

Silicon Diode

BYV36B

400V/1.6A

DATASHEET

OEM – Philips

Source: Philips Databook 1999

Fast soft-recovery controlled avalanche rectifiers

BYV36 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.

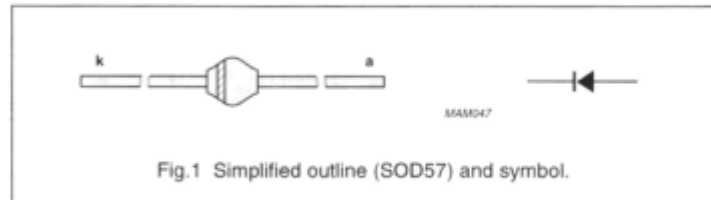


Fig.1 Simplified outline (SOD57) and symbol.

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{RRM}	repetitive peak reverse voltage				
	BYV36A		–	200	V
	BYV36B		–	400	V
	BYV36C		–	600	V
	BYV36D		–	800	V
	BYV36E		–	1000	V
	BYV36F BYV36G		–	1200 1400	V
V_R	continuous reverse voltage				
	BYV36A		–	200	V
	BYV36B		–	400	V
	BYV36C		–	600	V
	BYV36D		–	800	V
	BYV36E		–	1000	V
	BYV36F BYV36G		–	1200 1400	V
$I_{F(AV)}$	average forward current	$T_{ip} = 60\text{ }^{\circ}\text{C}$; lead length = 10 mm; see Figs 2; 3 and 4			
	BYV36A to C	averaged over any 20 ms period; see also Figs 14; 15 and 16	–	1.6	A
	BYV36D and E BYV36F and G		–	1.5	A
$I_{F(AV)}$	average forward current	$T_{amb} = 60\text{ }^{\circ}\text{C}$; PCB mounting (see Fig.25); see Figs 5; 6 and 7			
	BYV36A to C	averaged over any 20 ms period; see also Figs 14; 15 and 16	–	0.87	A
	BYV36D and E BYV36F and G		–	0.81	A

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SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{FRM}	repetitive peak forward current	$T_{ip} = 60\text{ °C}$; see Figs 8; 9 and 10	-	18	A
	BYV36A to C			17	A
	BYV36D and E BYV36F and G			15	A
I_{FRM}	repetitive peak forward current	$T_{amb} = 60\text{ °C}$; see Figs 11; 12 and 13	-	9	A
	BYV36A to C			8	A
	BYV36D and E BYV36F and G			8	A
I_{FSM}	non-repetitive peak forward current	$t = 10\text{ ms}$ half sine wave; $T_j = T_{j\text{max}}$ prior to surge; $V_R = V_{RRM\text{max}}$	-	30	A
E_{RSM}	non-repetitive peak reverse avalanche energy	$L = 120\text{ mH}$; $T_j = T_{j\text{max}}$ prior to surge; inductive load switched off	-	10	mJ
T_{stg}	storage temperature		-65	+175	°C
T_j	junction temperature	see Figs 17 and 18	-65	+175	°C

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
V_F	forward voltage	$I_F = 1\text{ A}$; $T_j = T_{j\text{max}}$; see Figs 19; 20 and 21	-	-	1.00	V	
	BYV36A to C				1.05	V	
	BYV36D and E BYV36F and G				1.05	V	
V_F	forward voltage	$I_F = 1\text{ A}$; see Figs 19; 20 and 21	-	-	1.35	V	
	BYV36A to C				1.45	V	
	BYV36D and E BYV36F and G				1.45	V	
$V_{(BR)R}$	reverse avalanche breakdown voltage	$I_R = 0.1\text{ mA}$					
	BYV36A				300	-	V
	BYV36B				500	-	V
	BYV36C				700	-	V
	BYV36D				900	-	V
	BYV36E				1100	-	V
	BYV36F BYV36G				1300 1500	-	V
I_R	reverse current	$V_R = V_{RRM\text{max}}$; see Fig.22	-	-	5	μA	
		$V_R = V_{RRM\text{max}}$; $T_j = 165\text{ °C}$; see Fig.22	-	-	150	μA	

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SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
t_{rr}	reverse recovery time	when switched from $I_F = 0.5$ A to $I_R = 1$ A; measured at $I_R = 0.25$ A; see Fig. 26	–	–	100	ns
	BYV36A to C		–	–	150	ns
	BYV36D and E BYV36F and G		–	–	250	ns
C_d	diode capacitance	$f = 1$ MHz; $V_R = 0$ V; see Figs 23 and 24	–	45	–	pF
	BYV36A to C		–	40	–	pF
	BYV36D and E BYV36F and G		–	35	–	pF
$\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. 27	–	–	7	A/ μ s
	BYV36A to C		–	–	6	A/ μ s
	BYV36D and E BYV36F and G		–	–	5	A/ μ s

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-tp}$	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

