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BYW100-200

HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODE

MAIN PRODUCT CHARACTERISTICS

I_{F(AV)}	1.5 A
V_{RRM}	200 V
T_j (max)	150 °C
V_F (max)	0.85 V

FEATURES AND BENEFITS

- Very low conduction losses
- Negligible switching losses
- Low forward and reverse recovery times
- The specifications and curves enable the determination of trr and I_{RM} at 100°C under users conditions.

DESCRIPTION

Low voltage drop and rectifier suited for switching mode base drive and transistor circuits.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V _{RRM}	Repetitive peak reverse voltage		200	V
I _{FRM}	Repetitive peak forward current *	tp = 5µs F = 1KHz	80	A
I _{F(AV)}	Average forward current*	Ta = 95°C δ = 0.5	1.5	A
I _{FSM}	Surge non repetitive forward current	tp=10 ms Sinusoidal	50	A
T _{stg}	Storage temperature range		-65 +150	°C
T _j	Maximum operating junction temperature		+ 150	°C
T _L	Maximum lead temperature for soldering during 10s at 4mm from case		230	°C

* On infinitive heatsink with 10mm lead length

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THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient*	45	°C/W

* On infinite heatsink with 10mm lead length.

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
I_R^*	Reverse leakage current	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			10	μA
		$T_j = 100^\circ\text{C}$				0.5	mA
V_F^{**}	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 4.5\text{A}$			1.2	V
		$T_j = 100^\circ\text{C}$	$I_F = 1.5\text{A}$		0.78	0.85	

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

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

To evaluate the maximum conduction losses use the following equation :

$$P = 0.75 \times I_{F(AV)} + 0.075 \times I_{F(RMS)}^2$$

RECOVERY CHARACTERISTICS

Symbol	Tests conditions		Min.	Typ.	Max.	Unit
trr	$I_F = 1\text{A}$ $di_F/dt = -50\text{A}/\mu\text{s}$ $V_R = 30\text{V}$	$T_j = 25^\circ\text{C}$			35	ns
tfr	$I_F = 1.5\text{A}$ $di_F/dt = -50\text{A}/\mu\text{s}$ Measured at $1.1 \times V_{Fmax}$	$T_j = 25^\circ\text{C}$		30		ns
V_{FP}	$I_F = 1.5\text{A}$ $di_F/dt = -50\text{A}/\mu\text{s}$	$T_j = 25^\circ\text{C}$		5		V
Qrr	$I_F = 1.5\text{A}$ $di_F/dt = -20\text{A}/\mu\text{s}$ $V_R \leq 30\text{V}$	$T_j = 25^\circ\text{C}$		10		nC

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

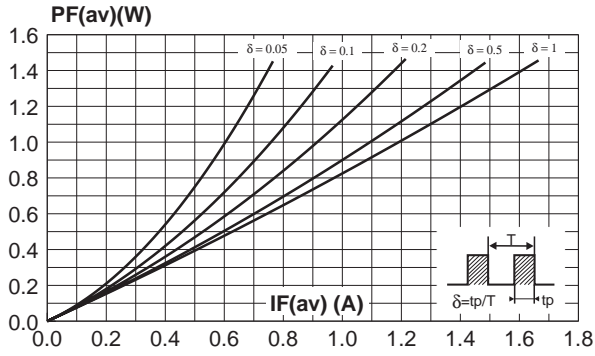


Fig. 2: Average forward current versus ambient temperature ($\delta=0.5$).

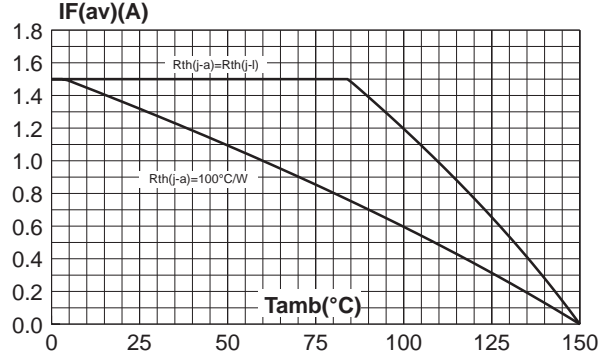


Fig. 3: Thermal resistance versus lead length.

