



# DTV1500Mxx

## (CRT HORIZONTAL DEFLECTION) HIGH VOLTAGE DAMPER DIODE

### MAIN PRODUCTS CHARACTERISTICS

$I_{F(AV)}$	6 A
$V_{RRM}$	1500 V
$V_F(\text{max})$	1.65 V
$t_{rr}(\text{max})$	135 ns

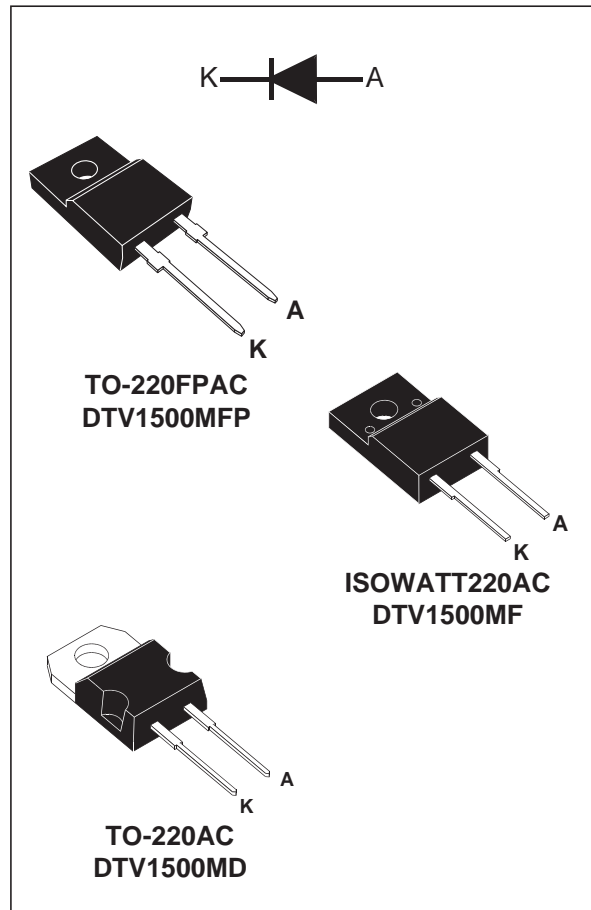
### FEATURES AND BENEFITS

- 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	75	A
	$t_p = 10\text{ms}$ sinusoidal		
$T_{stg}$	Storage temperature	- 65 to 150	°C
$T_j$	Maximum operating junction temperature	150	°C

**THERMAL RESISTANCE**

Symbol	Parameter		Value	Unit
R <sub>th(j-c)</sub>	Junction to Case thermal resistance	TO-220FPAC	5.4	°C/W
		ISOWATT220AC	4.75	
		TO-220AC	2.5	

**STATIC ELECTRICAL CHARACTERISTICS**

Symbol	Parameter	Test Conditions		Value		Unit
				Typ	Max	
I <sub>R</sub> *	Reverse leakage current	V <sub>R</sub> = 1500V	T <sub>j</sub> = 25°C		100	μA
				T <sub>j</sub> = 125°C	100	1000
V <sub>F</sub> **	Forward voltage drop	I <sub>F</sub> = 6A	T <sub>j</sub> = 25°C	1.4	2.2	V
			T <sub>j</sub> = 125°C	1.20	1.65	

pulse test : \* tp = 5 ms , δ < 2%

\*\* tp = 380 μs, δ < 2%

**RECOVERY CHARACTERISTICS**

Symbol	Parameter	Test Conditions		Value		Unit
				Typ	Max	
t <sub>rr</sub>	Reverse recovery time	T <sub>j</sub> = 25°C	I <sub>F</sub> = 1 A dI <sub>F</sub> /dt = -50A/μs V <sub>R</sub> = 30V	110	135	ns
t <sub>rr</sub>	Reverse recovery time	T <sub>j</sub> = 25°C	I <sub>F</sub> = 100mA I <sub>R</sub> = 100mA I <sub>RR</sub> = 10mA	750		ns

