

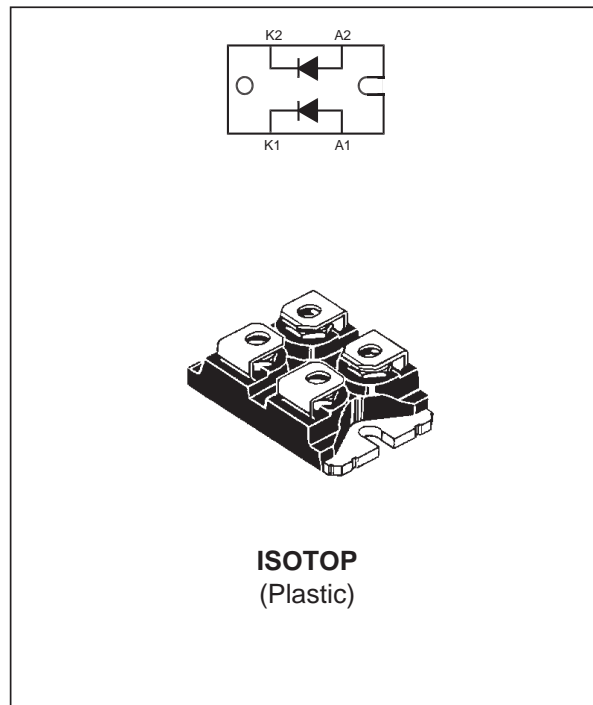
HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODES

FEATURES

- SUITED FOR SMPS
- VERY LOW FORWARD LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- HIGH SURGE CURRENT CAPABILITY
- HIGH AVALANCHE ENERGY CAPABILITY
- INSULATED :
 Insulating voltage = 2500 V_{RMS}
 Capacitance = 55 pF

DESCRIPTION

Dual rectifier suited for switchmode power supply and high frequency DC to DC converters. Packaged in ISOTOP™ this device is intended for use in low voltage, high frequency inverters, free wheeling and polarity protection applications.



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | | Value | Unit |
|------------------------------------|--|-----------------------|--------------------------------|----------|
| I _{F(RMS)} | RMS forward current | | 150 | A |
| I _{F(AV)} | Average forward current $\delta = 0.5$ | T _c =110°C | 100 | A |
| I _{FSM} | Surge non repetitive forward current | tp=10ms sinusoidal | 1600 | A |
| T _{stg} T _j | Storage and junction temperature range | | - 40 to + 150 - 40 to + 150 | °C °C |

| Symbol | Parameter | Value | Unit |
|------------------|---------------------------------|-------|------|
| V _{RRM} | Repetitive peak reverse voltage | 200 | V |

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BYV255V

THERMAL RESISTANCE

| Symbol | Parameter | | Value | Unit |
|-----------|------------------|-----------|-------|------|
| Rth (j-c) | Junction to case | Per diode | 0.4 | °C/W |
| | | Total | 0.25 | |
| Rth (c) | Coupling | | 0.1 | °C/W |

When the diodes 1 and 2 are used simultaneously :

$$T_j - T_c (\text{diode 1}) = P(\text{diode 1}) \times R_{th(j-c)}(\text{Per diode}) + P(\text{diode 2}) \times R_{th(c)}$$

ELECTRICAL CHARACTERISTICS (Per diode) STATIC CHARACTERISTICS

| Symbol | Test Conditions | | Min. | Typ. | Max. | Unit |
|-------------------|------------------------|-----------------------------------|------|------|------|------|
| I _R * | T _j = 25°C | V _R = V _{RRM} | | | 100 | μA |
| | T _j = 100°C | | | | 10 | mA |
| V _F ** | T _j = 125°C | I _F = 100 A | | | 0.85 | V |
| | T _j = 125°C | I _F = 200 A | | | 1.00 | |
| | T _j = 25°C | I _F = 200 A | | | 1.15 | |

