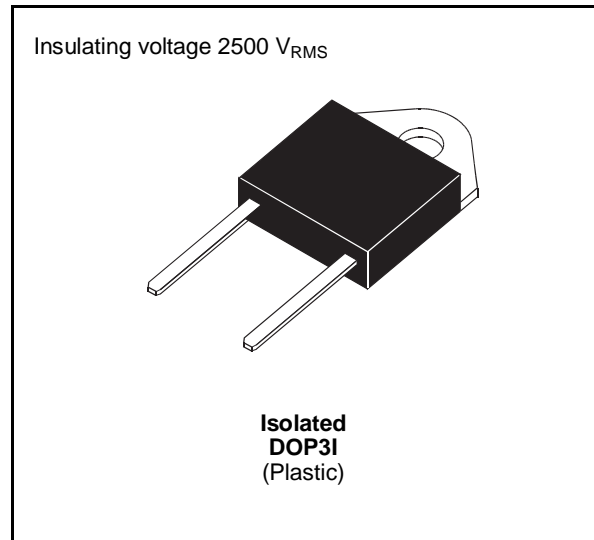


FAST RECOVERY RECTIFIER DIODES

- VERY LOW REVERSE RECOVERY TIME
- VERY LOW SWITCHING LOSSES
- LOW NOISE TURN-OFF SWITCHING
- INSULATED: Capacitance 15pF



SUITABLE APPLICATIONS

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

ABSOLUTE RATINGS (limiting values)

| Symbol | Parameter | | Value | Unit |
|------------------------------------|--|-------------------------------------|--------------------------------|------|
| I _{FRM} | Repetitive Peak Forward Current | t _p ≤ 10μs | 500 | A |
| I _{F (RMS)} | RMS Forward Current | | 50 | A |
| I _{F (AV)} | Average Forward Current | T _c = 60°C δ = 0.5 | 30 | A |
| I _{FSM} | Surge non Repetitive Forward Current | t _p = 10ms Sinusoidal | 350 | A |
| P | Power Dissipation | T _c = 60°C | 50 | W |
| T _{stg} T _j | Storage and Junction Temperature Range | | - 40 to + 150 - 40 to + 150 | °C |

| Symbol | Parameter | Value | Unit |
|------------------|-------------------------------------|-------|------|
| V _{RRM} | Repetitive Peak Reverse Voltage | 400 | V |
| V _{RSM} | Non Repetitive Peak Reverse Voltage | 440 | V |

THERMAL RESISTANCE

| Symbol | Parameter | Value | Unit |
|-------------------------|---------------|-------|------|
| R _{th (j - c)} | Junction-case | 1.8 | °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 |
| | $T_j = 100^\circ\text{C}$ | | | | 6 | mA |
| V_F | $T_j = 25^\circ\text{C}$ | $I_F = 30\text{A}$ | | | 1.5 | V |
| | $T_j = 100^\circ\text{C}$ | | | | 1.4 | |

RECOVERY CHARACTERISTICS

| Symbol | Test Conditions | | | Min. | Typ. | Max. | Unit |
|----------|--------------------------|---------------------|-------------------------------------|--------------------|-------------------------|------|-------------|
| t_{rr} | $T_j = 25^\circ\text{C}$ | $I_F = 1\text{A}$ | $di_F/dt = -15\text{A}/\mu\text{s}$ | $V_R = 30\text{V}$ | | 100 | ns |
| | | $I_F = 0.5\text{A}$ | $I_R = 1\text{A}$ | | $I_{rr} = 0.25\text{A}$ | | |

TURN-OFF SWITCHING CHARACTERISTICS (Without Series Inductance)

| Symbol | Test Conditions | | Min. | Typ. | Max. | Unit |
|-----------|--------------------------------------|--|------|------|------|-------------|
| t_{IRM} | $di_F/dt = -120\text{A}/\mu\text{s}$ | $V_{CC} = 200\text{V}$ $I_F = 30\text{A}$ $L_p \leq 0.05\mu\text{H}$ $T_j = 100^\circ\text{C}$ See figure 11 | | | 75 | ns |
| | $di_F/dt = -240\text{A}/\mu\text{s}$ | | | 50 | | |
| I_{RM} | $di_F/dt = -120\text{A}/\mu\text{s}$ | | | | 9 | A |
| | $di_F/dt = -240\text{A}/\mu\text{s}$ | | | 12 | | |