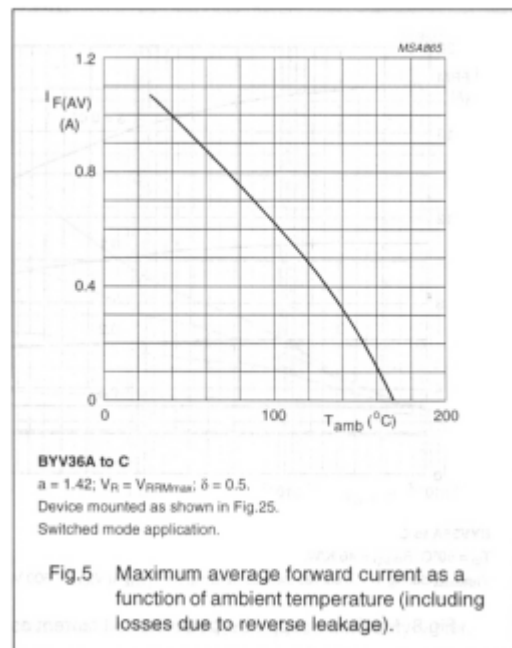
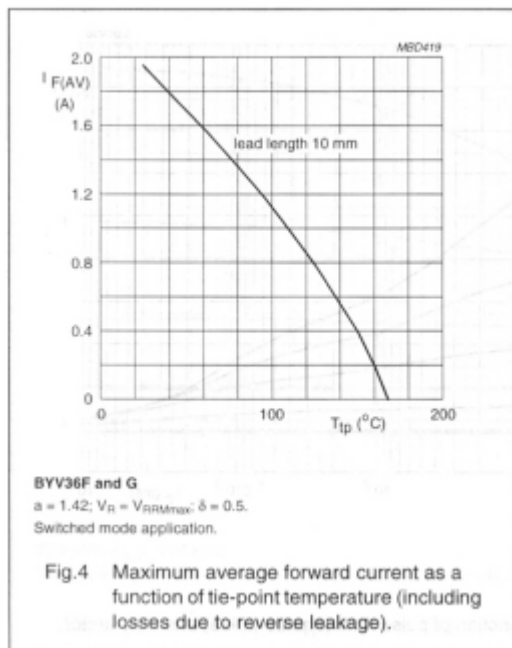
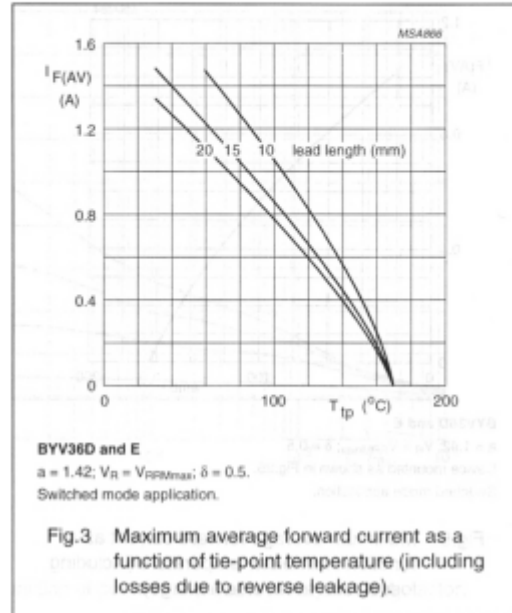
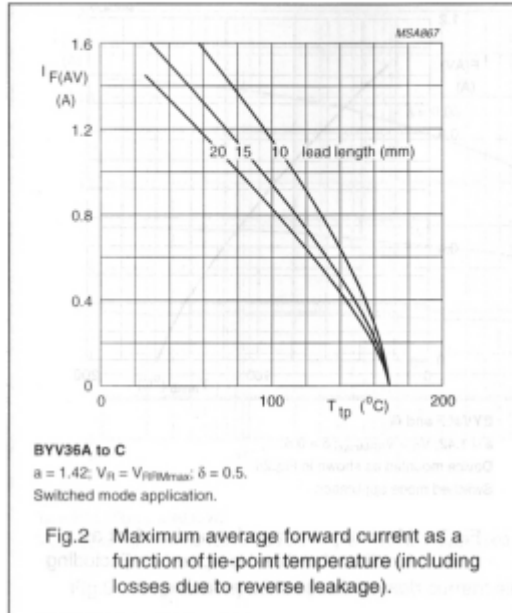
Note

1. Device mounted on an epoxy-glass printed-circuit board, 1.5 mm thick; thickness of Cu-layer ≥ 40 μ m, see Fig. 25. For more information please refer to the 'General Part of Handbook SC01'.

