



SMBYW02-200

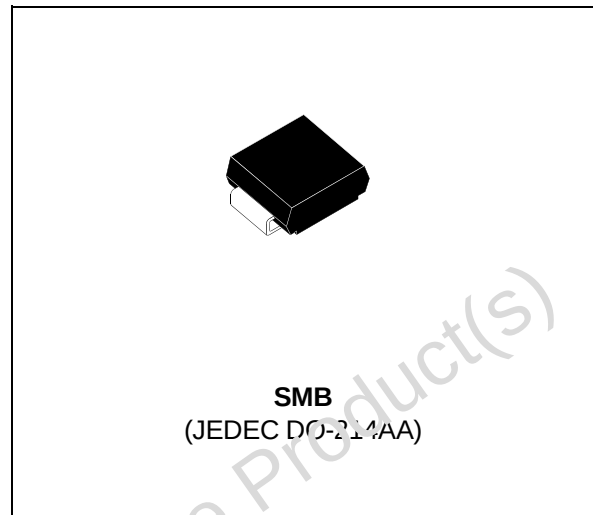
HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODES

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 A
V_{RRM}	200 V
$V_F(max)$	0.85 V
$T_j (max)$	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	$T_I=100^{\circ}C$ $\delta = 0.5$	2	A
I_{FSM}	Non repetitive surge peak forward current	$t_p=10ms$ sinusoidal	50	A
T_{stg}	Storage temperature range		- 65 to + 150	°C
T_j	Maximum operating junction temperature		150	°C

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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	$T_j = 25^\circ\text{C}$	$I_F = 6\text{ A}$			1.25	V
		$T_j = 100^\circ\text{C}$	$I_F = 2\text{ A}$		0.8	0.85	
I_R **	Forward Voltage Drop	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			10	μA
		$T_j = 100^\circ\text{C}$			0.1	0.3	mA

Pulse test : * $t_p = 380\text{ }\mu\text{s}$, $\delta < 2\%$

** $t_p = 5\text{ ms}$, $\delta < 2\%$

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	$T_j = 25^\circ\text{C}$	$I_F = 1\text{ A}$ $di_F/dt = -50\text{ A}/\mu\text{s}$ $V_R = 30\text{ V}$		26	35	ns
tfr	$T_j = 25^\circ\text{C}$	$I_F = 2\text{ A}$ $di_F/dt = -50\text{ A}/\mu\text{s}$ $V_{FR} = 1.1 \times V_F \text{ max}$		30		ns
V_{FP}	$T_j = 25^\circ\text{C}$	$I_F = 2\text{ A}$ $di_F/dt = -50\text{ A}/\mu\text{s}$		5		V

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

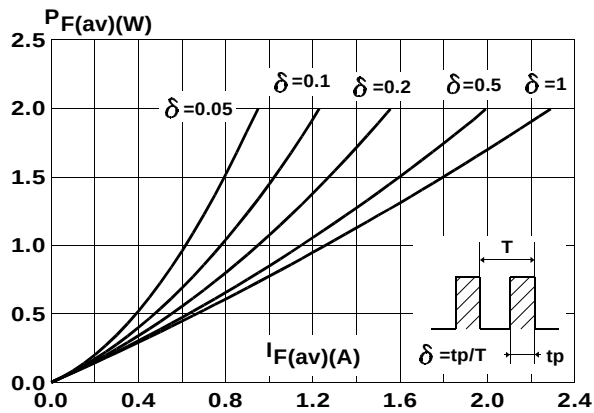


Fig. 2: Peak current versus form factor.

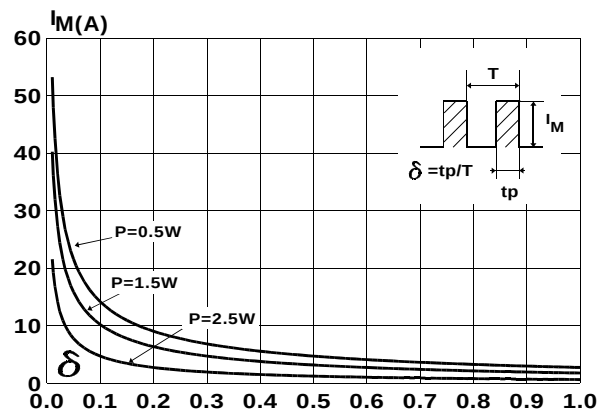


Fig. 3: Non repetitive surge peak forward current versus overload duration.

