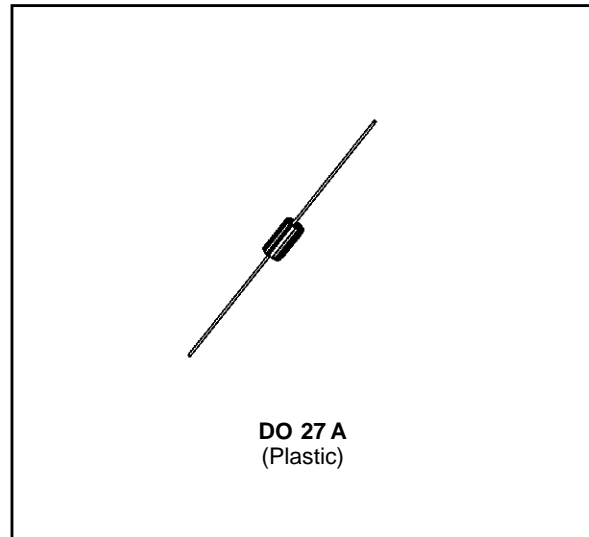


## HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODES

- VERY LOW CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD AND REVERSE RECOVERY TIMES
- HIGH SURGE CURRENT
- THE SPECIFICATIONS AND CURVES ENABLE THE DETERMINATION OF  $t_{rr}$  AND  $I_{RM}$  AT 100°C UNDER USERS CONDITIONS



### DESCRIPTION

Low voltage drop and rectifier suited for switching mode base drive and transistor circuits.

### ABSOLUTE MAXIMUM RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{FRM}$	Repetitive Peak Forward Current	$t_p \leq 20\mu s$	70	A
$I_F (AV)$	Average Forward Current*	$T_a = 85^\circ C$ $\delta = 0.5$	3	A
$I_{FSM}$	Surge non Repetitive Forward Current	$t_p = 10ms$ Sinusoidal	70	A
$P_{tot}$	Power Dissipation *	$T_a = 85^\circ C$	2.5	W
$T_{stg}$ $T_j$	Storage and Junction Temperature Range		- 40 to + 150 - 40 to + 150	°C
$T_L$	Maximum Lead Temperature for Soldering during 10s at 4mm from Case		230	°C

Symbol	Parameter	BYW 98-				Unit
		50	100	150	200	
$V_{RRM}$	Repetitive Peak Reverse Voltage	50	100	150	200	V
$V_{RSM}$	Non Repetitive Peak Reverse Voltage	55	110	165	220	V

### THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction-ambient*	25	°C/W

\* On infinite heatsink with 10mm lead length.

**ELECTRICAL CHARACTERISTICS**

STATIC CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I <sub>R</sub>	T <sub>j</sub> = 25°C	V <sub>R</sub> = V <sub>RRM</sub>			10	μA
	T <sub>j</sub> = 100°C				0.5	mA
V <sub>F</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 9A			1.1	V
	T <sub>j</sub> = 100°C	I <sub>F</sub> = 3A			0.85	

RECOVERY CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
t <sub>rr</sub>	T <sub>j</sub> = 25°C V <sub>R</sub> = 30V	I <sub>F</sub> = 1A See figure 10	di <sub>F</sub> /dt = - 50A/μs			35	ns
Q <sub>rr</sub>	T <sub>j</sub> = 25°C V <sub>R</sub> ≤ 30V	I <sub>F</sub> = 2A	di <sub>F</sub> /dt = - 20A/μs		12		nC
t <sub>fr</sub>	T <sub>j</sub> = 25°C Measured at 1.1 x V <sub>F</sub>	I <sub>F</sub> = 1A	t <sub>r</sub> = 10ns		20		ns
V <sub>FP</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 1A	t <sub>r</sub> = 10ns		5		V

To evaluate the conduction losses use the following equations:

$$V_F = 0.66 + 0.03 I_F$$

$$P = 0.06 \times I_{F(AV)} + 0.03 I_{F(RMS)}^2$$

Figure 1. Maximum average power dissipation versus average forward current.