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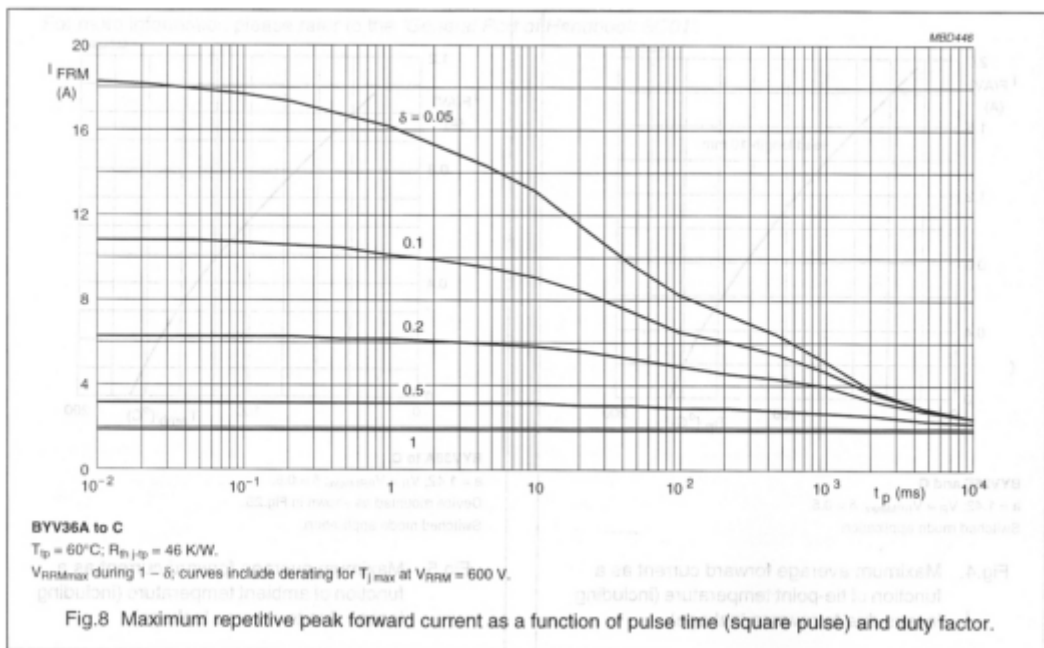
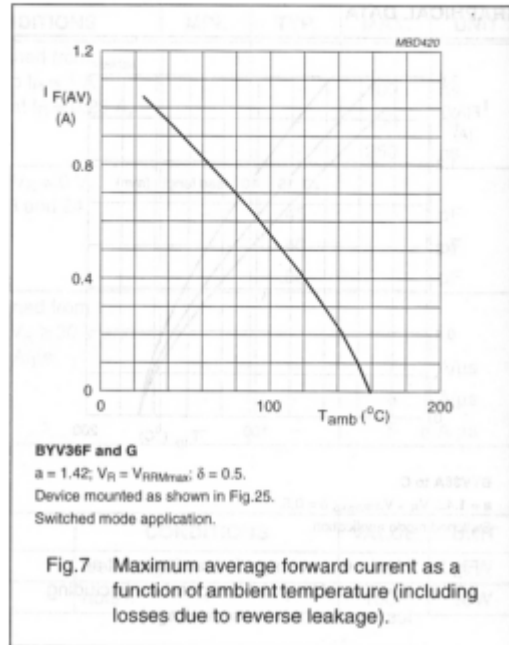
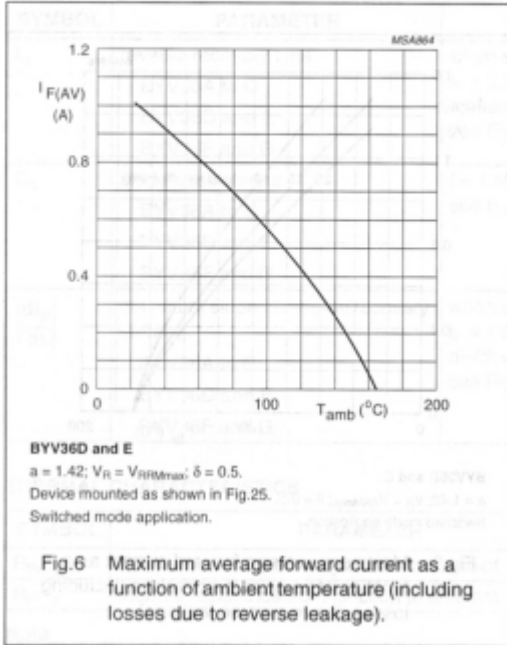
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GRAPHICAL DATA



