

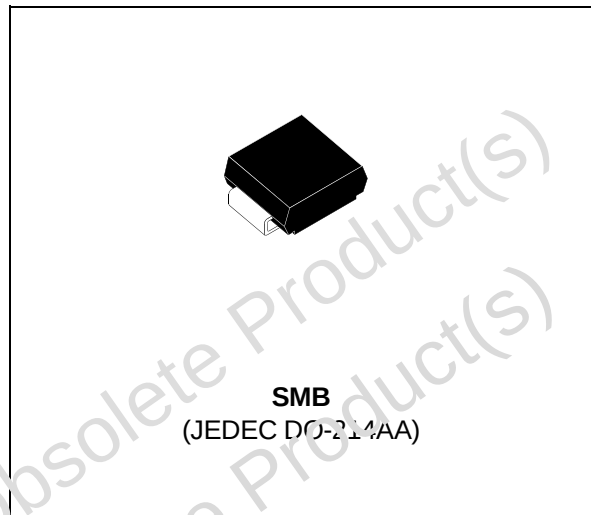
HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODES

MAIN PRODUCT CHARACTERISTICS

I_{F(AV)}	2 A
V_{RRM}	200 V
V_{F(max)}	0.85 V
T_{j (max)}	150 °C

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 δ = 0.5	2	A
I _{FSM}	Non repetitive surge peak forward current	tp=10ms sinusoidal	50	A
T _{stg}	Storage temperature range		- 65 to + 150	°C
T _j	Maximum operating junction temperature		150	°C

SMBYW02-200

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	T _j = 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 x 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.

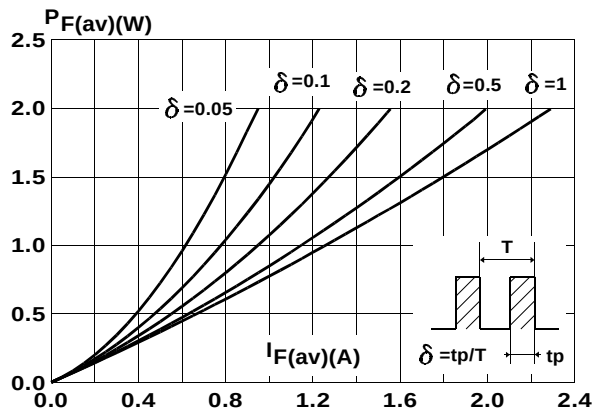


Fig. 2: Peak current versus form factor.

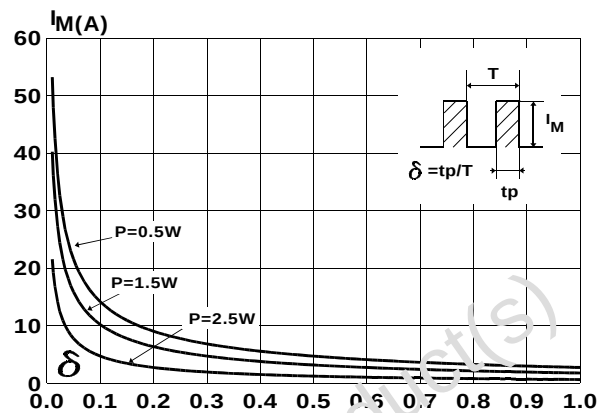


Fig. 3: Non repetitive surge peak forward current versus overload duration.

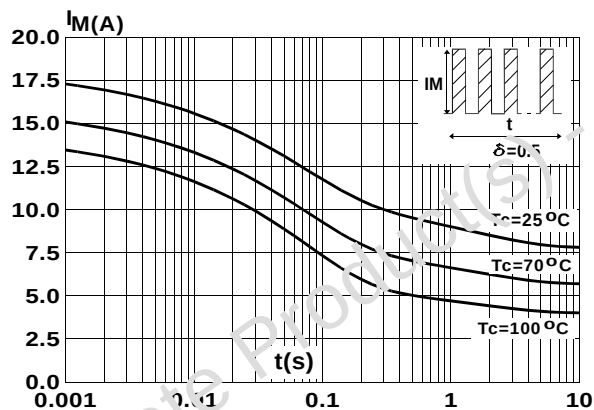


Fig. 4: Relative variation of thermal impedance junction to lead versus pulse duration.

