



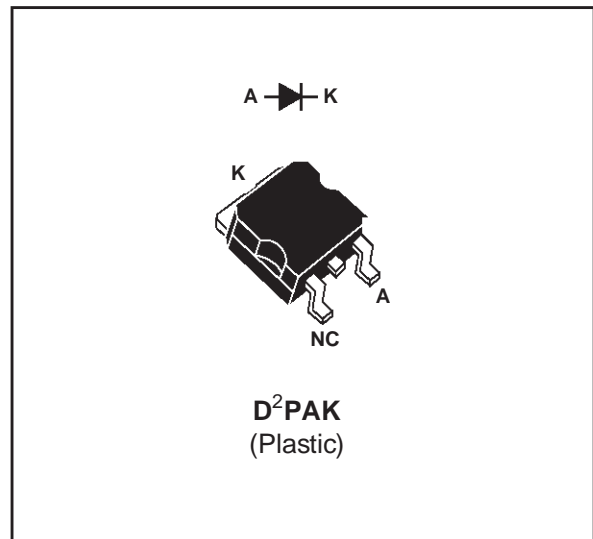
## HIGH EFFICIENCY FAST RECOVERY DIODES

### MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	8 A
$V_{RRM}$	200 V
$t_{rr}$	35 ns
$V_F$	0.85 V

### FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD AND REVERSE RECOVERY TIMES
- HIGH SURGE CURRENT
- SMD



### DESCRIPTION

Single rectifier suited for switchmode power supply and high frequency DC to DC converters. Packaged in a surface mount package D<sup>2</sup>PAK, this device is intended for use in high frequency inverters, free wheeling and polarity protection applications.

### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{RRM}$	Repetitive peak reverse voltage	200	V
$I_{F(RMS)}$	RMS forward current	16	A
$I_{F(AV)}$	Average forward current	8	A
	$T_c=120^{\circ}\text{C}$ $\delta = 0.5$		
$I_{FSM}$	Surge non repetitive forward current (All pins connected)	80	A
	$t_p=10\text{ms}$ sinusoidal		
$I_{FRM}$	Repetitive peak forward current	75	A
	$t_p = 5 \mu\text{s}$ $f = 5 \text{ kHz}$		
$T_{stg}$ $T_j$	Storage and junction temperature range	- 40 to + 150	$^{\circ}\text{C}$

## BYW29G-200

### THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
Rth (j-c)	Junction to case thermal resistance	2.8	°C/W

### STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I <sub>R</sub> *	Reverse leakage current	V <sub>R</sub> = V <sub>RRM</sub>	T <sub>j</sub> = 25°C			10	μA
			T <sub>j</sub> = 100°C			0.6	mA
V <sub>F</sub> **	Forward voltage drop	I <sub>F</sub> = 5 A	T <sub>j</sub> = 125°C			0.85	V
		I <sub>F</sub> = 10 A	T <sub>j</sub> = 125°C			1.05	
		I <sub>F</sub> = 10 A	T <sub>j</sub> = 25°C			1.15	

Pulse test : \* tp = 5 ms, duty cycle < 2 %

\*\* tp = 380 μs, duty cycle < 2 %

To evaluate the conduction losses use the following equation :

