



DTV1500Hxx

(CRT HORIZONTAL DEFLECTION) HIGH VOLTAGE DAMPER DIODE

MAIN PRODUCTS CHARACTERISTICS

| | |
|---------------|--------|
| $I_{F(AV)}$ | 6 A |
| V_{RRM} | 1500 V |
| $V_F(max)$ | 1.7 V |
| $t_{rr}(max)$ | 125 ns |

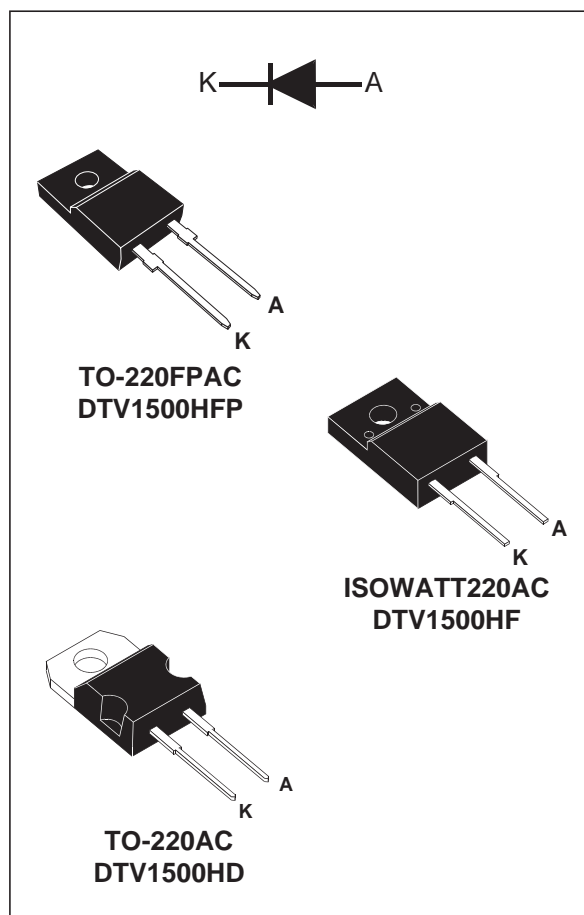
FEATURES AND BENEFITS

- 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 (ISOWATT220AC & 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-220AC, ISOWATT220AC and 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 | $t_p = 10ms$ sinusoidal | 80 | A |
| T_{stg} | Storage temperature | | - 65 to 150 | °C |
| T_j | Maximum operating junction temperature | | 150 | °C |

THERMAL RESISTANCE

| Symbol | Parameter | | Value | Unit |
|---------------|-------------------------------------|--------------|-------|------|
| $R_{th(j-c)}$ | Junction to Case thermal resistance | TO-220FPAC | 5 | °C/W |
| | | ISOWATT220AC | 4 | |
| | | TO-220AC | 2 | |

STATIC ELECTRICAL CHARACTERISTICS

| Symbol | Parameter | Test Conditions | | Value | | Unit |
|----------|-------------------------|-----------------|---------------------|-------|------|---------|
| | | | | 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 | $I_F = 6A$ | $T_j = 25^\circ C$ | 1.5 | 2.3 | V |
| | | | $T_j = 125^\circ C$ | 1.25 | 1.7 | |

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

RECOVERY CHARACTERISTICS

| Symbol | Parameter | Test Conditions | | Value | | Unit |
|----------|-----------------------|--------------------|--|-------|-----|------|
| | | | | Typ | Max | |
| t_{rr} | Reverse recovery time | $T_j = 25^\circ C$ | $I_F = 1\text{ A}$ $di_F/dt = -50\text{ A}/\mu s$ $V_R = 30V$ | 95 | 125 | ns |
| t_{rr} | Reverse recovery time | $T_j = 25^\circ C$ | $I_F = 100\text{ mA}$ $I_R = 100\text{ mA}$ $I_{RR} = 10\text{ mA}$ | 625 | | ns |

