

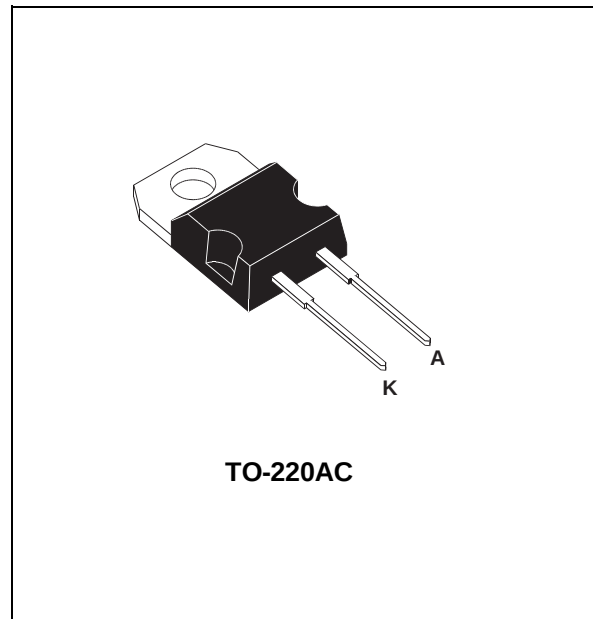
RECOVERY RECTIFIER DIODES

MAIN PRODUCTS CHARACTERISTICS

$I_{F(AV)}$	10 A
V_{RRM}	800 V
T_j (max)	150°C
V_F (max)	1.35 V
t_{rr} (max)	300 ns

FEATURES

- HIGH VOLTAGE CAPABILITY
- FAST AND SOFT RECOVERY
- THE SPECIFICATIONS AND CURVES ENABLE THE DETERMINATION OF THE t_{rr} AND I_{RM} AT 100°C UNDER USERS CONDITIONS
- MOTOR CONTROLS AND CONVERTERS
- SWITCH MODE POWER SUPPLIES
- INSULATED PACKAGE: TO-220AC
Insulating voltage = 2500 V_{RMS}



DESCRIPTION

Fast recovery rectifiers suited for applications in combination with superswitch transistors.

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage	$t_p \leq 20\mu s$	800	V
$I_{F(RMS)}$	RMS forward current		16	A
$I_{F(AV)}$	Average forward current	$T_c = 100^\circ C$ $\delta = 0.5$	10	A
I_{FSM}	Surge non repetitive forward current	$T_p = 10$ ms Sinusoidal	120	A
P_{tot}	Power dissipation	$T_c = 100^\circ C$	20	W
T_{stg}	Storage temperature range		- 40 to + 150	°C
T_j	Maximum operating junction temperature		+ 150	

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th(j-c)}	Junction to case	2	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameters	Test conditions		Min.	Typ.	Max.	Unit
I _R *	Reverse leakage current	T _j = 25°C	V _R = V _{RRM}			20	mA
		T _j = 100°C				1	mA
V _F **	Forward voltage drop	T _j = 25°C	I _F = 10 A			1.4	V
		T _j = 100°C				1.35	V

Pulse test : * tp = 5 ms, δ < 2 %
 ** tp = 380 μs, δ < 2 %

To evaluate the conduction losses use the following equation :
 $P = 1.2 \times I_{F(AV)} + 0.015 \times I_F^2 (RMS)$
 $V_F = 1.2 + 0.015 I_F$

RECOVERY CHARACTERISTICS

Symbol	Test conditions				Min.	Typ.	Max.	Unit
trr	T _j = 25°C	I _F = 1A	di _F /dt = - 15A/μs	V _R = 30V			300	ns
Qrr	T _j = 25°C	I _F = 10A	di _F /dt = - 50A/μs	V _R = 200V		2.3		μC

Fig. 1: Low frequency power losses versus average current.

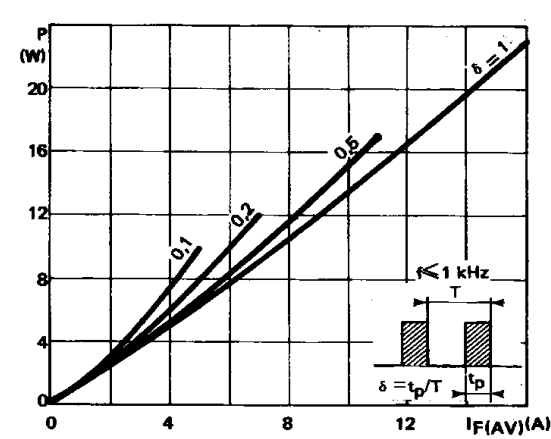


Fig. 2: Peak current versus form factor.