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

** tp = 380 μs, duty cycle < 2 %

RECOVERY CHARACTERISTICS

| Symbol | Test Conditions | | | Min. | Typ. | Max. | Unit |
|-----------------|-----------------------|---|-------------------------------|------|------|------|------|
| trr | T _j = 25°C | I _F = 0.5A I _R = 1A | I _{rr} = 0.25A | | | 55 | ns |
| | | I _F = 1A V _R = 30V | dI _F /dt = -50A/μs | | | 80 | |
| tfr | T _j = 25°C | I _F = 1A V _{FR} = 1.1 x V _F | tr = 5 ns | | 10 | | ns |
| V _{FP} | T _j = 25°C | I _F = 1A | tr = 5 ns | | 1.5 | | V |

TURN-OFF SWITCHING CHARACTERISTICS

| Symbol | Test Conditions | | Min. | Typ. | Max. | Unit | |
|-----------------|------------------------|--|--------------------------------|------|------|------|---|
| I _{RM} | T _j = 100°C | I _F = 100A L _p @ 0.05μH V _{CC} @ 0.6 V _{RRM} | dI _F /dt = -200A/μs | | | 16 | A |
| | | | dI _F /dt = -400A/μs | | 24 | | |

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

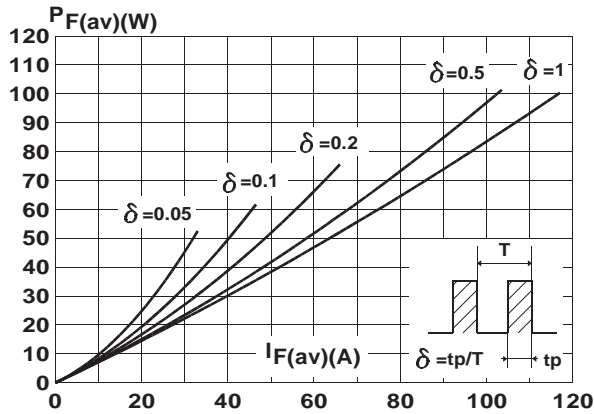


Fig.2 : Peak current versus form factor.

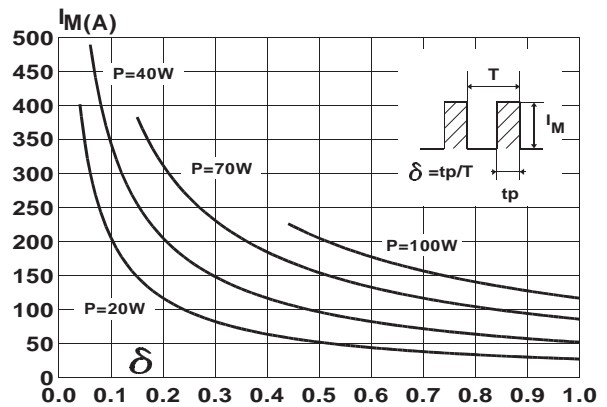


Fig.3 : Forward voltage drop versus forward current (maximum values).

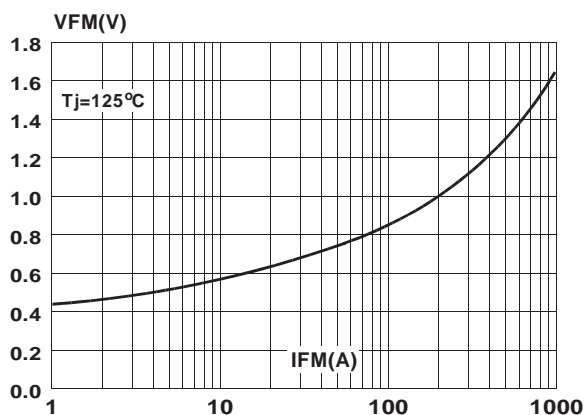


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration.

