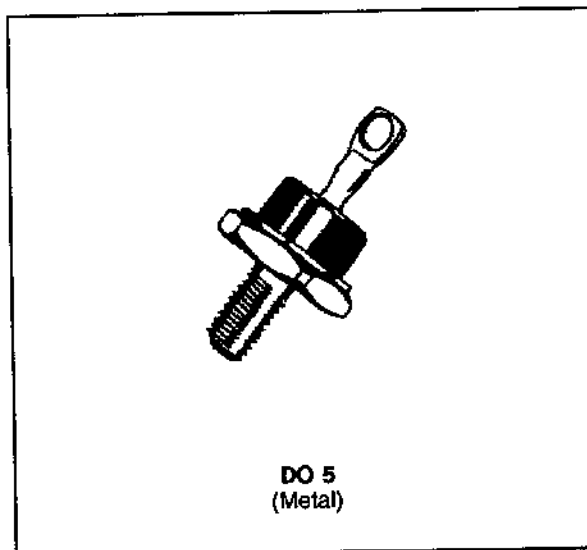


HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODES

- 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	$t_p \leq 20\mu s$	1000	A
$I_F (RMS)$	RMS Forward Current		100	A
$I_F (AV)$	Average Forward Current	$T_C = 100^\circ C$ $\delta = 0.5$	50	A
I_{FSM}	Surge non Repetitive Forward Current	$t_p = 10ms$ Sinusoidal	1500	A
P_{tot}	Power Dissipation	$T = 90^\circ C$	60	W
T_{stg} T_J	Storage and Junction Temperature Range		- 40 to + 150 - 40 to + 150	$^\circ C$

Symbol	Parameter	BYT 78-				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	$^\circ C/W$

ELECTRICAL CHARACTERISTICS**STATIC CHARACTERISTICS**

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I_R	$T_J = 25^\circ\text{C}$	$V_R = V_{RRM}$			50	μA
	$T_J = 100^\circ\text{C}$				5	mA
V_F	$T_J = 25^\circ\text{C}$	$I_F = 160\text{A}$			1.1	V
	$T_J = 100^\circ\text{C}$	$I_F = 50\text{A}$			0.85	

RECOVERY CHARACTERISTICS

Symbol				Min.	Typ.	Max.	Unit
t_{rr}	$T_J = 25^\circ\text{C}$ $V_R = 30\text{V}$	$I_F = 1\text{A}$ see figure 12	$di_F/dt = -50\text{A}/\mu\text{s}$			60	ns
t_{tr}	$T_J = 25^\circ\text{C}$ Measured at $1.1 \times V_F$	$I_F = 1\text{A}$	$t_r = 5\text{ns}$		10		ns
V_{FP}	$T_J = 25^\circ\text{C}$	$I_F = 1\text{A}$	$t_r = 5\text{ns}$		1.5		V

To evaluate the conduction losses use the following equations:

$$V_F = 0.66 + 0.0021 I_F \quad P = 0.66 \times I_{F(AV)} + 0.0021 I_F^2(\text{RMS})$$

Figure 1. Power losses versus average current.

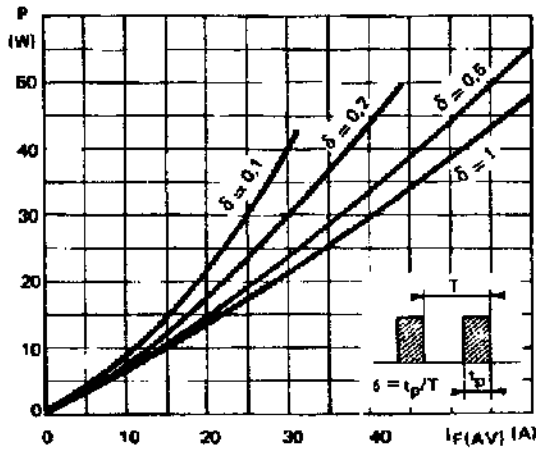


Figure 2. Peak current versus form factor.

