

SMBYW04-200 / BYW4200B

THERMAL RESISTANCE

Symbol	Parameter	Package	Value	Unit
$R_{th(j-c)}$	Junction to case	DPAK	5	°C/W
$R_{th(j-l)}$	Junction to leads	SMC	20	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Tests Conditions	Tests Conditions	Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$		10	μA
		$T_j = 100^\circ\text{C}$		0.15	0.5	mA
V_F **	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 12\text{ A}$		1.25	V
		$T_j = 100^\circ\text{C}$	$I_F = 4\text{ A}$	0.8	0.95	

Pulse test : * $t_p = 5\text{ ms}$, $\delta < 2\%$
 ** $t_p = 380\text{ }\mu\text{s}$, $\delta < 2\%$

To evaluate the maximum conduction losses use the following equation :

$$P = 0.7 \times I_{F(AV)} + 0.037 I_F^2 (RMS)$$

RECOVERY CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
t_{rr}	$T_j = 25^\circ\text{C}$	$I_F = 1\text{ A}$ $V_F = 30\text{ V}$	$di_F/dt = -50\text{ A}/\mu\text{s}$		26	35	ns
t_{fr}	$T_j = 25^\circ\text{C}$	$I_F = 4\text{ A}$ $V_{RR} = 1.1 \times V_F \text{ max}$	$di_F/dt = -50\text{ A}/\mu\text{s}$		20		ns
V_{FP}	$T_j = 25^\circ\text{C}$	$I_F = 4\text{ A}$	$di_F/dt = -50\text{ A}/\mu\text{s}$		5		V

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

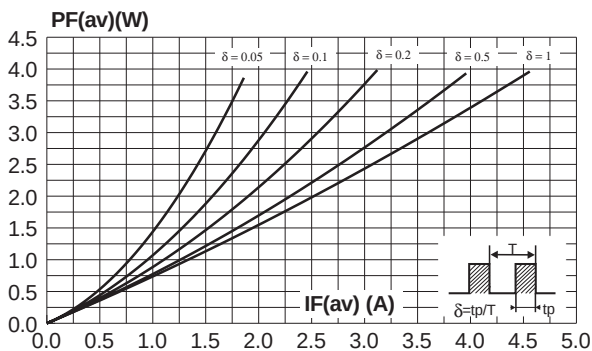


Fig. 2: Peak current versus form factor.

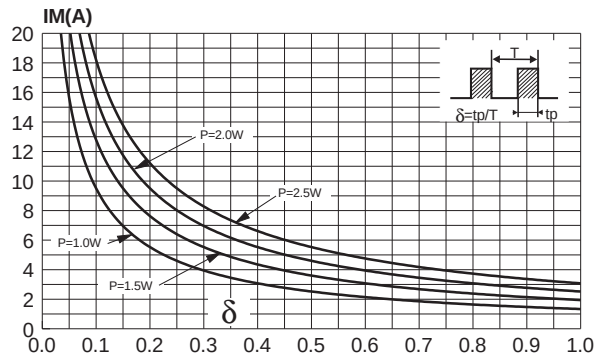


Fig. 3: Average forward current versus ambient temperature ($\delta=0.5$).

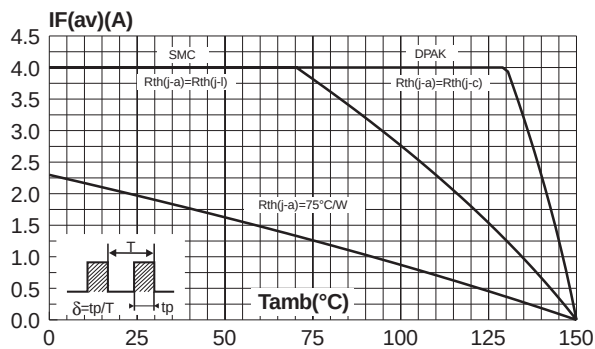


Fig. 4: Forward voltage drop versus forward current (maximum values).

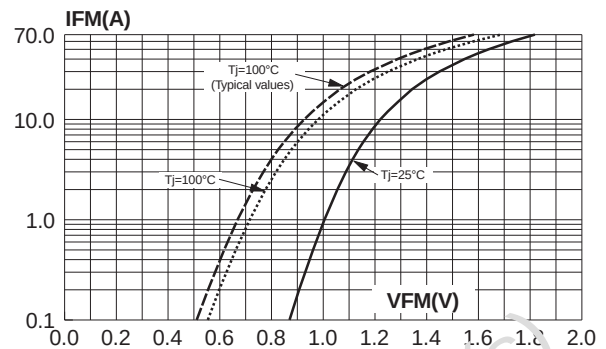


Fig. 5-1: Non repetitive surge peak forward current versus overload duration (SMBYW04-200).

