



BYW77G-200

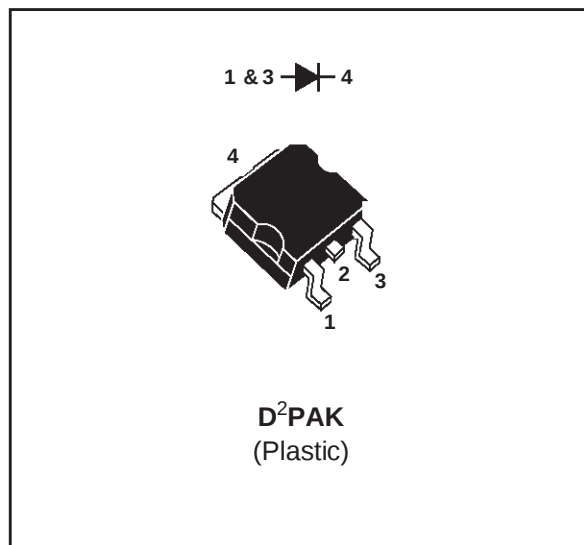
HIGH EFFICIENCY FAST RECOVERY DIODES

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	$T_c=125^{\circ}C$ $\delta = 0.5$	25	A
I_{FSM}	Surge non repetitive forward current	$t_p=10ms$ sinusoidal	200	A
I_{FRM}	Repetitive peak forward current	$t_p = 5\mu s$ $f = 5 kHz$	310	A
T_{stg} T_j	Storage and junction temperature range		- 40 to + 150	$^{\circ}C$

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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	$V_R = V_{RRM}$	$T_j = 25^\circ\text{C}$			25	μA
			$T_j = 100^\circ\text{C}$			2.5	mA
V_F^{**}	Forward voltage drop	$I_F = 20\text{ A}$	$T_j = 125^\circ\text{C}$			0.85	V
		$I_F = 40\text{ A}$	$T_j = 125^\circ\text{C}$			1.00	
		$I_F = 40\text{ A}$	$T_j = 25^\circ\text{C}$			1.15	

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

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

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	$T_j = 25^\circ\text{C}$ $I_F = 0.5\text{ A}$ $I_{rr} = 0.25\text{ A}$ $I_R = 1\text{ A}$			35	ns
		$T_j = 25^\circ\text{C}$ $I_F = 1\text{ A}$ $dI_F/dt = -50\text{ A}/\mu\text{s}$ $V_R = 30\text{ V}$			50	
t_{fr}	Forward recovery time	$T_j = 25^\circ\text{C}$ $I_F = 1\text{ A}$ $dI_F/dt = 100\text{ A}/\mu\text{s}$ $V_{FR} = 1.1 \times V_F \text{ max}$		10		ns
V_{FP}	Peak forward voltage	$T_j = 25^\circ\text{C}$ $I_F = 1\text{ A}$ $dI_F/dt = 100\text{ A}/\mu\text{s}$		1.5		V

PIN OUT configuration in D²PAK:

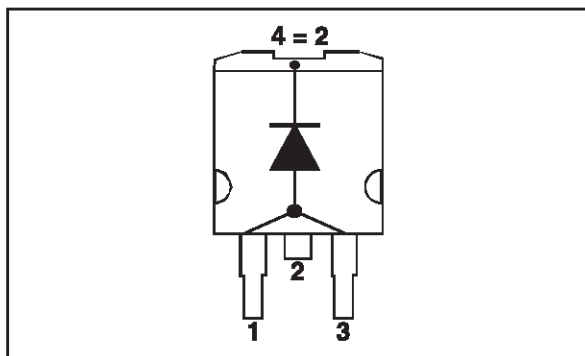


Fig.1 : Average forward power dissipation versus average forward current.

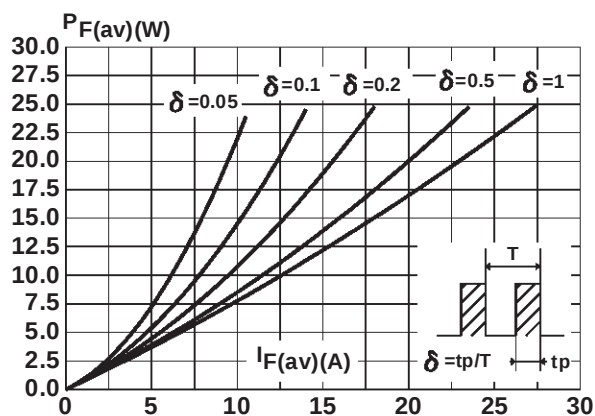


Fig.2 : Peak current versus form factor.