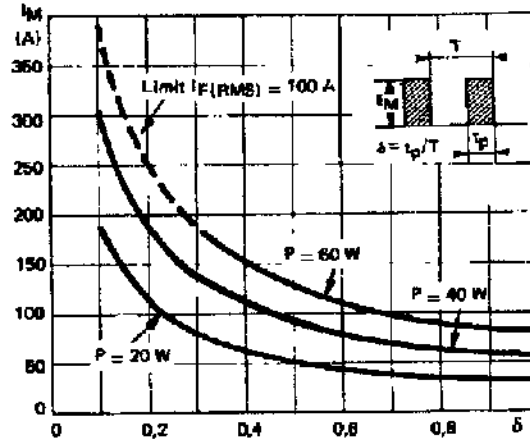


Figure 3. Non repetitive peak surge current versus duration

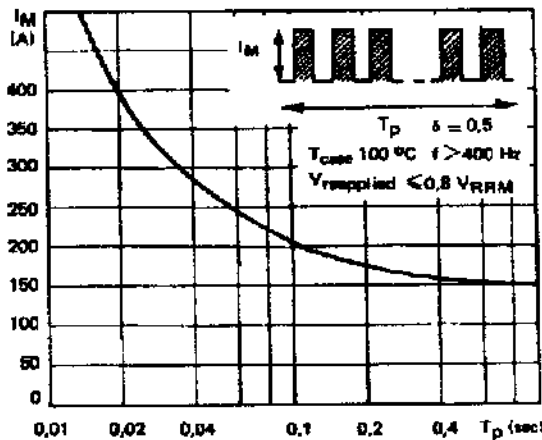


Figure 4. Thermal Impedance versus pulse width.

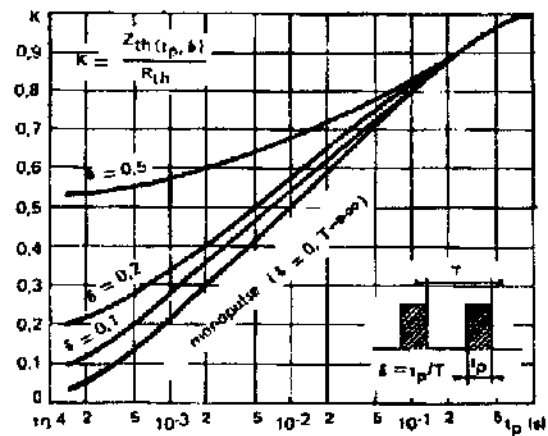


Figure 5. Voltage drop and dispersion versus forward current.

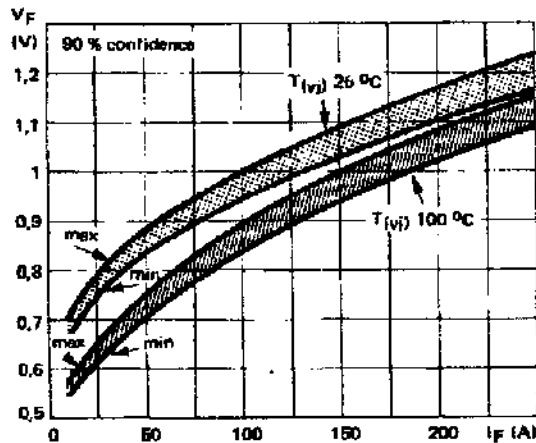


Figure 6. Recovery charge versus forward current.

