



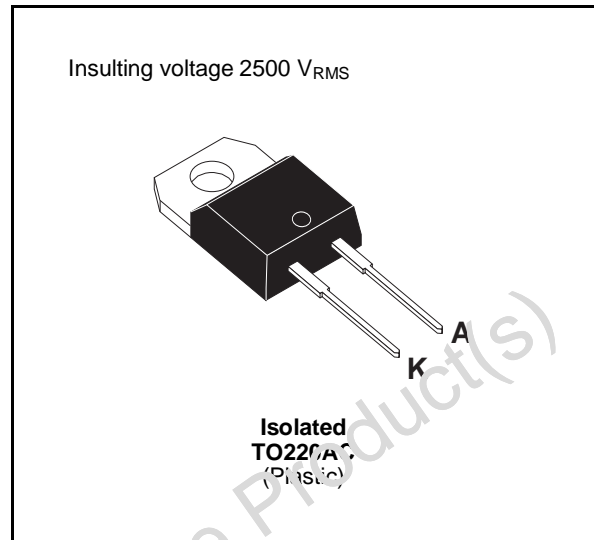
BYT 08PI-1000

FAST RECOVERY RECTIFIER DIODE

- VERY HIGH REVERSE VOLTAGE CAPABILITY
- VERY LOW REVERSE RECOVERY TIME
- VERY LOW SWITCHING LOSSES
- LOW NOISE TURN-OFF SWITCHING
- INSULATED: Capacitance 7pF

SUITABLE APPLICATIONS

- FREE WHEELING DIODE IN CONVERTERS AND MOTOR CONTROL CIRCUITS
- RECTIFIER IN S.M.P.S.



ABSOLUTE MAXIMUM RATINGS (limiting values)

| Symbol | Parameter | Value | Unit |
|--------------------|--|--------------------------------------|------------|
| V_{RRM} | Repetitive Peak Reverse Voltage | 1000 | V |
| V_{RSM} | Non Repetitive Peak Reverse Voltage | 1000 | V |
| I_{FRM} | Repetitive Peak Forward Current | $t_p \leq 10\mu s$ | A |
| $I_F (RMS)$ | RMS Forward Current | 16 | A |
| $I_F (AV)$ | Average Forward Current | $T_c = 80^\circ C$ $\delta = 0.5$ | A |
| I_{FSM} | Surge Non Repetitive Forward Current | $t_p = 10ms$ Sinusoidal | A |
| P | Power Dissipation | $T_c = 80^\circ C$ | W |
| T_{stg} T_j | Storage and Junction Temperature Range | - 40 to + 150 - 40 to + 150 | $^\circ C$ |

THERMAL RESISTANCE

| Symbol | Parameter | Value | Unit |
|---------------|---------------|-------|--------------|
| $R_{th(j-c)}$ | Junction-case | 4 | $^\circ C/W$ |

ELECTRICAL CHARACTERISTICS
STATIC CHARACTERISTICS

| Symbol | Test Conditions | | Min. | Typ. | Max. | Unit |
|--------|---------------------------|-------------------|------|------|------|---------------|
| I_R | $T_j = 25^\circ\text{C}$ | $V_R = V_{RRM}$ | | | 35 | μA |
| | $T_j = 100^\circ\text{C}$ | | | | 2 | mA |
| V_F | $T_j = 25^\circ\text{C}$ | $I_F = 8\text{A}$ | | | 1.9 | V |
| | $T_j = 100^\circ\text{C}$ | | | | 1.8 | |

RECOVERY CHARACTERISTICS

| Symbol | Test Conditions | | | Min. | Typ. | Max. | Unit | |
|----------|--------------------------|---------------------|-------------------------------------|-------------------------|------|------|------|----|
| t_{rr} | $T_j = 25^\circ\text{C}$ | $I_F = 1\text{A}$ | $di_F/dt = -15\text{A}/\mu\text{s}$ | $V_R = 30\text{V}$ | | | 155 | ns |
| | | $I_F = 0.5\text{A}$ | $I_R = 1\text{A}$ | $I_{rr} = 0.25\text{A}$ | | | 65 | |