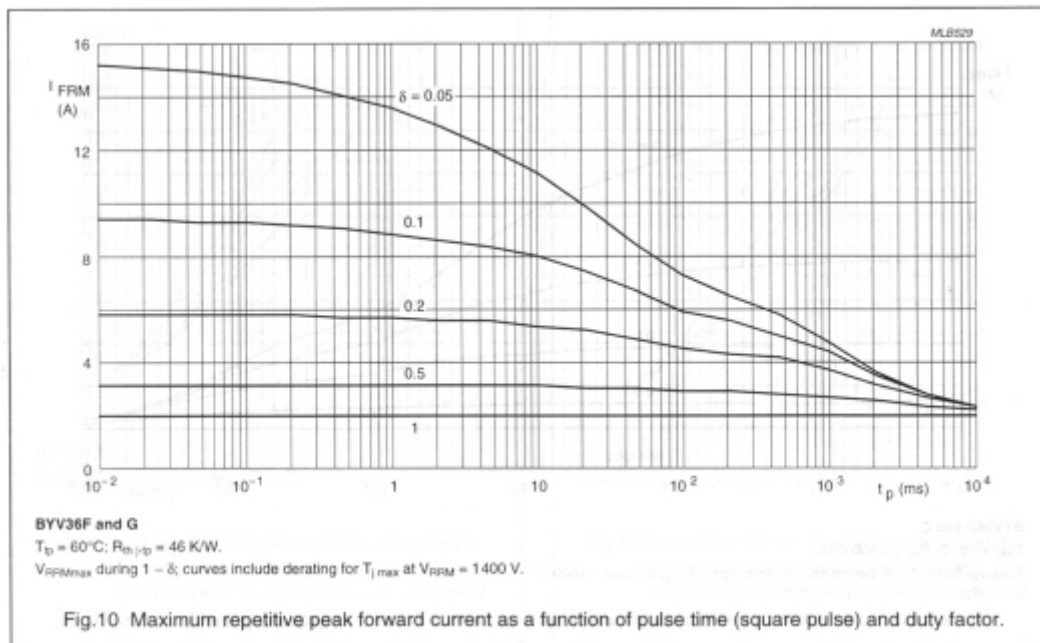
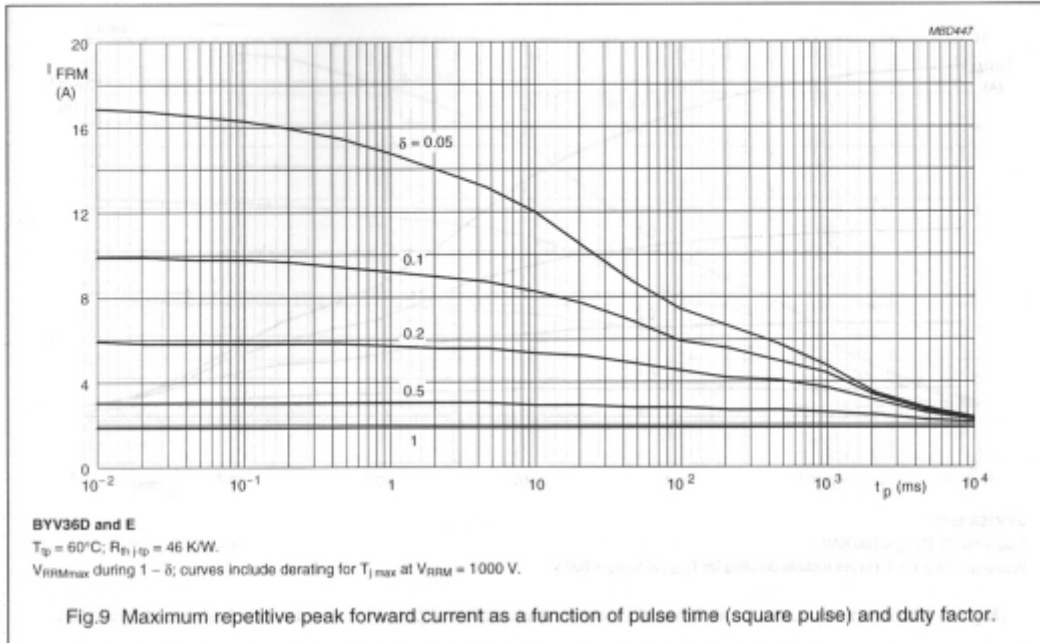
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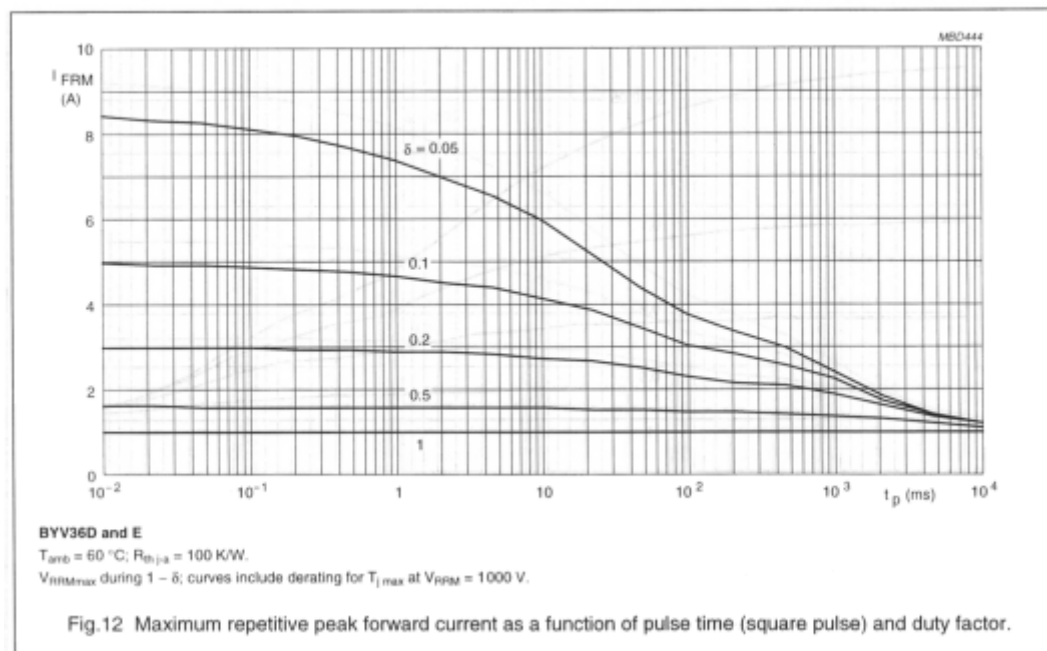
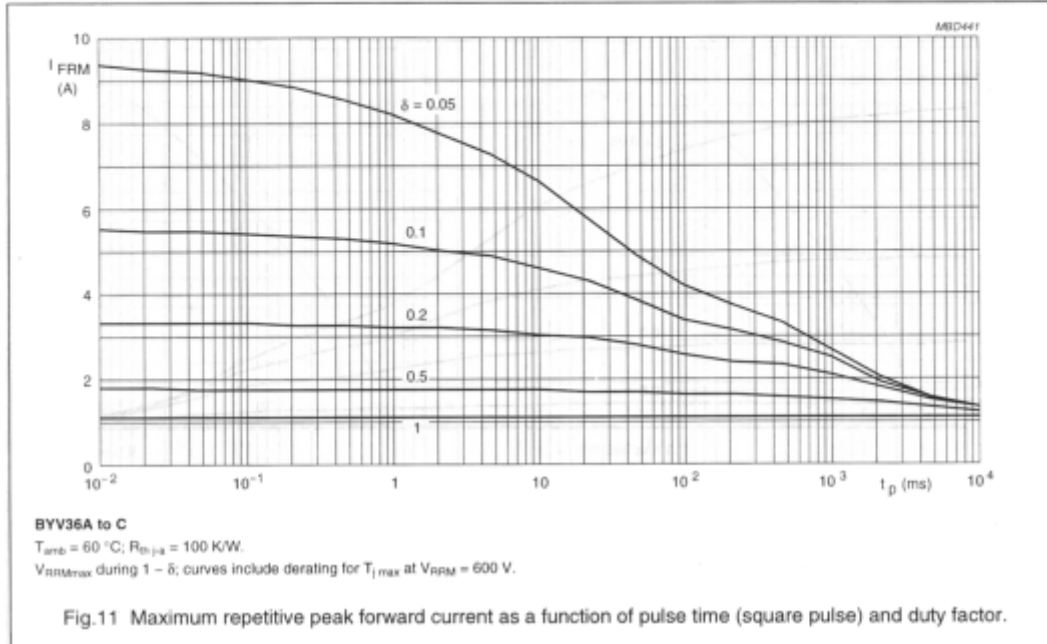
