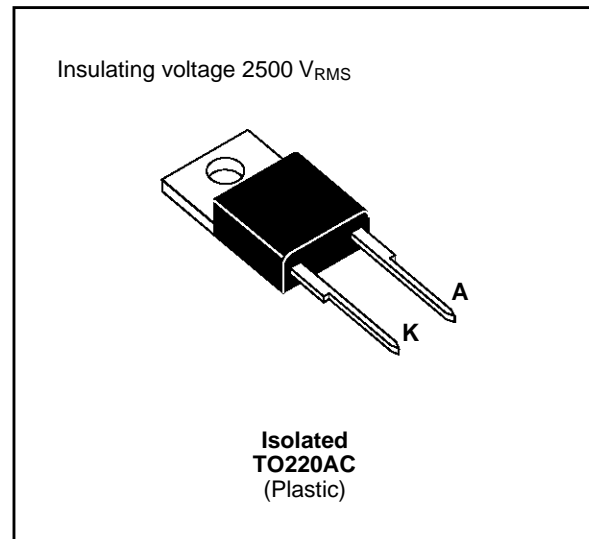


FAST RECOVERY RECTIFIER DIODES

- 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 |
|------------------------------------|--|-------------------------------------|------|
| I _{FRM} | Repetitive Peak Forward Current | t _p ≤ 10μs | A |
| I _{F (RMS)} | RMS Forward Current | 16 | A |
| I _{F (AV)} | Average Forward Current | T _c = 105°C δ = 0.5 | 8 |
| I _{FSM} | Surge non Repetitive Forward Current | t _p = 10ms Sinusoidal | 100 |
| P | Power Dissipation | T _c = 80°C | 20 |
| T _{stg} T _j | Storage and Junction Temperature Range | - 40 to +150 | °C |

| Symbol | Parameter | BYT 08PI- | | | Unit |
|------------------|-------------------------------------|-----------|-----|-----|------|
| | | 200 | 300 | 400 | |
| V _{RRM} | Repetitive Peak Reverse Voltage | 200 | 300 | 400 | V |
| V _{RSM} | Non Repetitive Peak Reverse Voltage | 220 | 330 | 440 | V |

THERMAL RESISTANCE

| Symbol | Parameter | Value | Unit |
|-----------------------|---------------|-------|------|
| R _{th (j-c)} | Junction-case | 3.5 | °C/W |

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

| Symbol | Test Conditions | | Min. | Typ. | Max. | Unit |
|----------------|------------------------|-----------------------------------|------|------|------|------|
| I _R | T _j = 25°C | V _R = V _{RRM} | | | 15 | μA |
| | T _j = 100°C | | | | 2.5 | mA |
| V _F | T _j = 25°C | I _F = 8A | | | 1.5 | V |
| | T _j = 100°C | | | | 1.4 | |

RECOVERY CHARACTERISTICS

| Symbol | Test Conditions | | | Min. | Typ. | Max. | Unit |
|-----------------|-----------------------|-----------------------|--------------------------------|------|------|-------------------------|------|
| t _{rr} | T _j = 25°C | I _F = 1A | di _F /dt = - 15A/μs | | | 75 | ns |
| | | I _F = 0.5A | I _R = 1A | | | I _{rr} = 0.25A | |

TURN-OFF SWITCHING CHARACTERISTICS (Without Series Inductance)

| Symbol | Test Conditions | | Min. | Typ. | Max. | Unit |
|------------------|--------------------------------|--|------|------|------|------|
| t _{IRM} | di _F /dt = - 32A/μs | V _{CC} = 200 V I _F = 8A L _p ≤ 0.05μH T _j = 100°C See Figure 11 | | | 75 | ns |
| | di _F /dt = - 64A/μs | | | 50 | | |
| I _{RM} | di _F /dt = - 32A/μs | | | | 2.2 | A |
| | di _F /dt = - 64A/μs | | | 2.8 | | |

TURN-OFF OVERVOLTAGE COEFFICIENT (With Series Inductance)

| Symbol | Test Conditions | | | Min. | Typ. | Max. | Unit |
|-----------------------------|-------------------------------|------------------------|--|------|------|------|------|
| $C = \frac{V_{RP}}{V_{CC}}$ | T _j = 100°C | V _{CC} = 120V | I _F = I _{F(AV)} See note | | 3.3 | | |
| | di _F /dt = - 8A/μs | L _p = 9μH | See figure 12 | | | | |

