

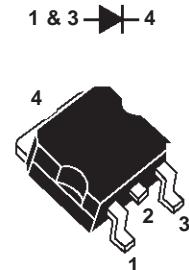
HIGH EFFICIENCY FAST RECOVERY DIODES

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



D²PAK
(Plastic)

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 | 25 | A |
| I_{FSM} | Surge non repetitive forward current | 200 | A |
| I_{FRM} | Repetitive peak forward current | 310 | 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 : * tp = 5 ms, δ < 2 %

** tp = 380 μs, δ < 2 %

To evaluate the conduction losses use the following equation :

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

RECOVERY CHARACTERISTICS

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|-----------------|-----------------------|--|--|------|------|------|------|
| t _{rr} | Reverse recovery time | T _j = 25°C I _{rr} = 0.25 A | I _F = 0.5A I _R = 1A | | | 35 | ns |
| | | T _j = 25°C dI _F /dt = -50A/μs | I _F = 1A V _R = 30V | | | 50 | |
| t _{fr} | Forward recovery time | T _j = 25°C dI _F /dt = 100A/μs V _{FR} = 1.1 x V _F max | I _F = 1A | | 10 | | ns |
| V _{FP} | Peak forward voltage | T _j = 25°C dI _F /dt = 100A/μs | I _F = 1A | | 1.5 | | V |

PIN OUT configuration in D²PAK:

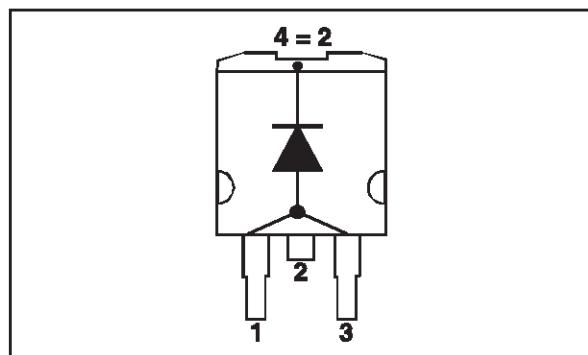


Fig.1 : Average forward power dissipation versus average forward current.

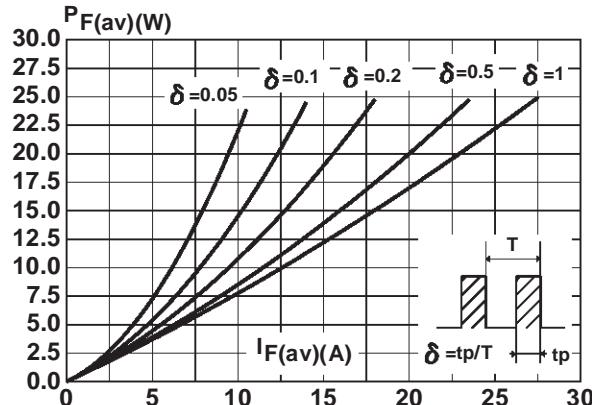


Fig.3 : Forward voltage drop versus forward current (maximum values).

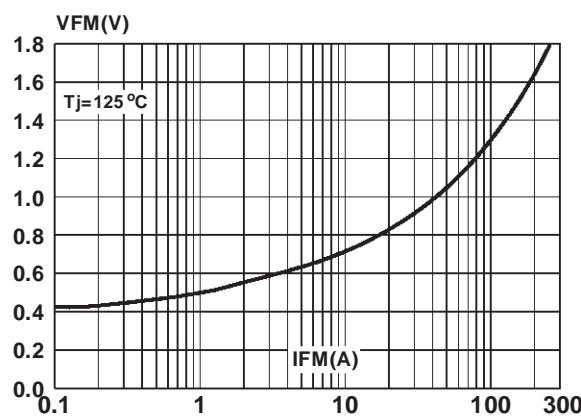


Fig.5 : Non repetitive surge peak forward current versus overload duration.

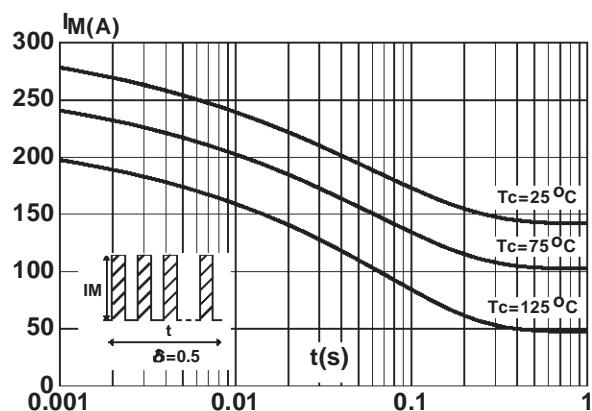


Fig.2 : Peak current versus form factor.

