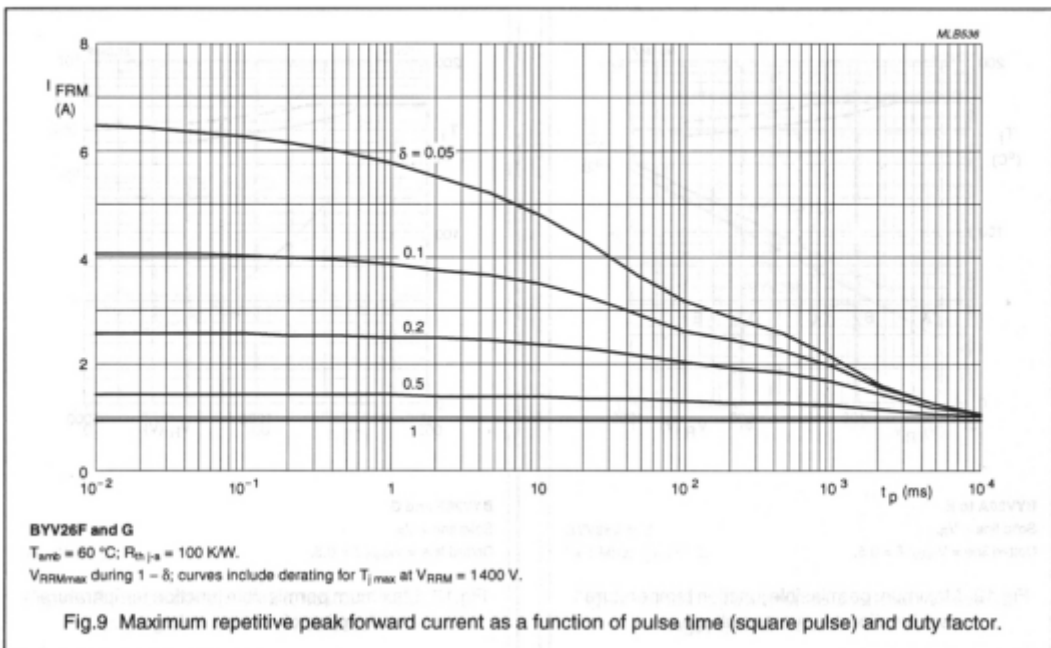
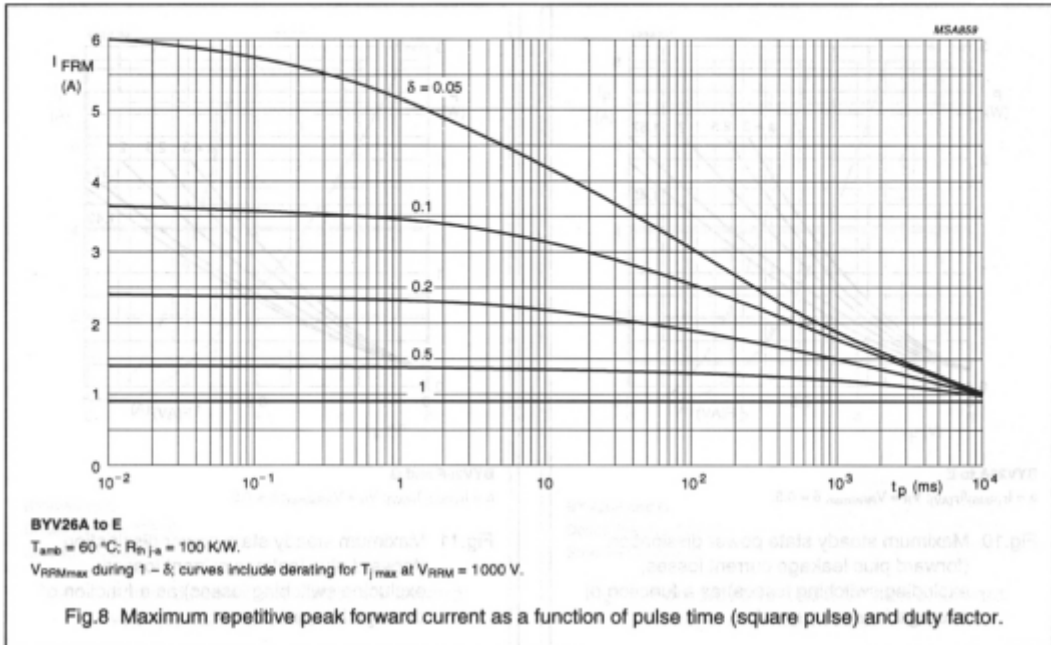
BYV26F and G
 $a = 1.42$; $V_R = V_{RRMmax}$; $\delta = 0.5$.