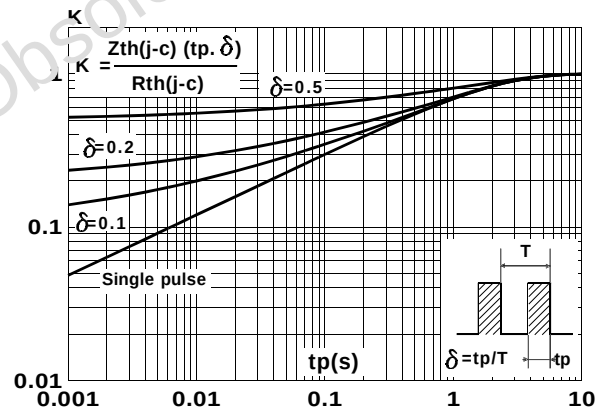


Fig. 5: Voltage drop versus forward current (maximum values).

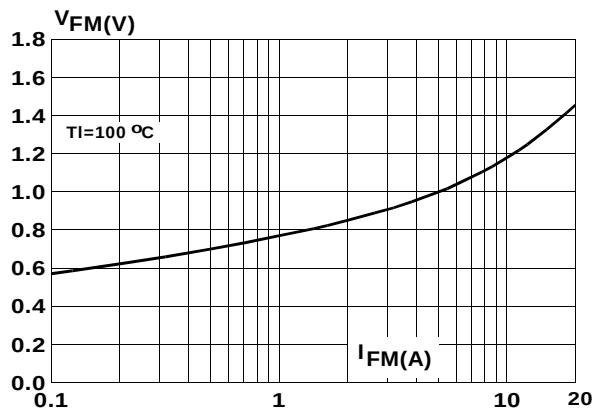


Fig. 6: Average current versus ambient temperature ($\delta=0.5$).

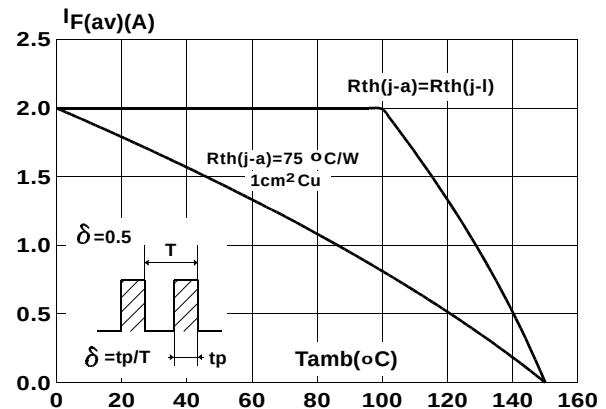


Fig. 7: Capacitance versus reverse voltage applied.

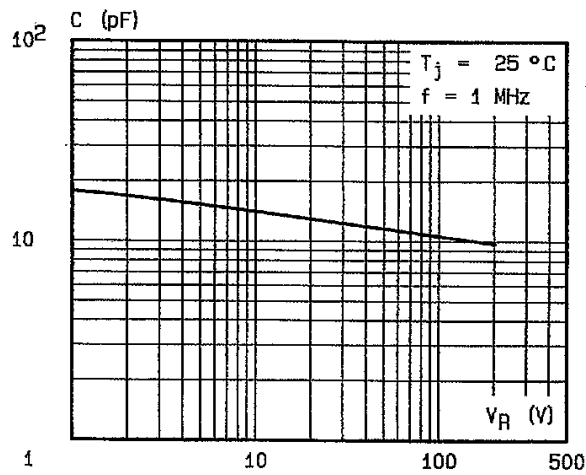


Fig. 8: Recovery time versus di_F/dt .

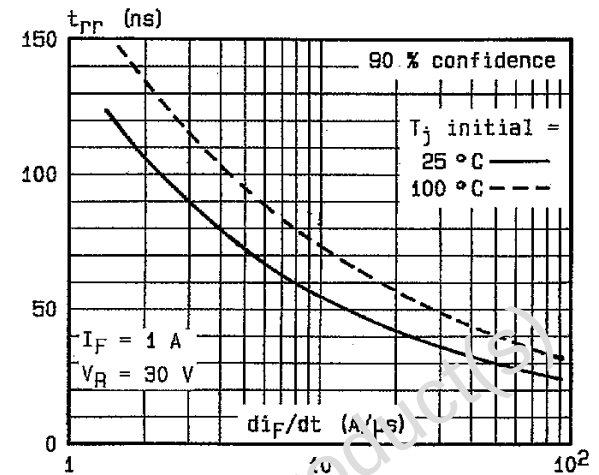


Fig. 9: Peak reverse current versus di_F/dt .

