SMBYW02-200

HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODES

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	**2 A**
V_{RRM}	**200 V**
V_F**(max)**	**0.85 V**
Tj (max)	**150 °C**

SMB
(JEDEC DO-214AA)

FEATURES AND BENEFITS

- SUITED FOR SMPS
- VERY LOW CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- HIGH SURGE CURRENT CAPABILITY
- LOW FORWARD AND REVERSE RECOVERY TIMES

DESCRIPTION

Single chip rectifier suited for Switch Mode Power Supplies and high frequency DC to DC converters. Packaged in SMB, this surface mount device is intended for use in low voltage, high frequency inverters, free wheeling and polarity protection applications.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		200	V
$I_{F(RMS)}$	RMS forward current		10	A
$I_{F(AV)}$	Average forward current	Tl=100°C $\delta = 0.5$	2	A
I_{FSM}	Non repetitive surge peak forward current	tp=10ms sinusoidal	50	A
Tstg	Storage temperature range		- 65 to + 150	°C
Tj	Maximum operating junction temperature		150	°C

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
Rth (j-l)	Junction to leads	25	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions		Min.	Typ.	Max.	Unit
V_F *	Reverse Leakage Current	Tj = 25°C	I_F = 6 A			1.25	V
		T_j = 100°C	I_F = 2 A		0.8	0.85	
I_R **	Forward Voltage Drop	T_j = 25°C	$V_R = V_{RRM}$			10	µA
		T_j = 100°C			0.1	0.3	mA

Pulse test : * tp = 380 µs, δ < 2 %

** tp = 5 ms, δ < 2 %

To evaluate the conduction losses use the following equation :

$P = 0.7 \times I_{F(AV)} + 0.075 \times I_{F}^{2}{}_{(RMS)}$

RECOVERY CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
trr	T_j = 25°C	I_F = 1A dI_F/dt = -50A/µs V_R = 30V		26	35	ns
tfr	T_j = 25°C	I_F = 2A dI_F/dt = -50A/µs $V_{FR} = 1.1 \times V_F$ max		30		ns
V_{FP}	T_j = 25°C	I_F = 2A dI_F/dt = -50A/µs		5		V

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

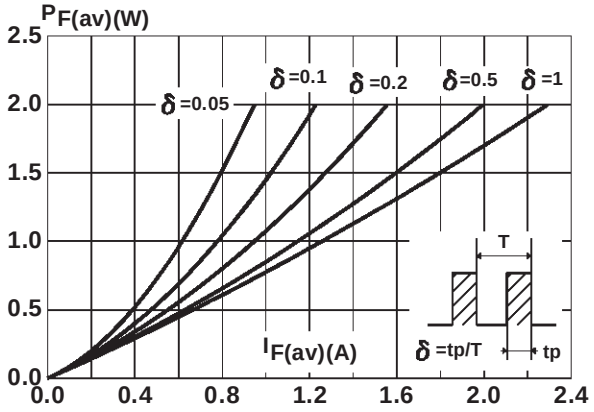


Fig. 2: Peak current versus form factor.

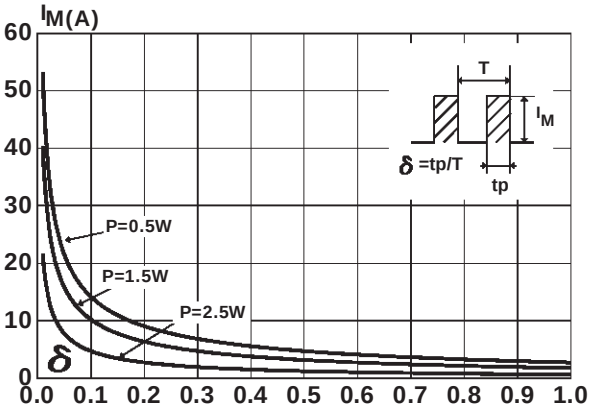


Fig. 3: Non repetitive surge peak forward current versus overload duration.

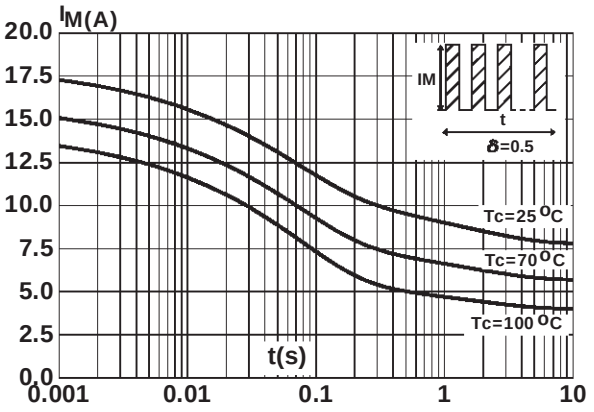


Fig. 4: Relative variation of thermal impedance junction to lead versus pulse duration.