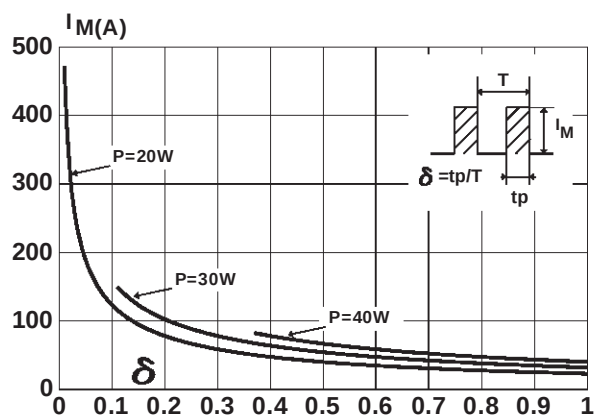


Fig.3 : Forward voltage drop versus forward current (maximum values).

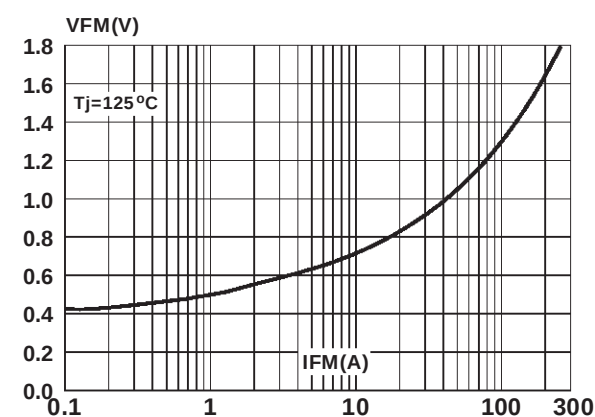


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration.

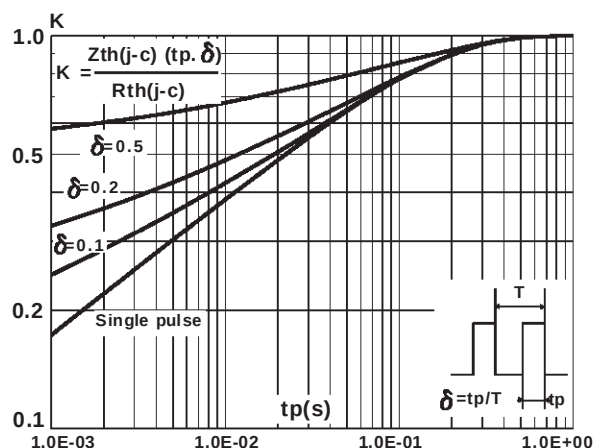


Fig.5 : Non repetitive surge peak forward current versus overload duration.

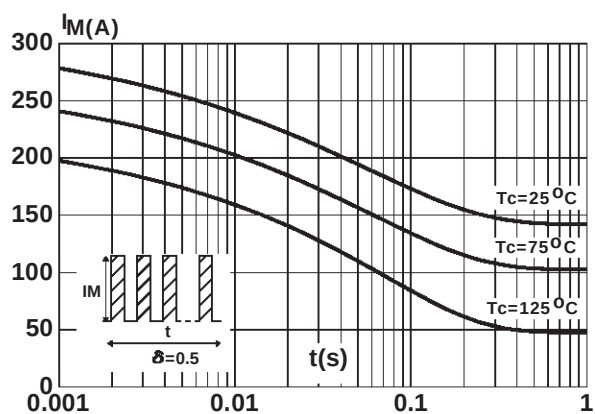


Fig.6 : Average current versus ambient temperature. ($\delta = 0.5$)

