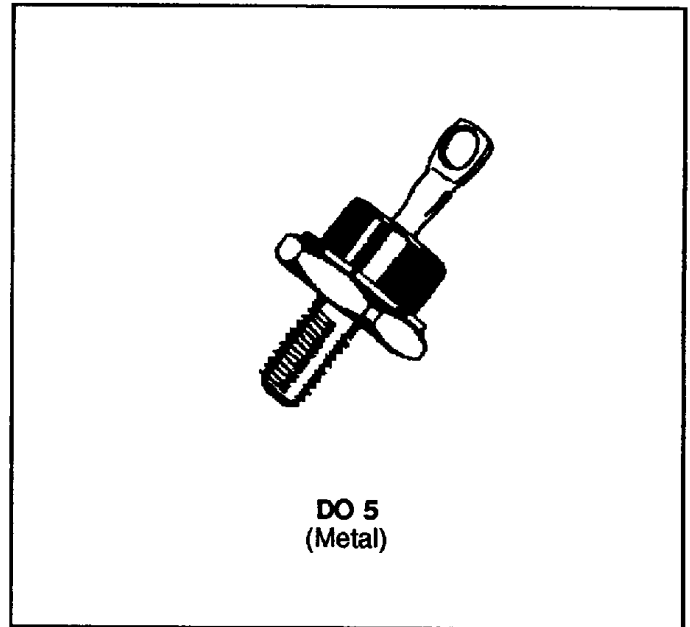


## HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODES

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



### DESCRIPTION

Low voltage drop rectifiers suited for switching mode power supply.

### ABSOLUTE MAXIMUM RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{FRM}$	Repetitive Peak Forward Current	$t_p \leq 20\mu s$	500	A
$I_F (RMS)$	RMS Forward Current		70	A
$I_F (AV)$	Average Forward Current	$T_C = 115^\circ C$ $\delta = 0.5$	35	A
$I_{FSM}$	Surge non Repetitive Forward Current	$t_p = 10ms$ Sinusoidal	500	A
$P_{tot}$	Power Dissipation	$T_C = 100^\circ C$	50	W
$T_{stg}$ $T_j$	Storage and Junction Temperature Range		- 40 to + 150 - 40 to + 150	°C

Symbol	Parameter	BYW 92-				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
$R_{th(j-c)}$	Junction-case	1	°C/W

**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>			50	μA
	T <sub>J</sub> = 100°C				5	mA
V <sub>F</sub>	T <sub>J</sub> = 25°C	I <sub>F</sub> = 100A			1.3	V
	T <sub>J</sub> = 100°C	I <sub>F</sub> = 35A			0.92	

**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 12	di <sub>F</sub> /dt = - 50A/μs			50	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			20	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> = 5ns		10		ns
V <sub>FP</sub>	T <sub>J</sub> = 25°C	I <sub>F</sub> = 1A	t <sub>r</sub> = 5ns		1.5		V

To evaluate the conduction losses use the following equations:

$$V_F = 0.66 + 0.0047 I_F \quad P = 0.66 \times I_{F(AV)} + 0.0047 I_{F(RMS)}^2$$

