

## FAST RECOVERY RECTIFIER DIODES

- LOW SWITCHING LOSSES
- LOW PEAK RECOVERY CURRENT  $I_{RM}$
- THE SPECIFICATIONS AND CURVES ENABLE THE DETERMINATION OF  $t_{tr}$  AND  $I_{RM}$  AT 100°C UNDER USERS CONDITIONS

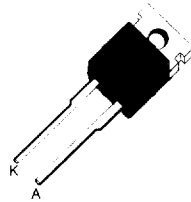
### APPLICATIONS

- MOTOR CONTROLS (FREE-WHEELING DIODE)
- SWITCHMODE POWER SUPPLIES
- SNUBBER DIODES

### DESCRIPTION

Fast recovery rectifiers suited for power switching applications.

Cathode connected to case



**DO 220 AB**  
(Plastic)

### ABSOLUTE RATINGS (limiting values)

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

Symbol	Parameter	BYX 233-			Unit
		200 A	400 A	600 A	
$V_{RRM}$	Repetitive Peak Reverse Voltage	200	400	600	V
$V_{RSM}$	Non Repetitive Peak Reverse Voltage	250	450	650	V

### HERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction-case	3	°C/W

**ELECTRICAL CHARACTERISTICS**

**STATIC CHARACTERISTICS**

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
$I_R$	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			20	$\mu\text{A}$
	$T_j = 100^\circ\text{C}$				1	$\text{mA}$
$V_F$	$T_j = 25^\circ\text{C}$	$I_F = 8\text{A}$			1.5	$\text{V}$
	$T_j = 100^\circ\text{C}$				1.25	

**RECOVERY CHARACTERISTICS**

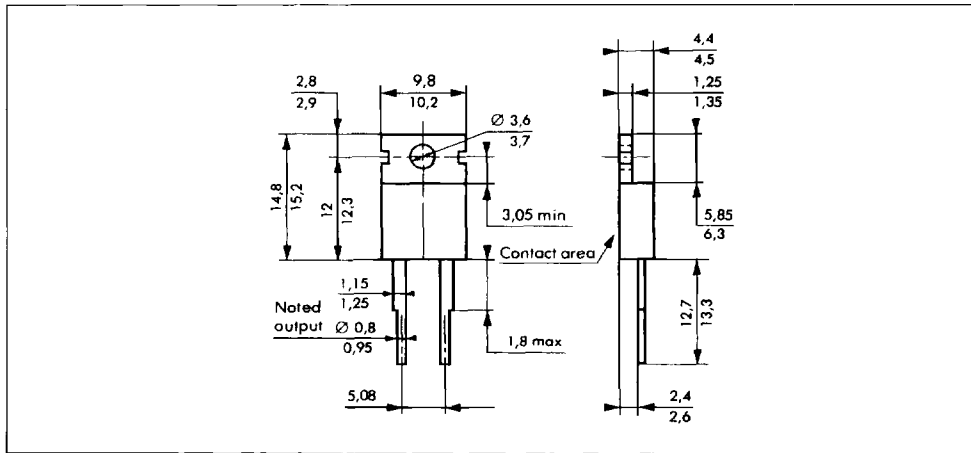
Symbol	Test Conditions		Min.	Typ.	Max.	Unit
$t_{rr}$	$T_j = 25^\circ\text{C}$ $V_R = 30\text{V}$	$I_F = 1\text{A}$ $di_F/dt = - 15\text{A}/\mu\text{s}$			150	$\text{ns}$
$Q_{rr}$	$T_j = 25^\circ\text{C}$ $V_R = 100\text{V}$	$I_F = 8\text{A}$ $di_F/dt = - 20\text{A}/\mu\text{s}$		2.2		$\mu\text{C}$
$I_{RM}$	$T_j = 25^\circ\text{C}$ $V_R = 100\text{V}$	$I_F = 8\text{A}$ $di_F/dt = - 20\text{A}/\mu\text{s}$			4	$\text{A}$

To evaluate the conduction losses use the following equations :

$$V_F = 0.95 + 0.012 I_F \qquad P = 0.95 \times I_{F(AV)} + 0.012 I_F^2 (RMS)$$

**PACKAGE MECHANICAL DATA**

DO 220 AB Plastic



Cooling method : by conduction (method C)  
 Marking : type number  
 Weight : 2.4 g  
 Recommended torque value : 80cm. N  
 Maximum torque value : 100cm. N