Note: Applicable to BYT 08 PI-400 only

To evaluate the conduction losses use the following equations:

$$V_F = 1.1 + 0.024 I_F \quad P = 1.1 \times I_{F(AV)} + 0.024 I_F^2(RMS)$$

Figure 1. Low frequency power losses versus average current

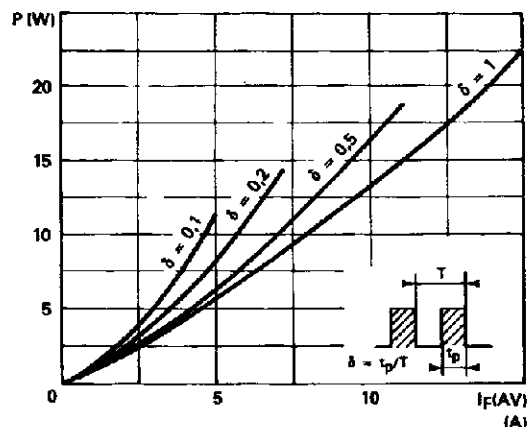


Figure 2. Peak current versus form factor

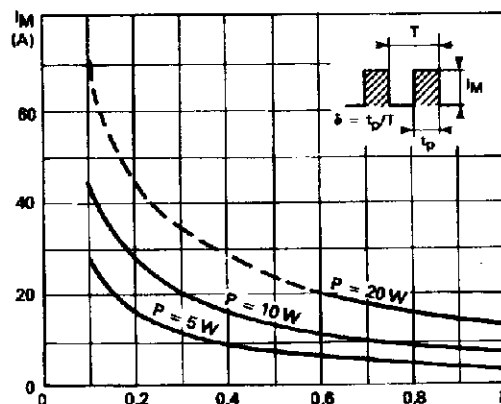


Figure 3. Non repetitive peak surge current versus overload duration

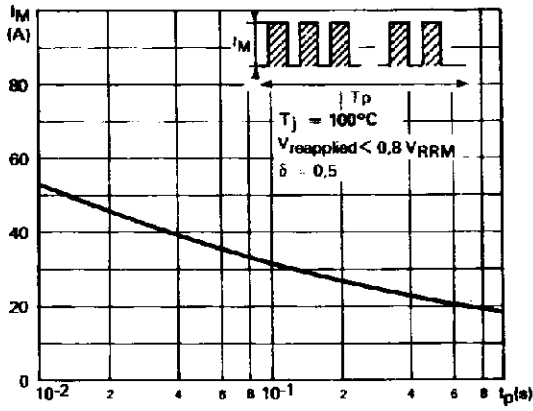


Figure 4. Thermal impedance versus pulse width

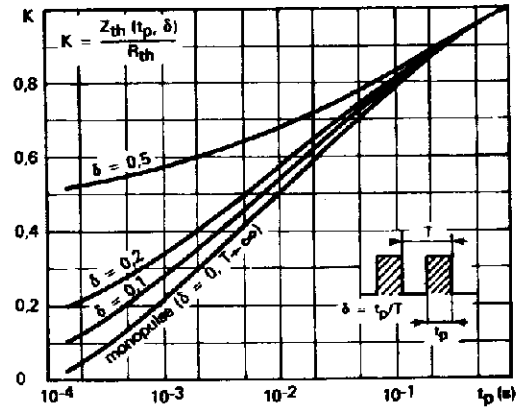