 Device mounted as shown in Fig. 19.
 Switched mode application.

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

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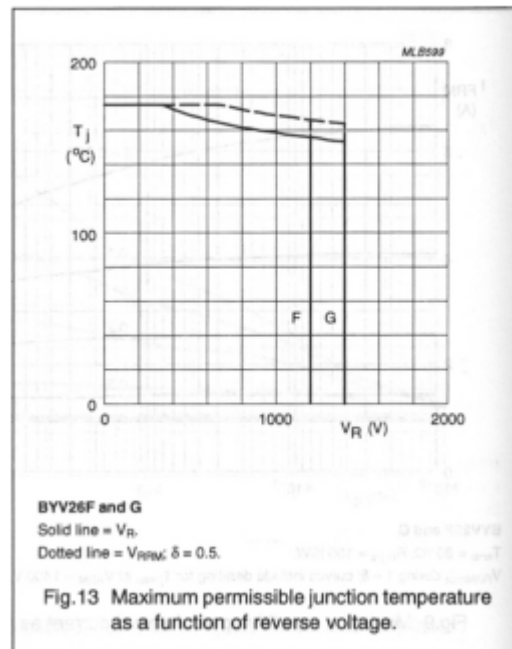
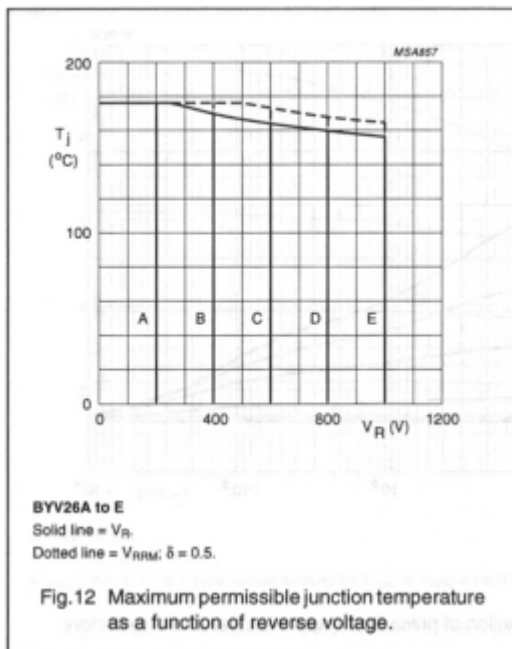