$$P = 0.65 \times I_{F(AV)} + 0.040 I_{F(RMS)}^2$$

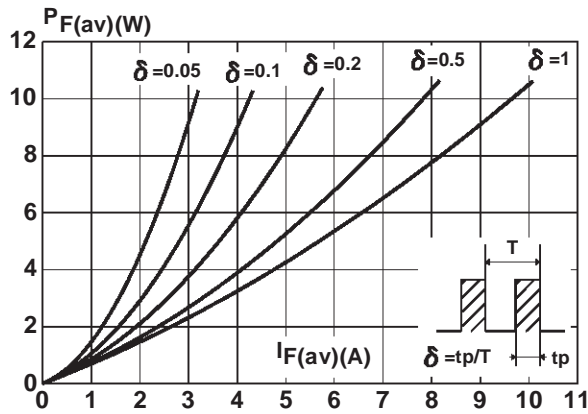
### RECOVERY CHARACTERISTICS

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
t <sub>rr</sub>	Reverse recovery time	T <sub>j</sub> = 25°C	I <sub>F</sub> = 0.5A			25	ns
		I <sub>rr</sub> = 0.25 A	I <sub>R</sub> = 1A				
		T <sub>j</sub> = 25°C	I <sub>F</sub> = 1A			35	
		dI <sub>F</sub> /dt = -50A/μs					
		V <sub>R</sub> = 30V					
t <sub>fr</sub>	Forward recovery time	T <sub>j</sub> = 25°C	I <sub>F</sub> = 1A		15		ns
		dI <sub>F</sub> /dt = 100A/μs					
		V <sub>FR</sub> = 1.1 x V <sub>F</sub> max					
V <sub>FP</sub>	Peak forward voltage	T <sub>j</sub> = 25°C	I <sub>F</sub> = 1A		2		V
		dI <sub>F</sub> /dt = 100A/μs					

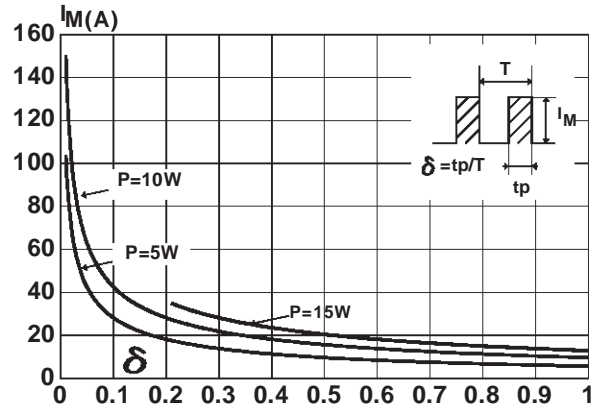
PIN OUT configuration in D<sup>2</sup>PAK:



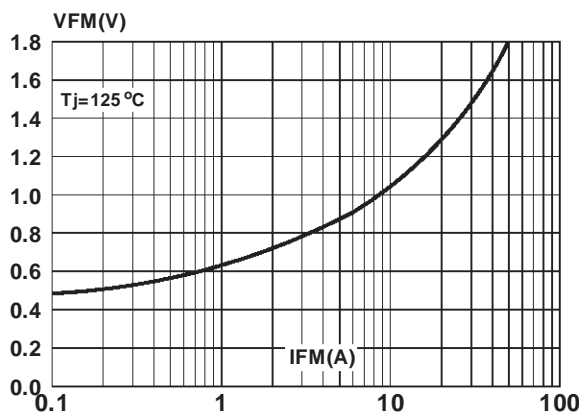
**Fig.1** : Average forward power dissipation versus average forward current.



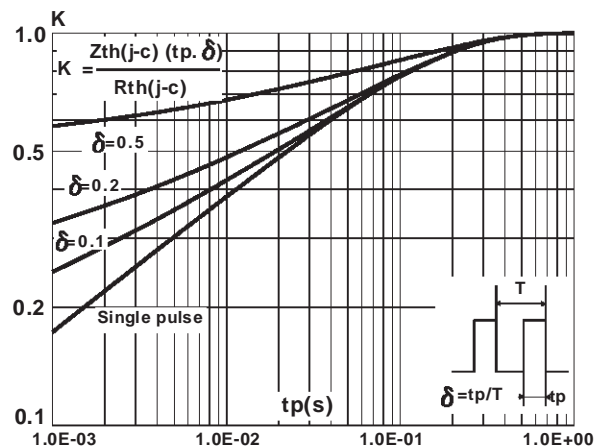
**Fig.2** : Peak current versus form factor.



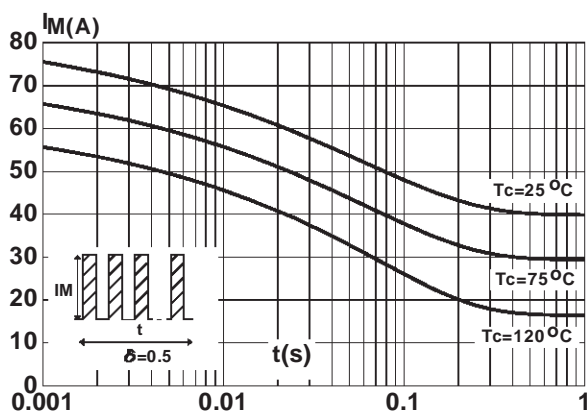
**Fig.3** : Forward voltage drop versus forward current (maximum values).