Figure 5. Voltage drop versus forward current

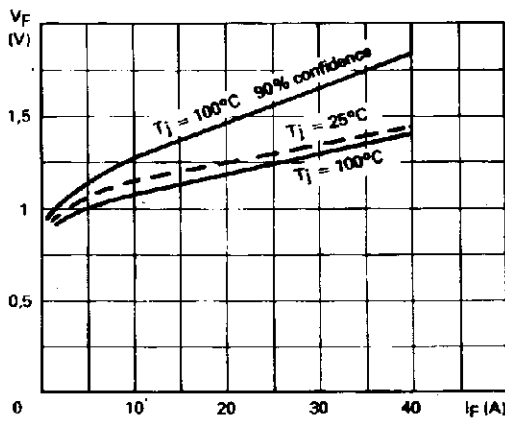


Figure 6. Recovery charge versus di_F/dt

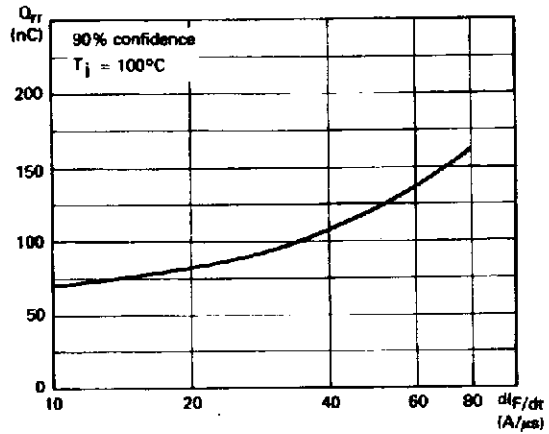


Figure 7. Recovery time versus di_F/dt

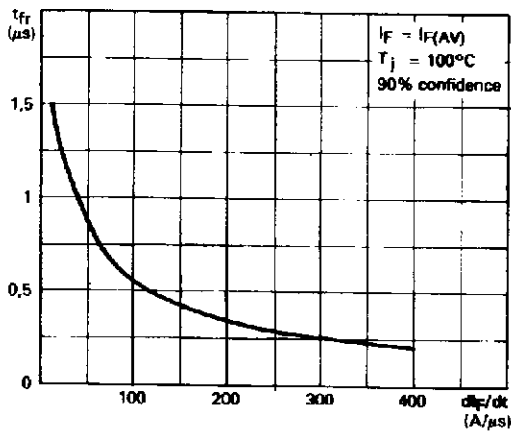


Figure 8. Peak reverse current versus di_F/dt

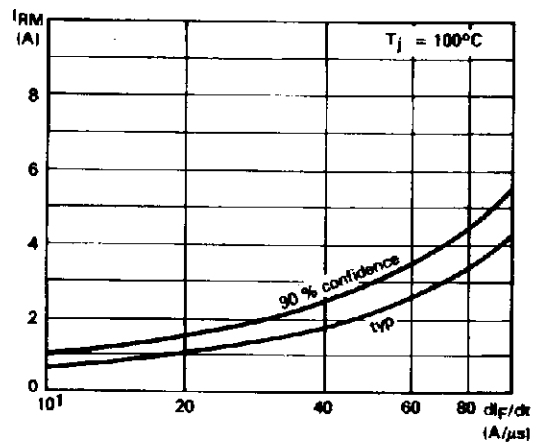


Figure 9. Peak forward voltage versus di_F/dt .

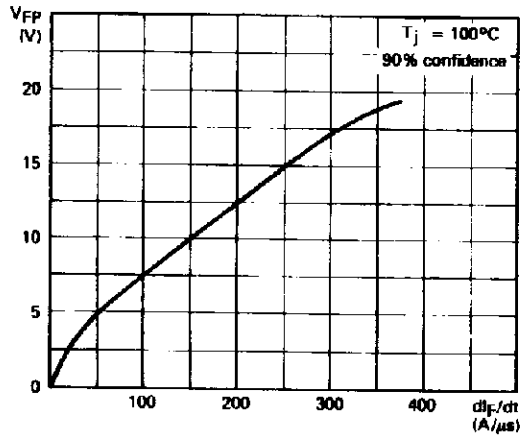


Figure 10. Dynamic parameters versus junction temperature.

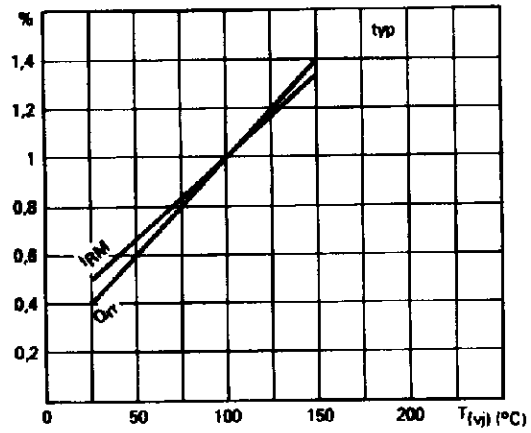


Figure 11. Turn-off switching characteristics (without series inductance).