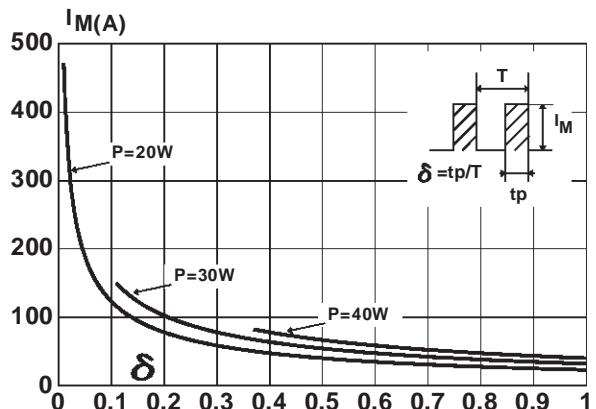


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration.

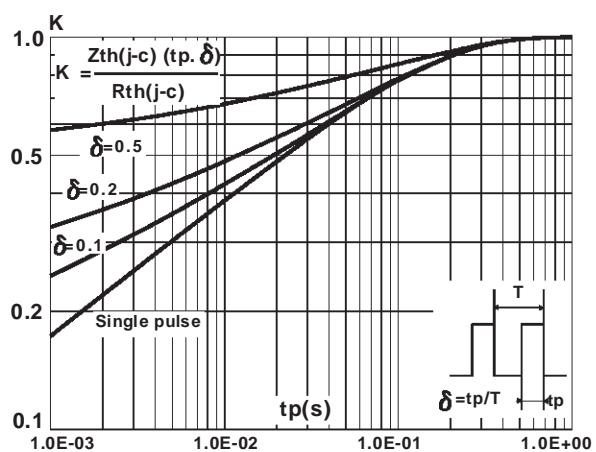
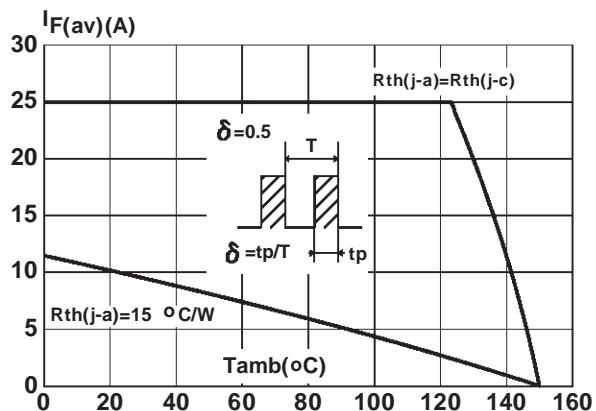


Fig.6 : Average current versus ambient temperature. ($\delta = 0.5$)



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

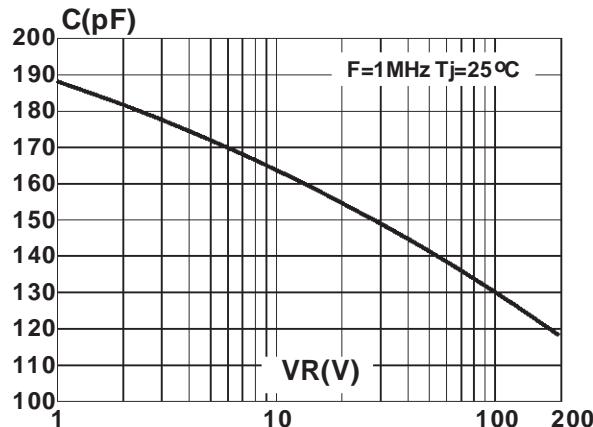


Fig.9 : Peak reverse current versus $dI/F/dt$.

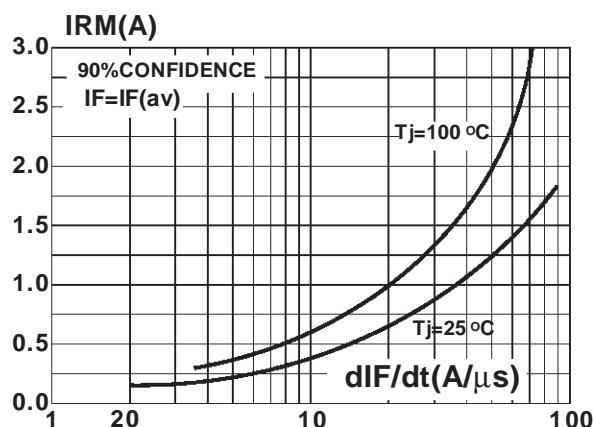


Fig.8 : Reverse recovery charges versus $dI/F/dt$.