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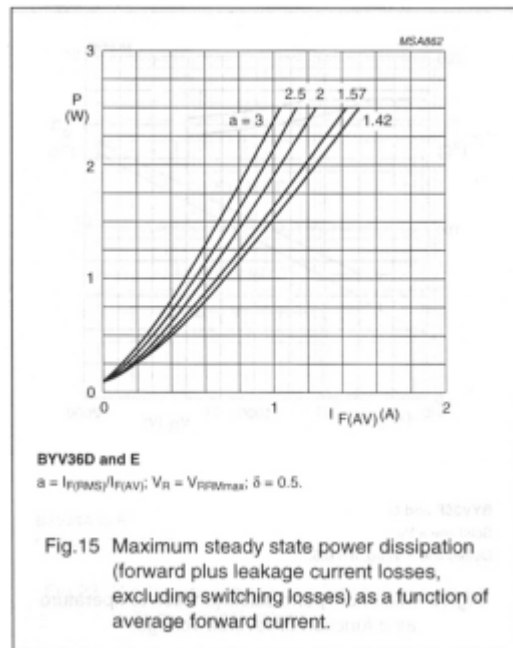
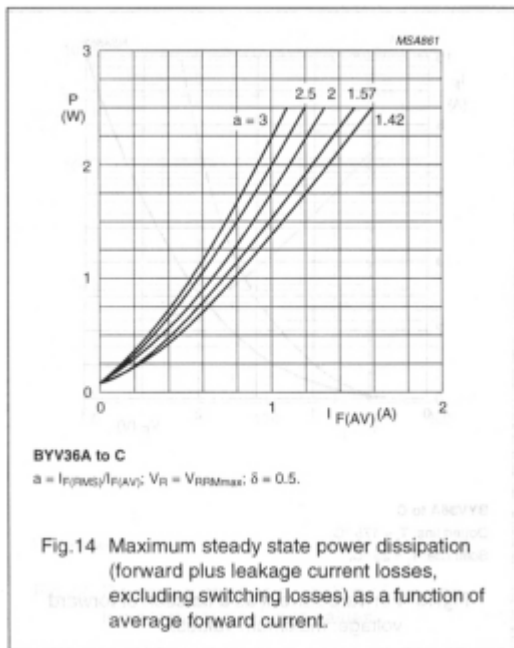
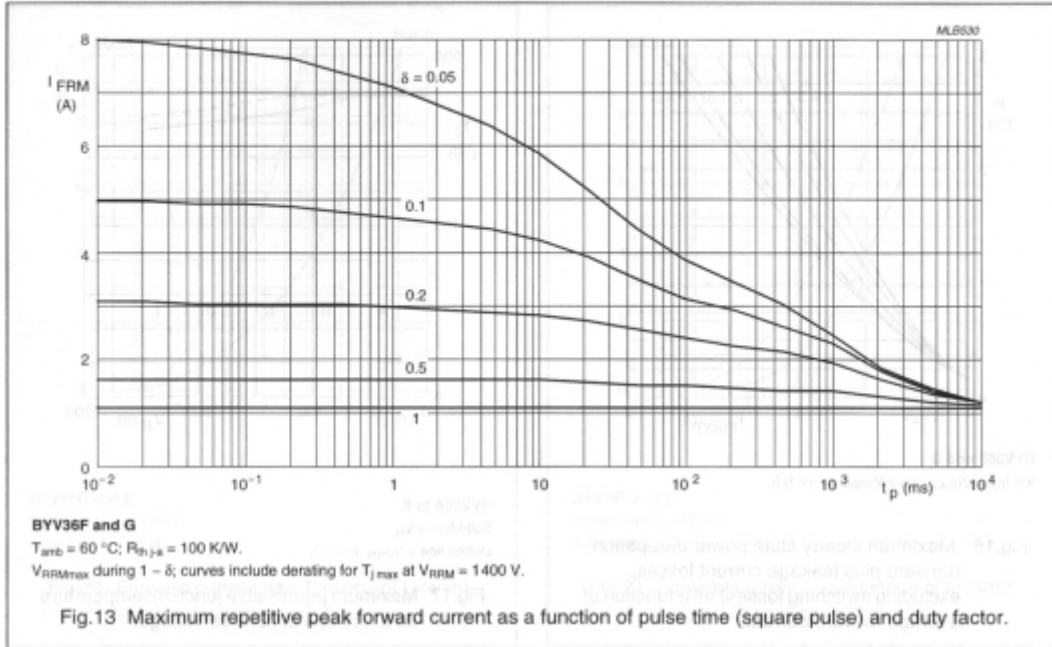
