



HIGH EFFICIENCY FAST RECOVERY DIODES

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	25 A
V_{RRM}	200 V
t_{rr}	50 ns
V_F	0.85 V

FEATURES AND BENEFITS

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



DESCRIPTION

Single rectifier suited for switchmode power supply and high frequency DC to DC converters. Packaged in D²PAK, this surface mount 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	50	A
$I_{F(AV)}$	Average forward current	$T_c=125^\circ\text{C}$ $\delta = 0.5$	A
I_{FSM}	Surge non repetitive forward current	$t_p=10\text{ms}$ sinusoidal	A
I_{FRM}	Repetitive peak forward current	$t_p = 5\mu\text{s}$ $f = 5\text{kHz}$	A
T_{stg} T_j	Storage and junction temperature range	- 40 to + 150	°C

BYW77G-200

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
R _{th(j-c)}	Junction to case	1	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I _R *	Reverse leakage current	V _R = V _{RRM}	T _j = 25°C			25	μA
			T _j = 100°C			2.5	mA
V _F **	Forward voltage drop	I _F = 20 A	T _j = 125°C			0.85	V
		I _F = 40 A	T _j = 125°C			1.00	
		I _F = 40 A	T _j = 25°C			1.15	

Pulse test : * t_p = 5 ms, δ < 2 %

** t_p = 380 μs, δ < 2 %

To evaluate the conduction losses use the following equation :

$$P = 0.65 \times I_{F(AV)} + 0.0075 I_{F(RMS)}^2$$

RECOVERY CHARACTERISTICS

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
t _{rr}	Reverse recovery time	T _j = 25°C	I _F = 0.5A			35	ns
		I _{rr} = 0.25 A	I _R = 1A				
t _{fr}	Forward recovery time	T _j = 25°C	I _F = 1A		10		ns
		dI _F /dt = 100A/μs	V _{FR} = 1.1 x V _F max				
V _{FP}	Peak forward voltage	T _j = 25°C	I _F = 1A		1.5		V
		dI _F /dt = 100A/μs					

PIN OUT configuration in D²PAK:

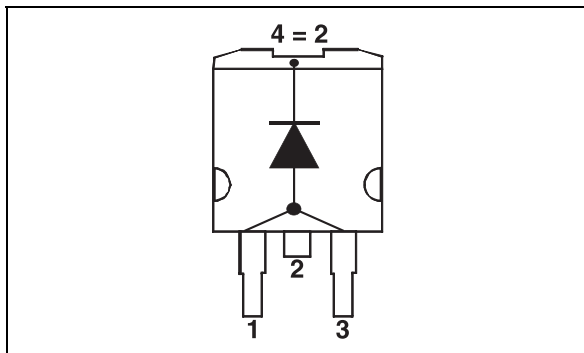


Fig.1 : Average forward power dissipation versus average forward current.

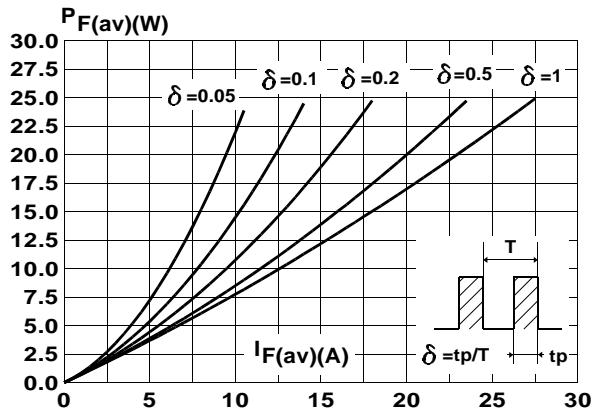


Fig.2 : Peak current versus form factor.