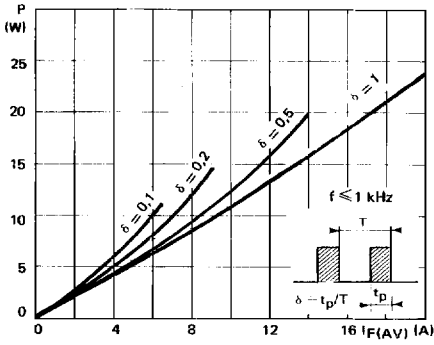


FIGURE 1 : Low frequency power losses versus average current

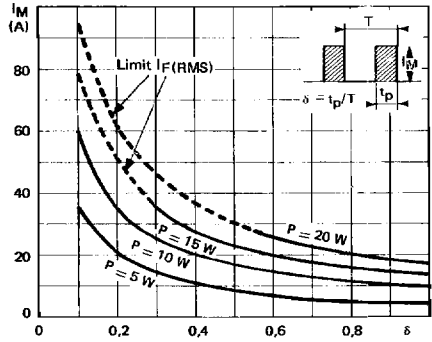


FIGURE 2 : Peak current versus form factor

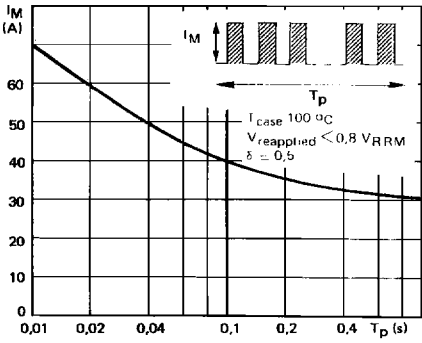


FIGURE 3 : Non repetitive peak surge current versus overload duration

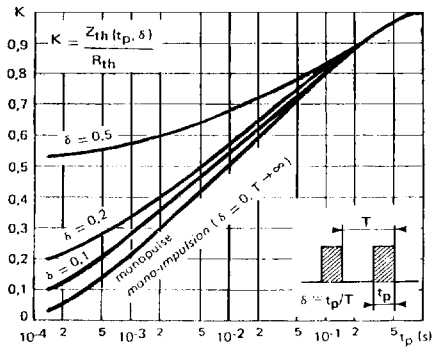


FIGURE 4 : Thermal impedance versus pulse width

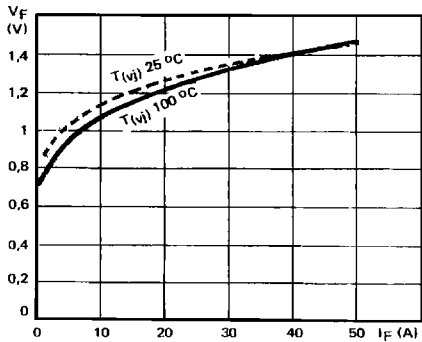


FIGURE 5 : Voltage drop versus forward current

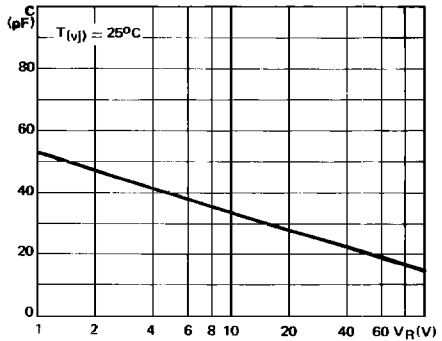


FIGURE 6 : Capacitance versus reverse voltage

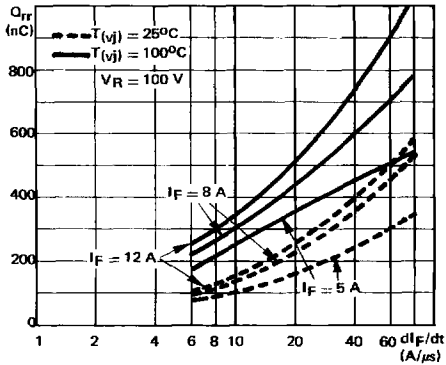


FIGURE 7 : Recovery charge versus  $di_F/dt$

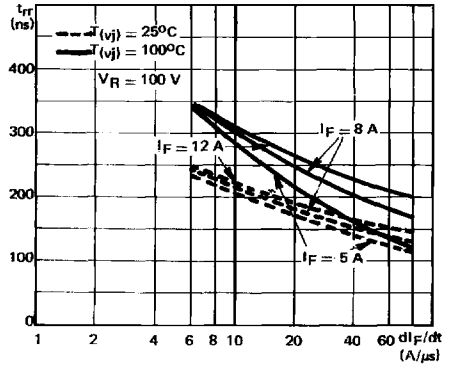


FIGURE 8 : Recovery time versus  $di_F/dt$

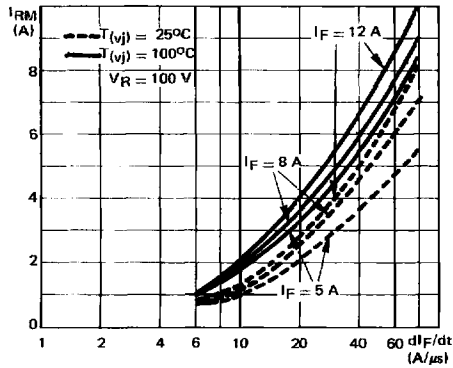


FIGURE 9 : Peak reverse current versus  $di_F/dt$