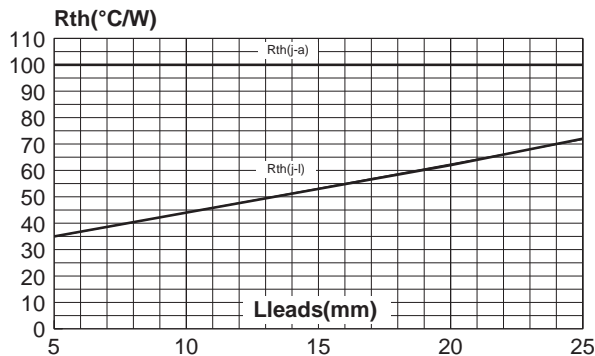


Fig. 4: Variation of thermal impedance junction to ambient versus pulse duration (recommended pad layout, epoxy FR4, e(Cu) = 35µm).

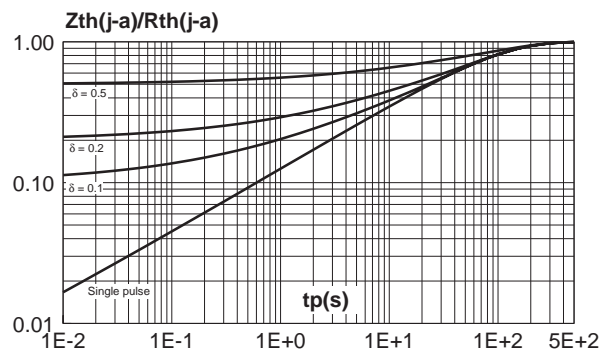


Fig. 5: Forward voltage drop versus forward current (maximum values).

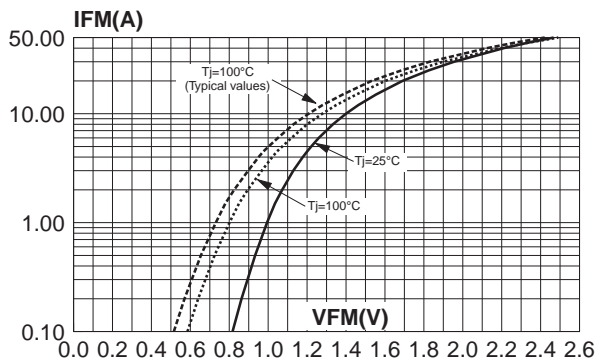
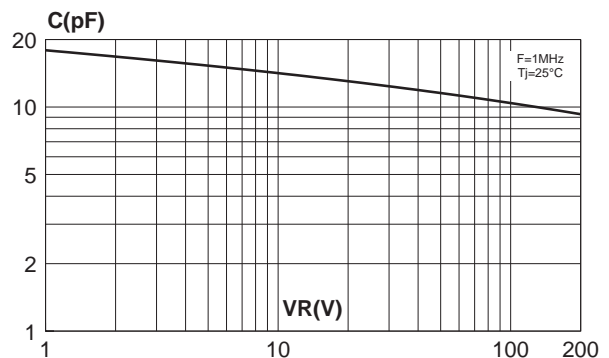


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).



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

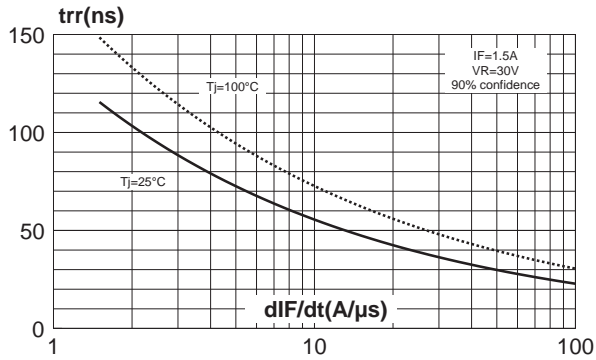


Fig. 8: Peak reverse recovery current versus dI_F/dt .