TURN-OFF SWITCHING CHARACTERISTICS (Without Series Inductance)

| Symbol | Test Conditions | | Min. | Typ. | Max. | Unit |
|-----------|-------------------------------------|--|------|------|------|------|
| t_{IRM} | $di_F/dt = -32\text{A}/\mu\text{s}$ | $V_{CC} = 200\text{V}$ $I_F = 8\text{A}$ $L_p \leq 0.05\mu\text{H}$ $T_j = 100^\circ\text{C}$ See Figure 1 | | | 200 | ns |
| | $di_F/dt = -64\text{A}/\mu\text{s}$ | | | 120 | | |
| I_{RM} | $di_F/dt = -32\text{A}/\mu\text{s}$ | | | | 5.5 | A |
| | $di_F/dt = -64\text{A}/\mu\text{s}$ | | | 6 | | |

TURN-OFF OVERVOLTAGE COEFFICIENT (With Series Inductance)

| Symbol | Test Conditions | | | Min. | Typ. | Max. | Unit |
|-----------------------------|---|--|-----------------------------------|------|------|------|------|
| $C = \frac{V_{RP}}{V_{CC}}$ | $T_j = 100^\circ\text{C}$ $di_F/dt = -8\text{A}/\mu\text{s}$ | $V_{CC} = 200\text{V}$ $L_p = 2\mu\text{H}$ | $I_F = I_{F(AV)}$ See figure 2 | | | 4.5 | |

To evaluate the conduction losses use the following equation:

$$V_F = 1.47 + 0.04 I_F \quad P = 1.47 \times I_{F(AV)} + 0.04 I_F^2(\text{RMS})$$

Figure 1. Turn-off switching characteristics (without series inductance).