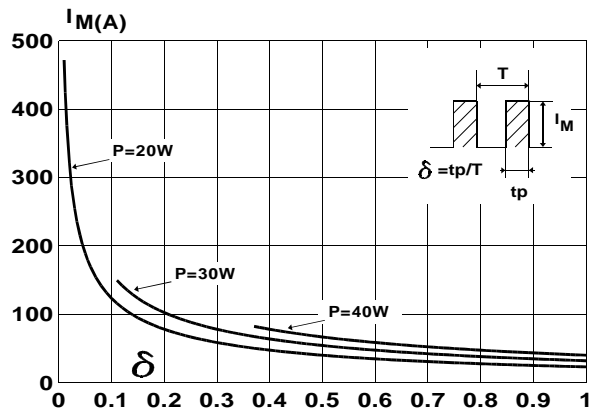


Fig.3 : Forward voltage drop versus forward current (maximum values).

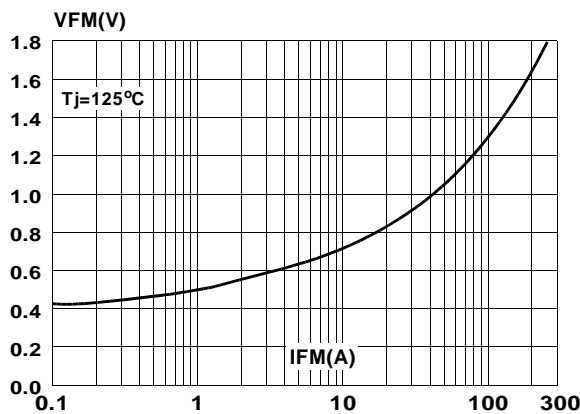


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration.

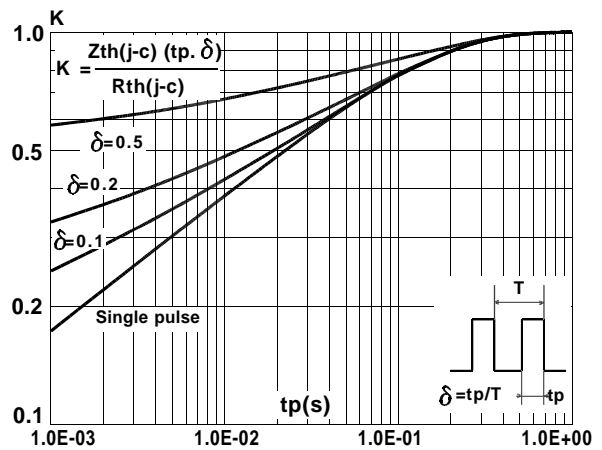


Fig.5 : Non repetitive surge peak forward current versus overload duration.

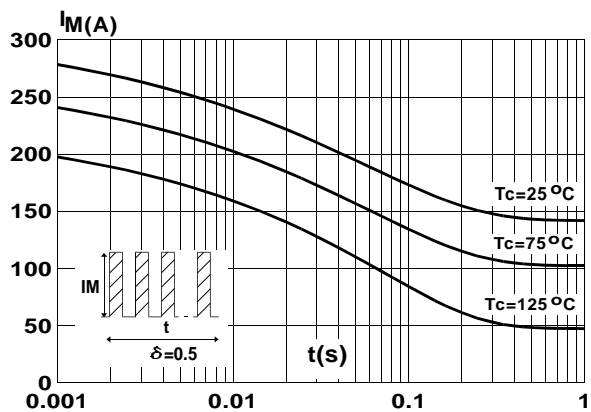


Fig.6 : Average current versus ambient temperature. ($\delta = 0.5$)

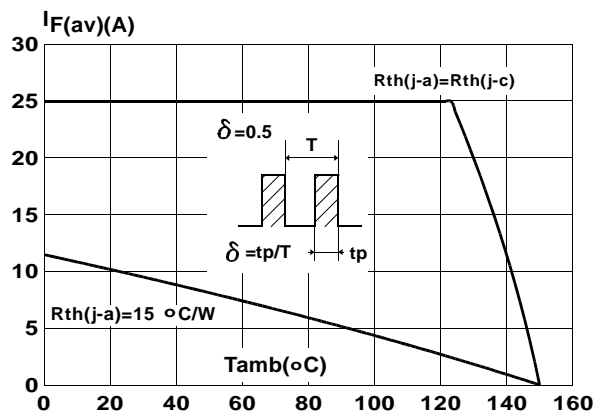


Fig.7 : Junction capacitance versus reverse voltage applied (Typical values).

