



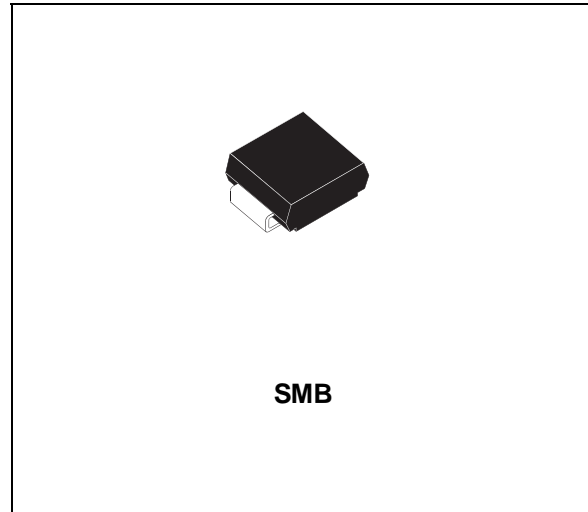
HIGH EFFICIENCY FAST RECOVERY DIODE

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	1 A
V_{RRM}	200 V
$V_F(max)$	0.71 V

FEATURES AND BENEFITS

- VERY LOW SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP BIPOLAR DEVICE
- LOW PEAK FORWARD VOLTAGE FOR TELECOM TRANSIENT OPERATION SUCH AS IN LIGHTING PROTECTION CIRCUITS



DESCRIPTION

Single chip rectifier suited to Switch Mode Power Supply 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.

(*) in accordance with DO214AC Jedec.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{RRM}	Repetitive peak reverse voltage	200	V
$I_{F(RMS)}$	RMS forward current	8	A
$I_{F(AV)}$	Average forward current	$T_{lead}=140^{\circ}C$ $\delta = 0.5$	A
I_{FSM}	Surge Non Repetitive Forward Current	$t_p=10ms$ Sinusoidal	A
T_{stg}	Storage and Junction Temperature Range	- 65 to + 150	$^{\circ}C$
T_j	Maximum Junction Temperature	150	$^{\circ}C$

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth (j-l)	Junction to Lead Thermal Resistance (on infinite heatsink)	13	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameters	Test Conditions		Min.	Typ.	Max.	Unit
I _R *	Reverse Leakage Current	T _j = 25°C	V _R = V _{R_{RRM}}			3	μA
		T _j = 125°C			180	400	
V _F **	Forward Voltage Drop	T _j = 25°C	I _F = 1 A			0.9	V
		T _j = 150°C	I _F = 1 A		0.65	0.71	

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

** tp = 5 ms, duty cycle < 2 %

RECOVERY CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit	
t _{rr}	T _j = 25°C	I _F = 0.5 A V _R = 30V	I _{rr} = 0.25 A			25	ns
		I _F = 1 A V _R = V _{R_{RRM}}	dI _F /dt = - 50 A/μs			25	
t _{fr}	T _j = 25°C	I _F = 1A dI _F /dt = 100 A/μs				25	ns
V _{FP}	T _j = 25°C	I _F = 1A dI _F /dt = 100 A/μs				5	V

To evaluate the maximum conduction losses use the following equation :

$$P = 0.58 \times I_{F(AV)} + 0.118 \times I_{F(RMS)}^2$$

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

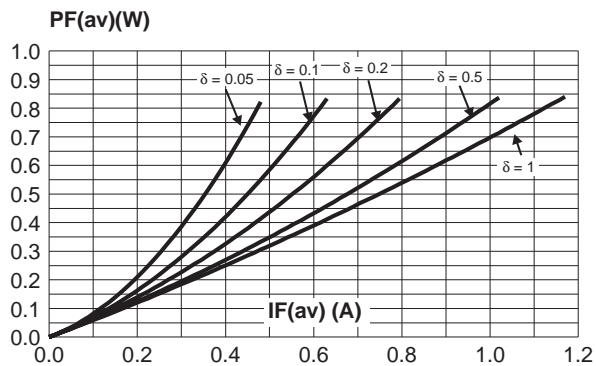


Fig. 2: Peak current versus form factor.