Figure 1. Power losses versus average current

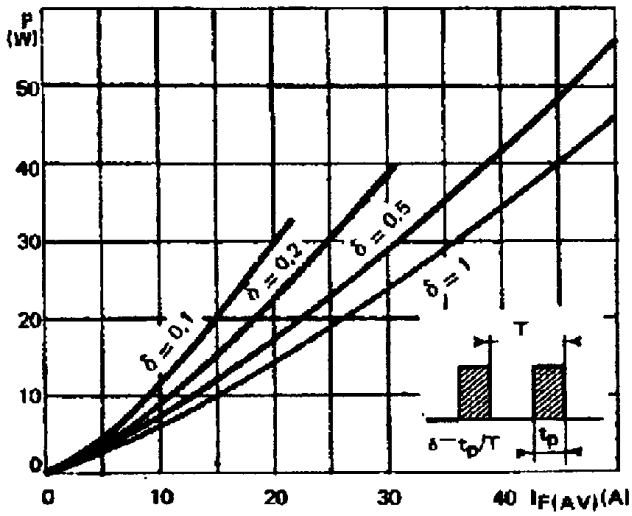


Figure 2. Peak current versus form factor

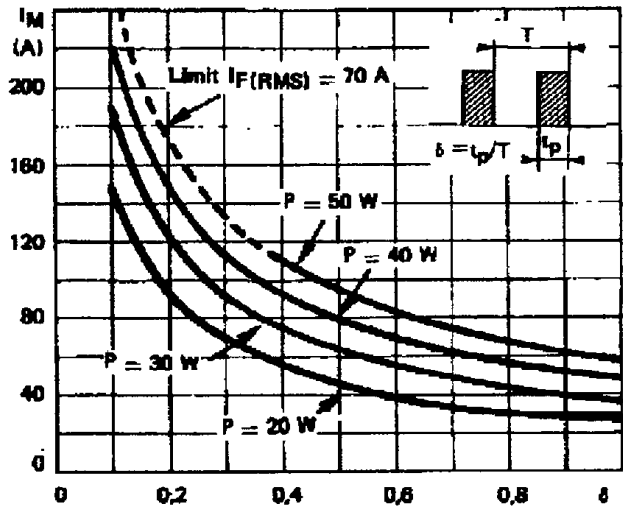


Figure 3. Non repetitive peak surge current versus duration

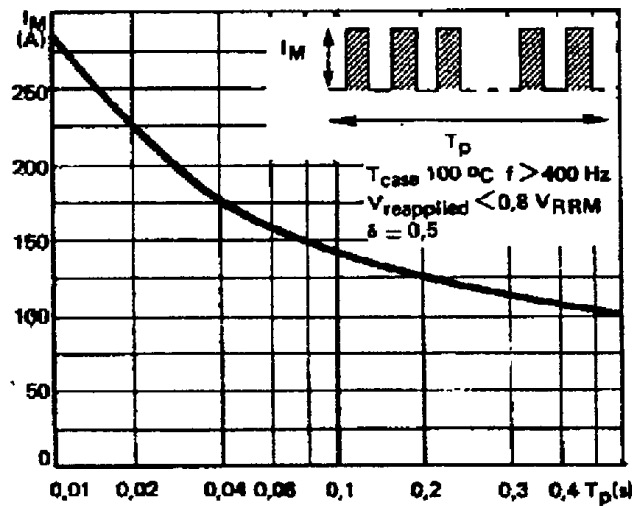


Figure 4. Thermal impedance versus pulse width

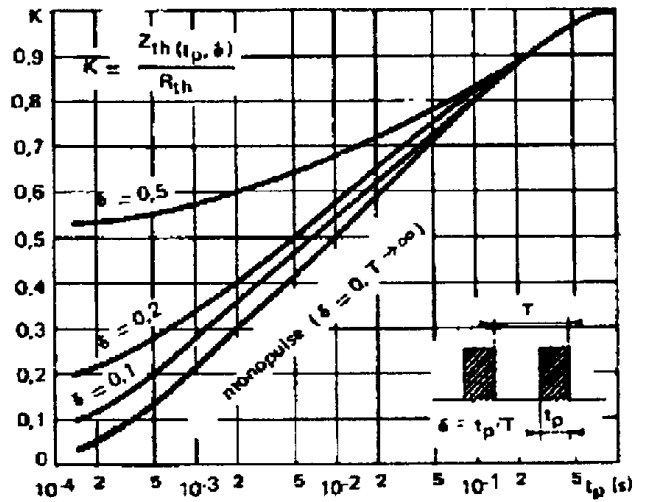


Figure 5. Voltage drop and spread versus forward current

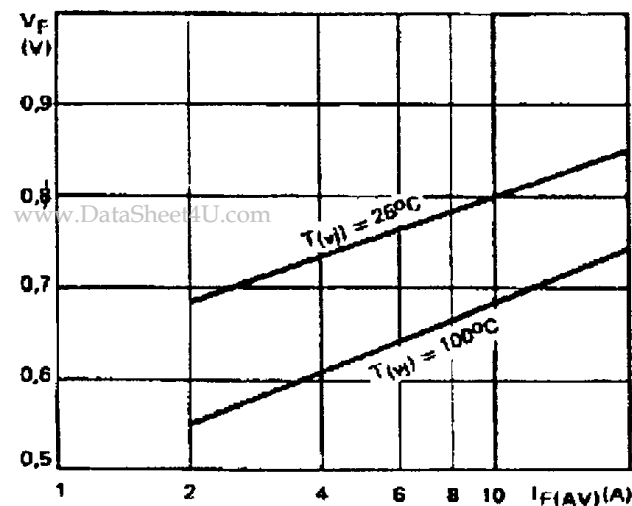