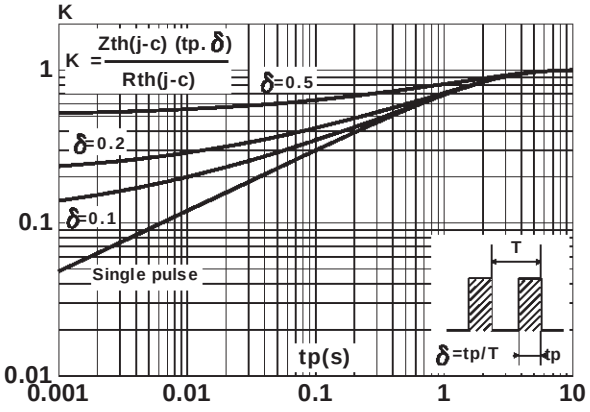


Fig. 5: Voltage drop versus forward current (maximum values).

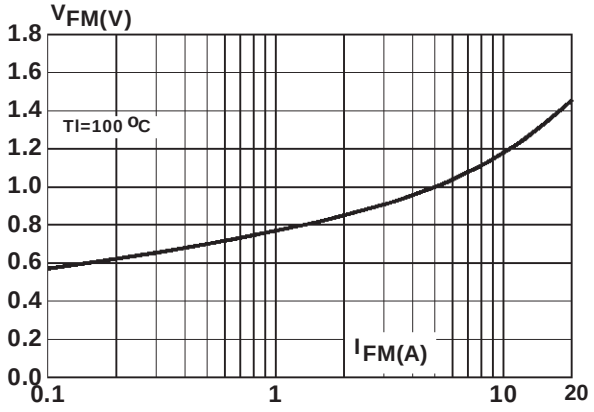


Fig. 6: Average current versus ambient temperature (δ=0.5).

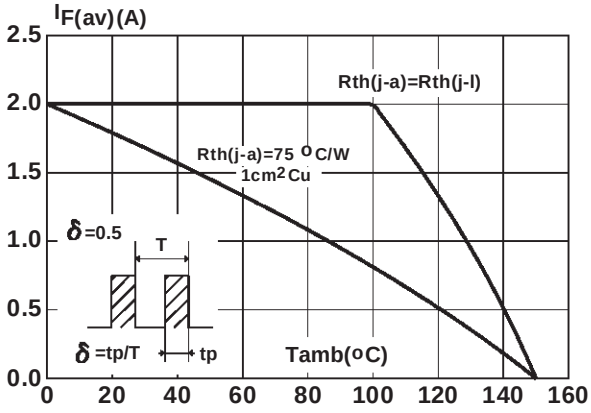


Fig. 7: Capacitance versus reverse voltage applied.

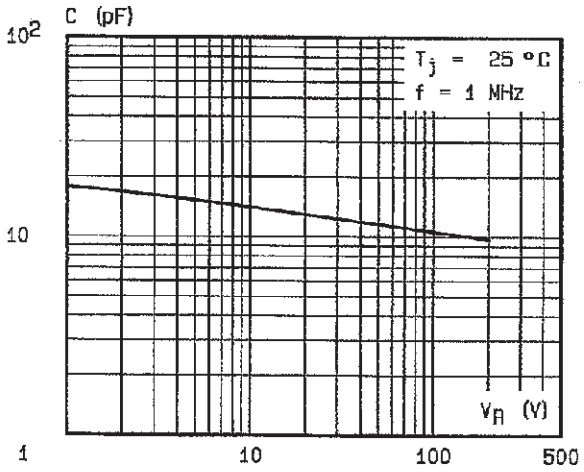


Fig. 8: Recovery time versus dI_F/dt.

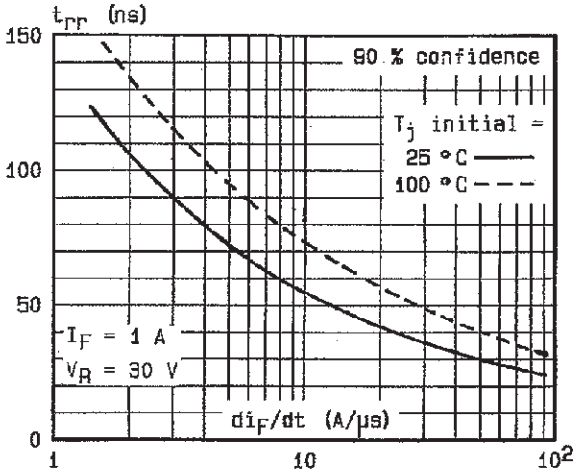


Fig. 9: Peak reverse current versus dI_F/dt.