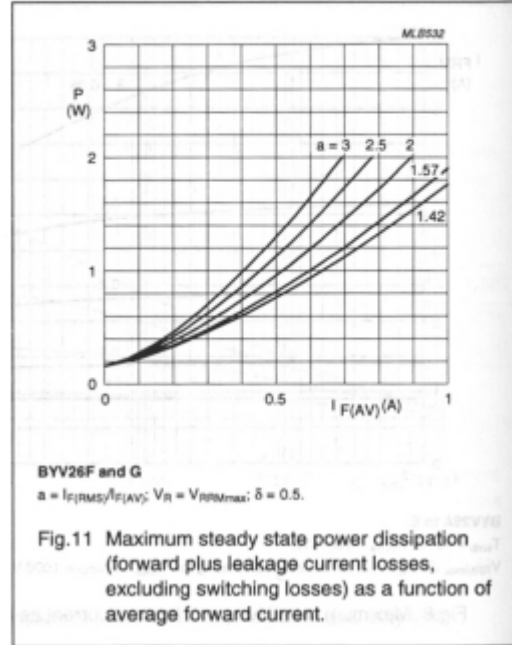
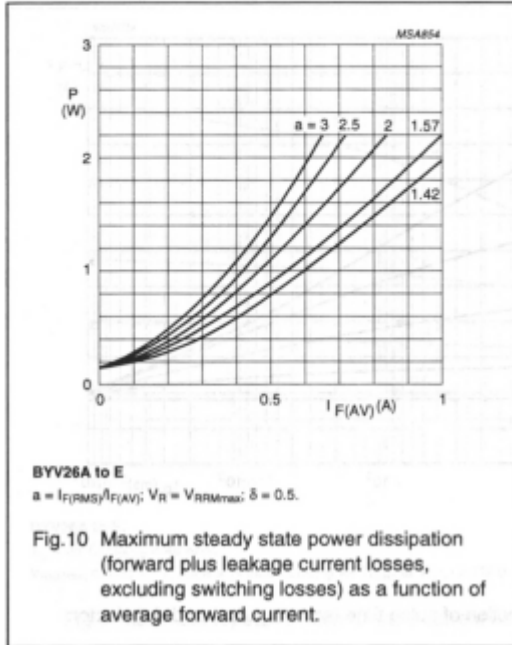
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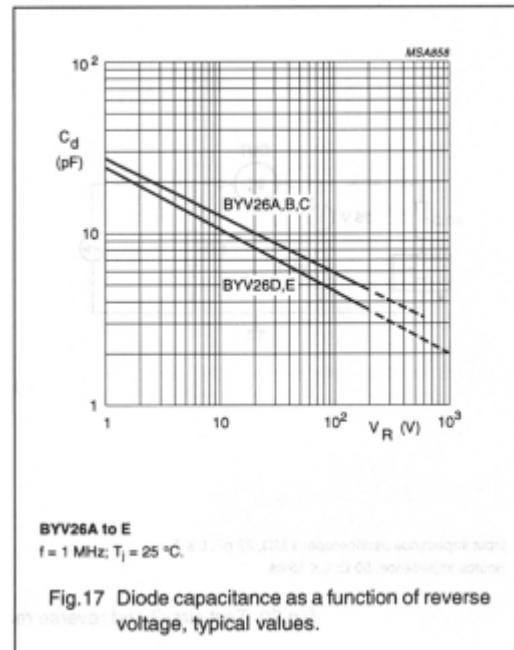
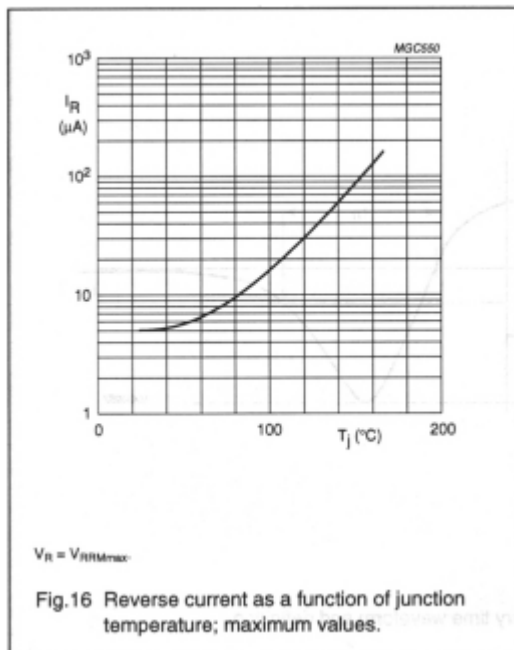
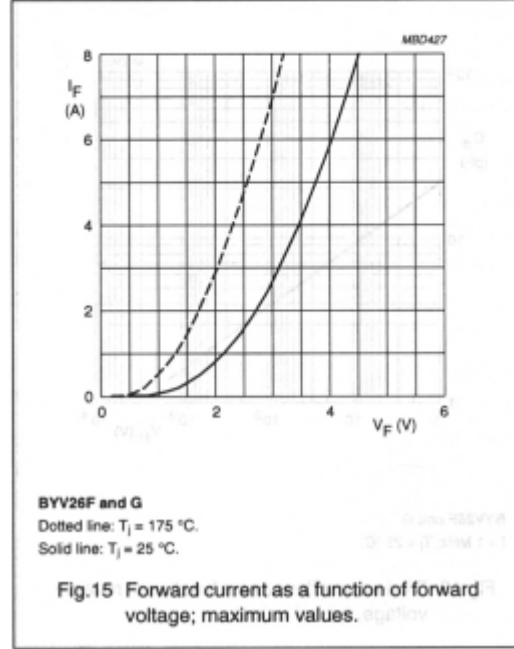
