



DTV1500LFP

(CRT HORIZONTAL DEFLECTION) HIGH VOLTAGE DAMPER DIODE

MAIN PRODUCTS CHARACTERISTICS

| | |
|----------------------|--------|
| $I_{F(AV)}$ | 4 A |
| V_{RRM} | 1500 V |
| $V_F(\text{max})$ | 1.5 V |
| $t_{rr}(\text{max})$ | 170 ns |

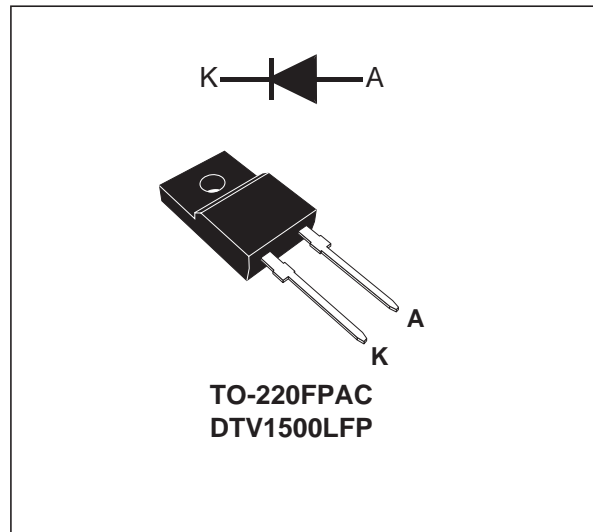
FEATURES AND BENEFITS

- High breakdown voltage capability
- High frequency operation
- Specified turn on switching characteristics
- Very fast recovery diode
- Low static and peak forward voltage drop for low dissipation
- Insulated package: TO-220FPAC
Insulating voltage = 2000V DC
Capacitance = 12pF
- Planar technology allowing high quality and best electrical characteristics

DESCRIPTION

High voltage diode especially designed for horizontal deflection stage in standard and high resolution displays for TV's and monitors.

This device is packaged in TO-220FPAC (insulated package).



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|--------------|--|-------------|------|
| V_{RRM} | Repetitive peak reverse voltage | 1500 | V |
| $I_{F(RMS)}$ | RMS forward current | 15 | A |
| I_{FSM} | Surge non repetitive forward current | 50 | A |
| | $t_p = 10\text{ms}$ sinusoidal | | |
| T_{stg} | Storage temperature | - 65 to 150 | °C |
| T_j | Maximum operating junction temperature | 150 | °C |

DTV1500LFP

THERMAL RESISTANCE

| Symbol | Parameter | Value | Unit |
|---------------|-------------------------------------|-------|------|
| $R_{th(j-c)}$ | Junction to Case thermal resistance | 5.8 | °C/W |

STATIC ELECTRICAL CHARACTERISTICS

| Symbol | Parameter | Test Conditions | | Value | | | Unit |
|----------|-------------------------|-----------------|---------------------|-------|-----|------|---------|
| | | | | Min | Typ | Max | |
| I_R * | Reverse leakage current | $V_R = 1500V$ | $T_j = 25^\circ C$ | | | 100 | μA |
| | | | $T_j = 125^\circ C$ | | 100 | 1000 | μA |
| V_F ** | Forward voltage drop | $I_F = 4A$ | $T_j = 25^\circ C$ | | 1.2 | 1.7 | V |
| | | | $T_j = 125^\circ C$ | | 1.1 | 1.5 | |

pulse test : * $t_p = 5\text{ ms}$, $\delta < 2\%$
 ** $t_p = 380\ \mu s$, $\delta < 2\%$

RECOVERY CHARACTERISTICS

| Symbol | Parameter | Test Conditions | | Value | | | Unit |
|----------|-----------------------|--------------------|--|-------|-----|-----|------|
| | | | | Min | Typ | Max | |
| t_{rr} | Reverse recovery time | $T_j = 25^\circ C$ | $I_F = 1\text{ A}$ $di_F/dt = -50\text{ A}/\mu s$ $V_R = 30V$ | | 130 | 170 | ns |
| t_{rr} | Reverse recovery time | $T_j = 25^\circ C$ | $I_F = 100\text{ mA}$ $I_R = 100\text{ mA}$ $I_{RR} = 10\text{ mA}$ | | 850 | | ns |