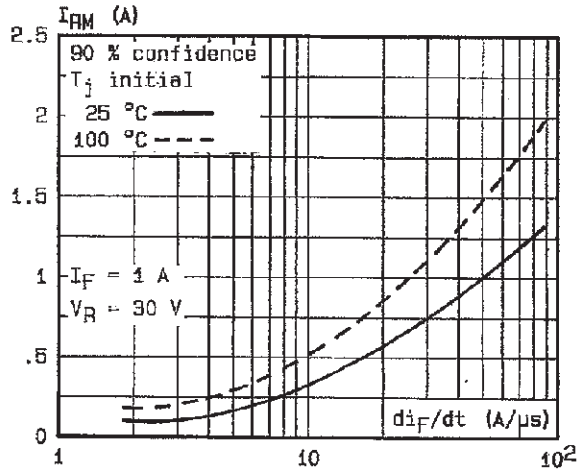


Fig. 10: Dynamic parameters versus junction temperature.

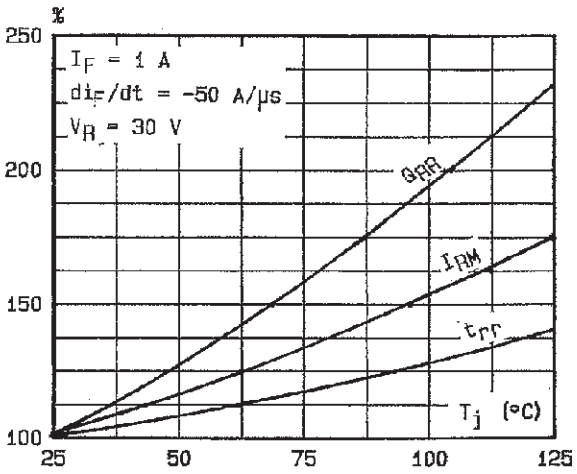
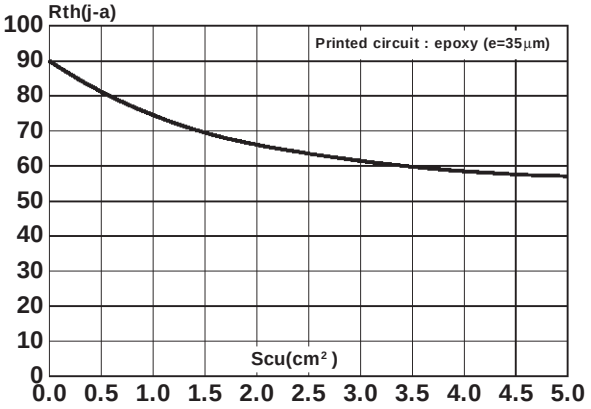
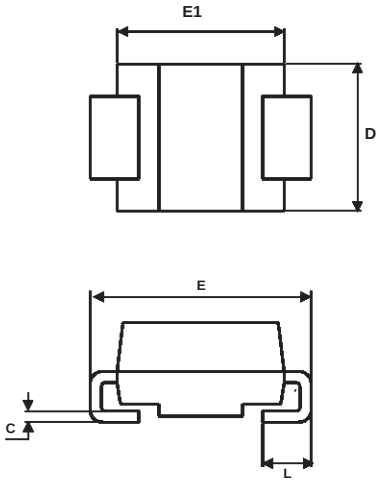


Fig. 11: Thermal resistance junction to ambient versus copper surface under each lead.



PACKAGE MECHANICAL DATA

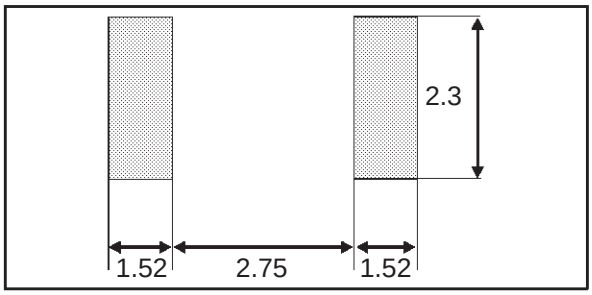
SMB



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A1	1.90	2.45	0.075	0.096
A2	0.05	0.20	0.002	0.008
b	1.95	2.20	0.077	0.087
c	0.15	0.41	0.006	0.016
E	5.10	5.60	0.201	0.220
E1	4.05	4.60	0.159	0.181
D	3.30	3.95	0.130	0.156
L	0.75	1.60	0.030	0.063

FOOTPRINT DIMENSIONS (in millimeters)

SMB



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
SMBYW02-200	A20	SMB	0.11g	2500	Tape & reel

- Band indicates cathode
- Epoxy meets UL94,V0