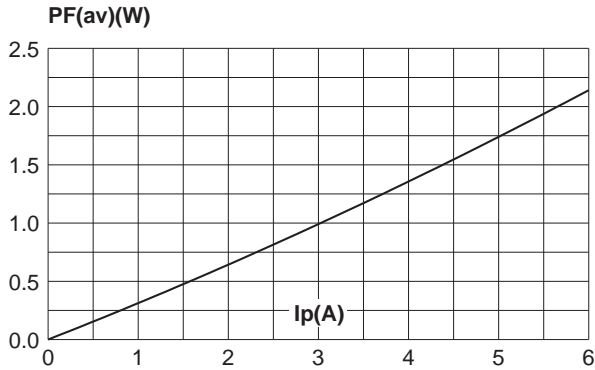
**TURN-ON SWITCHING CHARACTERISTICS**

Symbol	Parameter	Test Conditions		Value		Unit
				Typ	Max	
t <sub>fr</sub>	Forward recovery time	T <sub>j</sub> = 100°C	I <sub>F</sub> = 6 A dI <sub>F</sub> /dt = 80 A/μs V <sub>FR</sub> = 3 V	570		ns
V <sub>Fp</sub>	Peak forward voltage	T <sub>j</sub> = 100°C	I <sub>F</sub> = 6A dI <sub>F</sub> /dt = 80 A/μs	21	28	V

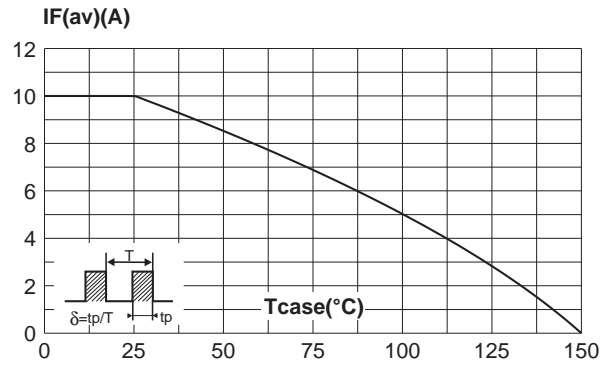
To evaluate the maximum conduction losses use the following equation :

$$P = 1.37 \times I_{F(AV)} + 0.047 \times I_{F(RMS)}^2$$

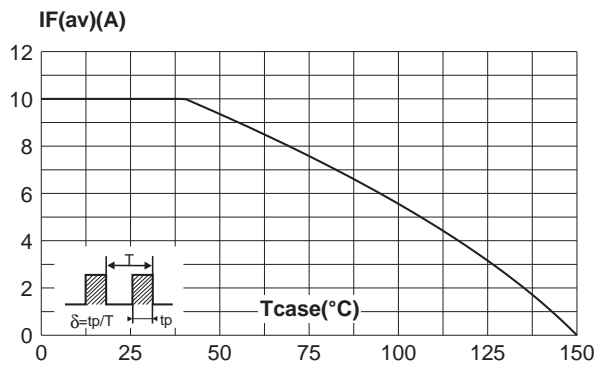
**Fig. 1:** Power dissipation versus peak forward current (triangular waveform,  $\delta = 0.45$ )



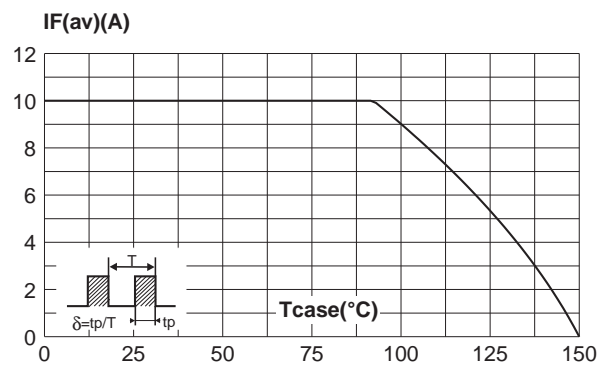
**Fig. 2-1:** Average current versus case temperature ( $\delta = 0.5$ ) (TO-220FPAC)



