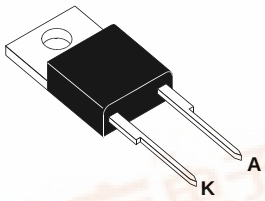
BYW80PI-200

HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODES

FEATURES

- SUITED FOR SMPS
- VERY LOW FORWARD LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- HIGH SURGE CURRENT CAPABILITY
- HIGH AVALANCHE ENERGY CAPABILITY
- INSULATED PACKAGE :
  Insulating voltage = 2500 V_{RMS}
  Capacitance = 7 pF



isolated
TO220AC
(Plastic)

BYW80PI-200

DESCRIPTION

Single chip rectifier suited for switchmode power supply and high frequency DC to DC converters. Packaged in Isolated TO220AC, this device is intended for use in low voltage, high frequency inverters, free wheeling and polarity protection applications.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
$I_{F(RMS)}$	RMS forward current		20	A
$I_{F(AV)}$	Average forward current $\delta = 0.5$	Tc=110°C	10	A
I_{FSM}	Surge non repetitive forward current	tp=10ms sinusoidal	100	A
Tstg Tj	Storage and junction temperature range		- 65 to + 150 - 65 to + 150	°C °C

Symbol	Parameter	Value	Unit
V_{RRM}	Repetitive peak reverse voltage	200	V

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
Rth (j-c)	Junction to case	3.5	°C/W

ELECTRICAL CHARACTERISTICS
STATIC CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I_R *	T_j = 25°C	$V_R = V_{RRM}$			10	µA
	T_j = 100°C				1	mA
V_F **	T_j = 125°C	I_F = 7 A			0.85	V
	T_j = 125°C	I_F = 15 A			1.05	
	T_j = 25°C	I_F = 15 A			1.15	

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

To evaluate the conduction losses use the following equation :
$P = 0.65 \times I_{F(AV)} + 0.027 \times I_F{}^2{}_{(RMS)}$

RECOVERY CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
trr	T_j = 25°C	I_F = 0.5A I_R = 1A	Irr = 0.25A			25	ns
		I_F = 1A V_R = 30V	dI_F/dt = -50A/µs			35	
tfr	T_j = 25°C	I_F = 1A $V_{FR} = 1.1 \times V_F$	tr = 10 ns		15		ns
V_{FP}	T_j = 25°C	I_F = 1A	tr = 10 ns		2		V

Fig.1 : Average forward power dissipation versus average forward current.

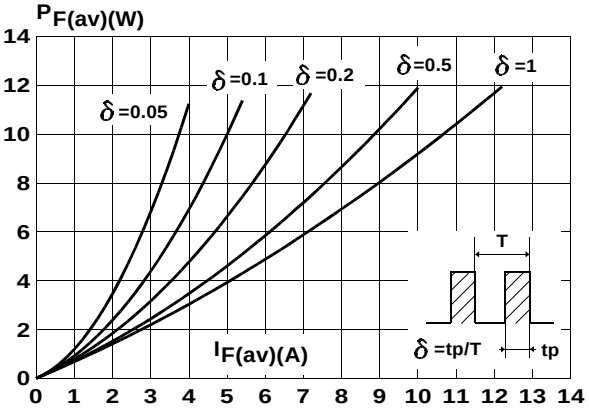


Fig.2 : Peak current versus form factor.

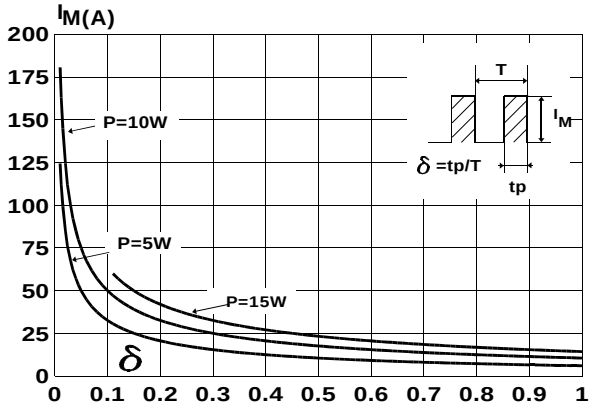


Fig.3 : Forward voltage drop versus forward current (maximum values).