TURN-OFF OVERVOLTAGE COEFFICIENT (With Series Inductance)

| Symbol | Test Conditions | | | Min. | Typ. | Max. | Unit |
|-----------------------------|-------------------------------------|-----------------------|----------------------------|------|------|------|------|
| $C = \frac{V_{RP}}{V_{CC}}$ | $T_j = 100^\circ\text{C}$ | $V_{CC} = 60\text{V}$ | $I_F = I_{F(AV)}$ See note | | 3.3 | | |
| | $di_F/dt = -30\text{A}/\mu\text{s}$ | $L_p = 1\mu\text{H}$ | See figure 12 | | | | |

To evaluate the conduction losses use the following equations:

$$V_F = 1.1 + 0.0095 I_F \quad P = 1.1 \times I_{F(AV)} + 0.0095 I_{F(RMS)}^2$$

Figure 1. Low frequency power losses versus average current

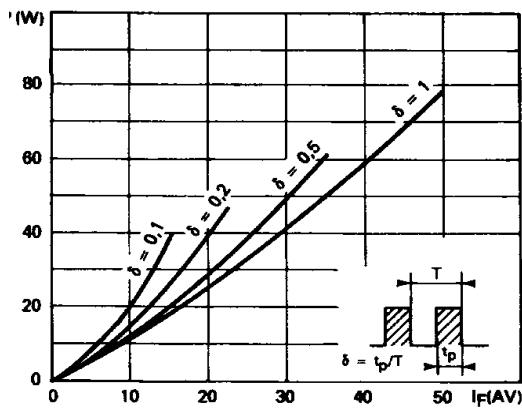


Figure 2. Peak current versus form factor