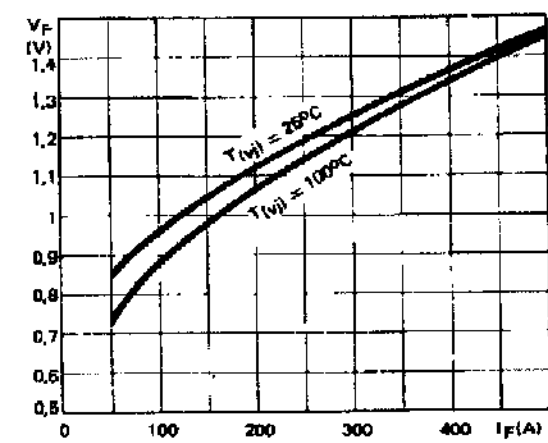


Figure 7. Capacitance versus reverse voltage applied

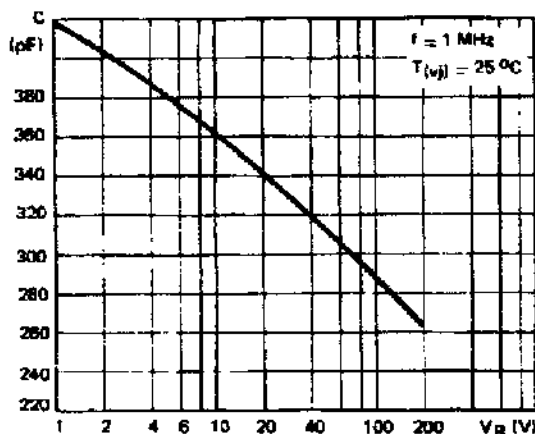


Figure 8. Recovery charge versus di_F/dt

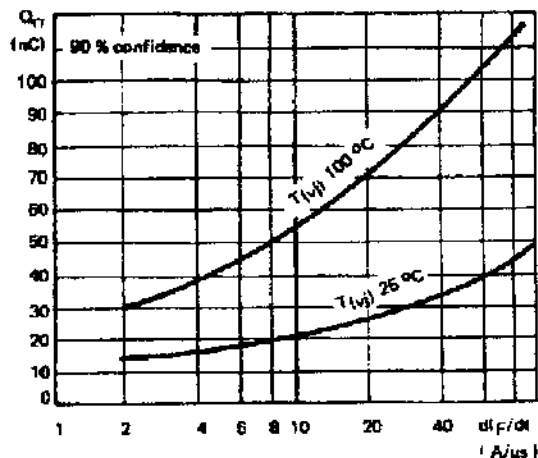


Figure 9. Recovery time versus di_F/dt .