TURN-ON SWITCHING CHARACTERISTICS

| Symbol | Parameter | Test Conditions | | Value | | | Unit |
|----------|-----------------------|---------------------|---|-------|-----|-----|------|
| | | | | Min | Typ | Max | |
| t_{fr} | Forward recovery time | $T_j = 100^\circ C$ | $I_F = 4\text{ A}$ $di_F/dt = 80\text{ A}/\mu s$ $V_{FR} = 3\text{ V}$ | | | 450 | ns |
| | | $T_j = 25^\circ C$ | $I_F = 6.5\text{ A}$ $di_F/dt = 50\text{ A}/\mu s$ $V_{FR} = 3\text{ V}$ | | | 450 | |
| V_{Fp} | Peak forward voltage | $T_j = 100^\circ C$ | $I_F = 4\text{ A}$ $di_F/dt = 80\text{ A}/\mu s$ | | 28 | 36 | V |
| | | $T_j = 25^\circ C$ | $I_F = 6.5\text{ A}$ $di_F/dt = 50\text{ A}/\mu s$ | | 13 | 17 | |

To evaluate the maximum conduction losses use the following equation :

$$P = 1.2 \times I_{F(AV)} + 0.075 \times I_{F(RMS)}^2$$

Fig. 1: Power dissipation versus peak forward current (triangular waveform, $\delta = 0.45$)