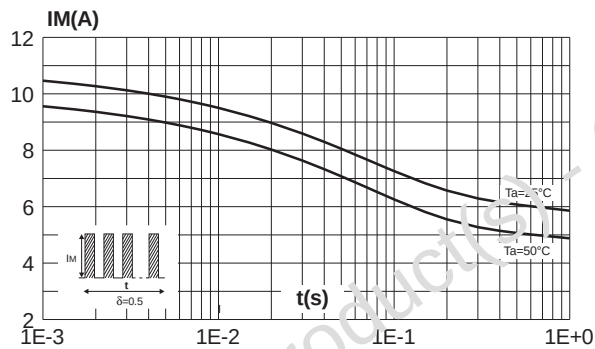


Fig. 5-2: Non repetitive surge peak forward current versus overload duration (BYW4200B).

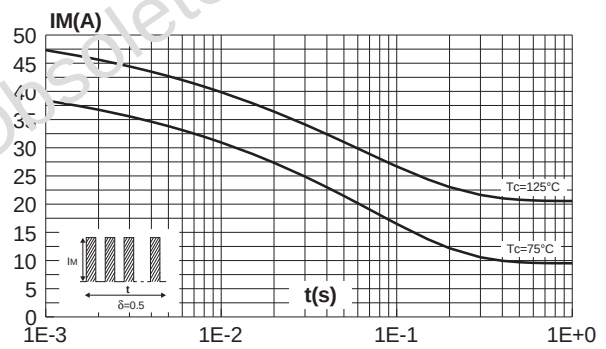


Fig. 6-1: Variation of thermal impedance junction to ambient versus pulse duration (recommended pad layout, epoxy FR4, e(Cu)=35μm) (SMBYW04-200).

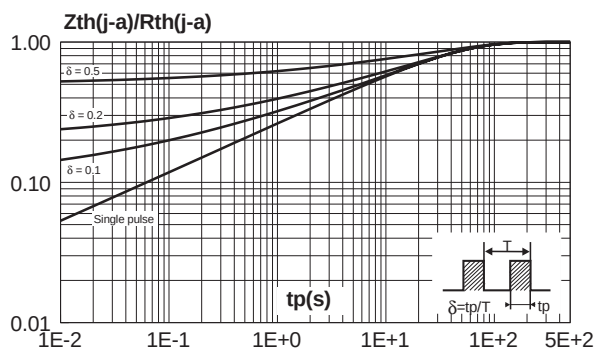


Fig. 6-2: Variation of thermal impedance junction to case versus pulse duration (BYW4200B).

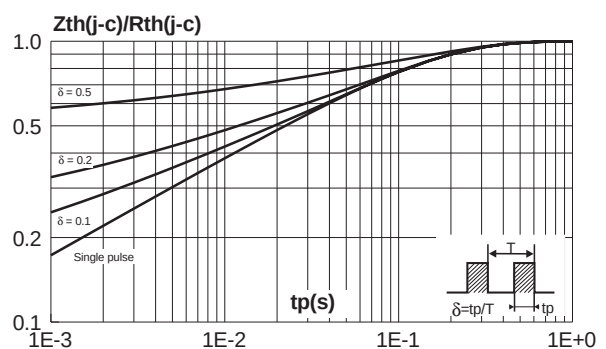


Fig. 7: Reverse recovery current versus dI_F/dt .

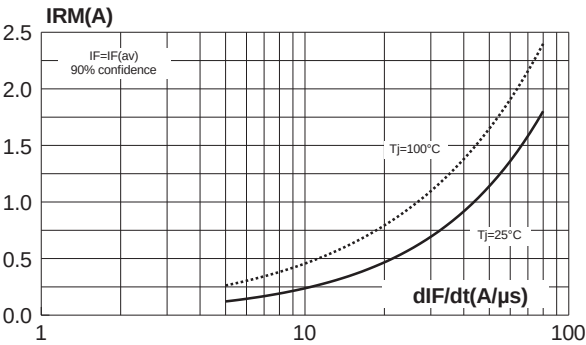


Fig. 8: Reverse recovery time versus dI_F/dt .

