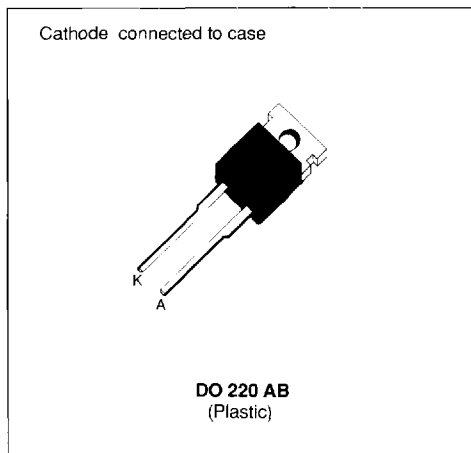


FAST RECOVERY RECTIFIER DIODE

- ▮ VERY HIGH REVERSE VOLTAGE CAPABILITY
- ▮ VERY LOW REVERSE RECOVERY TIME
- ▮ VERY LOW SWITCHING LOSSES
- ▮ LOW NOISE TURN-OFF SWITCHING


USABLE APPLICATIONS

- ▮ FREE WHEELING DIODE IN CONVERTERS AND MOTOR CONTROL CIRCUITS
- ▮ RECTIFIER IN S.M.P.S.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage	1000	V
V_{RSM}	Non Repetitive Peak Reverse Voltage	1000	V
I_{FRM}	Repetitive Peak Forward Current	$t_p \leq 10\mu s$	A
$I_{F(RMS)}$	RMS Forward Current	25	A
$I_{F(AV)}$	Average Forward Current	$T_{case} = 100^\circ C$ $\delta = 0.5$	A
I_{FSM}	Surge Non Repetitive Forward Current	$t_p = 10ms$ Sinusoidal	A
P	Power Dissipation	$T_{case} = 100^\circ C$	W
T_{stg} T_j	Storage and Junction Temperature Range	- 40 to + 150	$^\circ C$

HERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction-case	2	$^\circ C/W$

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
	$T_J = 100^\circ\text{C}$				2.5	mA
V_F	$T_J = 25^\circ\text{C}$	$I_F = 12\text{A}$			1.9	V
	$T_J = 100^\circ\text{C}$				1.8	

RECOVERY CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
t_{rr}	$T_J = 25^\circ\text{C}$	$I_F = 1\text{A}$	$di_F/dt = -15\text{A}/\mu\text{s}$	$V_R = 30\text{V}$		155	ns
		$I_F = 0.5\text{A}$	$I_R = 1\text{A}$	$I_{rr} = 0.25\text{A}$		65	

TURN-OFF SWITCHING CHARACTERISTICS (Without Series Inductance)

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t_{IRM}	$di_F/dt = -50\text{A}/\mu\text{s}$	$V_{CC} = 200\text{V}$ $I_F = 12\text{A}$ $L_p \leq 0.05\mu\text{H}$ $T_J = 100^\circ\text{C}$ See Figure 11			200	ns
	$di_F/dt = -100\text{A}/\mu\text{s}$			120		
I_{RM}	$di_F/dt = -50\text{A}/\mu\text{s}$				7.8	A
	$di_F/dt = -100\text{A}/\mu\text{s}$			9		

TURN-OFF OVERVOLTAGE COEFFICIENT (With Series Inductance)

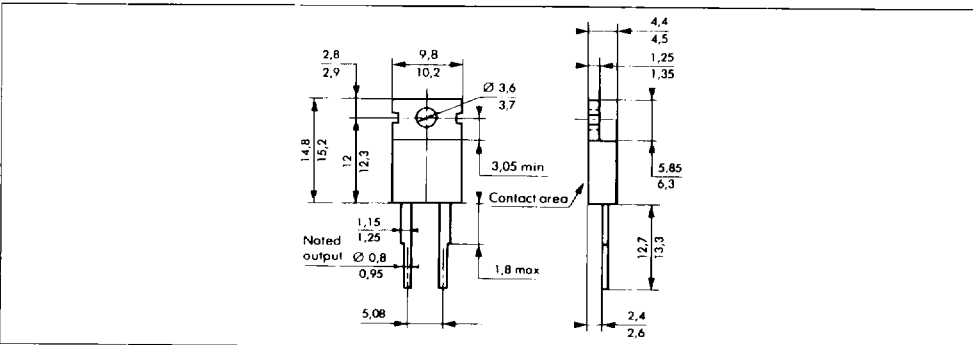
Symbol	Test Conditions		Min.	Typ.	Max.	Unit
$C = \frac{V_{RP}}{V_{CC}}$	$T_J = 100^\circ\text{C}$	$V_{CC} = 200\text{V}$ $I_F = I_{F(AV)}$ $di_F/dt = -12\text{A}/\mu\text{s}$ $L_p = 12\mu\text{H}$ See Figure 12			4.5	