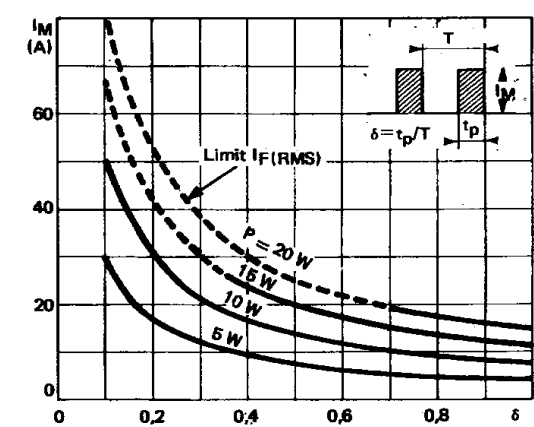


Fig. 3: Non repetitive peak surge current versus overload duration.

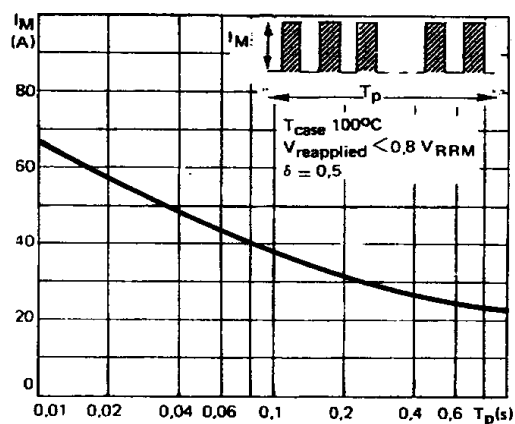


Fig. 4: Thermal impedance versus pulse width.

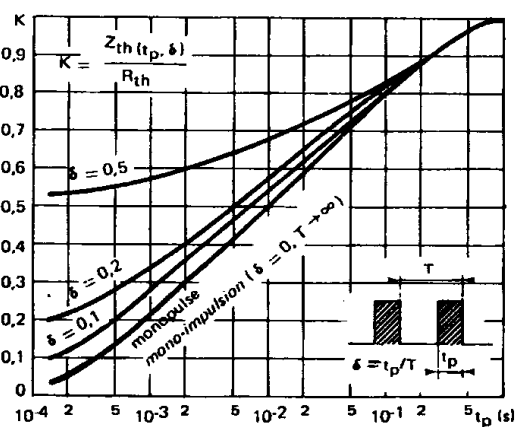


Fig. 5: Voltage drop versus forward current.

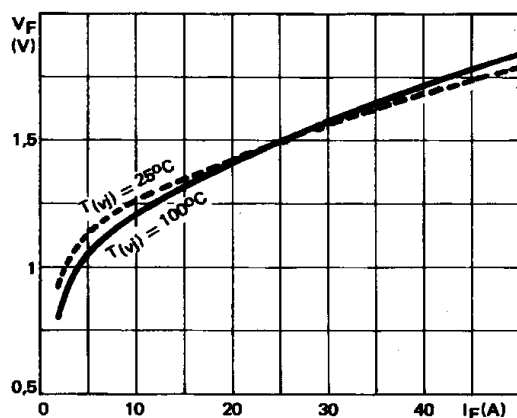


Fig. 6: Capacitance versus applied reverse voltage.

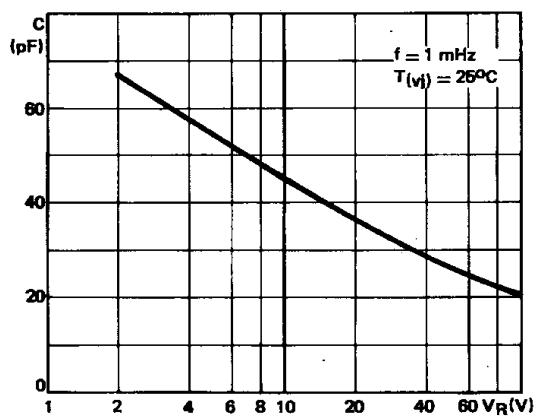


Fig. 7: Recovery charge versus di_F/dt .