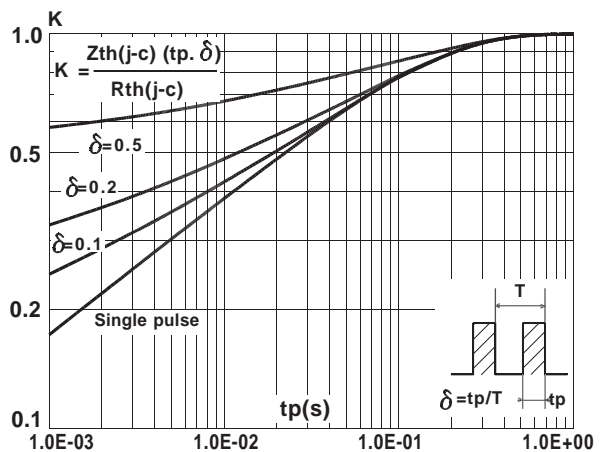


Fig.5 : Non repetitive surge peak forward current versus overload duration.

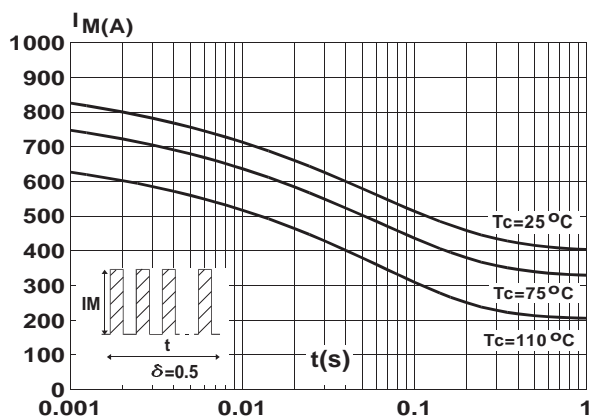


Fig.6 : Average current versus ambient temperature. (duty cycle : 0.5)

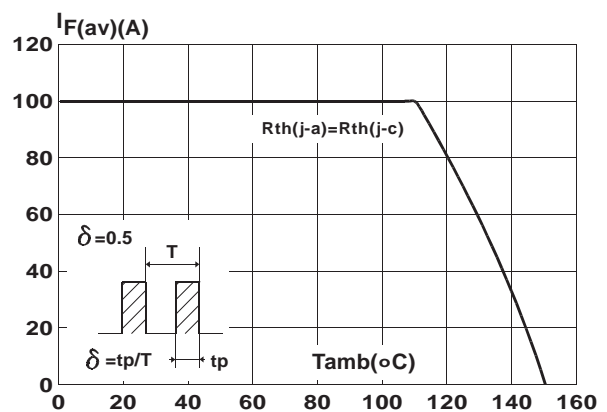


Fig.7 : Junction capacitance versus reverse voltage applied (Typical values).

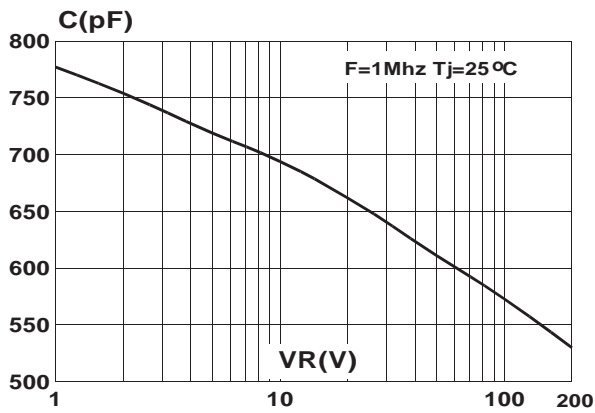


Fig.8 : Recovery charges versus dI_F/dt .