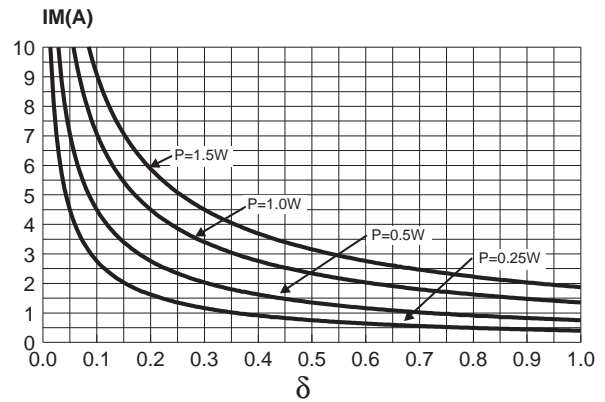


Fig. 3: Average forward current versus ambient temperature ($\delta=0.5$).

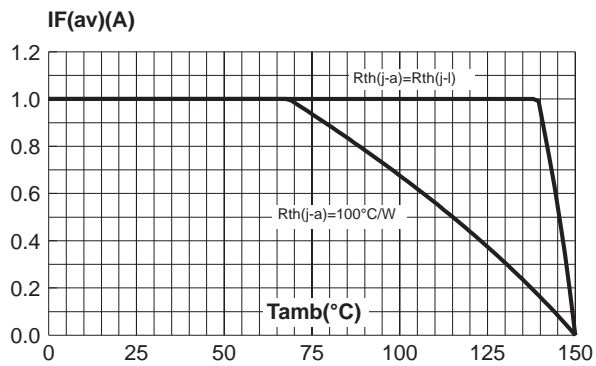


Fig. 4: Non repetitive surge peak forward current versus overload duration.

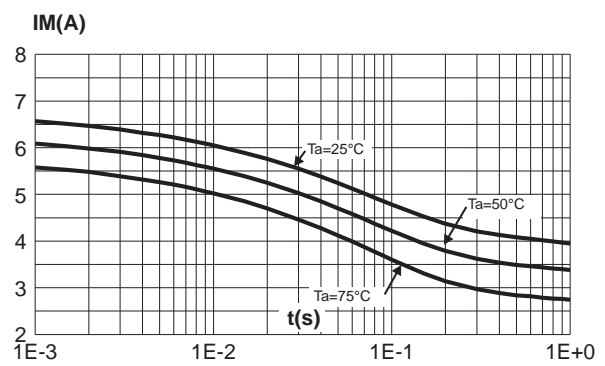


Fig. 5: Variation of thermal impedance junction to ambient versus pulse duration (recommended pad layout, epoxy FR4, $e(Cu)=35\mu m$).

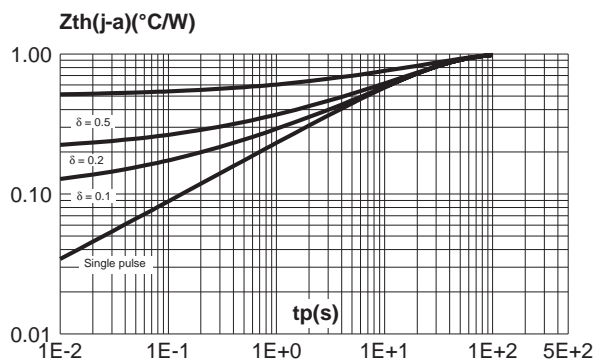


Fig 6: Forward voltage drop versus forward current (maximum values).

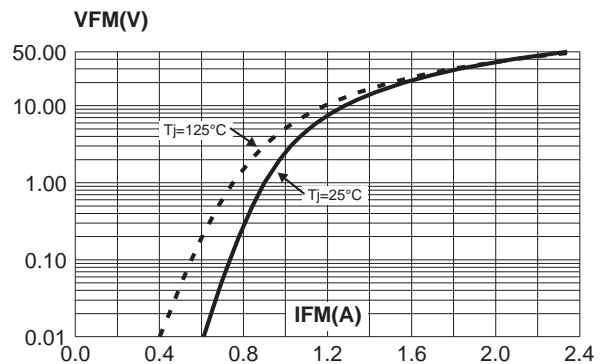


Fig. 7: Junction capacitance versus reverse voltage applied (typical values).