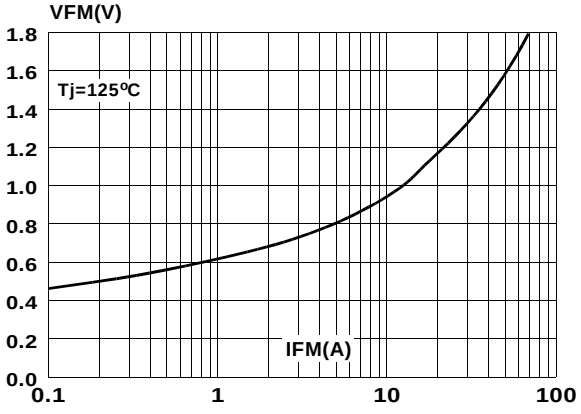


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration.

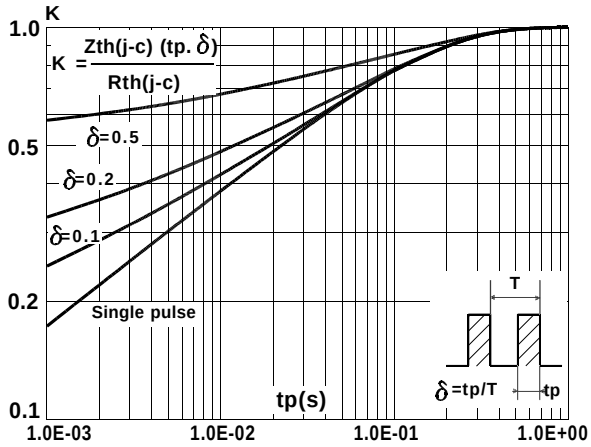


Fig.5 : Non repetitive surge peak forward current versus overload duration.

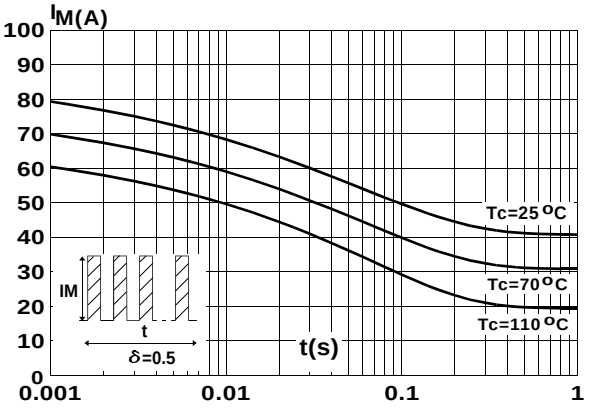


Fig.6 : Average current versus ambient temperature. (duty cycle : 0.5)

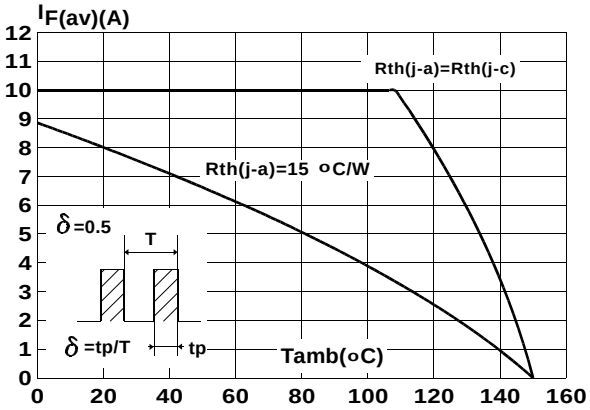


Fig.7 : Junction capacitance versus reverse voltage applied (Typical values).

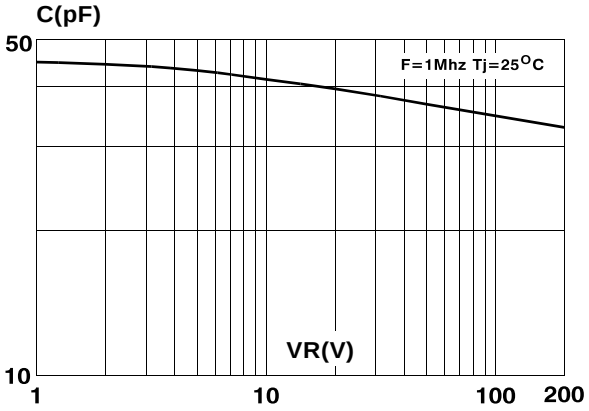


Fig.8 : Recovery charges versus dI_F/dt.