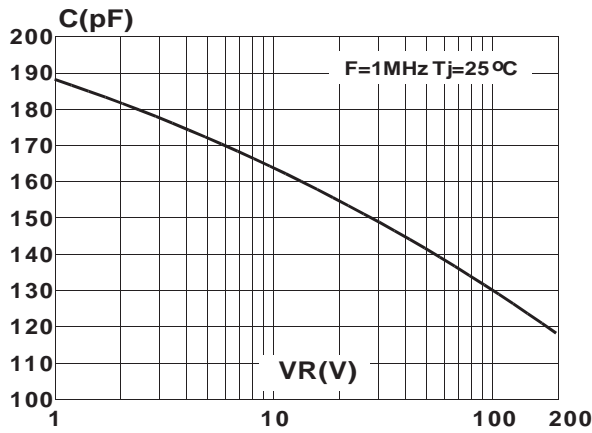


Fig.8 : Reverse recovery charges versus dI_F/dt .

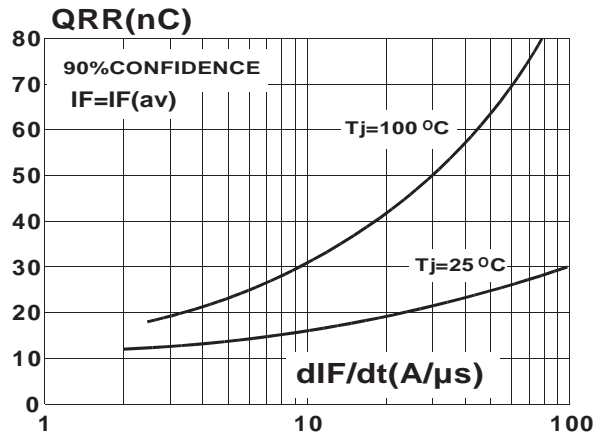


Fig.9 : Peak reverse current versus dI_F/dt .