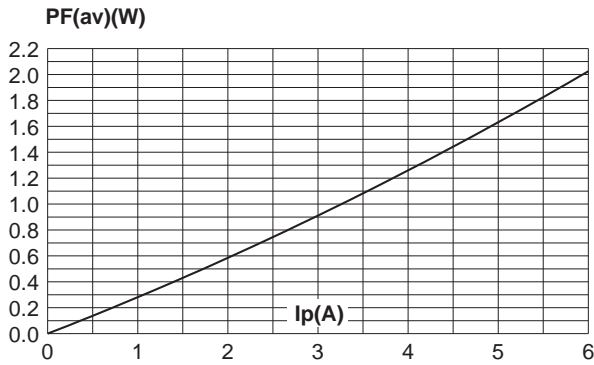


Fig. 2: Average forward current versus ambient temperature

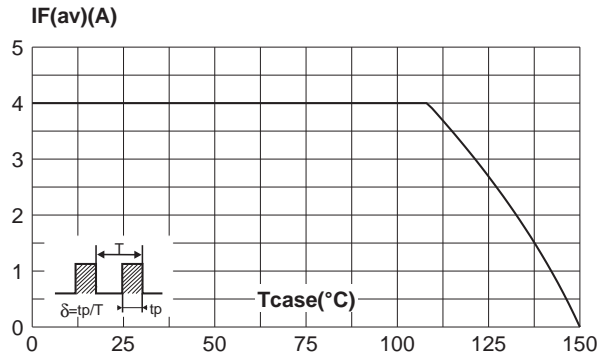


Fig. 3: Forward voltage drop versus forward current

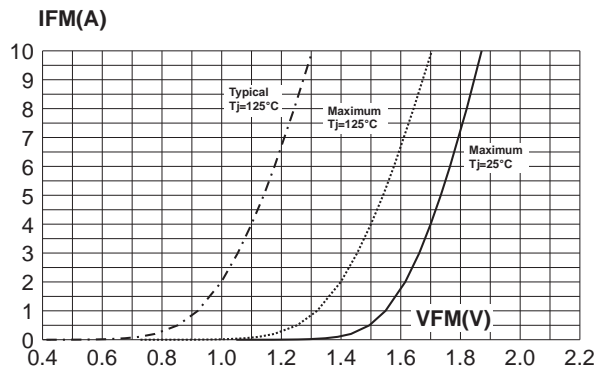


Fig. 4: Non repetitive surge peak forward current versus overload duration

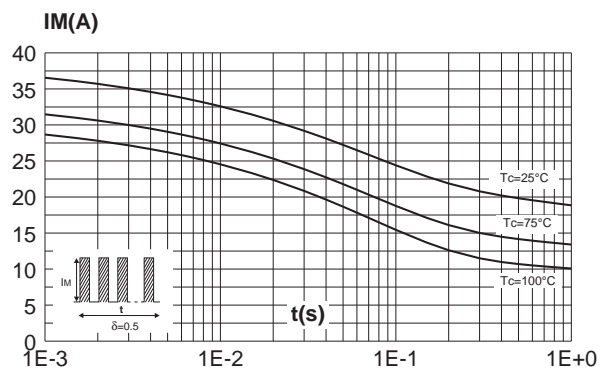


Fig. 5: Reverse recovery charges versus dIF/dt

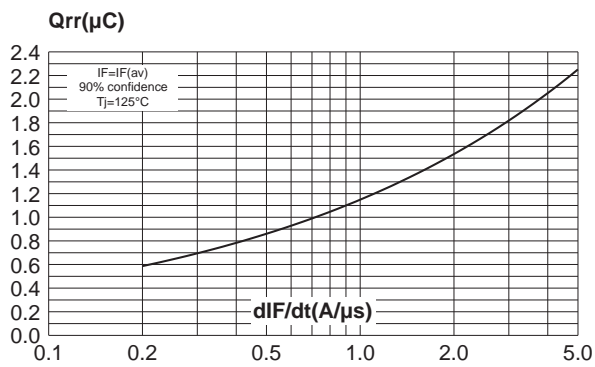


Fig. 6: Reverse recovery current versus dIF/dt

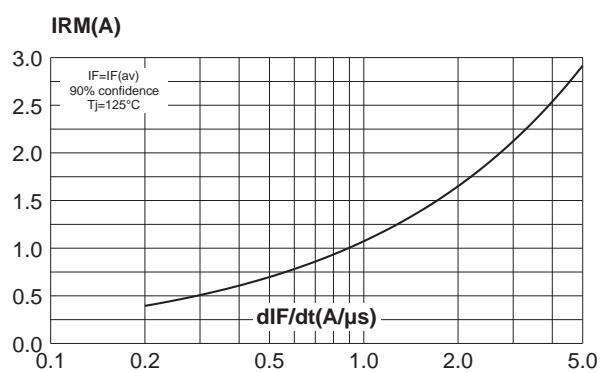


Fig. 7: Transient peak forward voltage versus dIF/dt

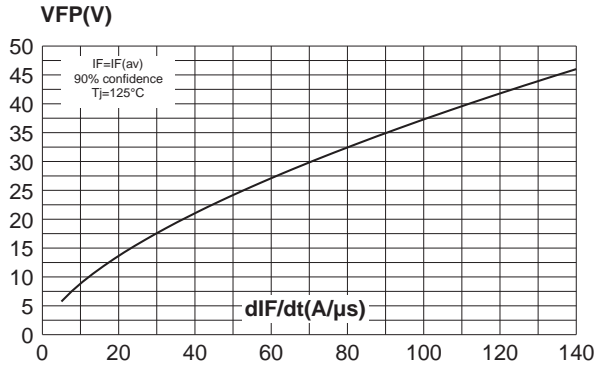


Fig. 8: Forward recovery time versus dIF/dt

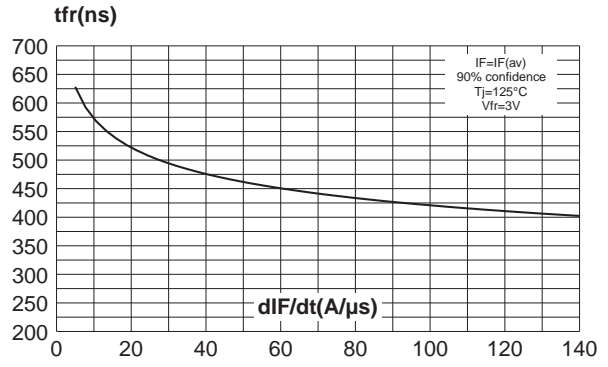


Fig. 9: Dynamic parameters versus junction temperature

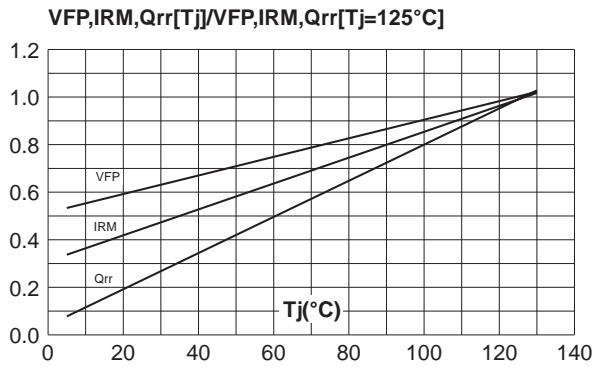


Fig. 10: Junction capacitance versus reverse voltage applied (typical values)