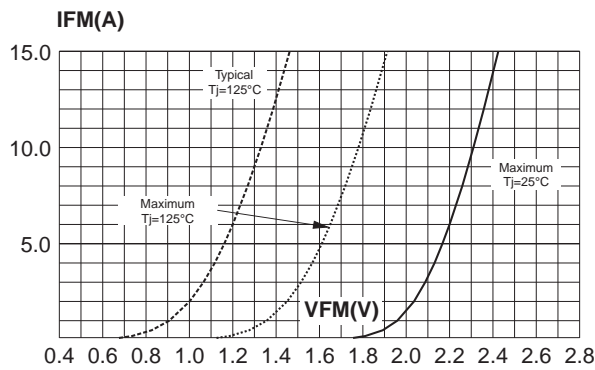
**Fig. 2-2:** Average current versus case temperature ( $\delta = 0.5$ ) (ISOWATT220AC)



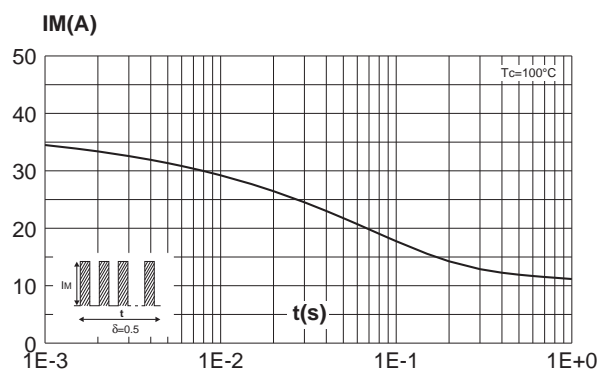
**Fig. 2-3:** Average current versus case temperature ( $\delta = 0.5$ ) (TO-220AC)



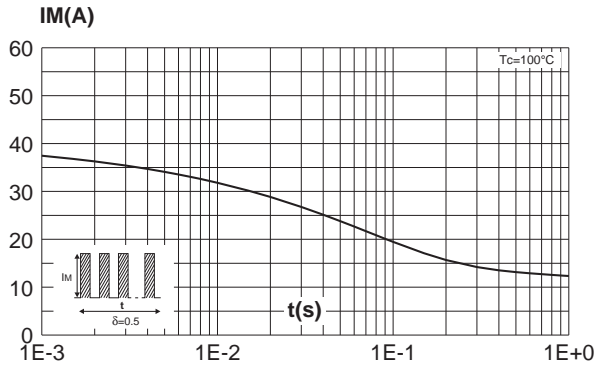
**Fig. 3:** Forward voltage drop versus forward current (DTV1500MFP/F/D)



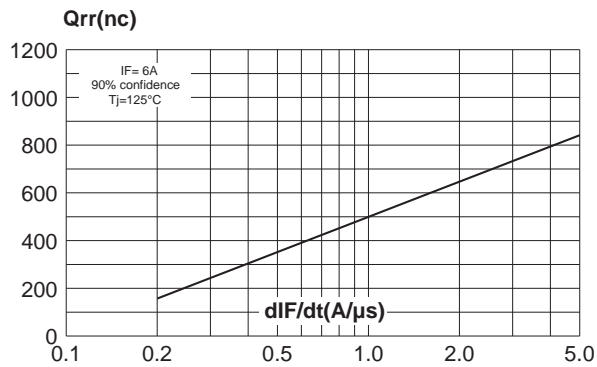
**Fig. 4-1:** Non repetitive surge peak forward current versus overload duration (TO-220FPAC)



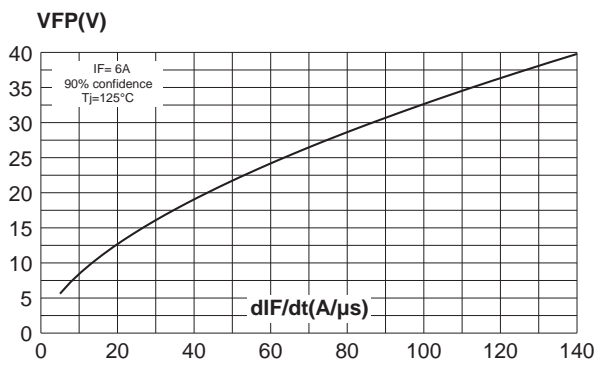
**Fig. 4-2:** Non repetitive surge peak forward current versus overload duration (ISOWATT220AC)