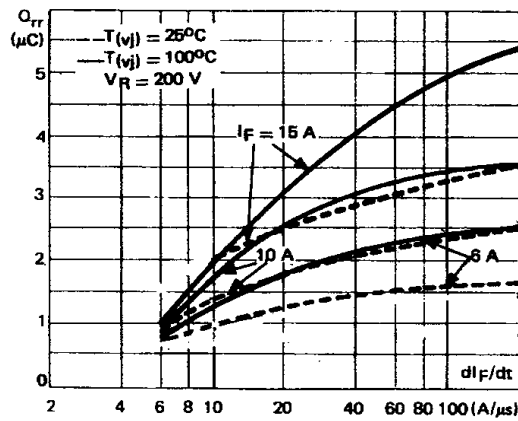


Fig. 8: Recovery time versus di_F/dt .

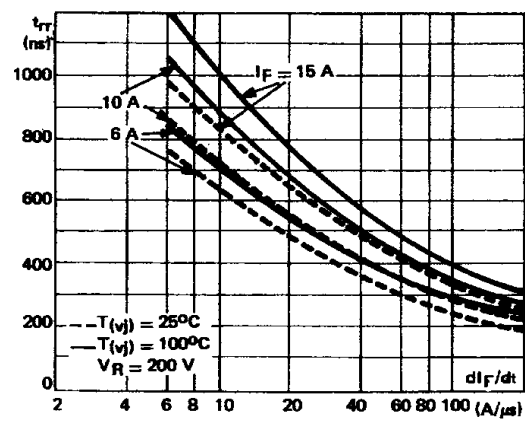
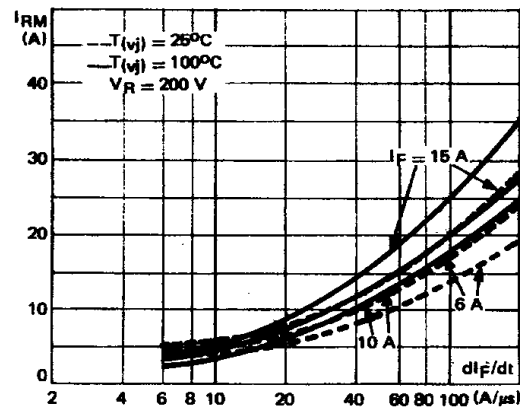
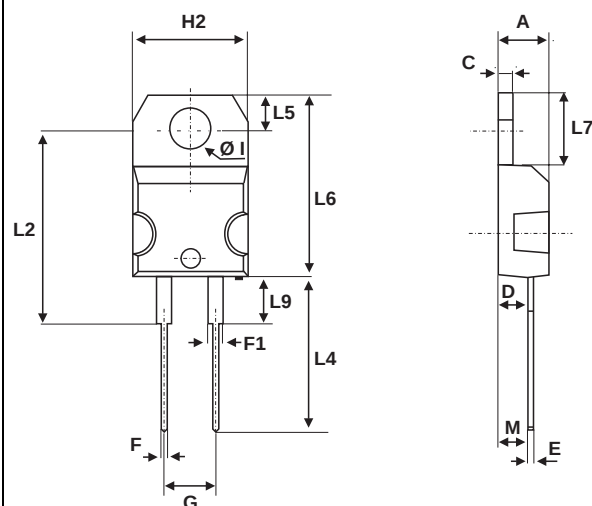


Fig. 9: Peak reverse current versus di_F/dt .



PACKAGE MECHANICAL DATA

TO-220AC



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	0.181
C	1.23	1.32	0.048	0.051
D	2.40	2.72	0.094	0.107
E	0.49	0.70	0.019	0.027
F	0.61	0.88	0.024	0.034
F1	1.14	1.70	0.044	0.066
G	4.95	5.15	0.194	0.202
H2	10.00	10.40	0.393	0.409
L2	16.40 typ.		0.645 typ.	
L4	13.00	14.00	0.511	0.551
L5	2.65	2.95	0.104	0.116
L6	15.25	15.75	0.600	0.620
L7	6.20	6.60	0.244	0.259
L9	3.50	3.93	0.137	0.154
M	2.6 typ.		0.102 typ.	
Diam. I	3.75	3.85	0.147	0.151

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