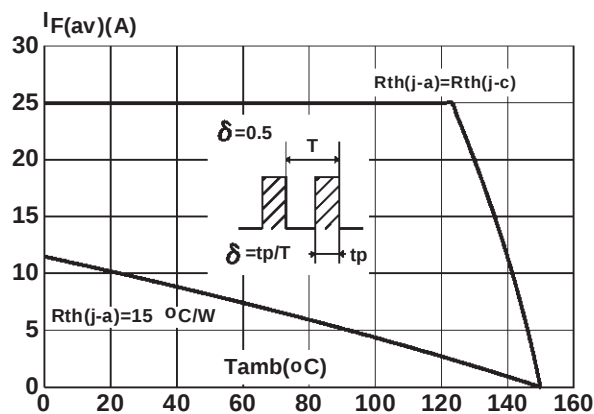


Fig.7 : Junction capacitance versus reverse voltage applied (Typical values).

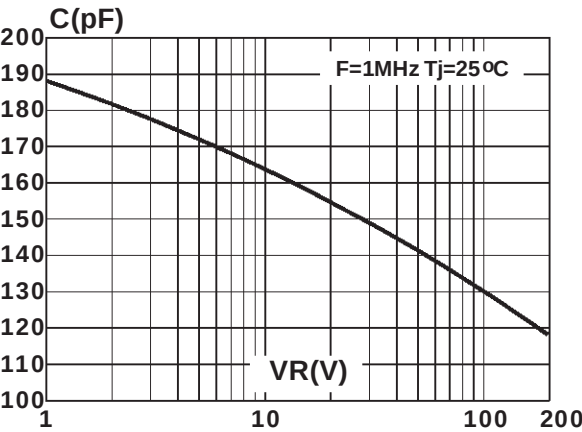


Fig.9 : Peak reverse current versus dI_F/dt .

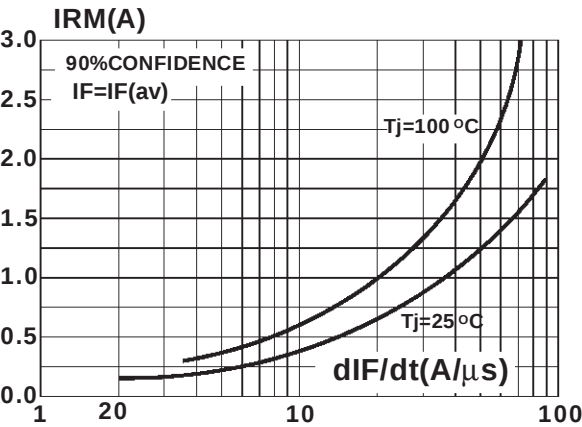


Fig.8 : Reverse recovery charges versus dI_F/dt .