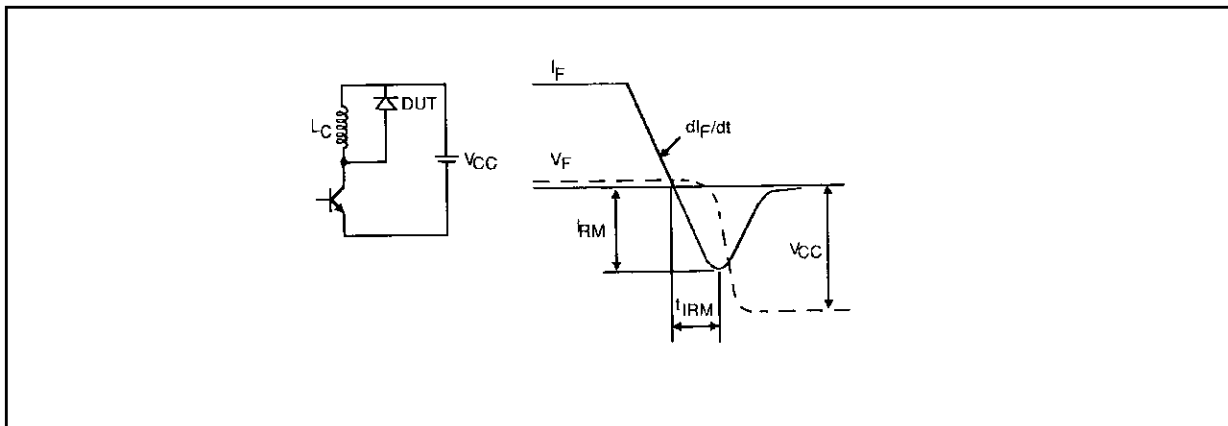
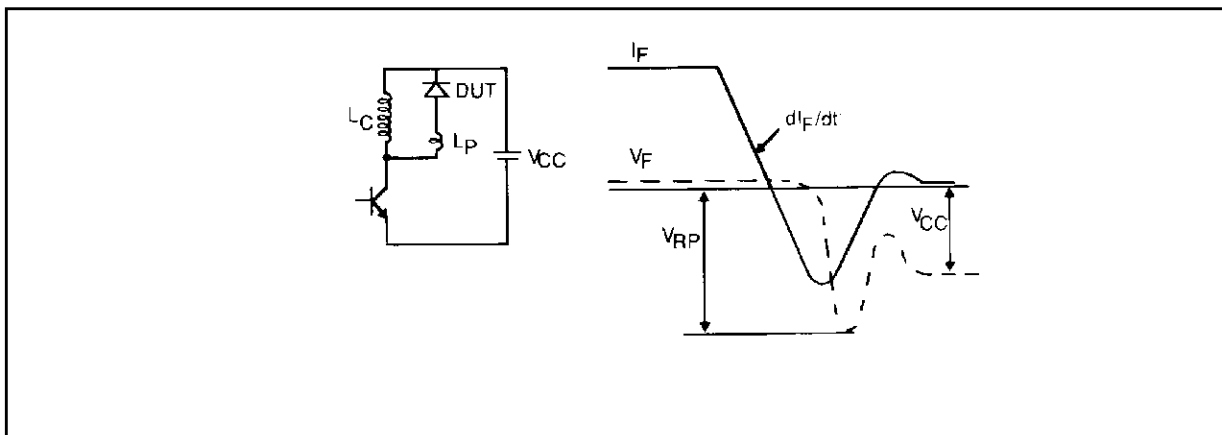
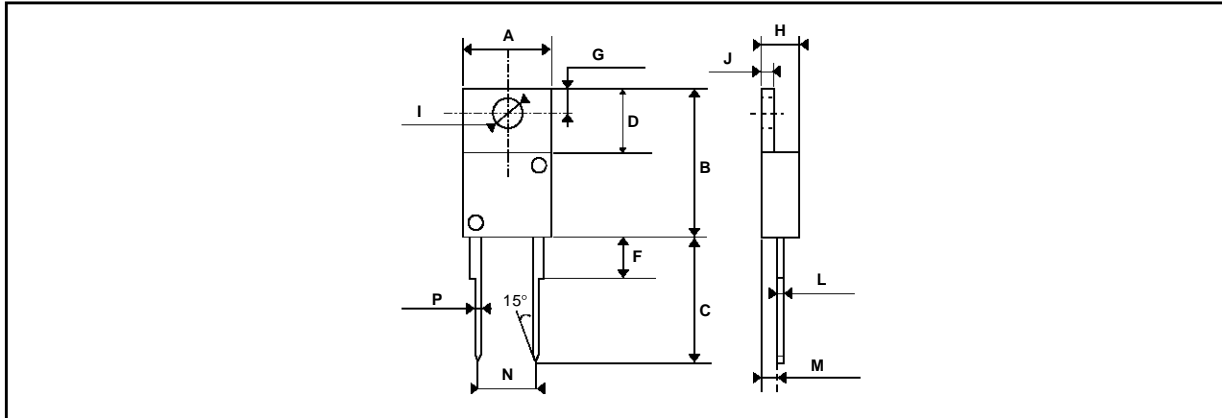


Figure 12. Turn-off switching characteristics (with series inductance).



PACKAGE MECHANICAL DATA
Isolated TO220AC Plastic



| REF. | DIMENSIONS | | | |
|------|-------------|-------|--------|-------|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| A | 10.20 | 10.50 | 0.401 | 0.413 |
| B | 14.23 | 15.87 | 0.560 | 0.625 |
| C | 12.70 | 14.70 | 0.500 | 0.579 |
| D | 5.85 | 6.85 | 0.230 | 0.270 |
| F | | 4.50 | | 0.178 |
| G | 2.54 | 3.00 | 0.100 | 0.119 |
| H | 4.48 | 4.82 | 0.176 | 0.190 |
| I | 3.55 | 4.00 | 0.140 | 0.158 |
| J | 1.15 | 1.39 | 0.045 | 0.055 |
| L | 0.35 | 0.65 | 0.013 | 0.026 |
| M | 2.10 | 2.70 | 0.082 | 0.107 |
| N | 4.58 | 5.58 | 0.18 | 0.22 |
| P | 0.64 | 0.96 | 0.025 | 0.038 |

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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