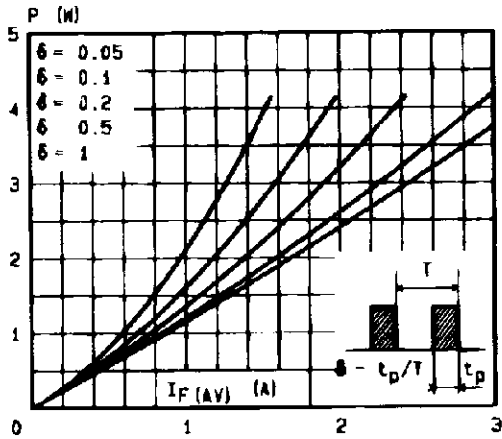


Figure 2. Average forward current versus ambient temperature.

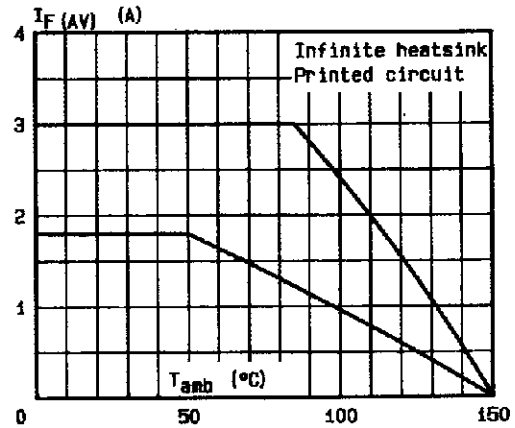
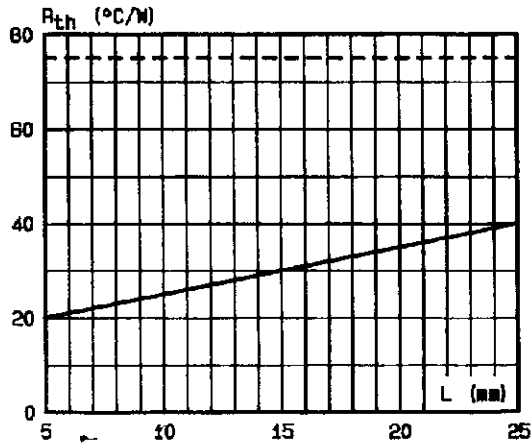


Figure 3. Thermal resistance versus lead length.



Mounting n°1 INFINITE HEATSINK      Mounting n°2 PRINTED CIRCUIT

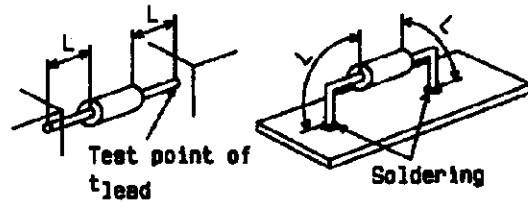


Figure 5. Peak forward current versus peak forward voltage drop (maximum values).

Figure 4. Transient thermal impedance junction-ambient for mounting n°2 versus pulse duration (L = 10 mm).