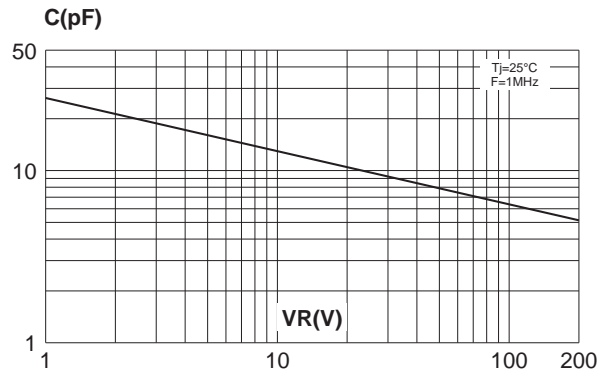
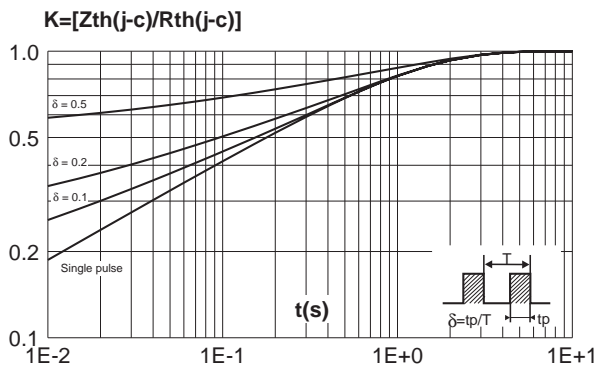
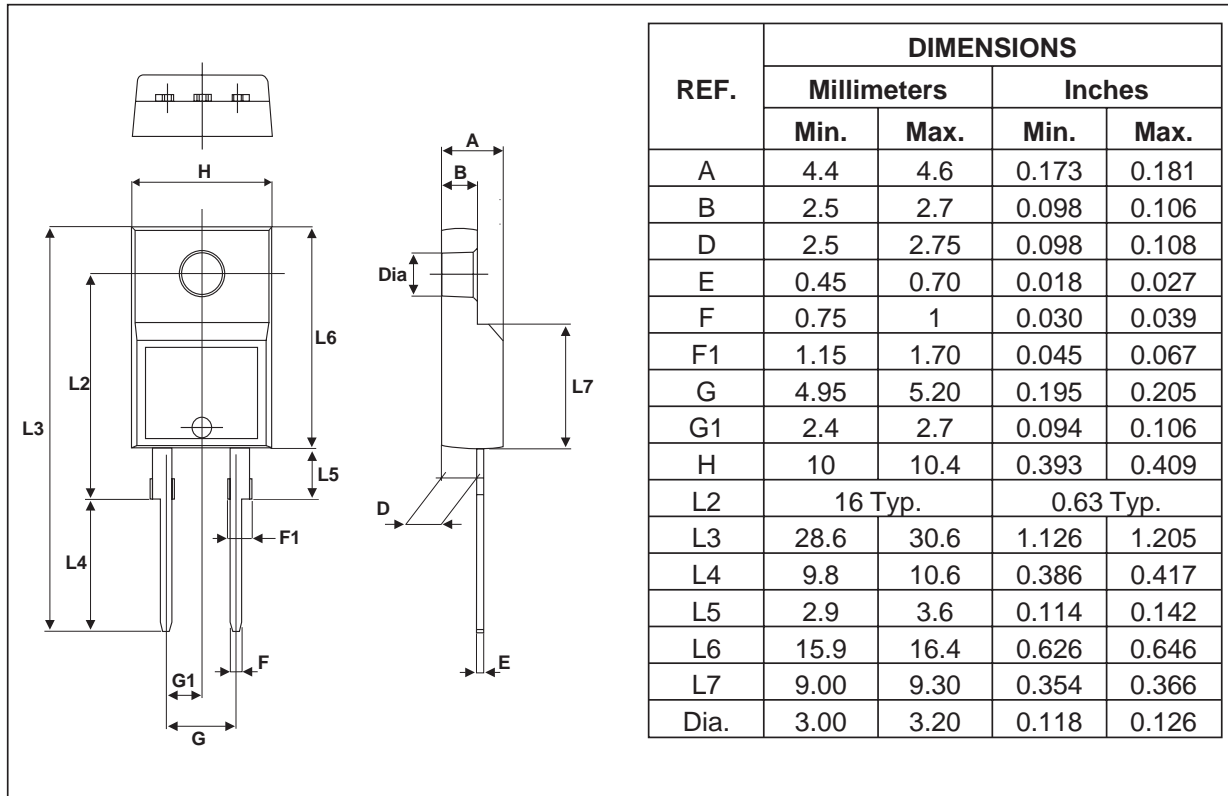


Fig. 11: Relative variation of thermal impedance junction to case versus pulse duration



DTV1500LFP

PACKAGE DATA TO-220FPAC



| Type | Marking | Package | Weight | Base qty | Delivery mode |
|------------|------------|------------|--------|----------|---------------|
| DTV1500LFP | DTV1500LFP | TO-220FPAC | 1.8g | 50 | Tube |

- Cooling method: C
- Epoxy meets UL94-V0
- Torquevalue: 0.55 m.Ntyp (0.7m.Nmax)
- Electrical Isolation: 2000V DC
- Capacitance: 12pF

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