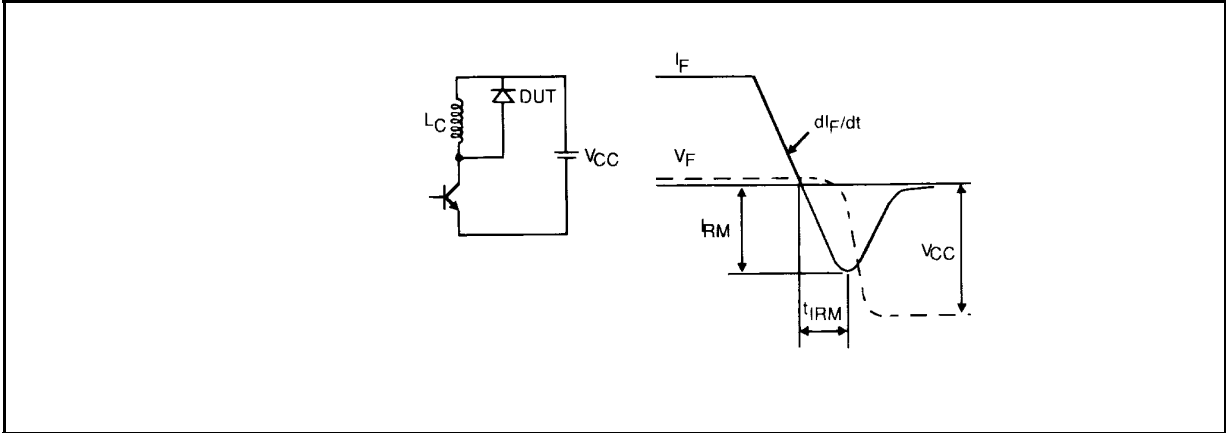
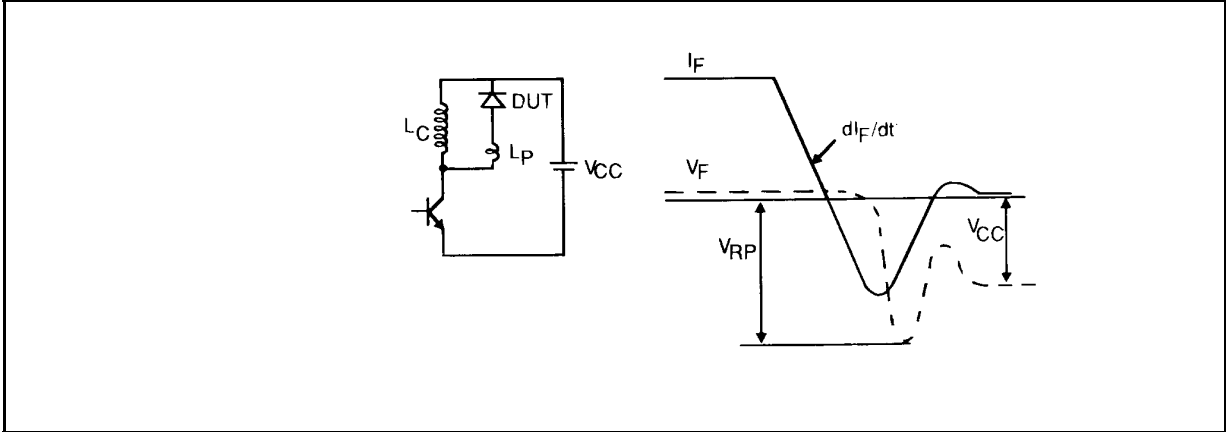
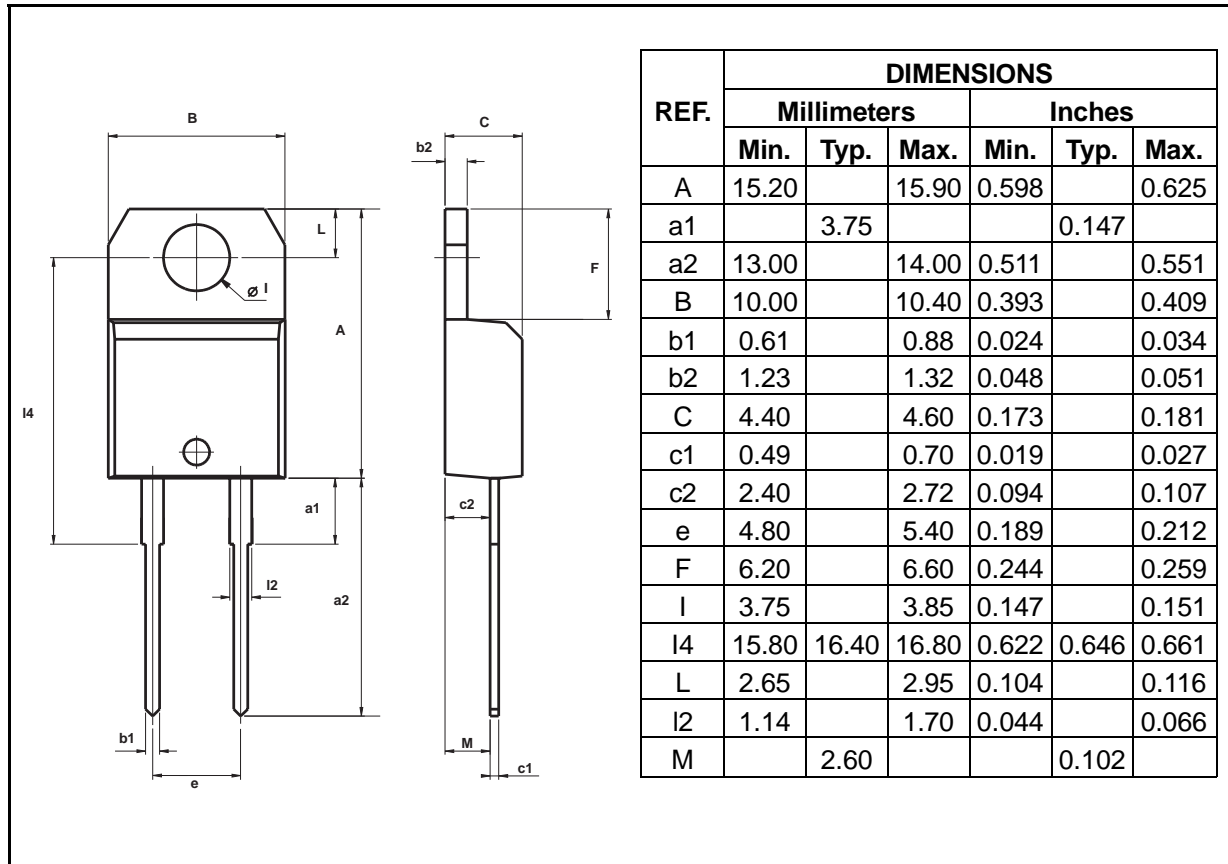


Figure 2. Turn-off switching characteristics (with series inductance).



PACKAGE MECHANICAL DATA : TO220AC Plastic



Cooling method: by conduction (method C)
 Marking: type number
 Weight: 2.1g
 Recommended torque value: 80cm. N
 Maximum torque value: 100cm. N

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