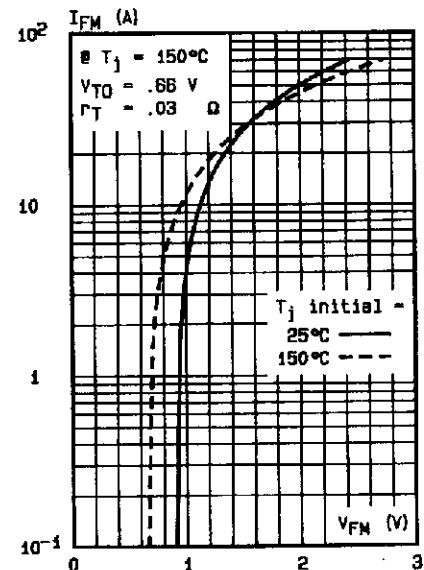
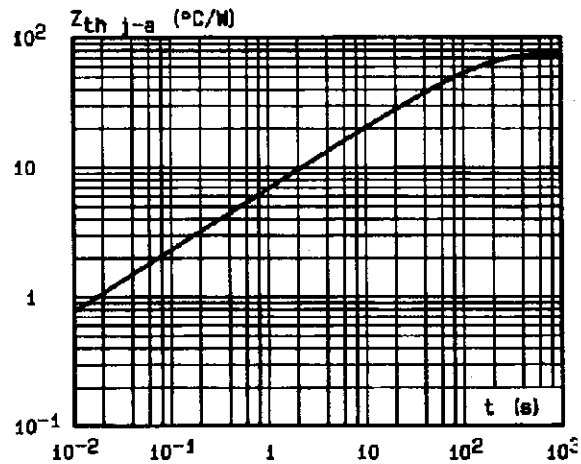


Figure 6. Capacitance versus reverse voltage applied.

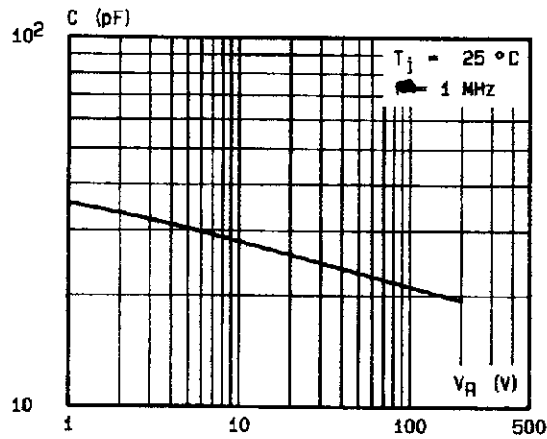


Figure 7. Recovery time versus  $di_F/dt$ .

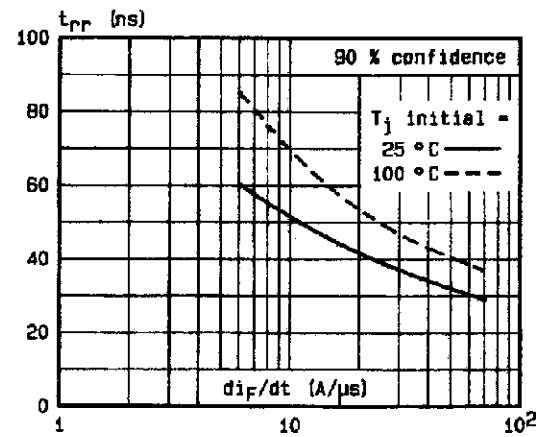


Figure 8. Peak reverse current versus  $di_F/dt$ .

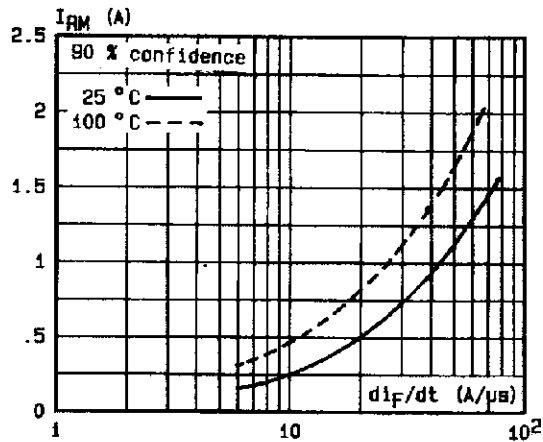


Figure 9. Dynamic parameters versus junction temperature.