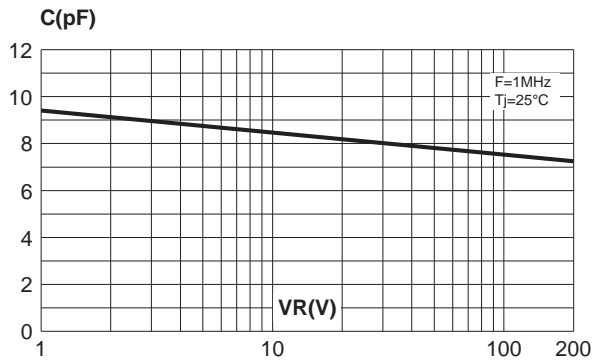


Fig. 8: Reverse recovery current versus dI_F/dt .

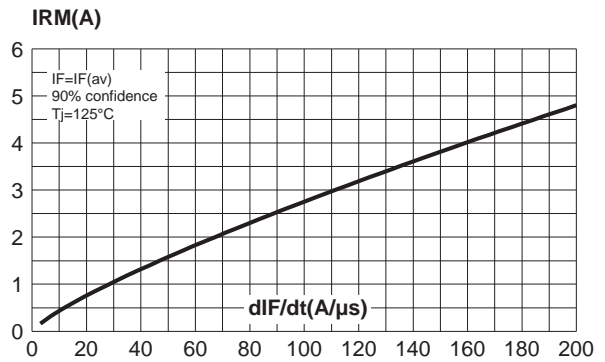


Fig. 9: Reverse recovery time versus dI_F/dt .

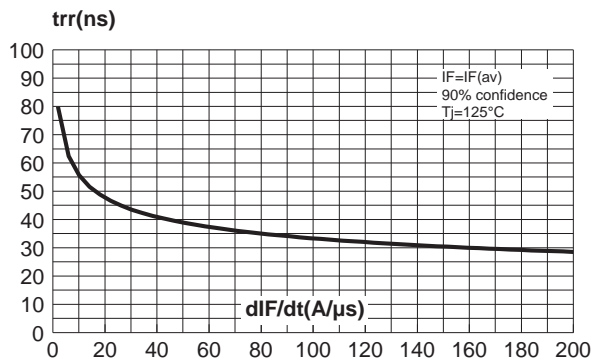


Fig. 10: Reverse recovery charges versus dI_F/dt .

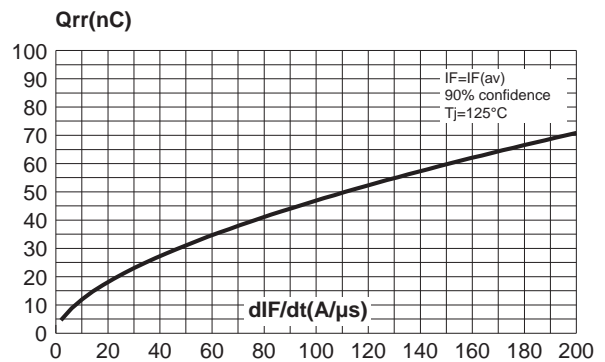


Fig. 11: Dynamic parameters versus junction temperature.