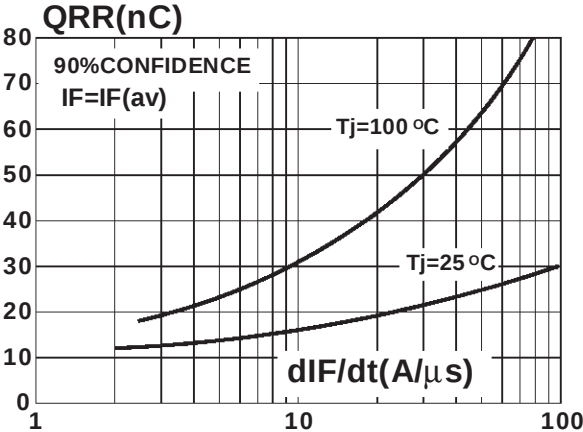
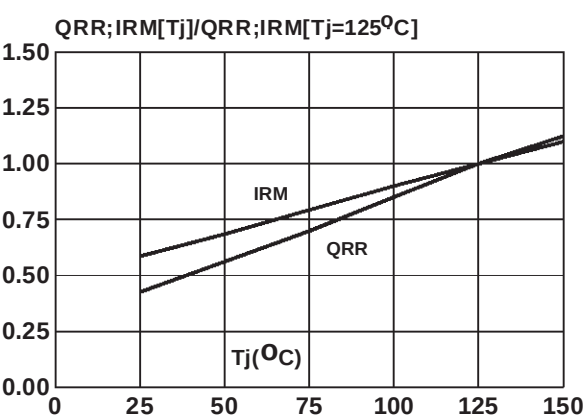
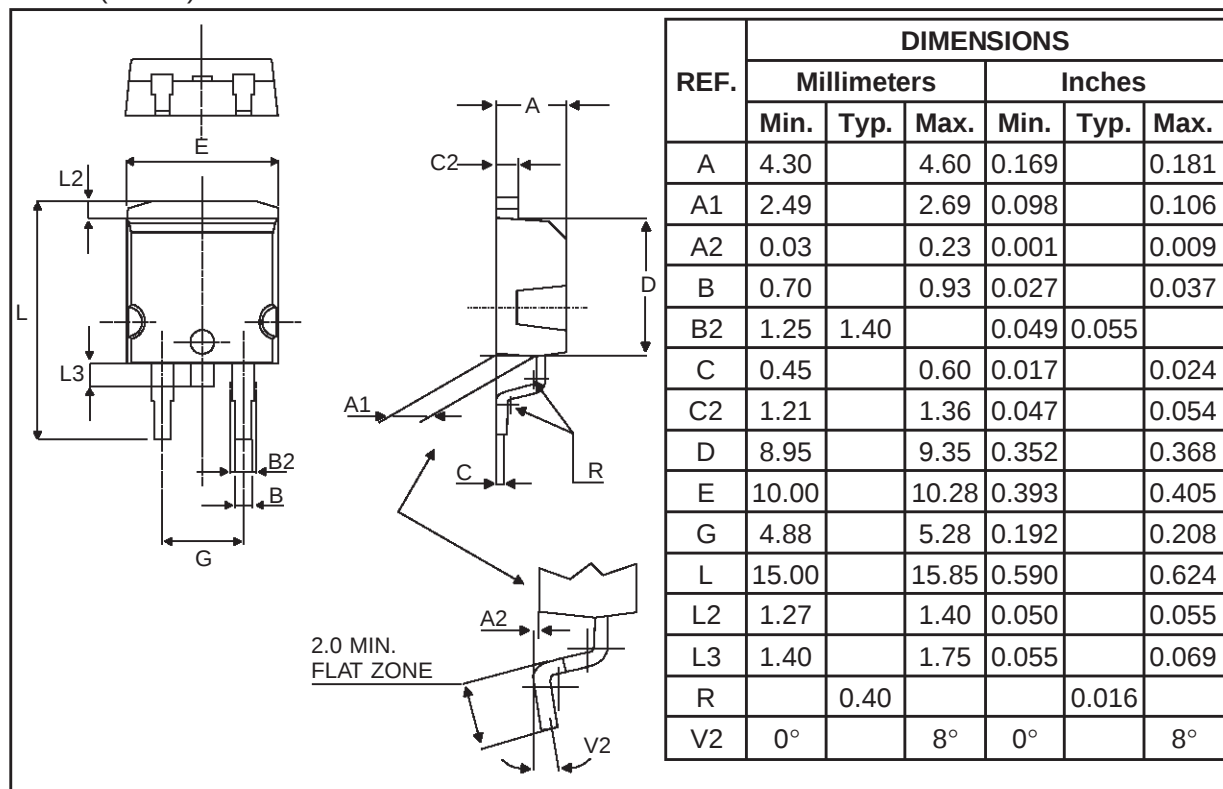
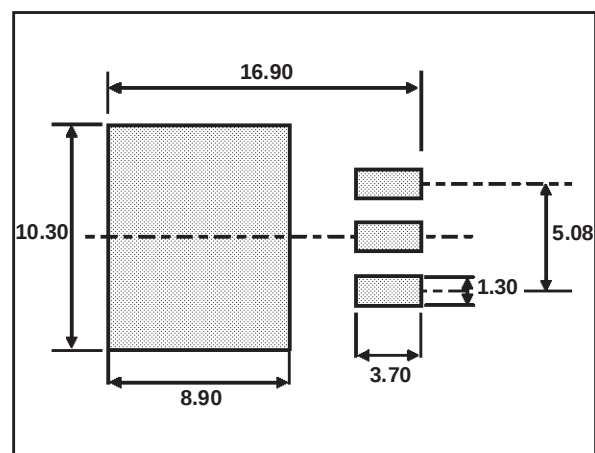


Fig.10 : Dynamic parameters versus junction temperature.



PACKAGE MECHANICAL DATAD²PAK (Plastic)**FOOT PRINT (in millimeters)**

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