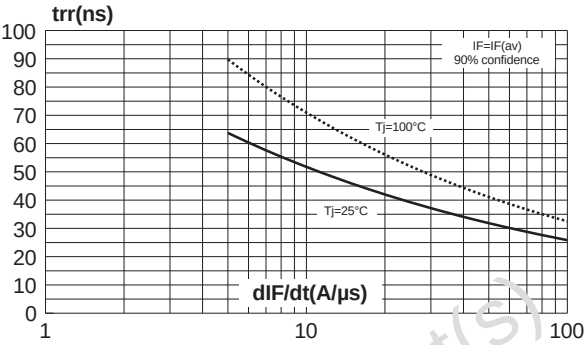


Fig. 9: Junction capacitance versus reverse voltage applied (typical values).

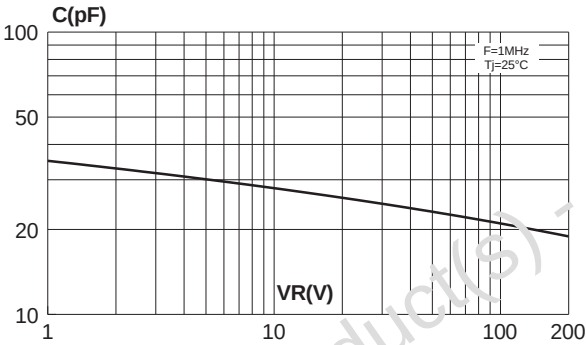


Fig. 10: Dynamic parameters versus junction temperature.

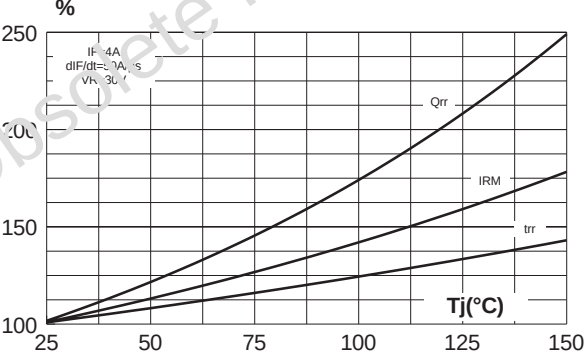


Fig. 11-1: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: 35mm) (SMBYW04-200).

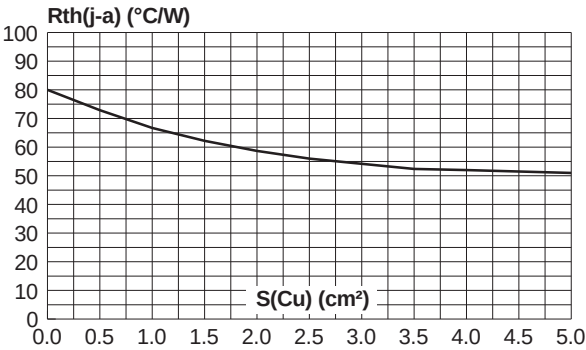
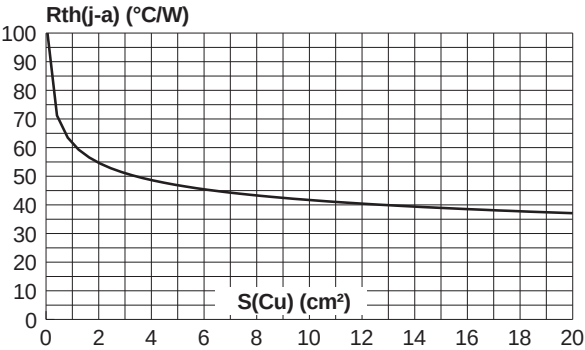
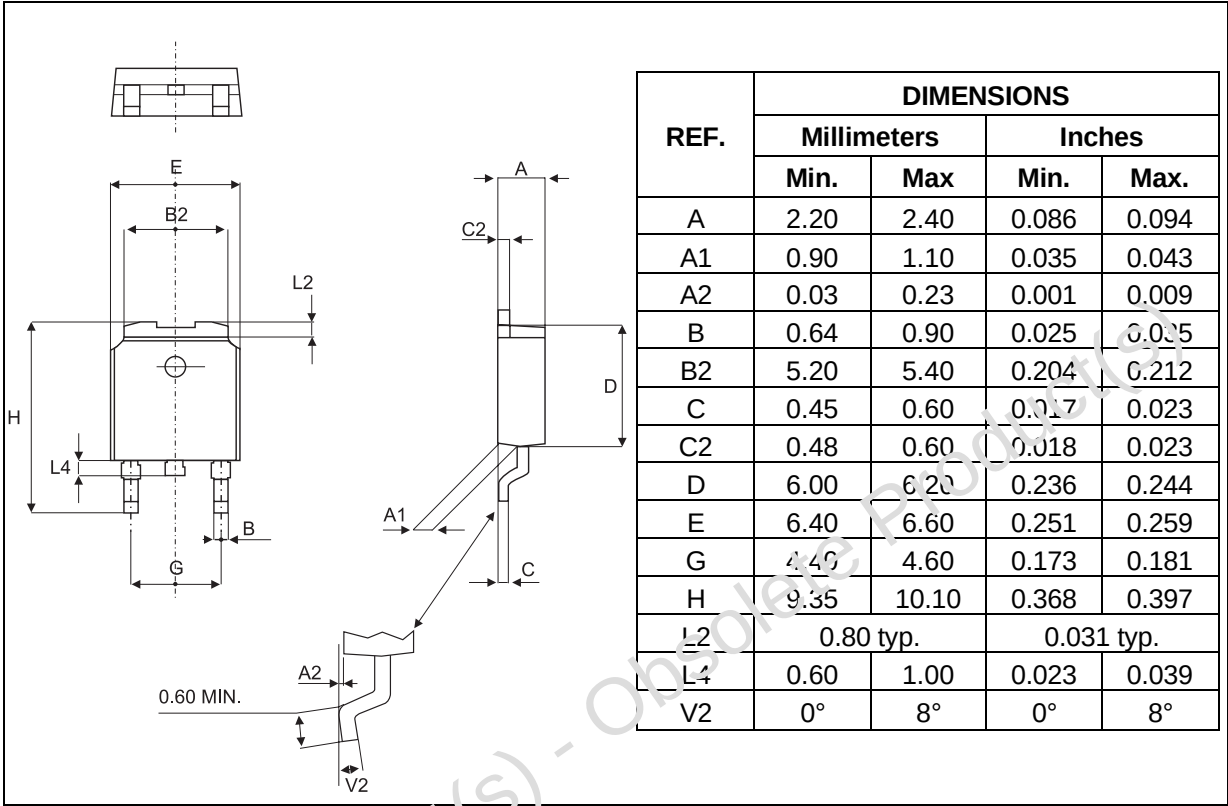