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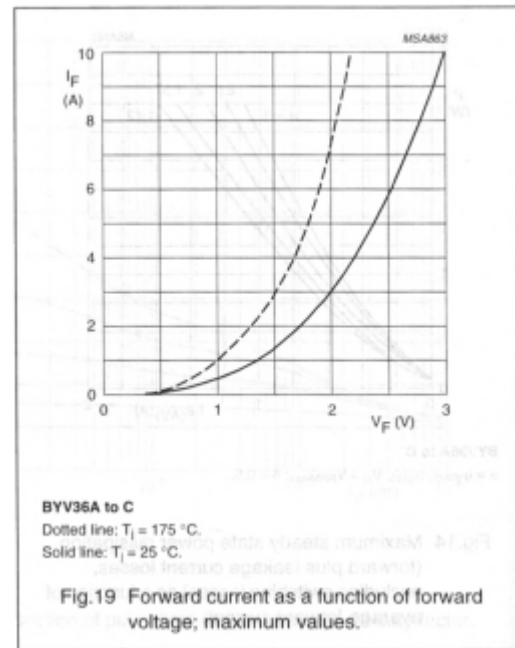
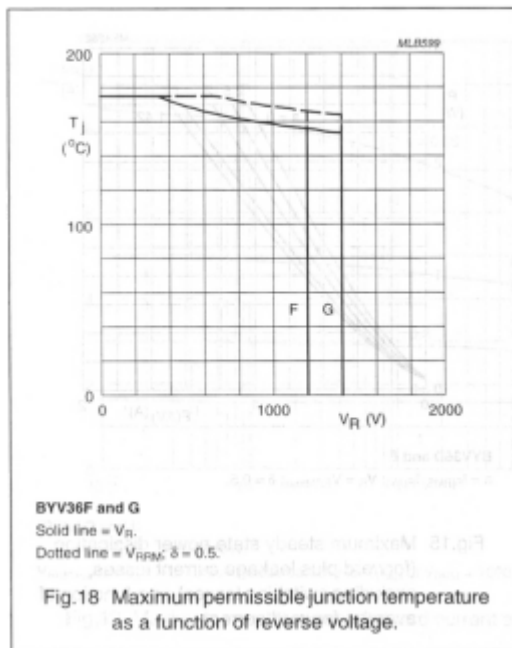
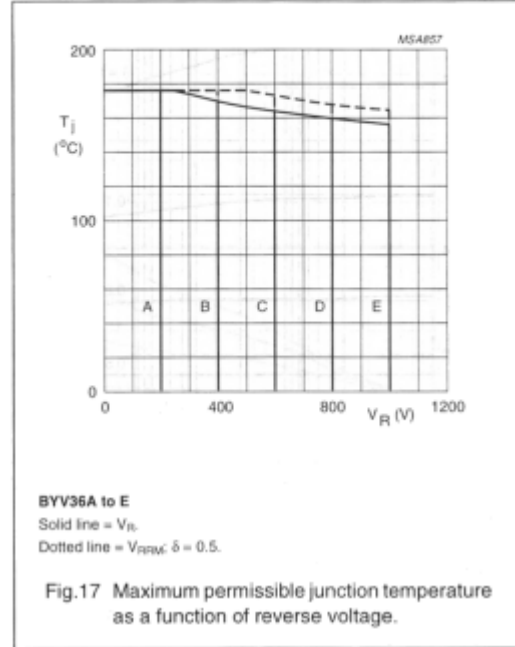
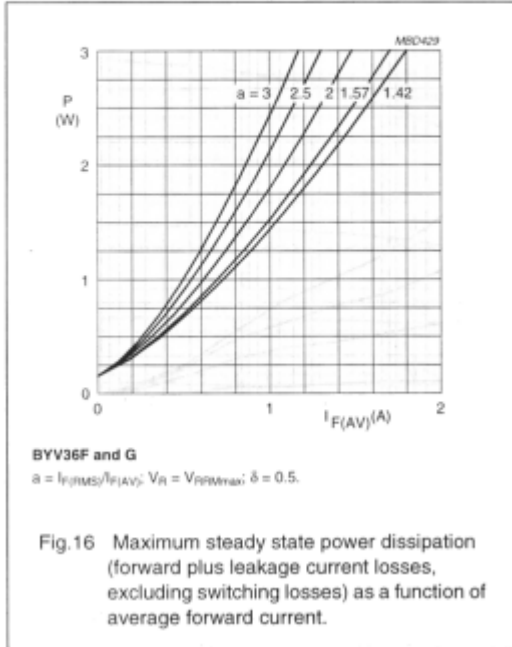