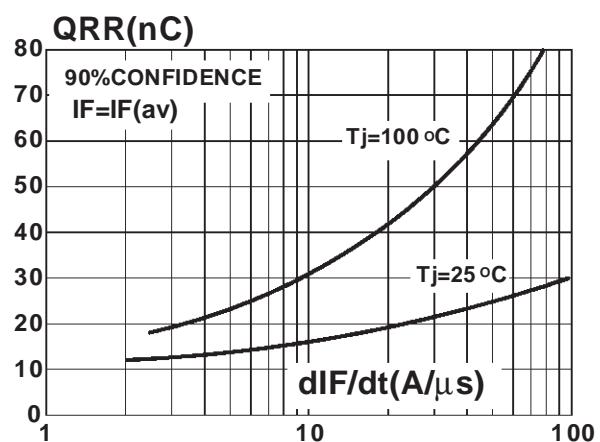
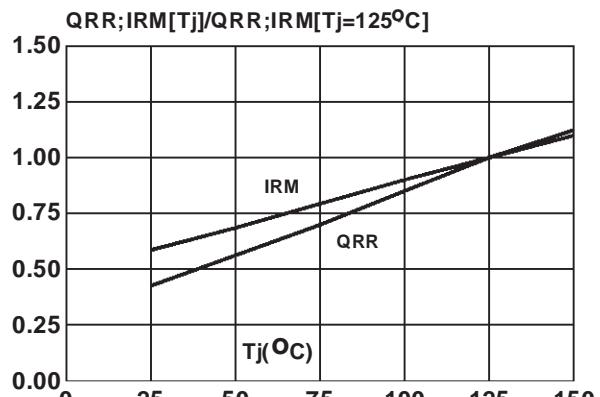
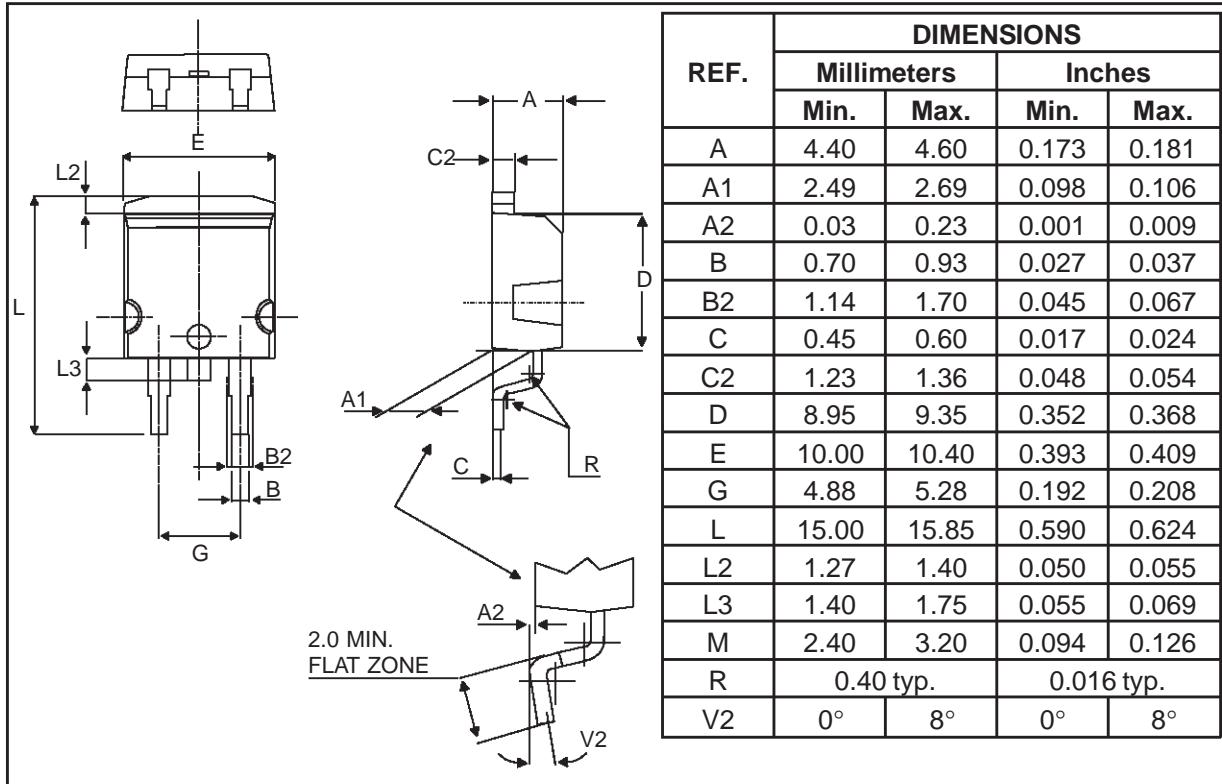
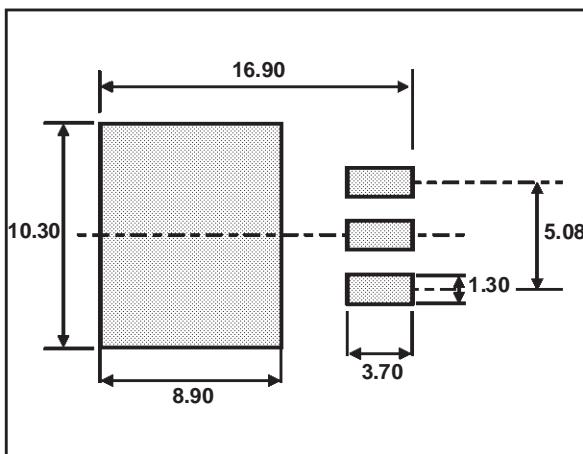


Fig.10 : Dynamic parameters versus junction temperature.



PACKAGE MECHANICAL DATA
D²PAK (Plastic)
**FOOT PRINT** (in millimeters)

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