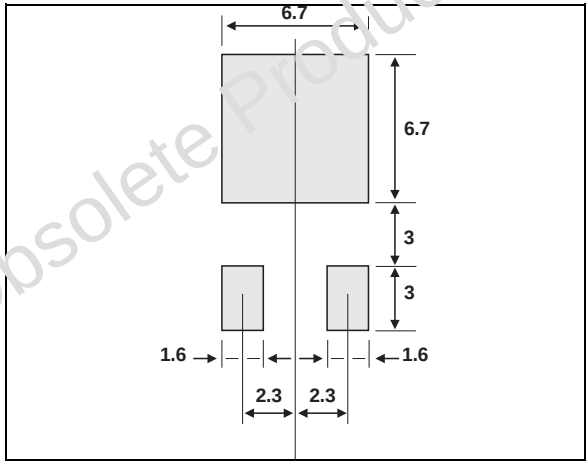
Fig. 11-2: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: 35mm) (BYW4200B).



PACKAGE MECHANICAL DATA
DPAK



FOOT PRINT (in millimeters)



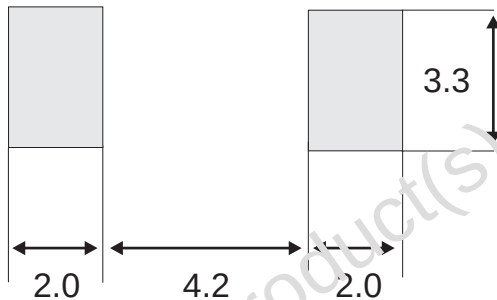
SMBYW04-200 / BYW4200B

PACKAGE MECHANICAL DATA

SMC

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	2.90	3.2	0.114	0.126
c	0.15	0.41	0.006	0.016
E	7.75	8.15	0.305	0.321
E1	6.60	7.15	0.260	0.281
E2	4.40	4.70	0.173	0.185
D	5.55	6.25	0.219	0.246
L	0.75	1.60	0.030	0.063

FOOT PRINT (in millimeters)



Ordering code	Marking	Package	Weight	Base qty	Delivery mode
SMBYW04-200	D20	SMC	0.243g	2500	Tape and reel
BYW4200B	W4200	DPAK	0.30g	75	Tube
BYW4200B-RL	W4200	DPAK	0.30g	2500	Tape and reel

- Epoxy meets UL 94,V0
- Band indicates cathode

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