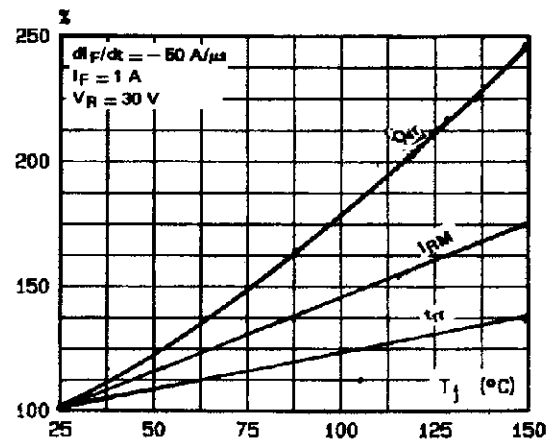
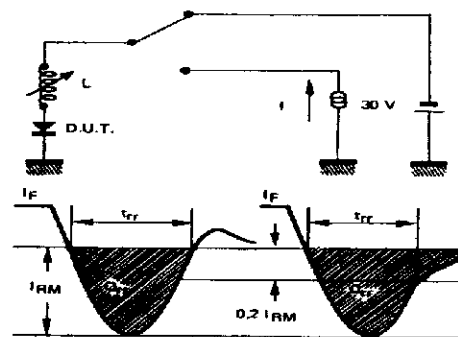
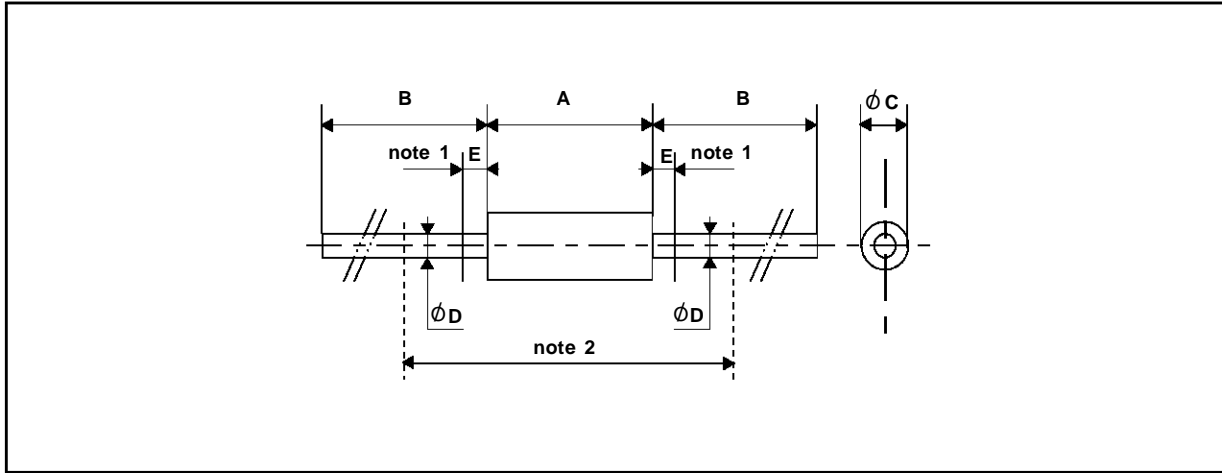


Figure 10. Measurement of  $t_{rr}$  (Fig. 7) and  $I_{RM}$  (Fig. 8).



**PACKAGE MECHANICAL DATA**

DO 27A (Plastic)



REF.	DIMENSIONS				NOTES
	Millimeters		Inches		
	Min.	Max.	Min.	Max.	
A		9.80		0.385	1 - The lead diameter $\phi D$ is not controlled over zone E 2 - The minimum axial length within which the device may be placed with its leads bent at right angles is 0.59" (15 mm)
B	26		1.024		
$\phi C$		5.10		0.200	
$\phi D$		1.28		0.050	
E		1.25		0.049	

Cooling method: by convection (method A)  
 Marking: type number; white band indicates cathode  
 Weight: 1g

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