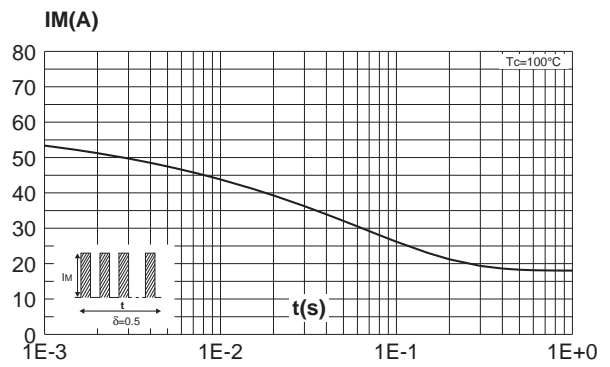
**Fig. 5:** Reverse recovery charges versus dIF/dt.



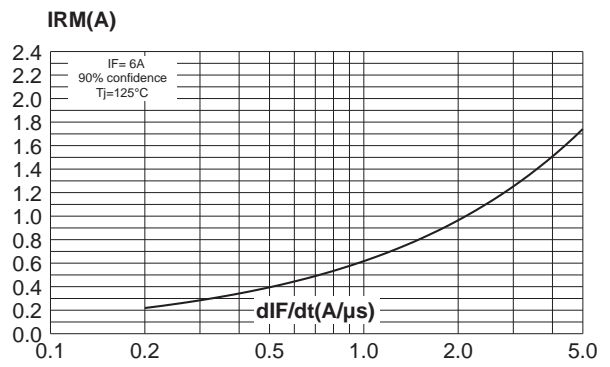
**Fig. 7:** Transient peak forward voltage versus dIF/dt.



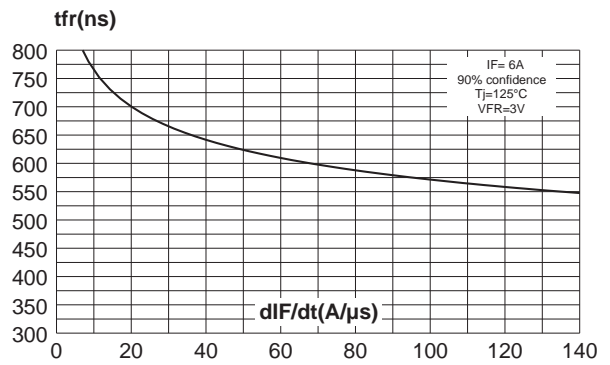
**Fig. 4-3:** Non repetitive surge peak forward current versus overload duration (TO-220AC)



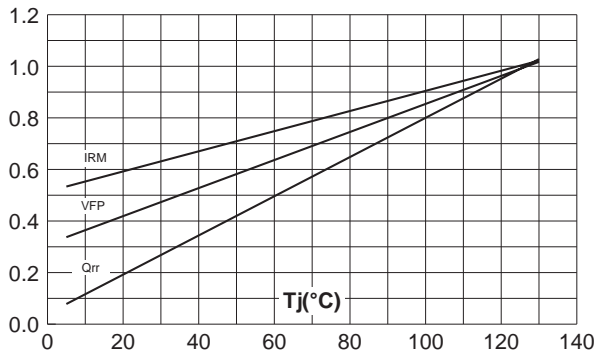
**Fig. 6:** Reverse recovery current versus dIF/dt.