TURN-ON SWITCHING CHARACTERISTICS

| Symbol | Parameter | Test Conditions | | Value | | Unit |
|----------|-----------------------|---------------------|---|-------|-----|------|
| | | | | Typ | Max | |
| t_{fr} | Forward recovery time | $T_j = 100^\circ C$ | $I_F = 6\text{ A}$ $di_F/dt = 80\text{ A}/\mu s$ $V_{FR} = 3\text{ V}$ | 350 | | ns |
| V_{Fp} | Peak forward voltage | $T_j = 100^\circ C$ | $I_F = 6\text{ A}$ $di_F/dt = 80\text{ A}/\mu s$ | 18 | 25 | V |

To evaluate the maximum conduction losses use the following equation :

$$P = 1.35 \times I_{F(AV)} + 0.059 \times I_F^2(RMS)$$

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

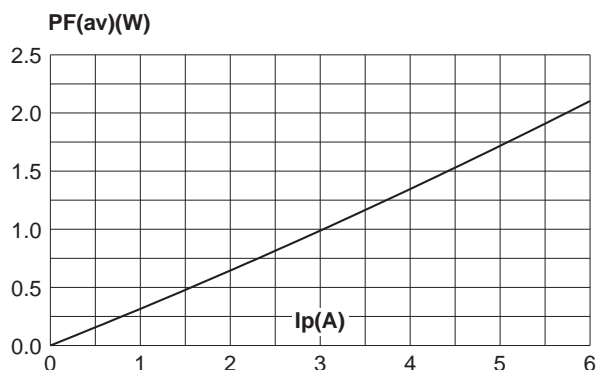


Fig. 2-1: Average current versus case temperature, ($\delta = 0.5$) (TO-220FPAC)

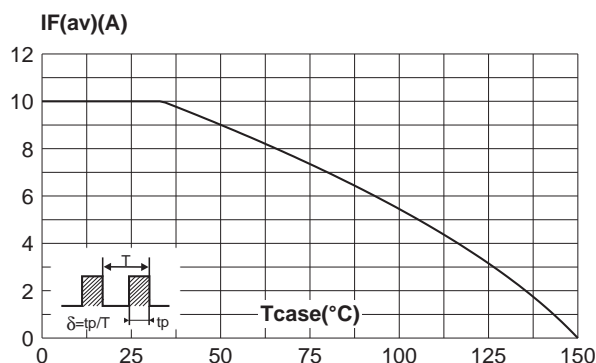


Fig. 2-2: Average current versus case temperature, ($\delta = 0.5$) (ISOWATT220AC)

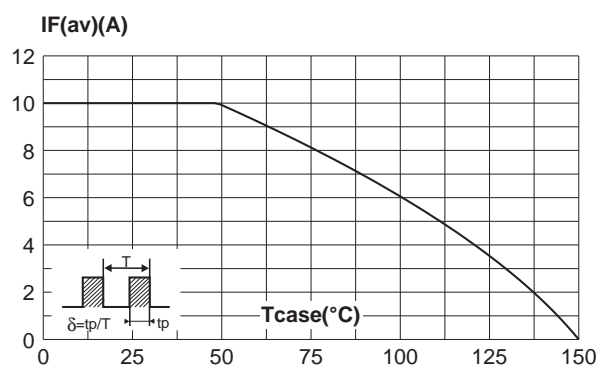


Fig. 2-3: Average current versus case temperature, ($\delta = 0.5$) (TO-220AC)