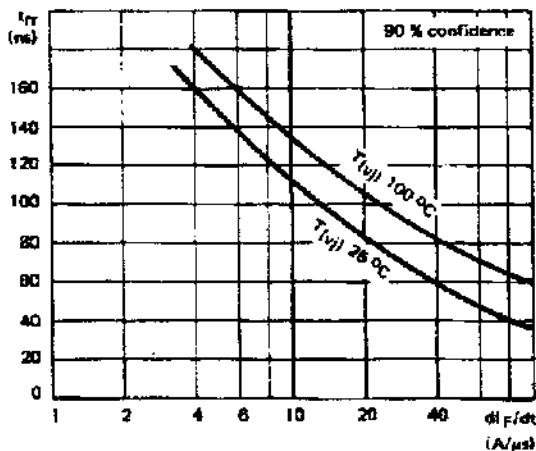


Figure 10. Peak reverse current versus di_F/dt

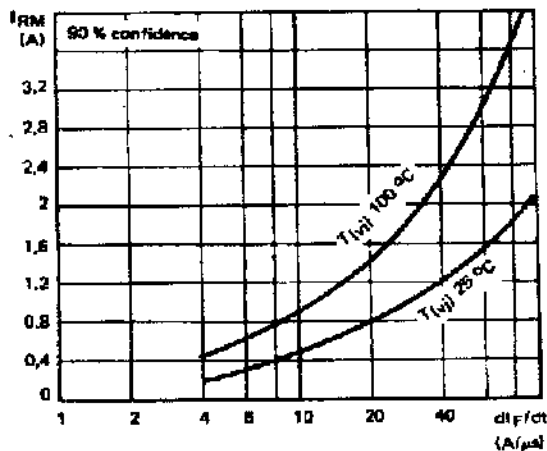


Figure 11. Dynamic parameter versus junction temperature

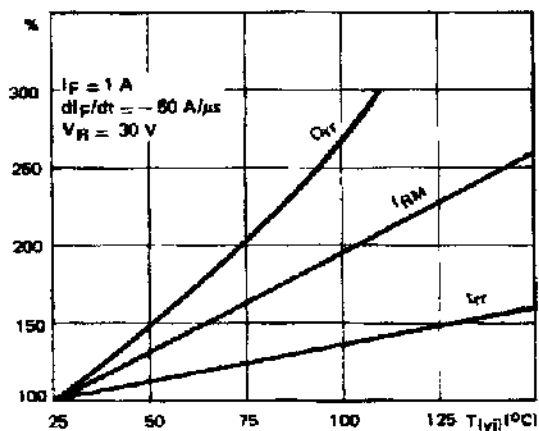
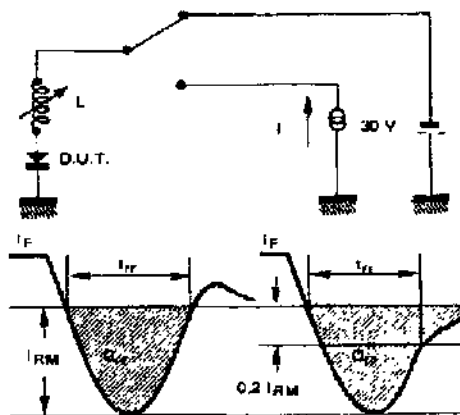
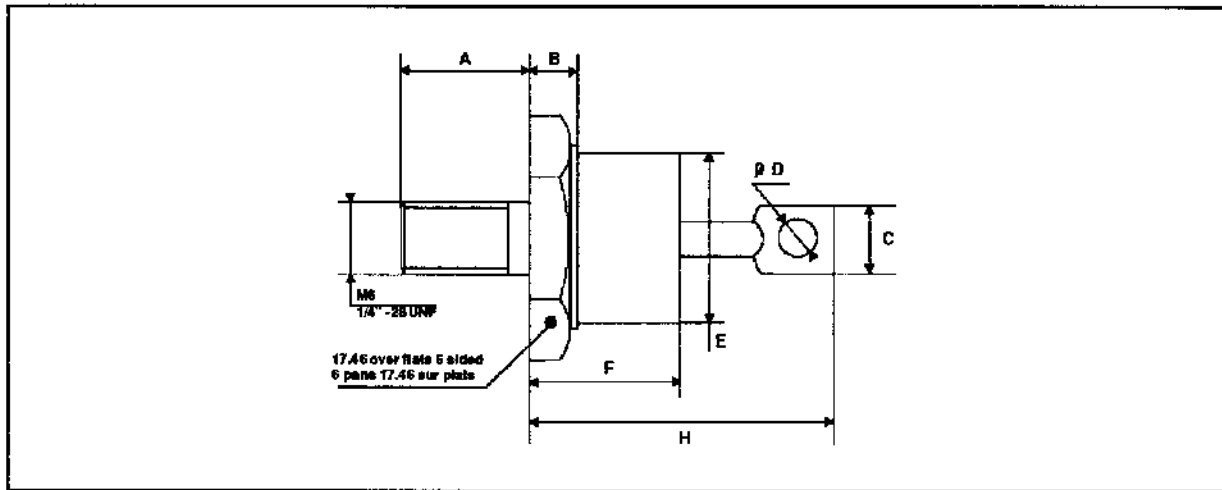


Figure 12. Measurement of t_{rr} (fig. 9) and I_{RM} (fig. 10)



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

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