To evaluate the conduction losses use the following equations :

$$V_F = 1.47 + 0.026 I_F$$

$$P = 1.47 \times I_{F(AV)} + 0.026 I_F^2_{(RMS)}$$

PACKAGE MECHANICAL DATA : DO 220 AB Plastic



Cooling method : by conduction (method C)

Marking : type number

Weight : 2.42g

Recommended torque value : 80cm.N

Maximum torque value : 100cm.N

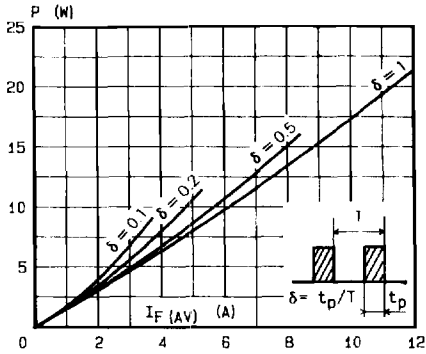


FIGURE 1 : Low frequency power losses versus average current.

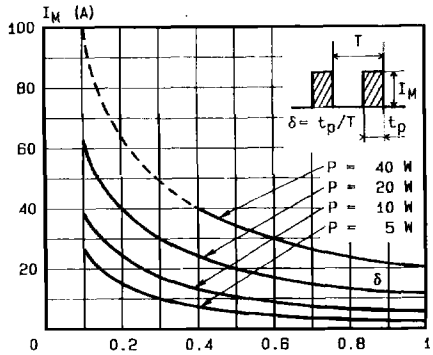


FIGURE 2 : Peak current versus form factor.

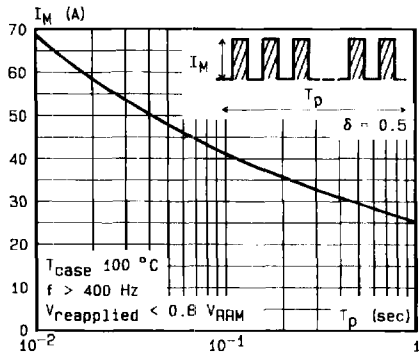


FIGURE 3 : Non repetitive peak surge current versus overload duration.

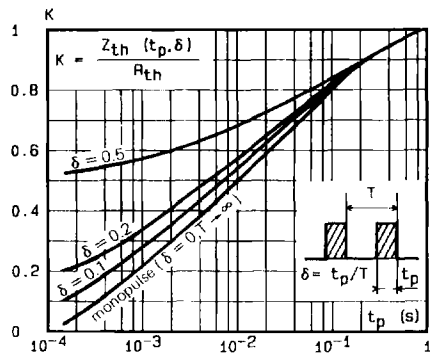


FIGURE 4 : Thermal impedance versus pulse width.

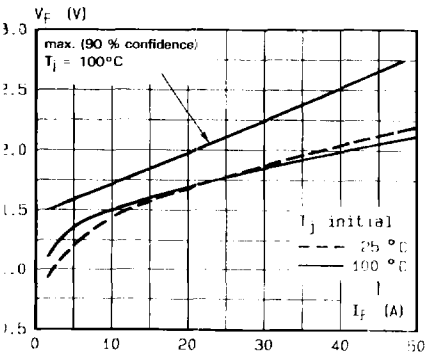


FIGURE 5 : Voltage drop versus forward current.

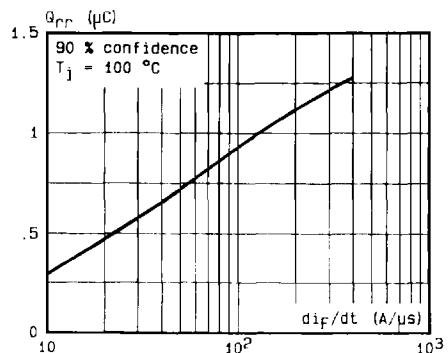


FIGURE 6 : Recovery charge versus di_f/dt .