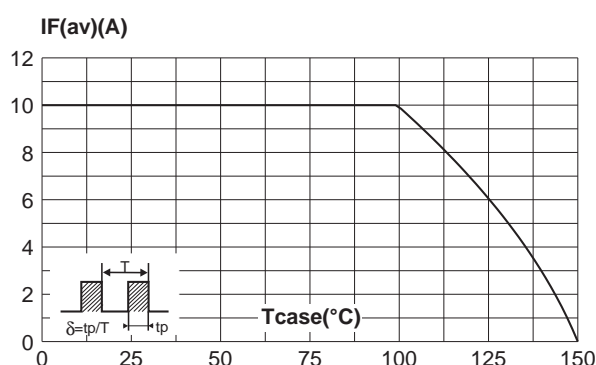


Fig. 3: Forward voltage drop versus forward current

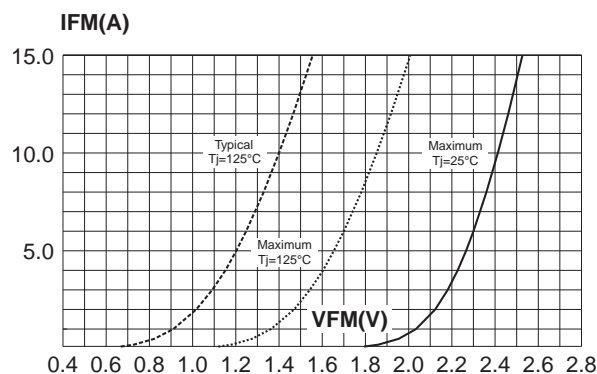


Fig. 4-1: Non repetitive surge peak forward current versus overload duration (TO-220FPAC)

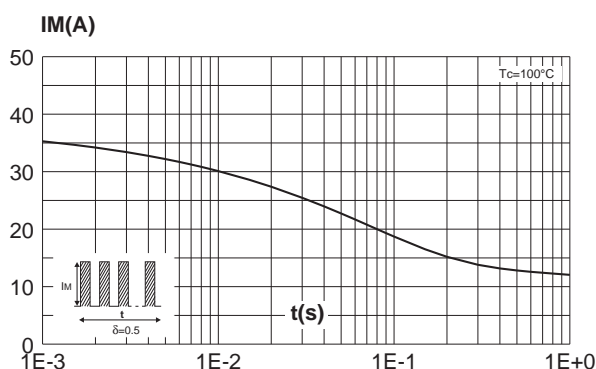


Fig. 4-2: Non repetitive surge peak forward current versus overload duration (ISOWATT220AC)

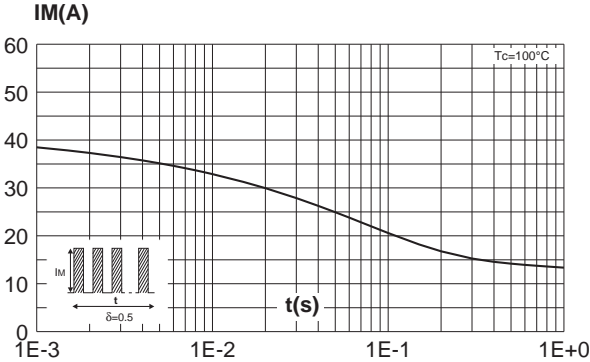


Fig. 5: Reverse recovery charges versus dI_F/dt

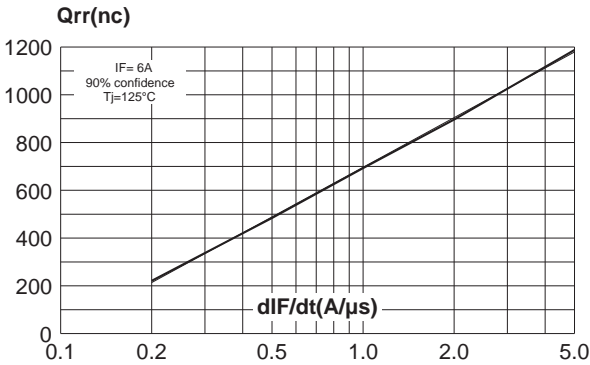


Fig. 7: Transient peak forward voltage versus dI_F/dt

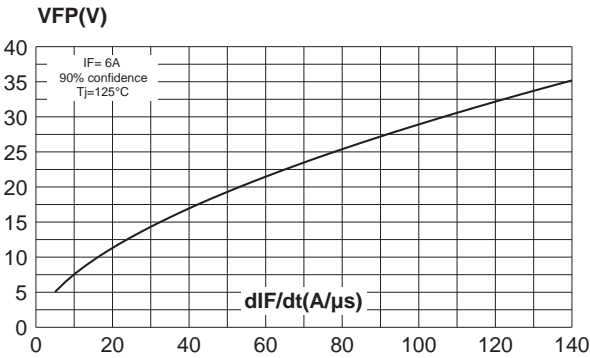


Fig. 4-3: Non repetitive surge peak forward current versus overload duration (TO-220AC)