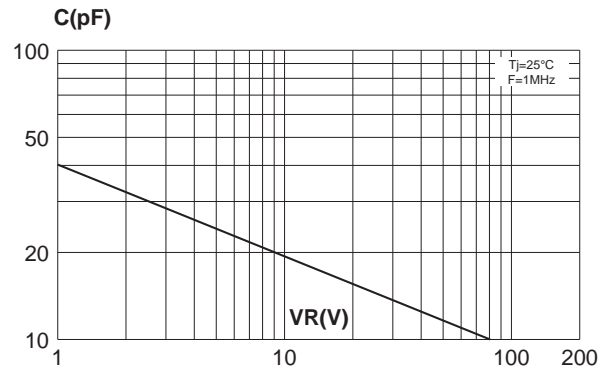
**Fig. 8:** Forward recovery time versus dIF/dt



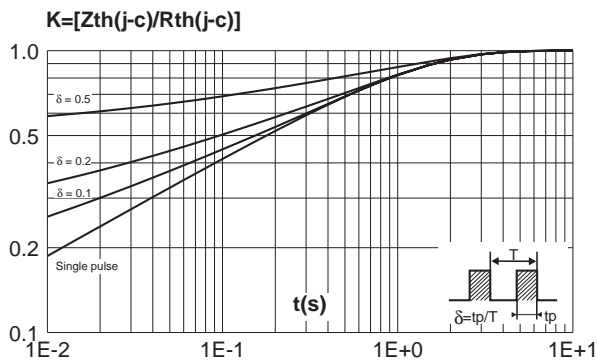
**Fig. 9:** Dynamic parameters versus junction temperature



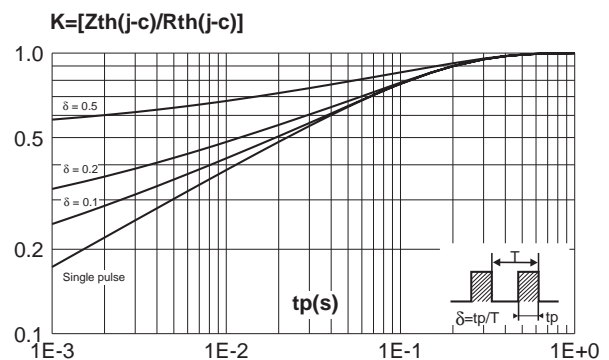
**Fig. 10:** Junction capacitance versus reverse voltage applied (typical values)



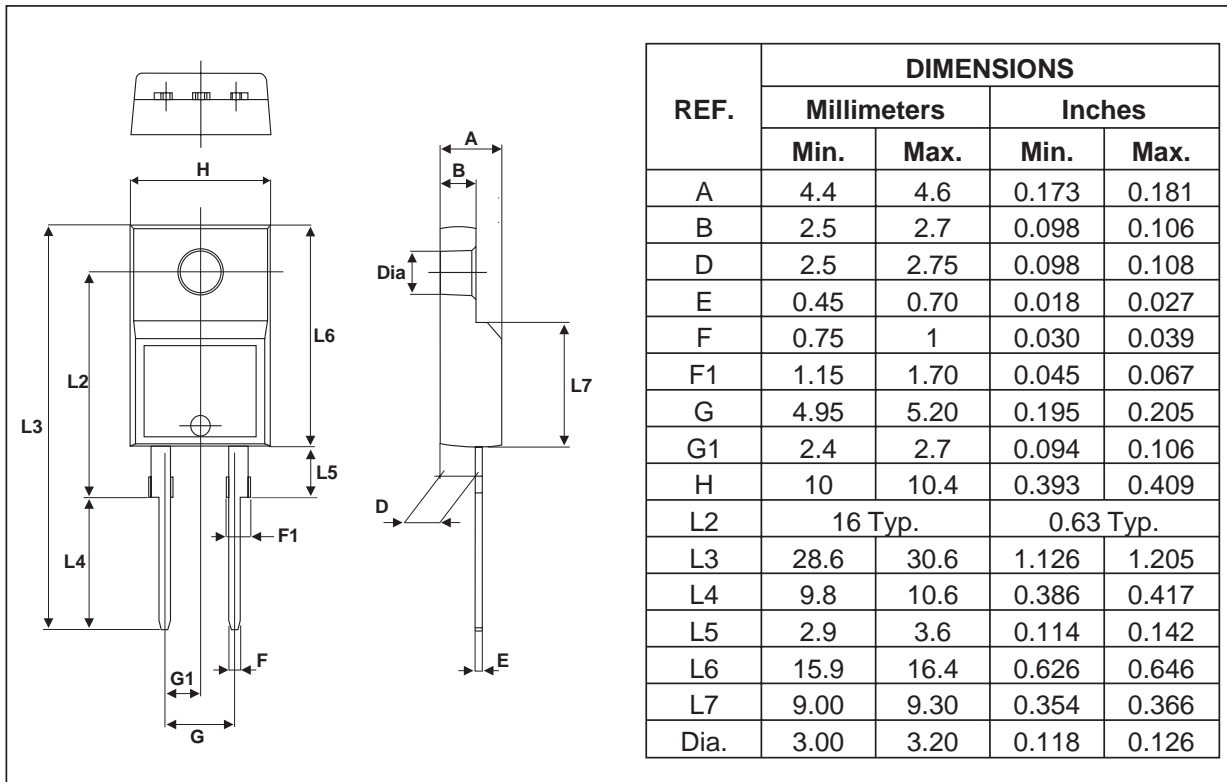
**Fig. 11-1:** Relative variation of thermal impedance junction to case versus pulse duration (ISOWATT220AC & TO-220FPAC)