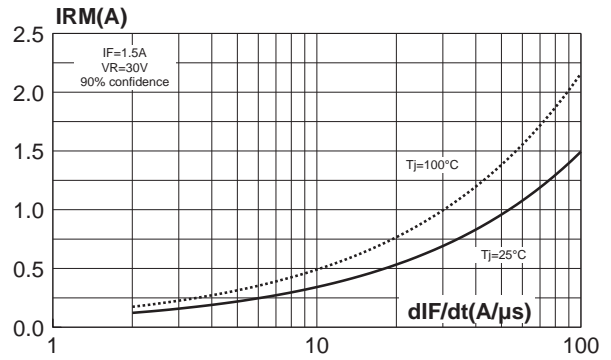
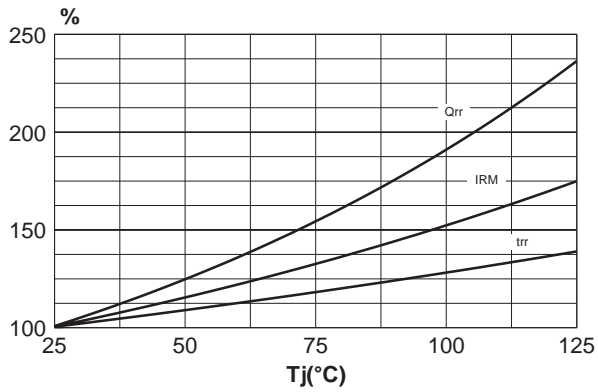


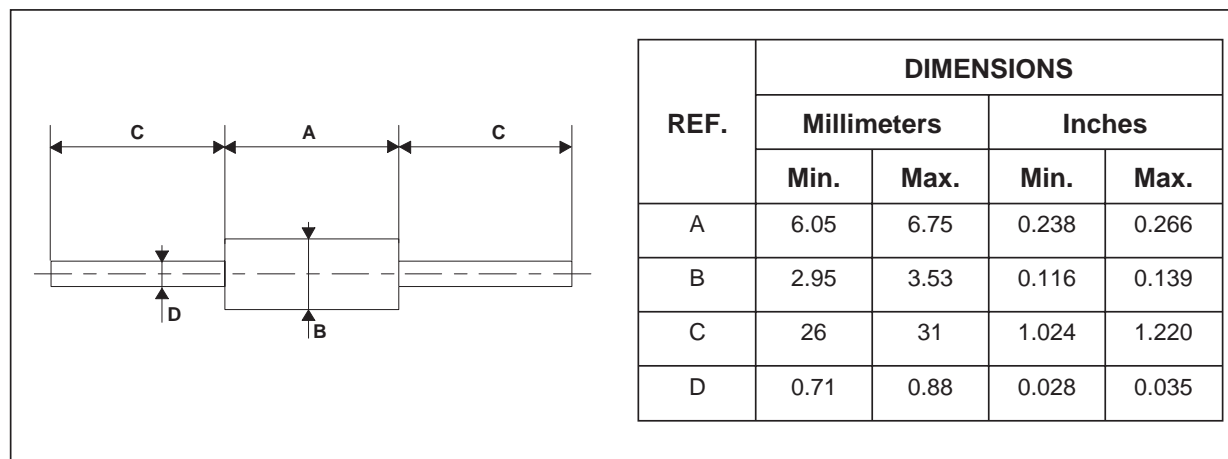
Fig. 9: Dynamic parameters versus junction temperature.



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PACKAGE MECHANICAL DATA

DO-15



Ordering code	Marking	Package	Weight	Base qty	Delivery mode
BYW100-200	BYW100-200	DO-15	0.4 g	1000	Ammopack
BYW100-200RL	BYW100-200	DO-15	0.4 g	6000	Tape and reel

- White band indicates cathode
- Epoxy meets UL 94,V0

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