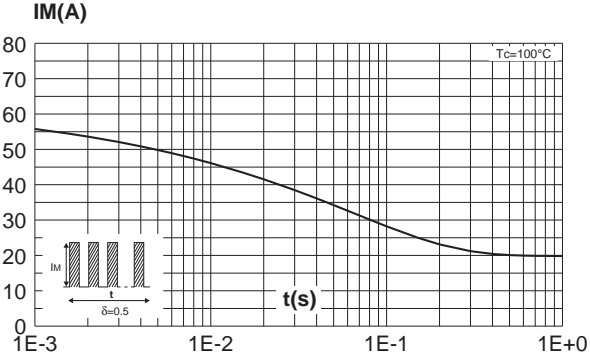


Fig. 6: Reverse recovery current versus dI_F/dt

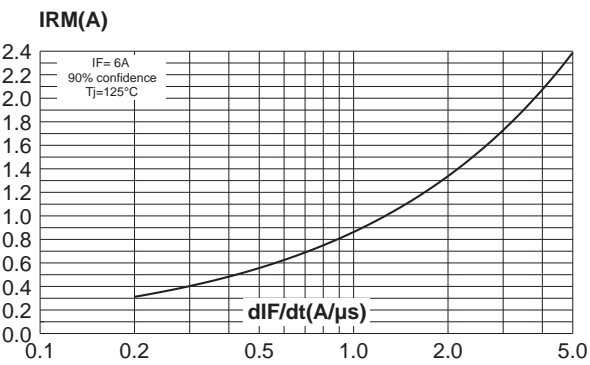


Fig. 8: Forward recovery time versus dI_F/dt

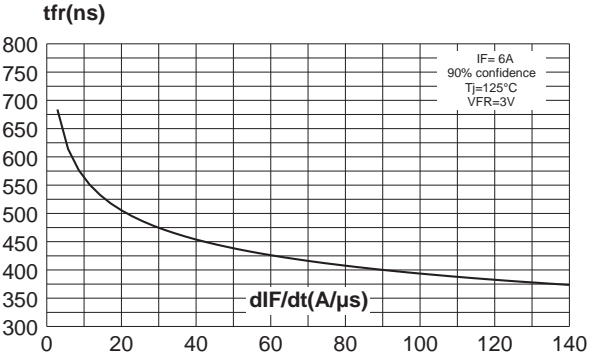
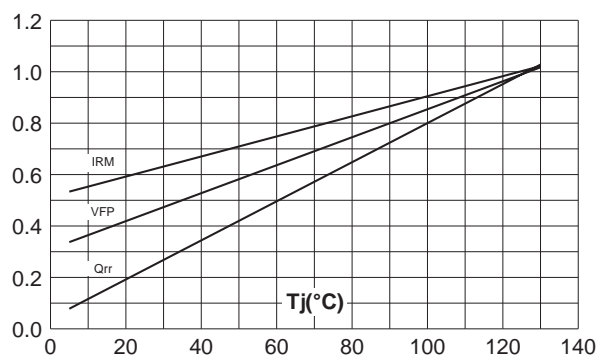
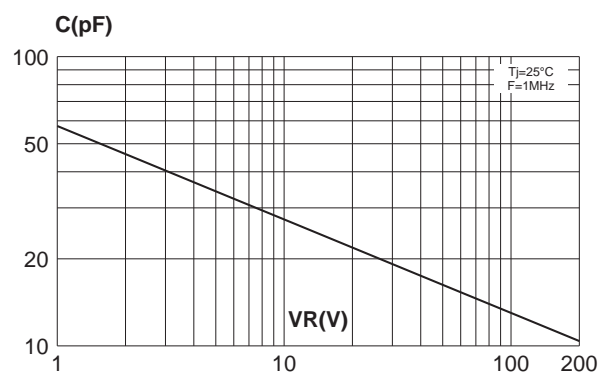
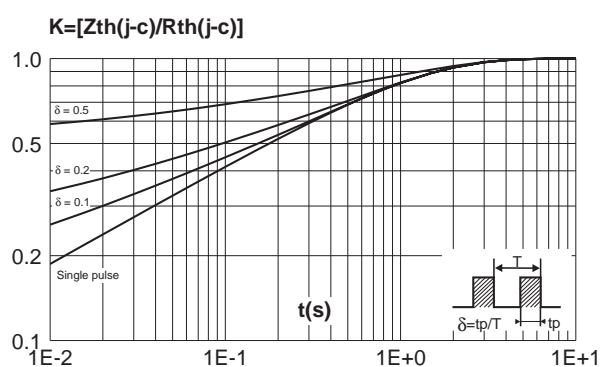