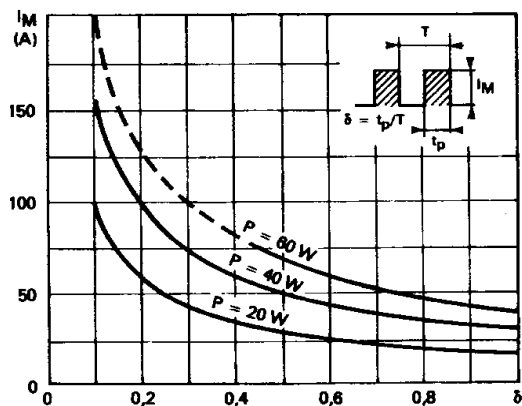


Figure 3. Non repetitive peak surge current versus overload duration

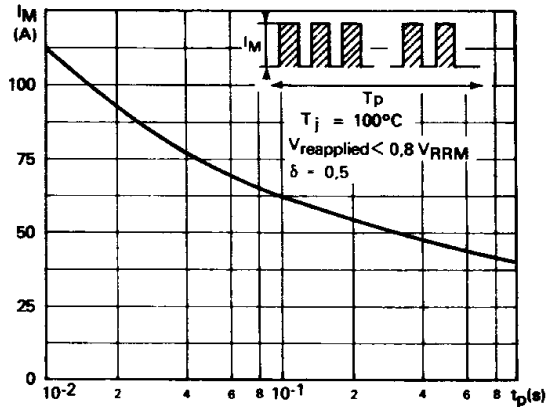


Figure 4. Thermal impedance versus pulse width

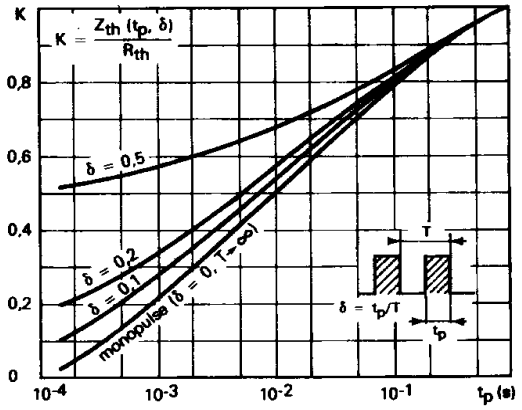


Figure 5. Voltage drop versus forward current

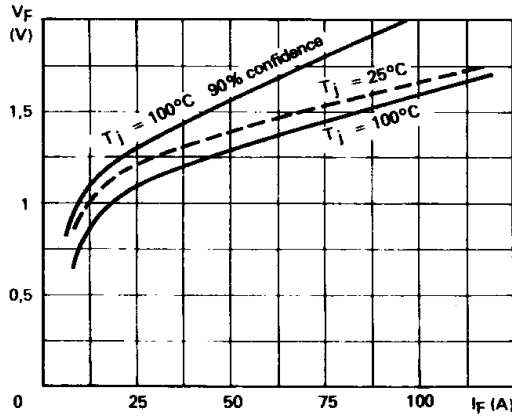


Figure 6. Recovery charge versus di_F/dt

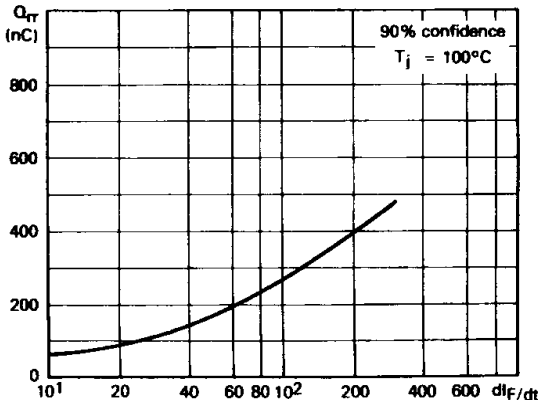


Figure 7. Recovery time versus di_F/dt

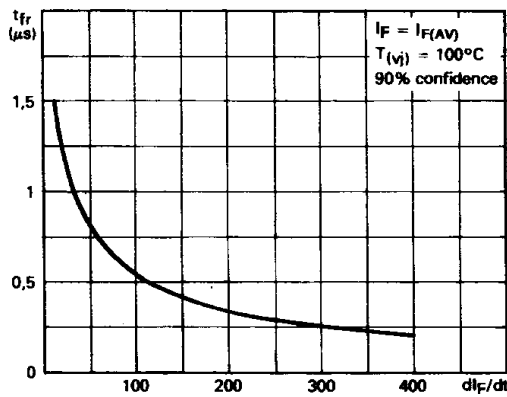


Figure 8. Peak reverse current versus di_F/dt

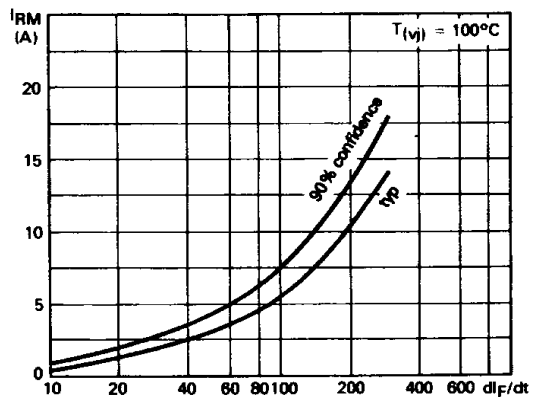


Figure 9. Peak forward voltage versus di_F/dt .

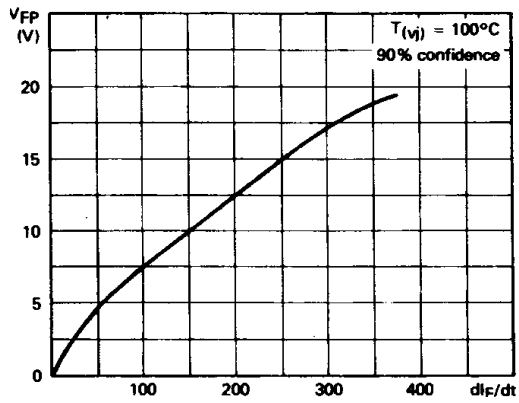


Figure 10. Dynamic parameters versus junction temperature.