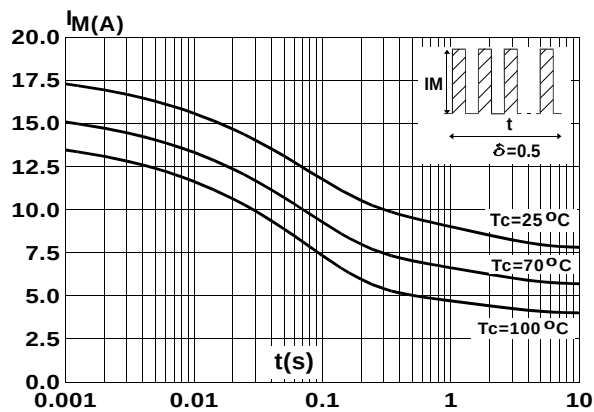


Fig. 4: Relative variation of thermal impedance junction to lead versus pulse duration.

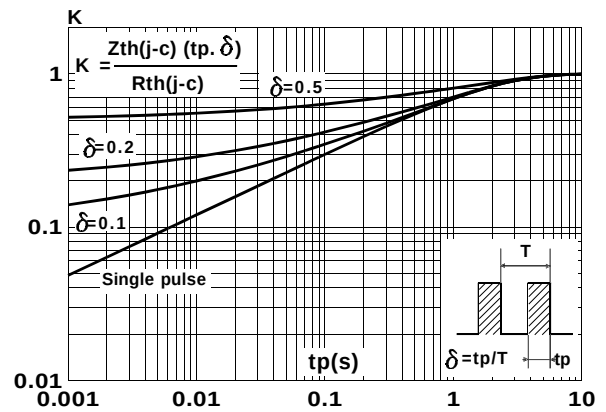


Fig. 5: Voltage drop versus forward current (maximum values).

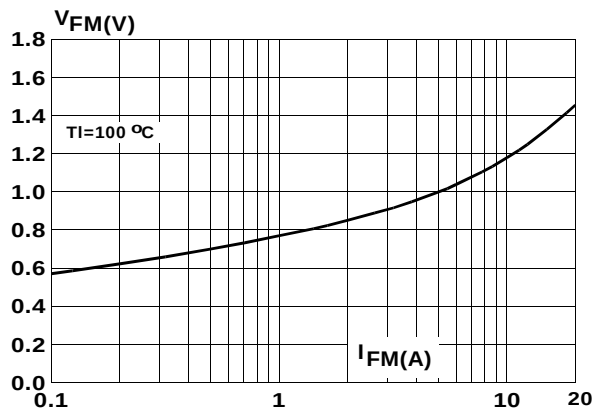


Fig. 6: Average current versus ambient temperature (delta=0.5).

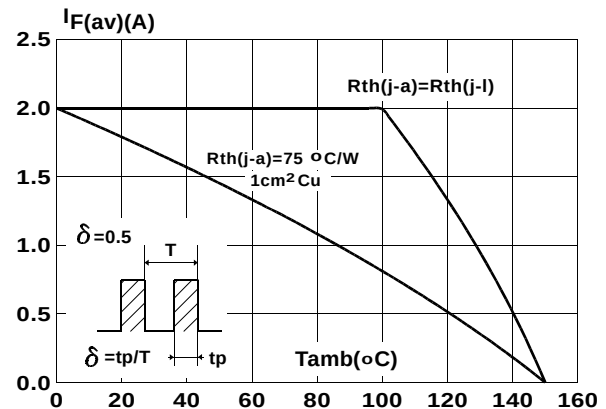


Fig. 7: Capacitance versus reverse voltage applied.

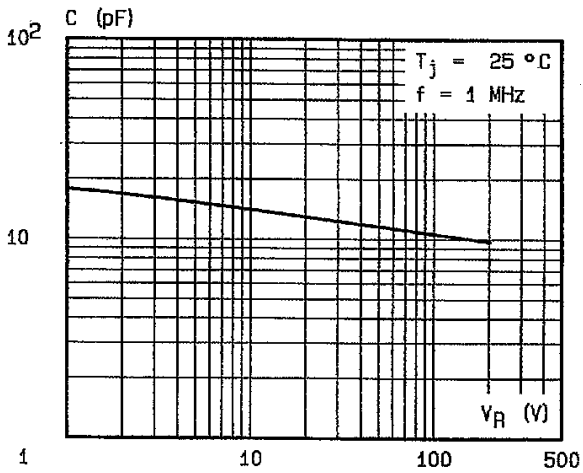


Fig. 9: Peak reverse current versus di_F/dt .