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



**Fig.5** : Non repetitive surge peak forward current versus overload duration.



**Fig.6** : Average current versus ambient temperature. (duty cycle : 0.5)

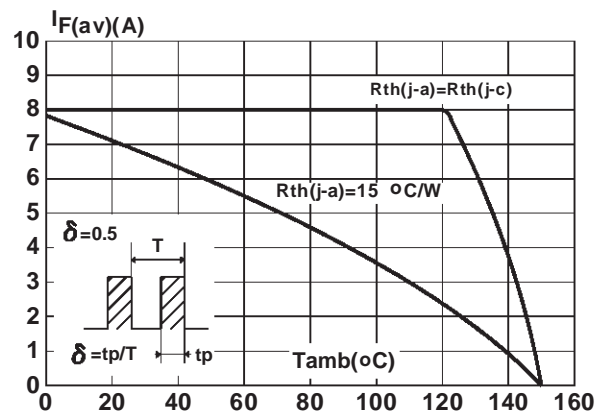


Fig.7 : Junction capacitance versus reverse voltage applied (Typical values).

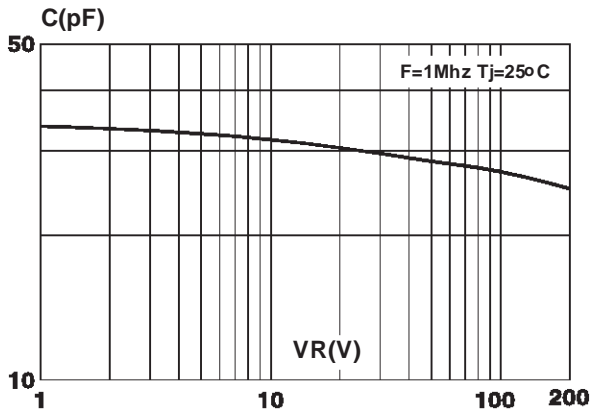


Fig.8 : Recovery charges versus  $dI_F/dt$ .

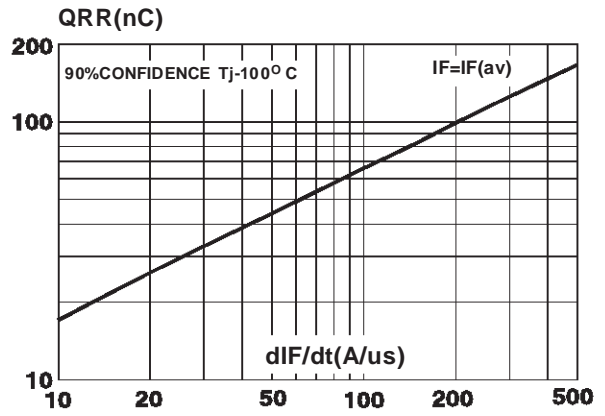


Fig.9 : Peak reverse current versus  $dI_F/dt$ .