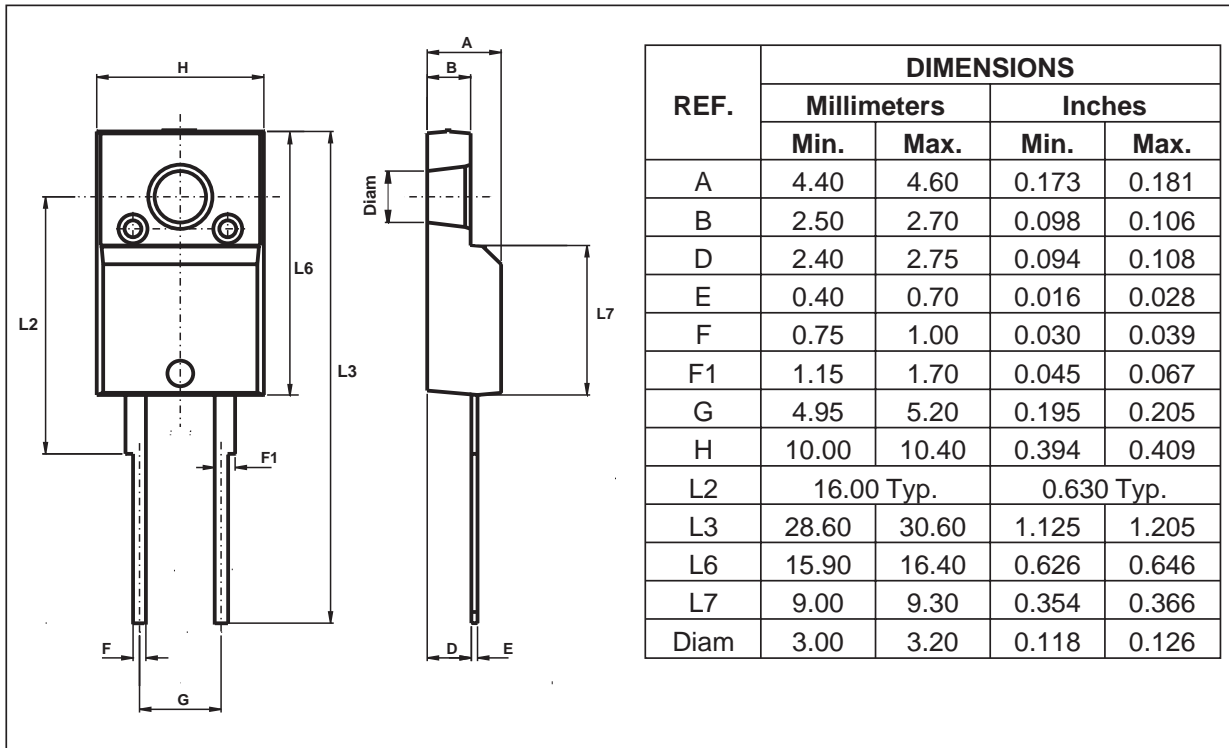
**Fig. 11-2:** Relative variation of thermal impedance junction to case versus pulse duration (TO-220AC)