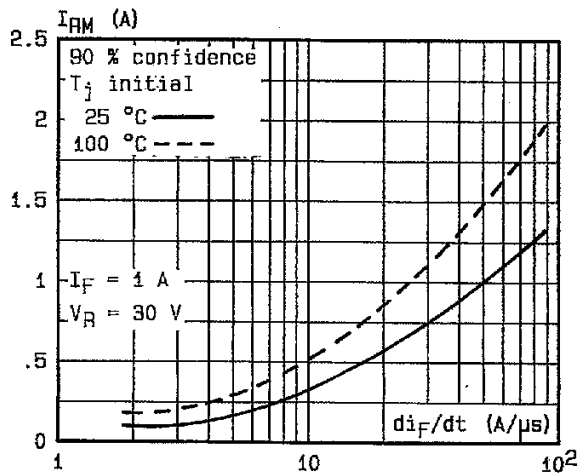


Fig. 11: Thermal resistance junction to ambient versus copper surface under each lead.

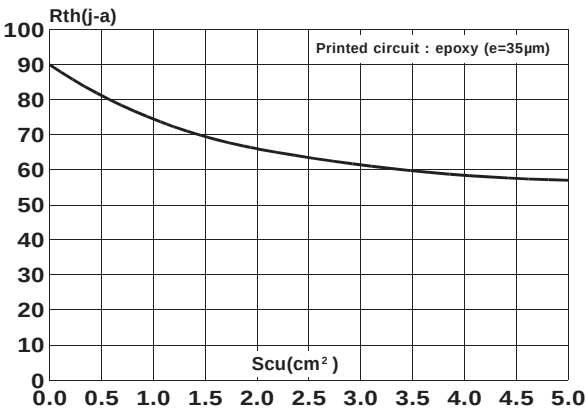


Fig. 8: Recovery time versus di_F/dt .

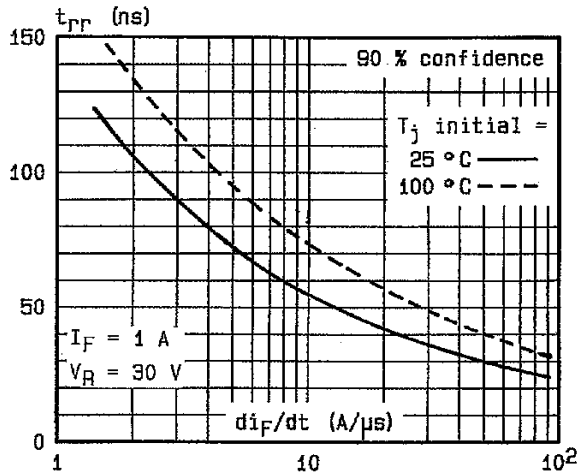
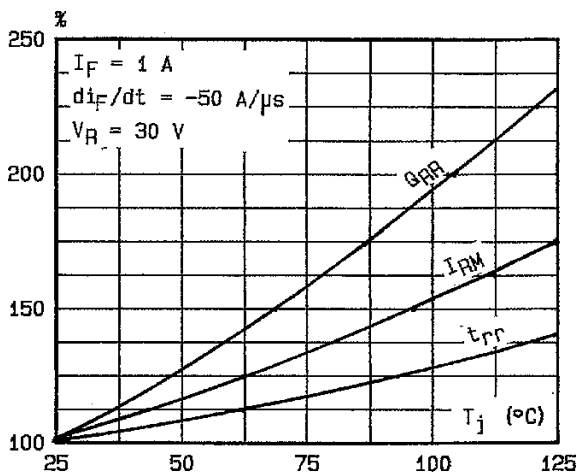


Fig. 10: Dynamic parameters versus junction temperature.

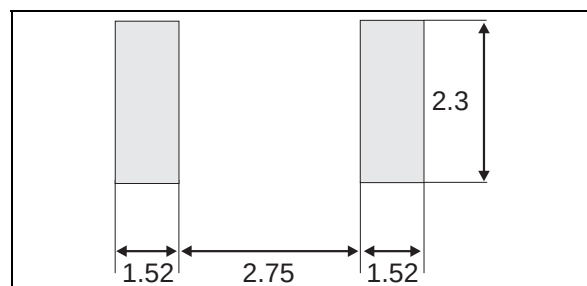


PACKAGE MECHANICAL DATA**SMB**

The figure consists of three mechanical drawings of an SMB package:

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

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

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