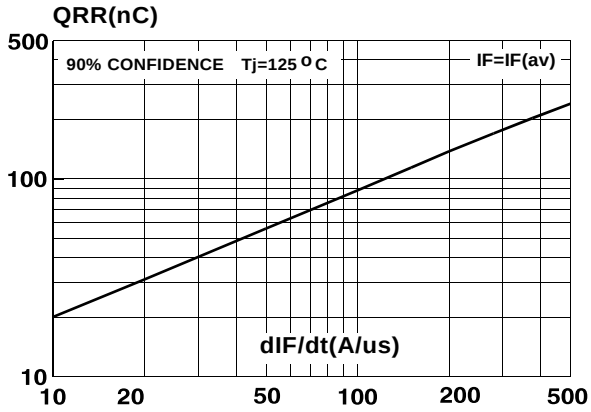


Fig.9 : Peak reverse current versus dIF/dt.

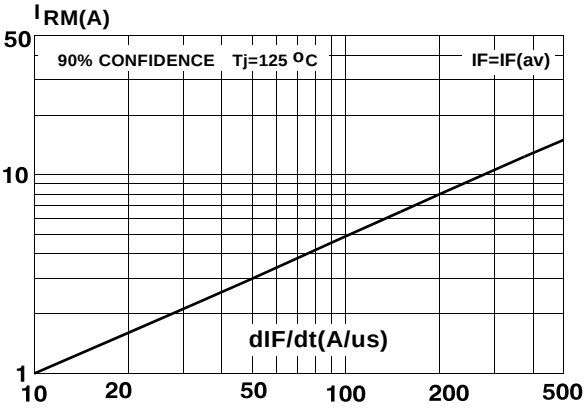
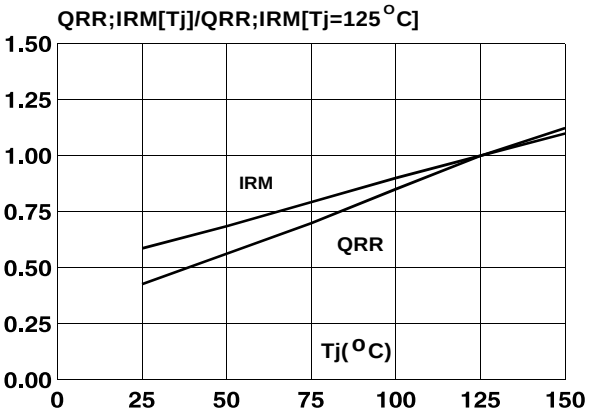
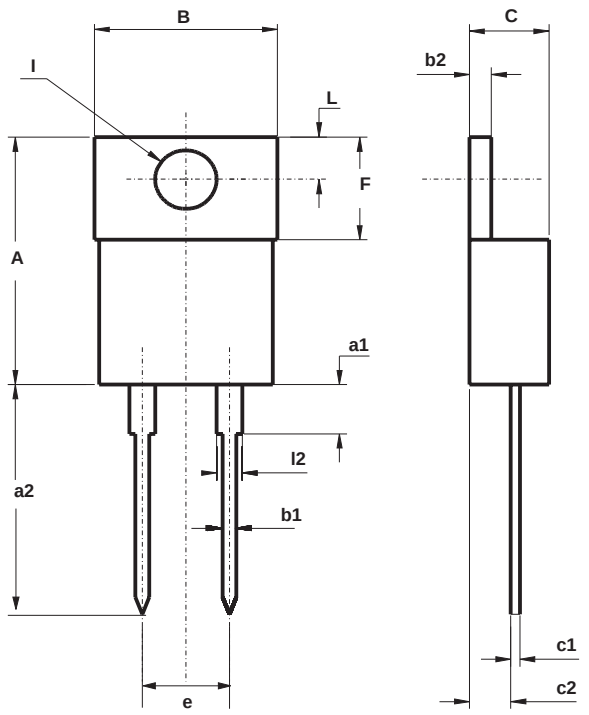


Fig.10 : Dynamic parameters versus junction temperature.



PACKAGE MECHANICAL DATA

TO220AC (isolated)



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	14.23	15.87	0.560	0.625
a1		4.50		0.177
a2	12.70	14.70	0.500	0.579
B	10.20	10.45	0.402	0.411
b1	0.64	0.96	0.025	0.038
b2	1.15	1.39	0.045	0.055
C	4.48	4.82	0.176	0.190
c1	0.35	0.65	0.020	0.026
c2	2.10	2.70	0.083	0.106
e	4.58	5.58	0.180	0.220
F	5.85	6.85	0.230	0.270
I	3.55	4.00	0.140	0.157
L	2.54	3.00	0.100	0.118
l2	1.45	1.75	0.057	0.069

Cooling method : C
Marking : Type number
Weight : 1.86 g
Recommended torque value : 0.8m.N
Maximum torque value : 1.0m.N