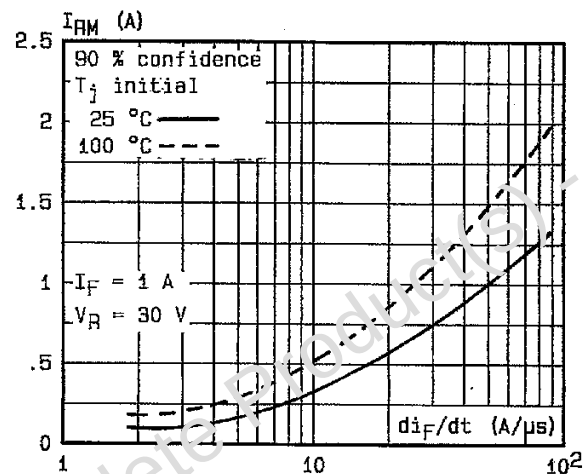


Fig. 10: Dynamic parameters versus junction temperature.

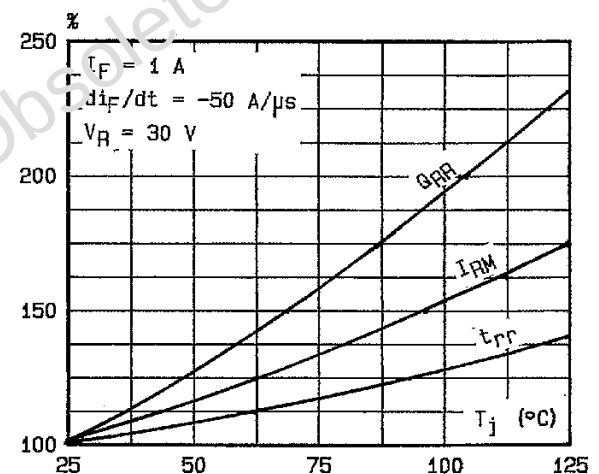
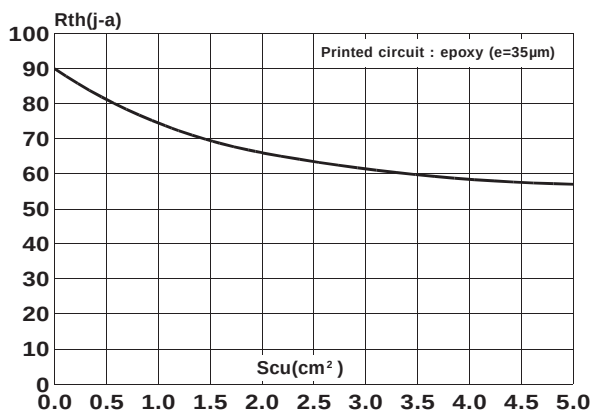


Fig. 11: Thermal resistance junction to ambient versus copper surface under each lead.

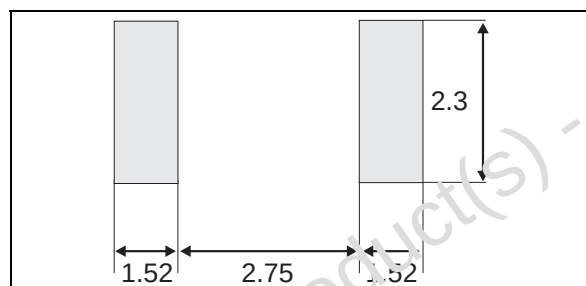


PACKAGE MECHANICAL DATA**SMB**

The image contains three mechanical drawings of an SMB package:

- Top View:** Shows the package from above. Dimension **E1** is the width of the central body. Dimension **D** is the total height, including the mounting flaps.
- Side View:** Shows the package from the side. Dimension **E** is the total width. Dimension **L** is the length of the mounting flaps. Dimension **c** is the thickness of the mounting flaps.
- End View:** Shows the package from the end. Dimension **A1** is the height of the central body. Dimension **A2** is the height of the mounting flaps. Dimension **b** is the width of the mounting flaps.

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	1.00	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

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