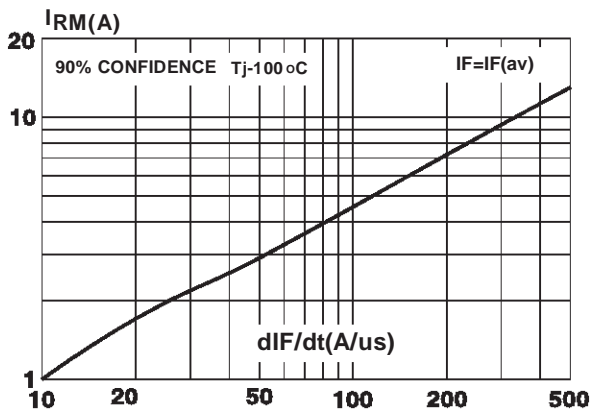
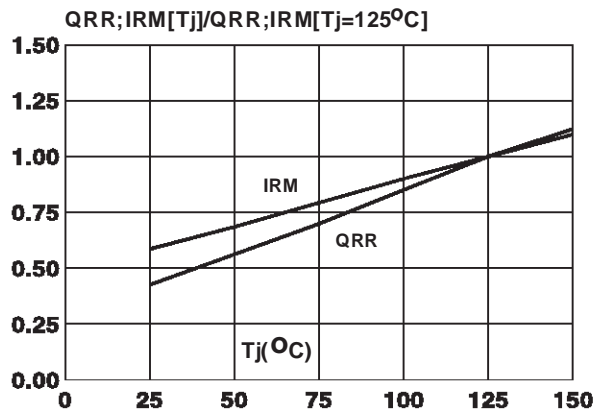
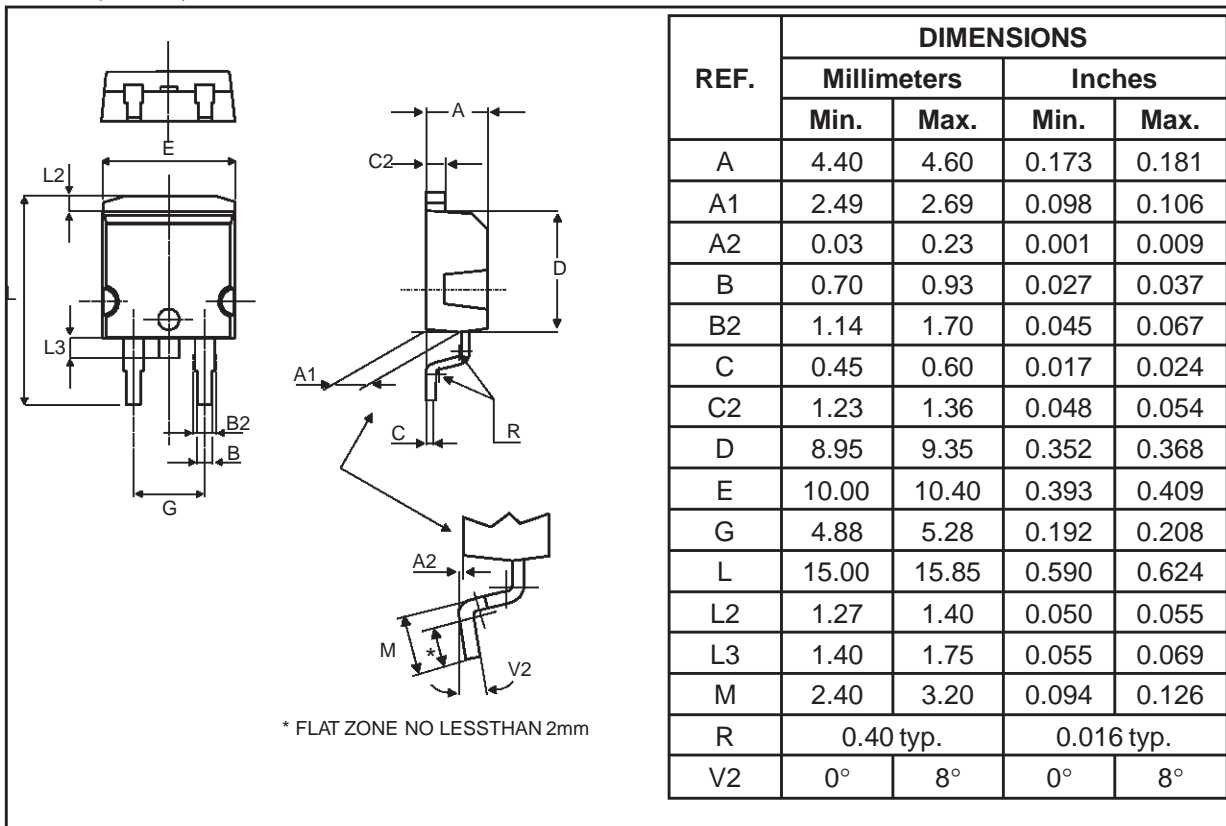


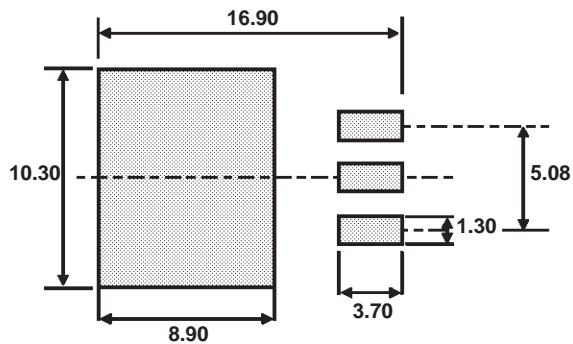
Fig.10 : Dynamic parameters versus junction temperature.



**PACKAGE MECHANICAL DATA**  
D<sup>2</sup>PAK (Plastic)



**FOOT PRINT (in millimeters)**



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