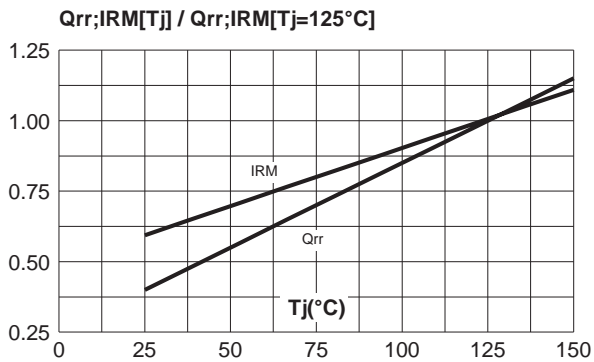
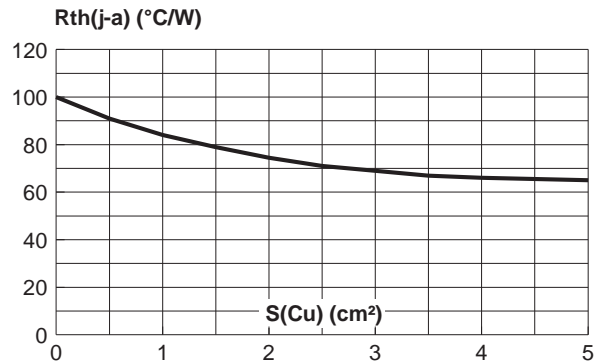
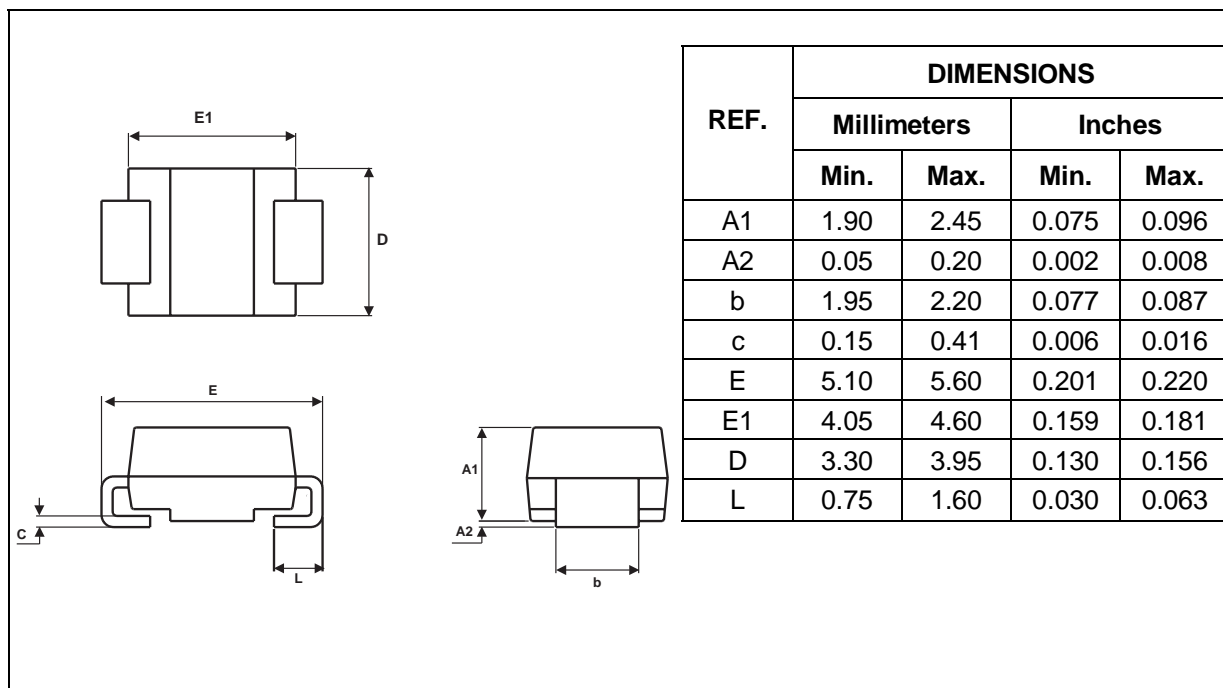


Fig. 12: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: 35μm).



PACKAGE MECHANICAL DATA

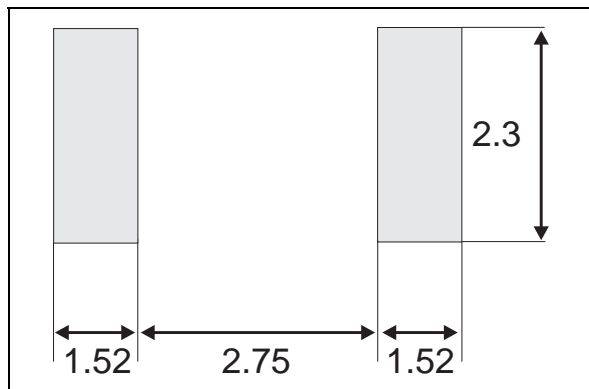
SMB



FOOT PRINT DIMENSIONS (in millimeters)

SMB (Plastic)

- **Marking:** B20
- **Weight = 0.12 g.**



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