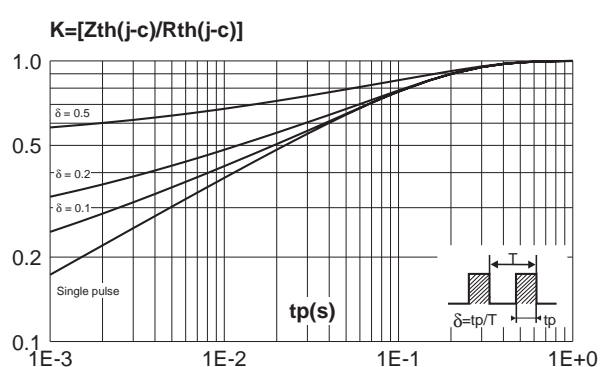
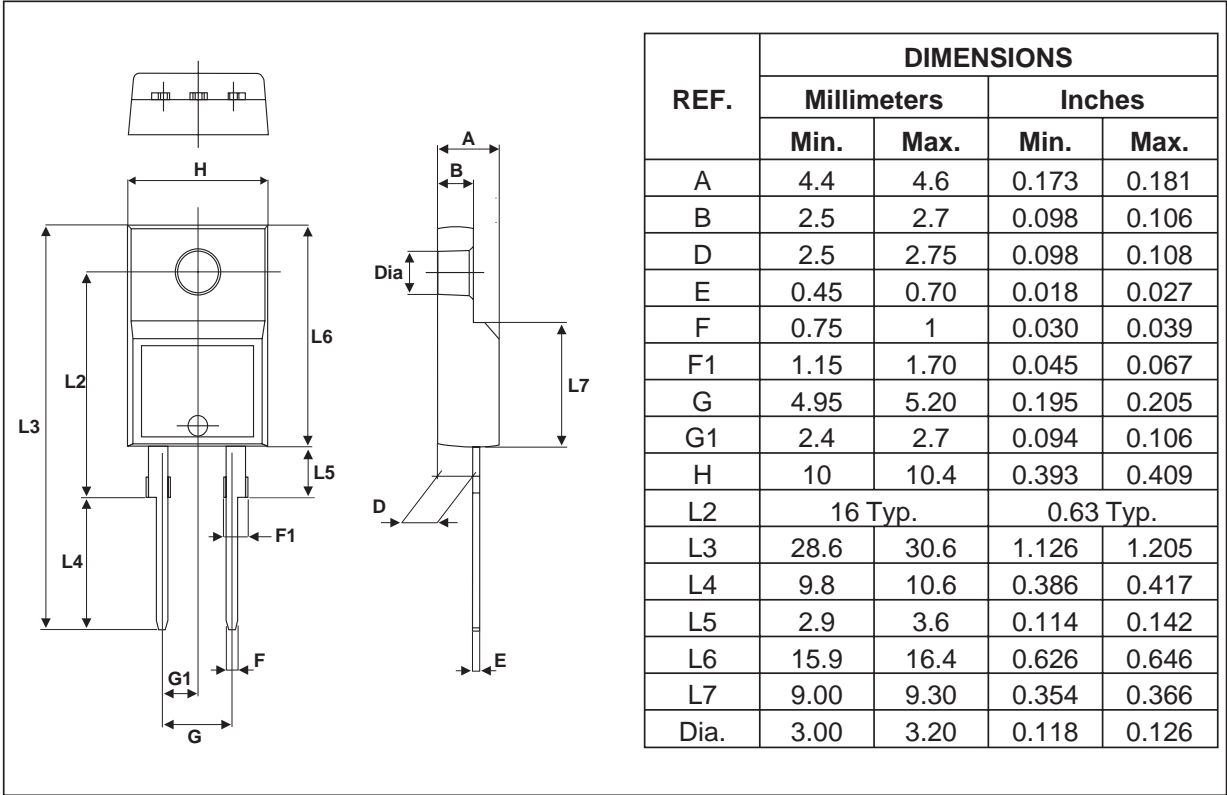
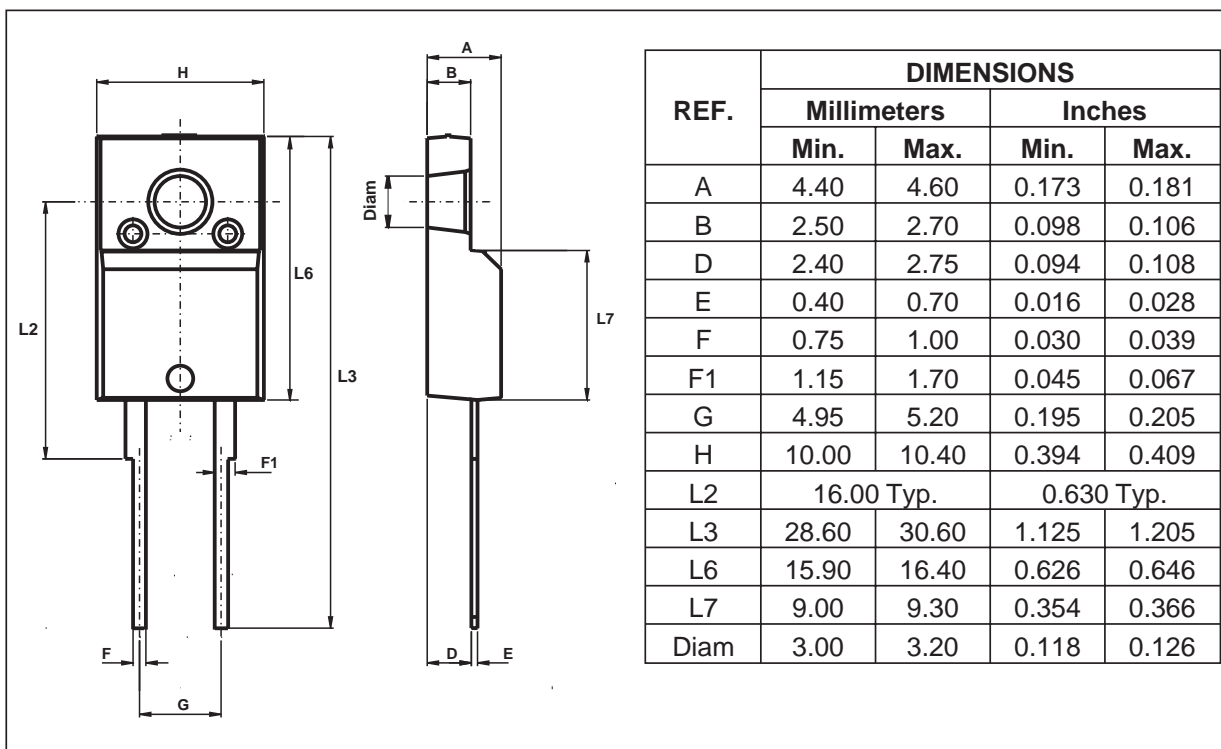
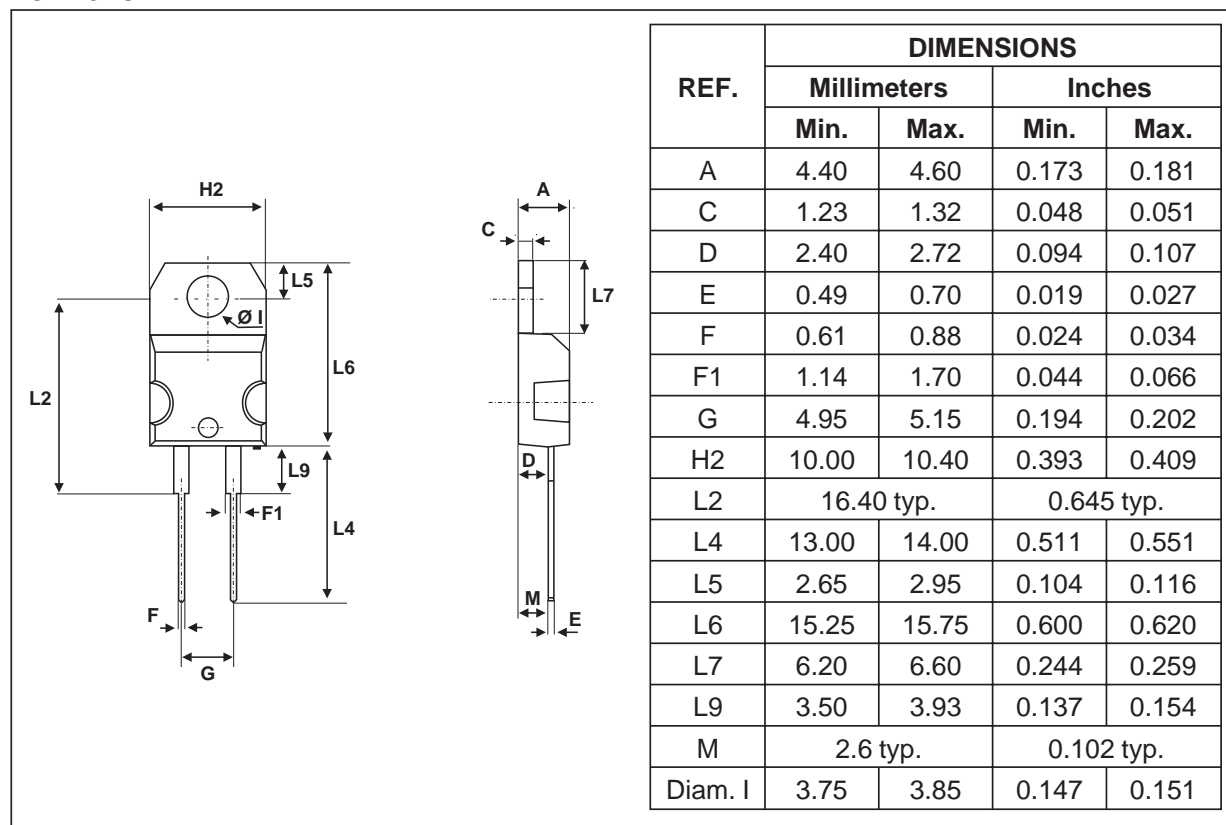


Fig. 9: Dynamic parameters versus junction temperature**Fig. 10:** Junction capacitance versus reverse voltage applied (typical values)**Fig. 11-1:** Relative variation of thermal impedance junction to case versus pulse duration (ISOWATT220AC & TO-220FPAC)**Fig. 11-2:** Relative variation of thermal impedance junction to case versus pulse duration (TO-220AC)

PACKAGE DATA
TO-220FPAC



PACKAGE DATA
ISOWATT220AC

PACKAGE DATA
TO-220AC


| Type | Marking | Package | Weight | Base qty | Delivery mode |
|------------|------------|--------------|--------|----------|---------------|
| DTV1500HFP | DTV1500HFP | TO-220FPAC | 1.8g | 50 | Tube |
| DTV1500HF | DTV1500HF | ISOWATT220AC | 2g | 50 | Tube |
| DTV1500HD | DTV1500HD | TO-220AC | 1.86g | 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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