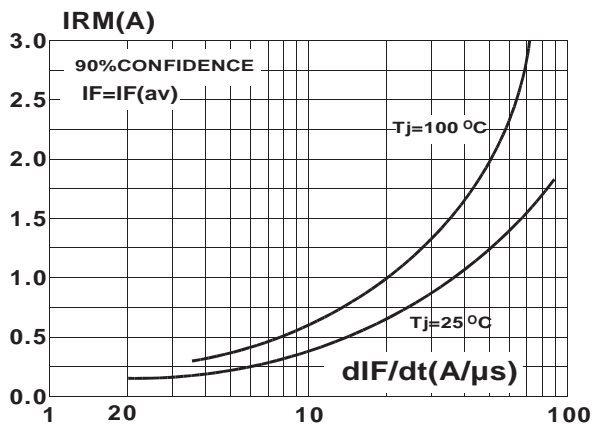
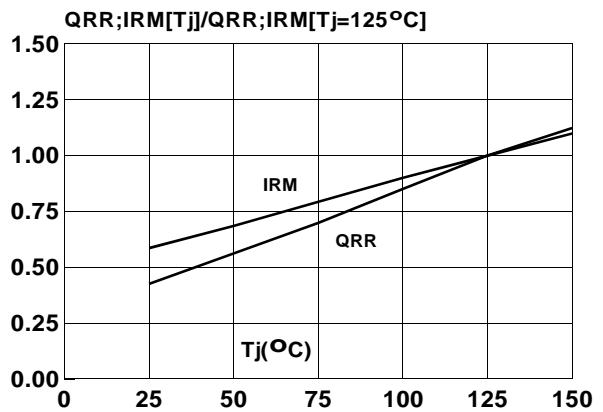
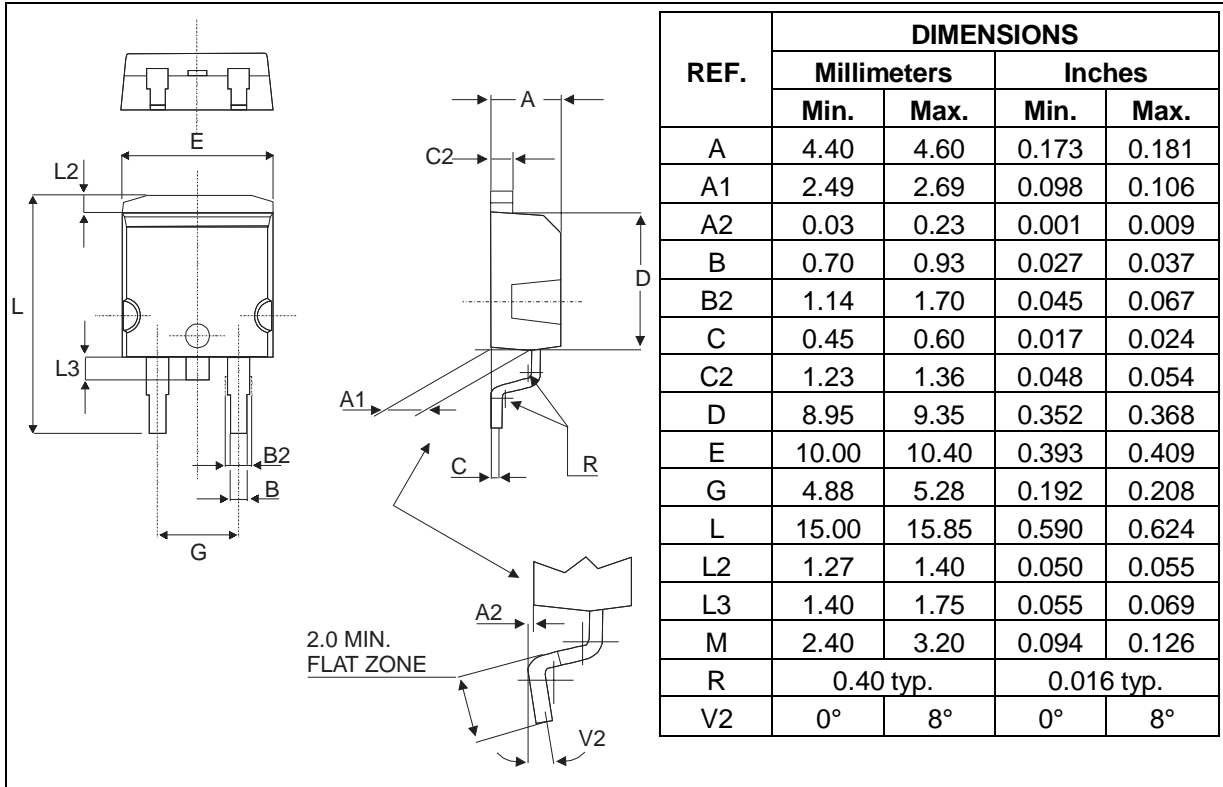


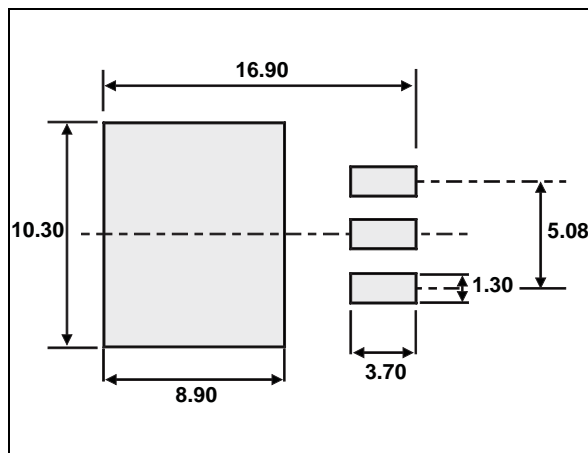
Fig.10 : Dynamic parameters versus junction temperature.



PACKAGE MECHANICAL DATA
D²PAK (Plastic)



FOOT PRINT (in millimeters)



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