Figure 6. Voltage drop versus forward current

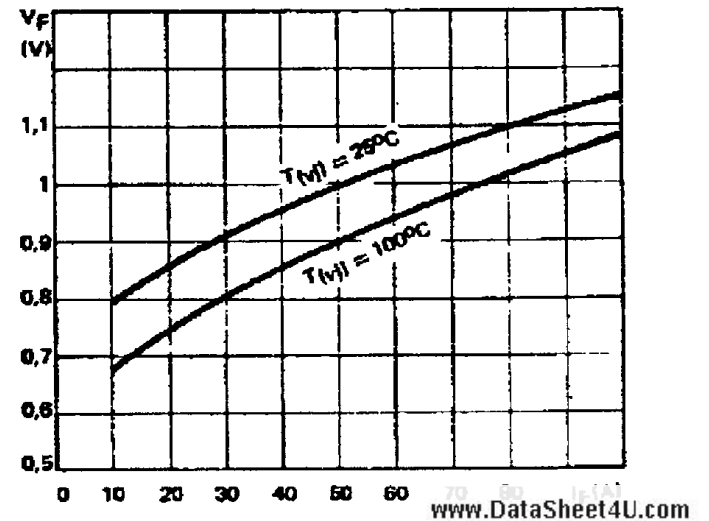


Figure 7. Capacitance versus reverse voltage applied

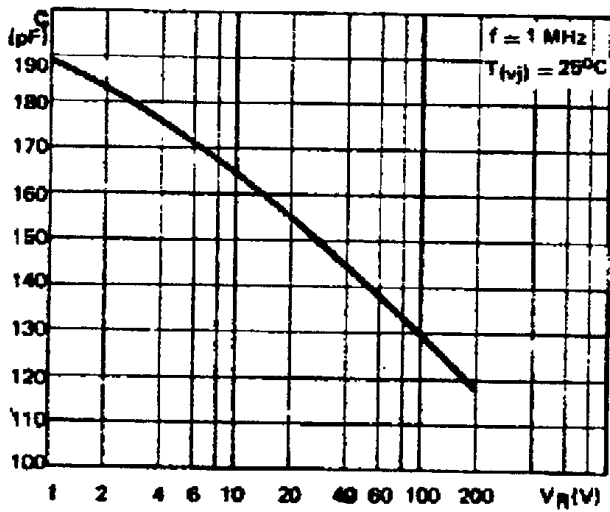


Figure 8. Recovery charge versus  $di_F/dt$

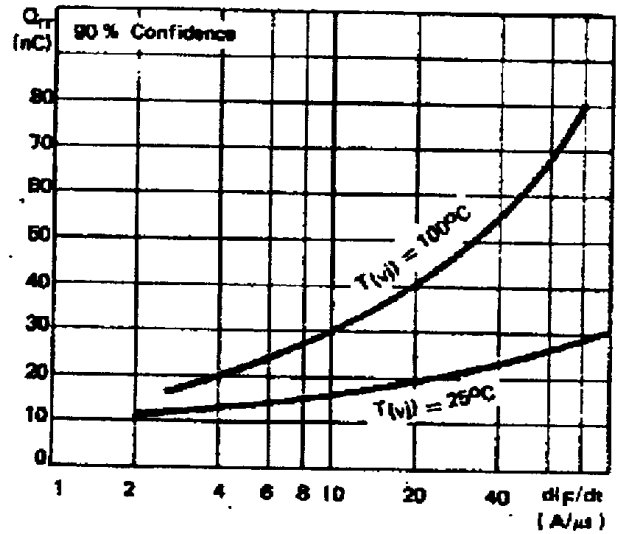


Figure 9. Recovery time versus  $di_F/dt$

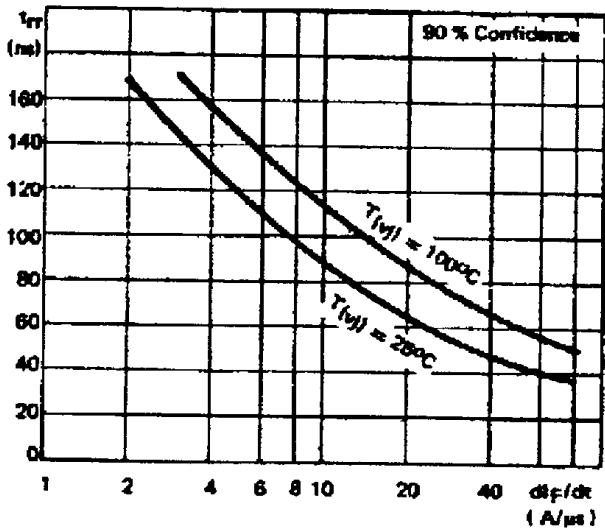


Figure 10. Peak reverse current versus  $di_F/dt$