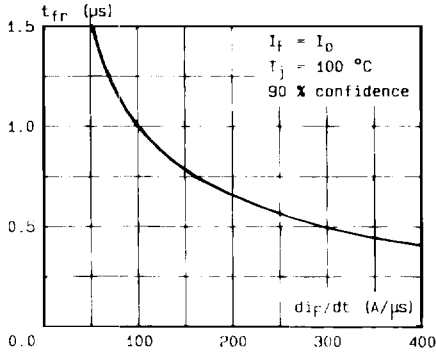


FIGURE 7 : Recovery time versus di_F/dt .

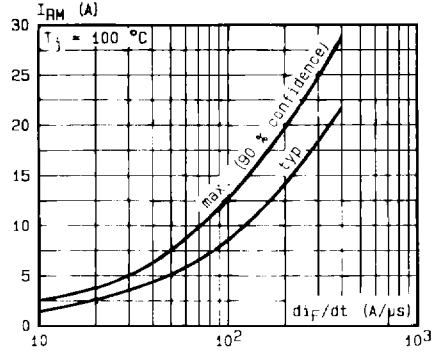


FIGURE 8 : Peak reverse current versus di_F/dt .

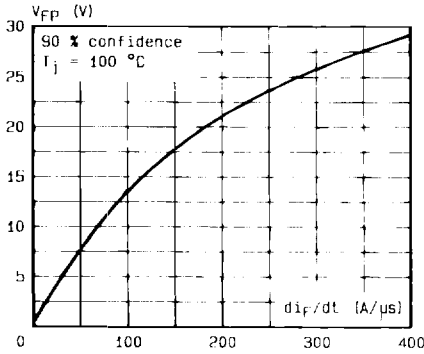


FIGURE 9 : Peak forward voltage versus di_F/dt .

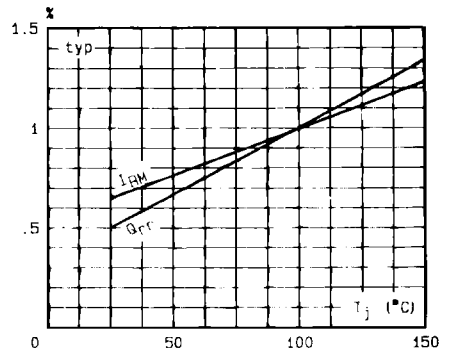


FIGURE 10 : Dynamic parameters versus junction temperature.

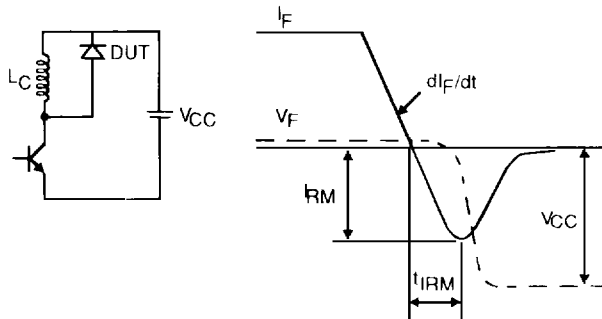


Figure 11 : Turn-off switching characteristics (without series inductance).

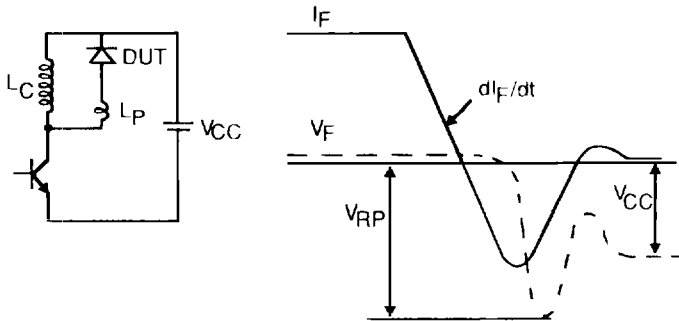


Figure 12 : Turn-off switching characteristics (with series inductance).