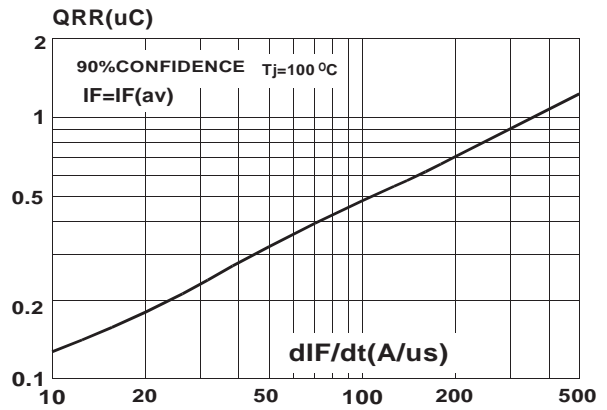


Fig.9 : Peak reverse current versus dI_F/dt .

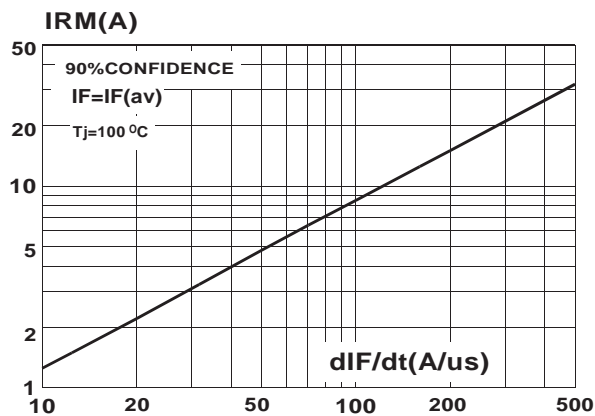
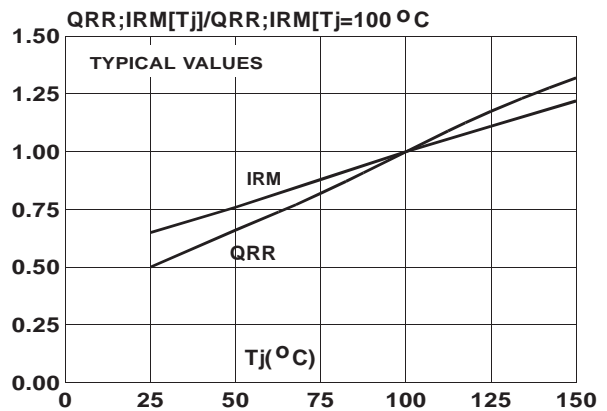


Fig.10 : Dynamic parameters versus junction temperature.



PACKAGE MECHANICAL DATA
 ISOTOP

| REF. | DIMENSIONS | | | |
|------|-------------|-------|------------|-------|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| A | 11.80 | 12.20 | 0.465 | 0.480 |
| A1 | 8.90 | 9.10 | 0.350 | 0.358 |
| B | 7.8 | 8.20 | 0.307 | 0.323 |
| C | 0.75 | 0.85 | 0.030 | 0.033 |
| C2 | 1.95 | 2.05 | 0.077 | 0.081 |
| D | 37.80 | 38.20 | 1.488 | 1.504 |
| D1 | 31.50 | 31.70 | 1.240 | 1.248 |
| E | 25.15 | 25.50 | 0.990 | 1.004 |
| E1 | 23.85 | 24.15 | 0.939 | 0.951 |
| E2 | 24.80 typ. | | 0.976 typ. | |
| G | 14.90 | 15.10 | 0.587 | 0.594 |
| G1 | 12.60 | 12.80 | 0.496 | 0.504 |
| G2 | 3.50 | 4.30 | 0.138 | 0.169 |
| F | 4.10 | 4.30 | 0.161 | 0.169 |
| F1 | 4.60 | 5.00 | 0.181 | 0.197 |
| P | 4.00 | 4.30 | 0.157 | 0.69 |
| P1 | 4.00 | 4.40 | 0.157 | 0.173 |
| S | 30.10 | 30.30 | 1.185 | 1.193 |

- **Marking** : Type number
- Cooling method : C
- Weight : 27 g
- Epoxy meets UL94, V0

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