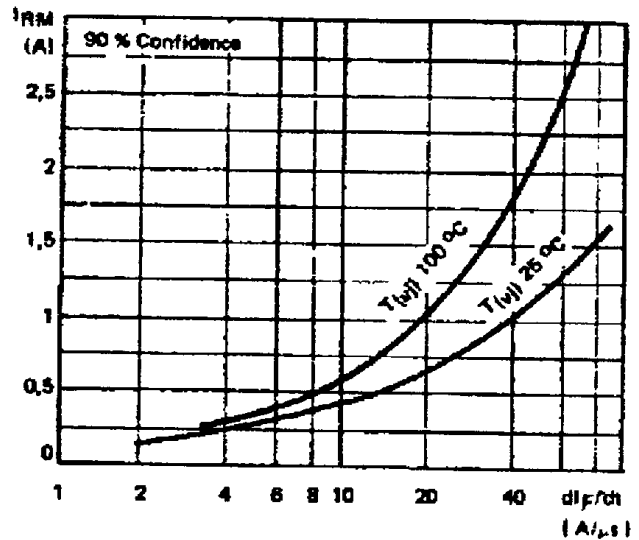


Figure 11. Dynamic parameters versus junction temperature

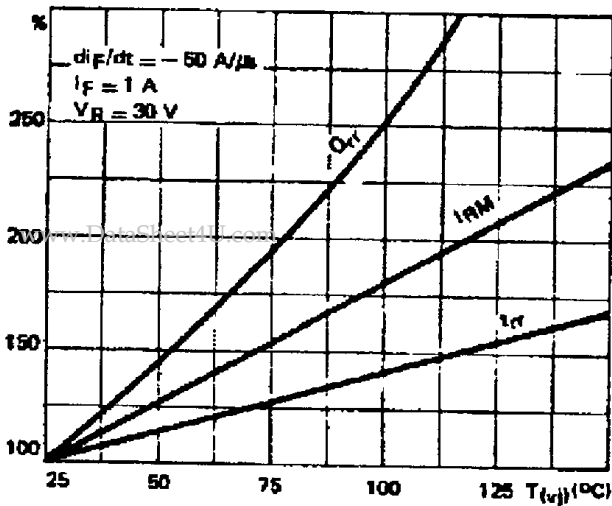
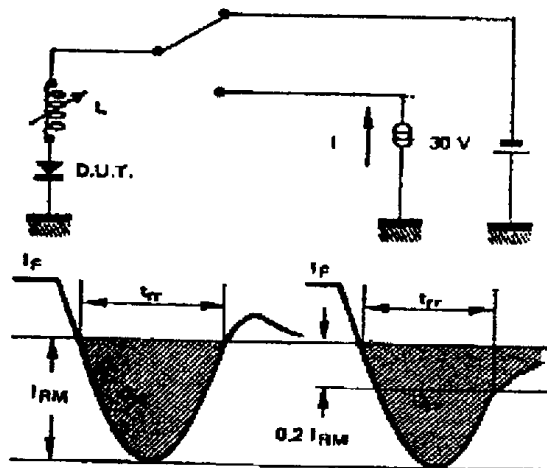
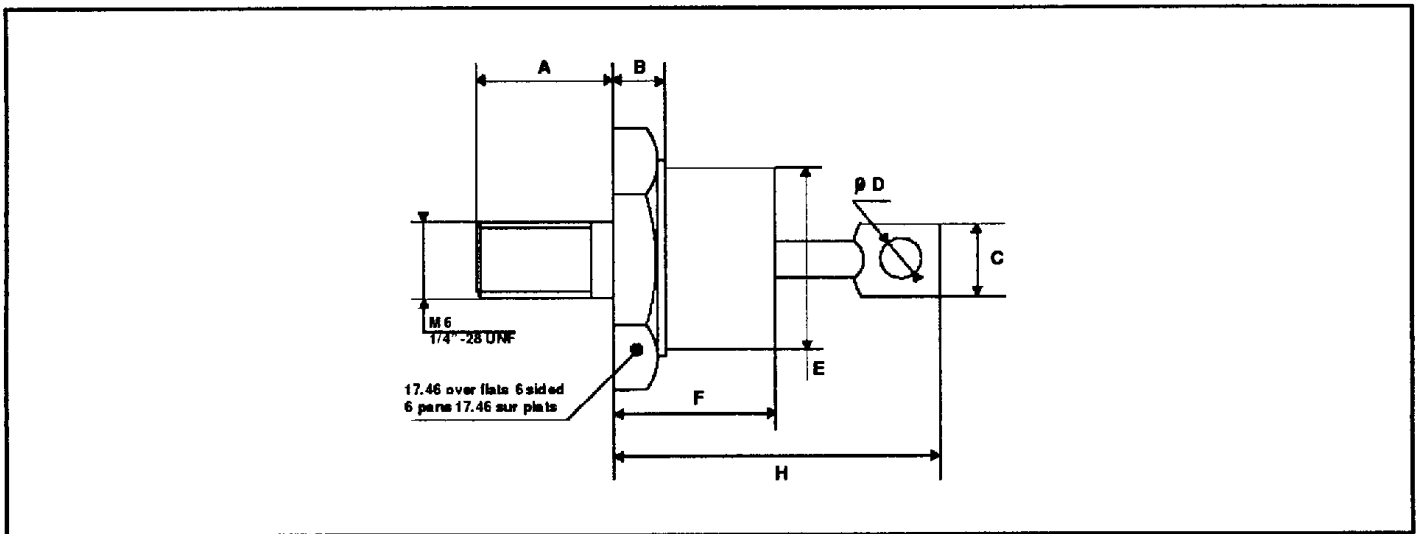


Figure 12. Measurement of  $t_{rr}$  (fig. 9) and  $I_{RM}$



**PACKAGE MECHANICAL DATA**  
DO 5 Metal



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	10.72		12.70	0.422		0.500
B	2.93		5.08	0.115		0.200
C			9.52			0.375
D	3.56		4.44	0.140		0.175
E			16.94			0.667
F			12.70			0.500
H			25.40			1

Cooling method: by conduction (method C)  
 Marking: Cathode connected to case : type number  
 Anode connected to case : type number + suffix R (Consult us for these reverse version datasheets)  
 Weight: 18.84g  
 Recommended torque value: 250cm. N  
 Maximum torque value: 310cm. N

[www.DataSheet4U.com](http://www.DataSheet4U.com)

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