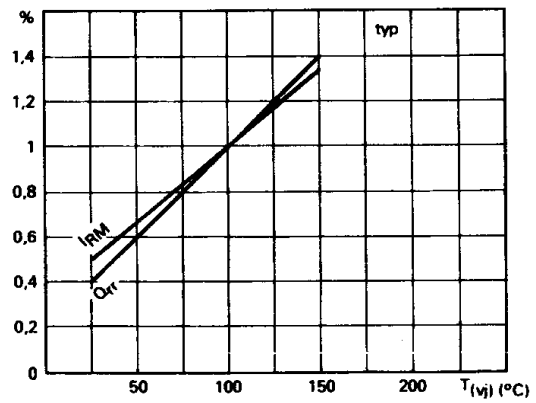


Figure 11. Turn-off switching characteristics (without series inductance).

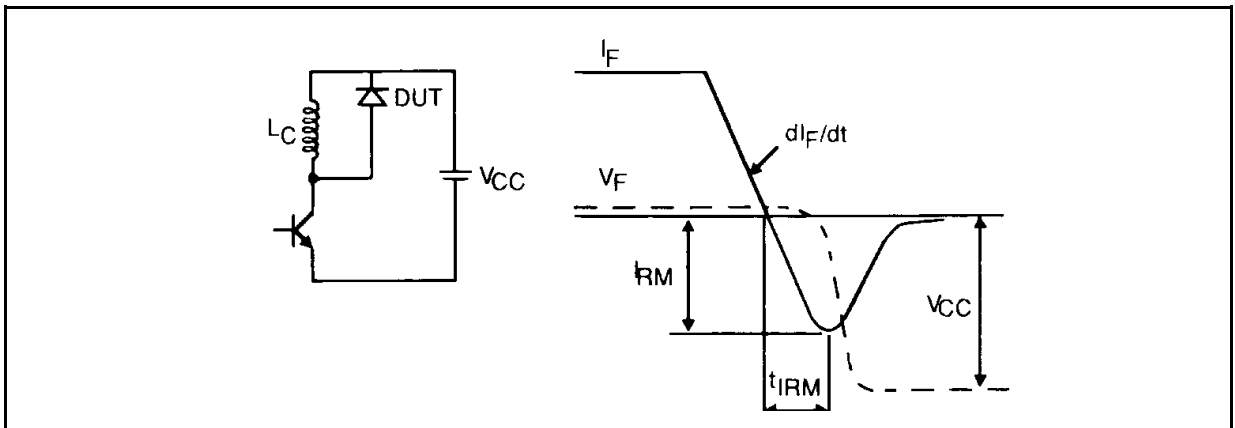
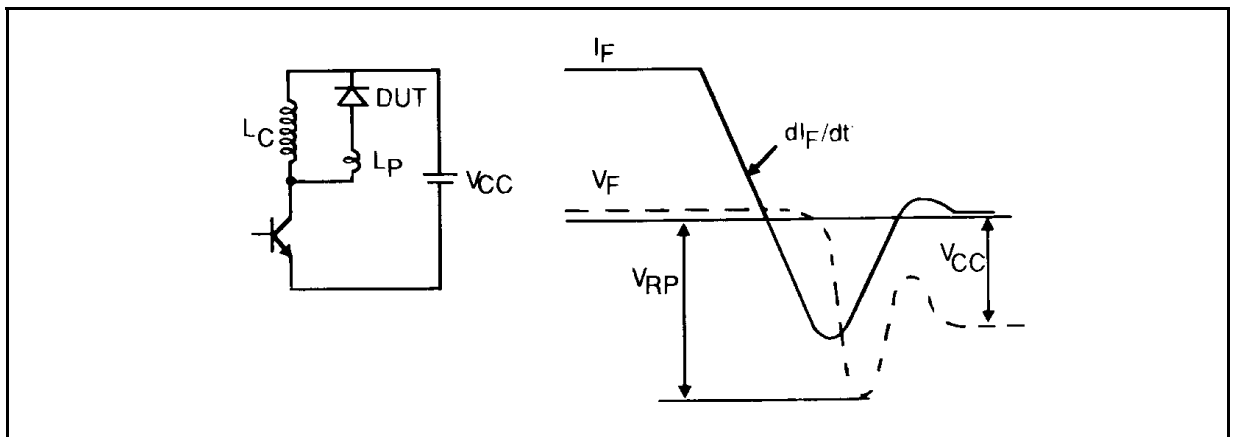
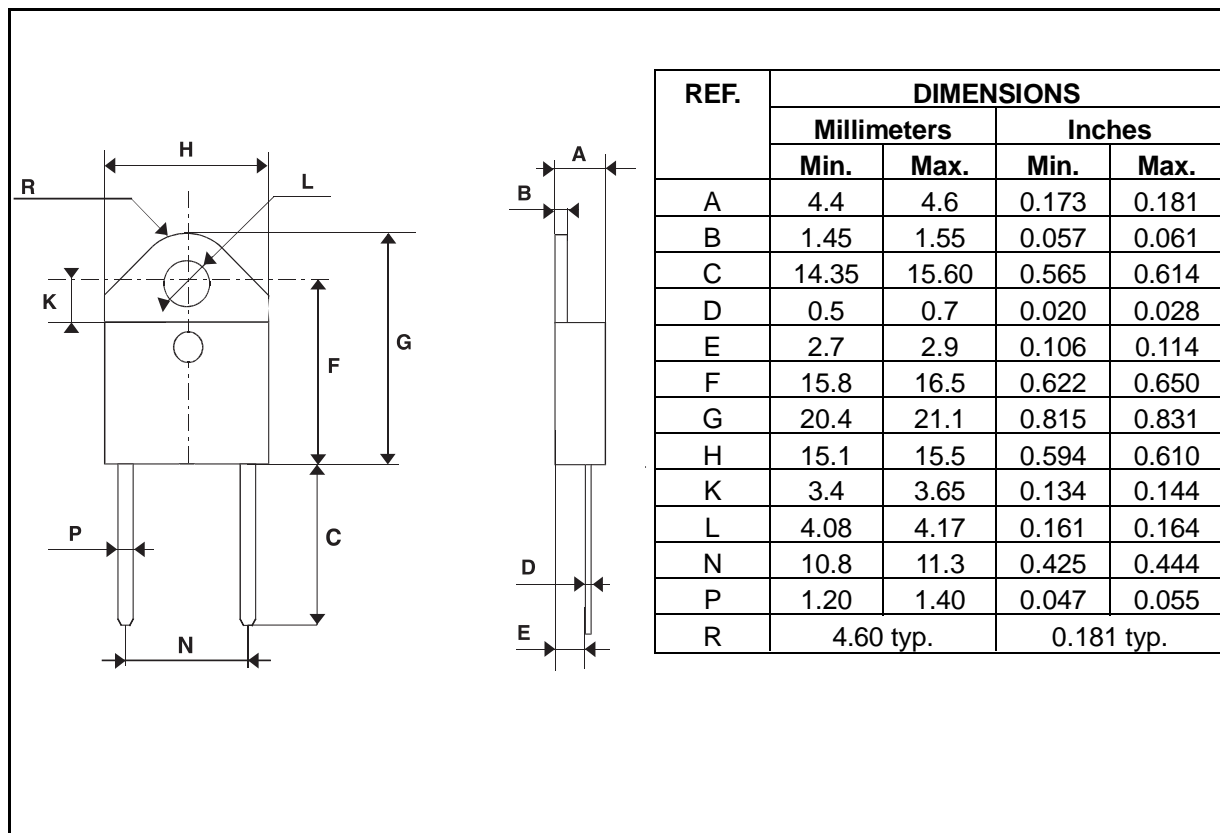


Figure 12. Turn-off switching characteristics (with series inductance)



PACKAGE MECHANICAL DATA :
Isolated DOP3I Plastic



- **Marking:** type number
- **Cooling method:** by conduction (method C)
- **Weight:** 4.52g
- **Recommended torque value:** 80cm. N
- **Maximum torque value:** 100cm. N

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