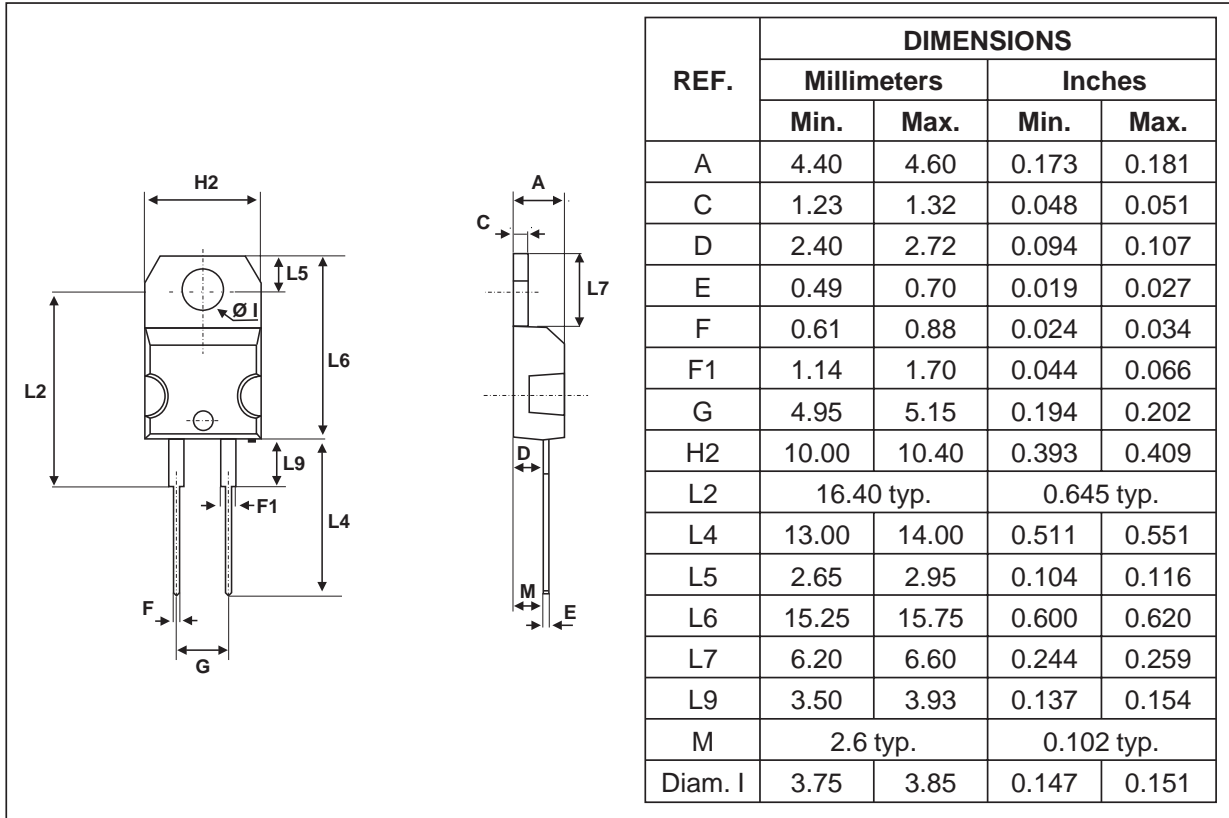
**PACKAGE DATA**  
TO-220FPAC



**PACKAGE DATA**  
ISOWATT220AC



**PACKAGE DATA**  
TO-220AC



Type	Marking	Package	Weight	Base qty	Delivery mode
DTV1500MFP	DTV1500MFP	TO-220FPAC	1.8g	50	Tube
DTV1500MD	DTV1500MD	TO-220AC	1.86g	50	Tube
DTV1500MF	DTV1500MF	ISOWATT220AC	2g	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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