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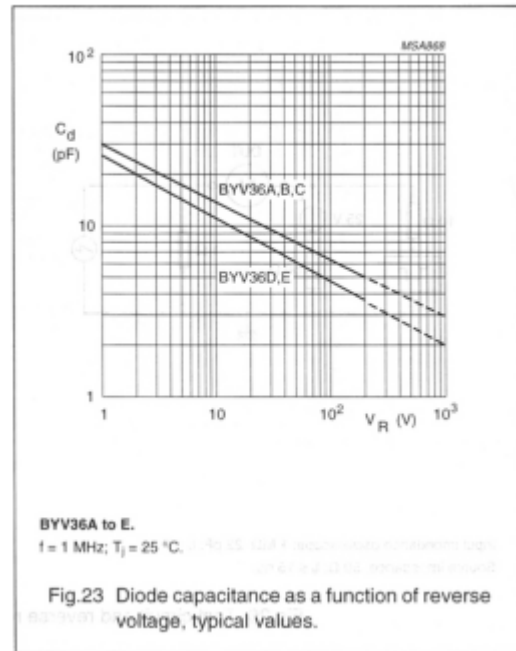
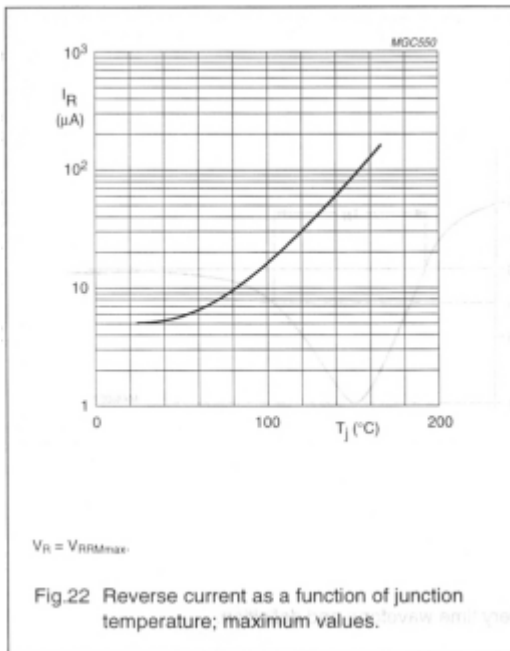
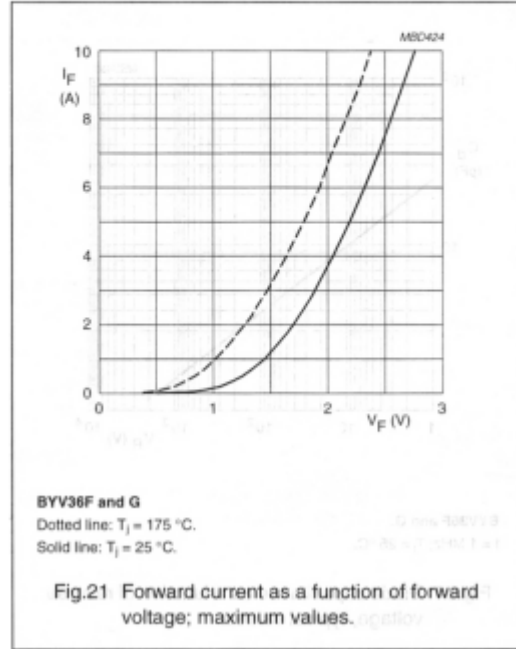
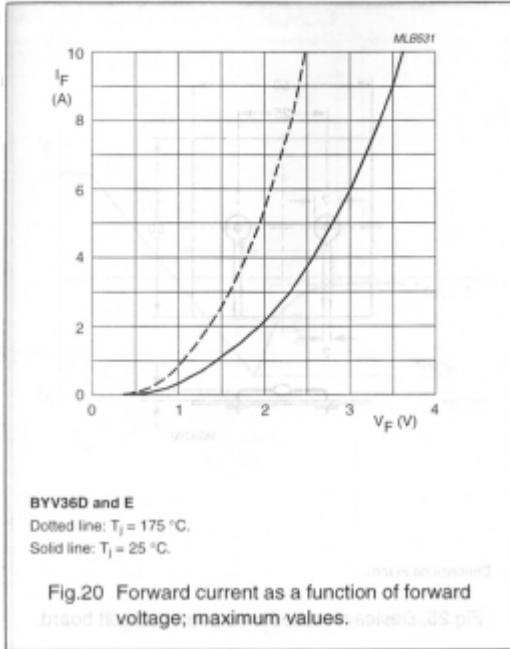