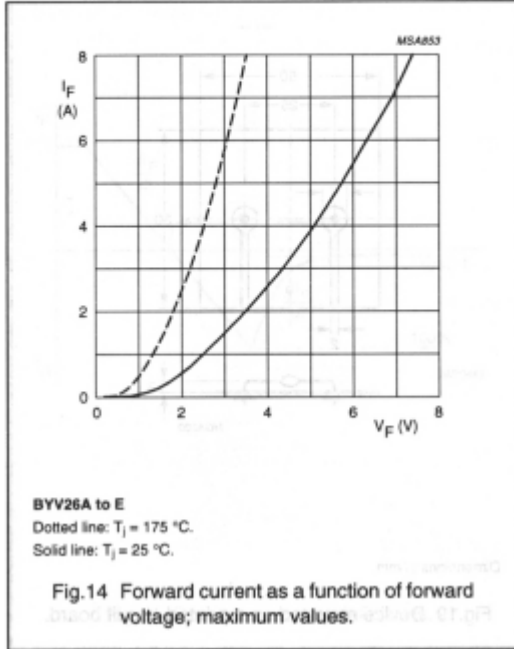
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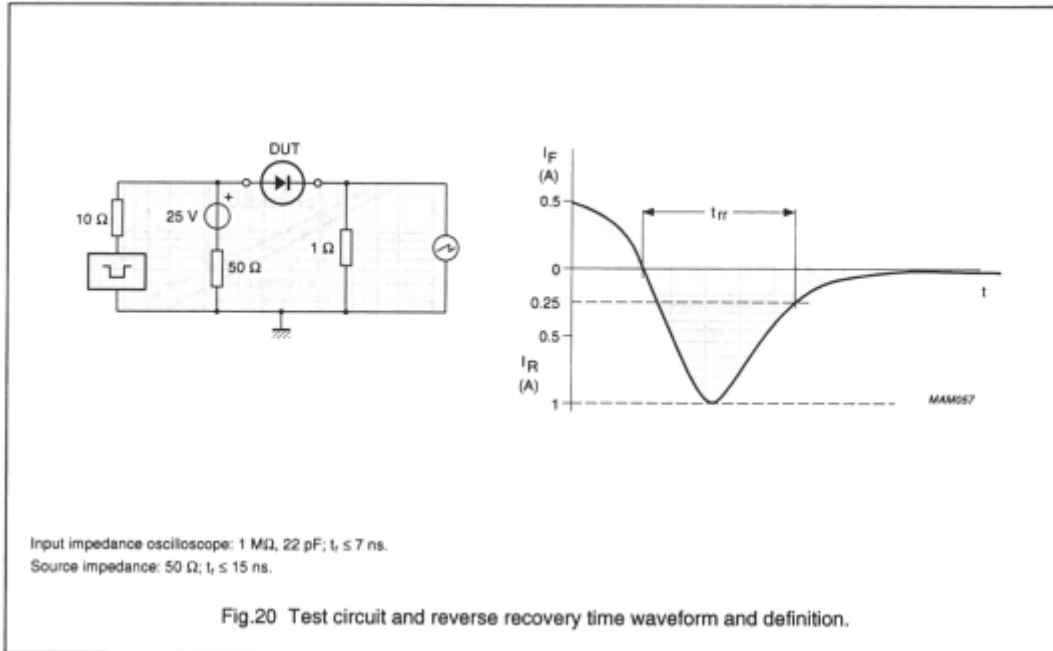
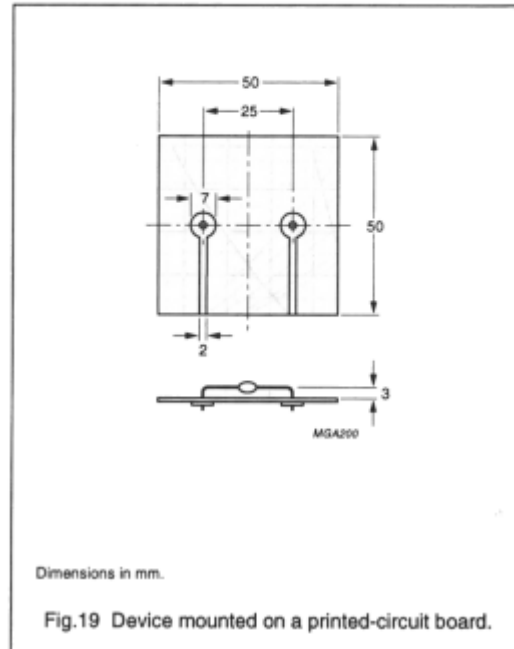
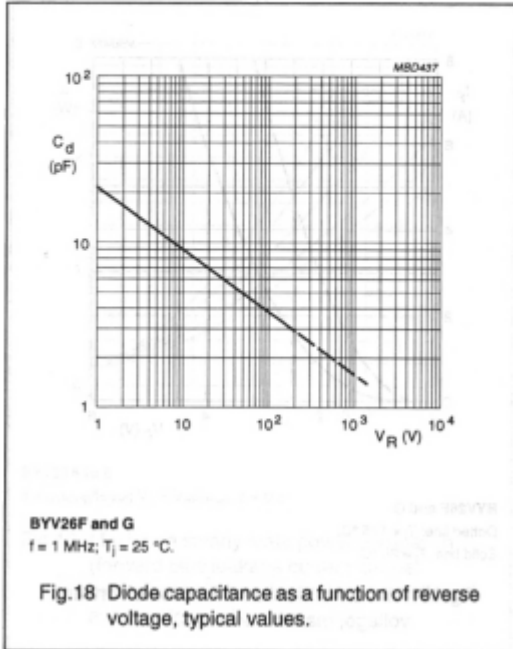
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