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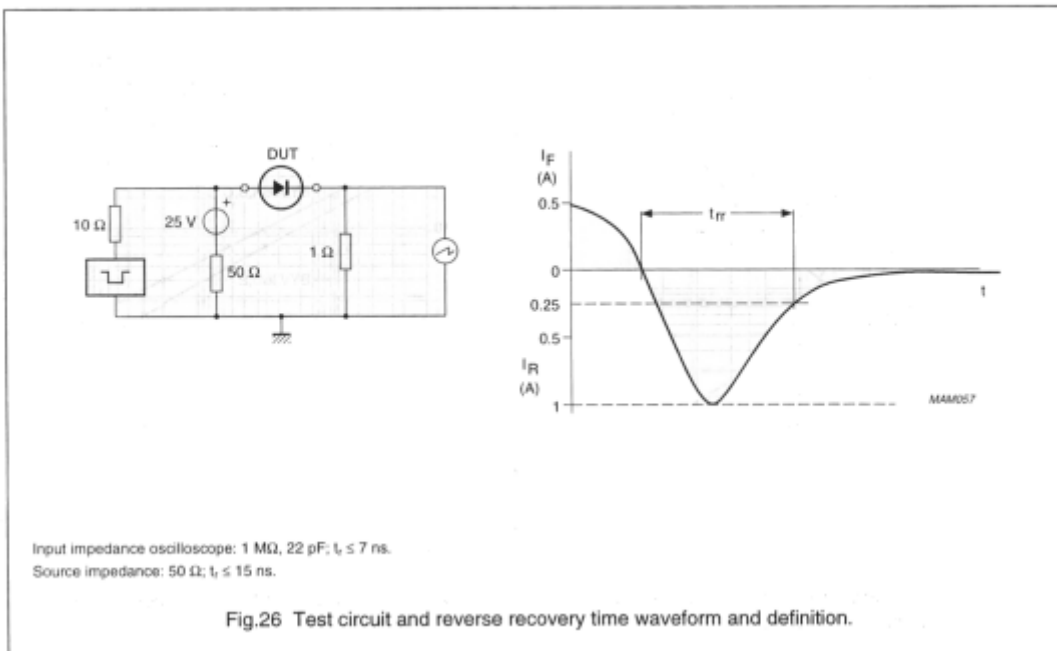
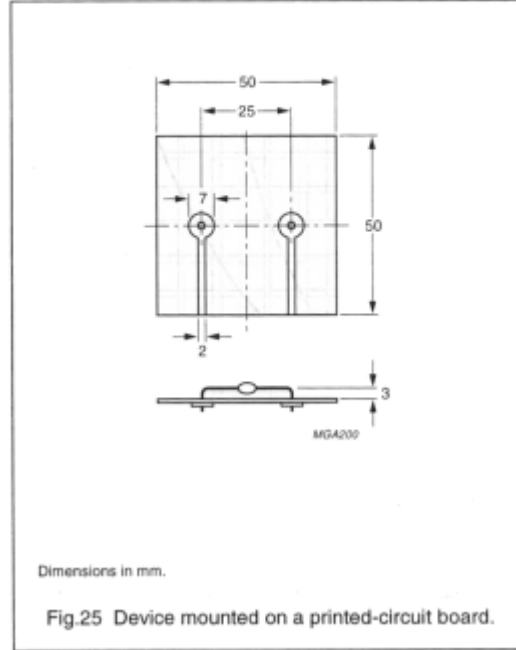
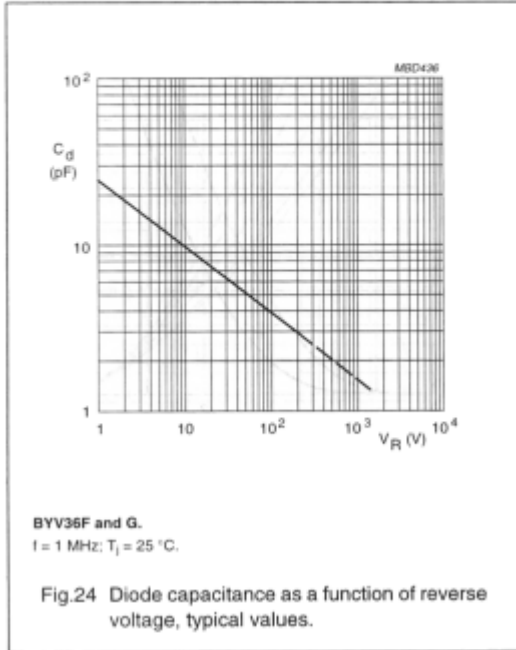
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