



# DTV1500Mxx

## (CRT HORIZONTAL DEFLECTION) HIGH VOLTAGE DAMPER DIODE

### MAIN PRODUCTS CHARACTERISTICS

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

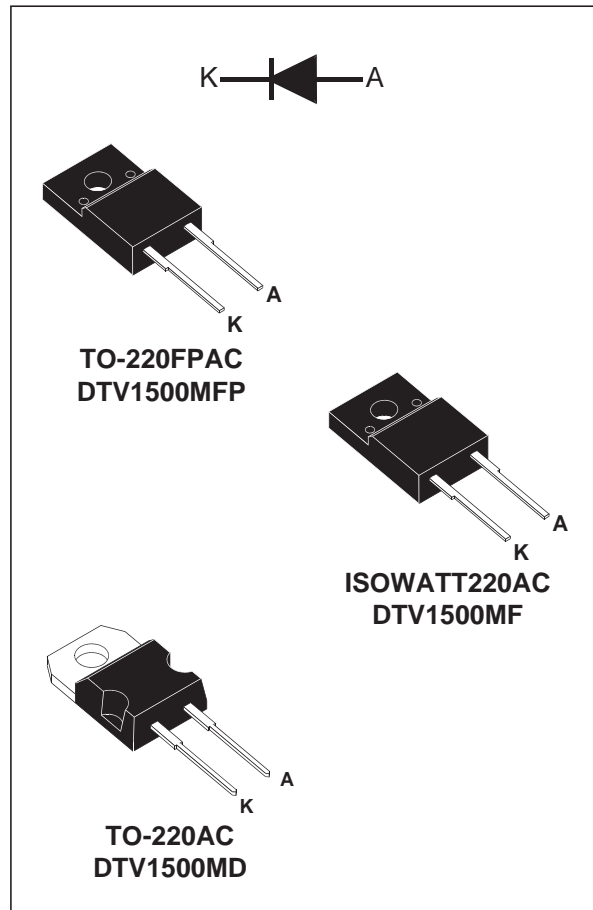
### FEATURES AND BENEFITS

- 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

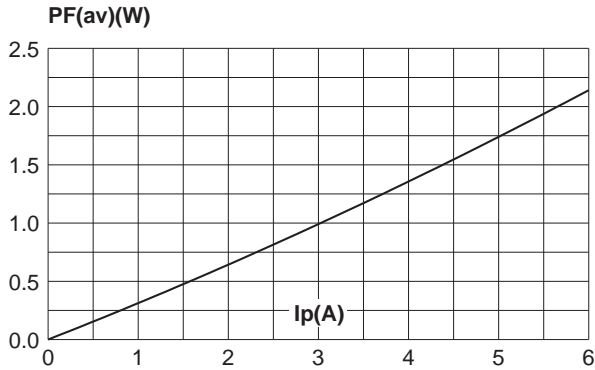
**TURN-ON SWITCHING CHARACTERISTICS**

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

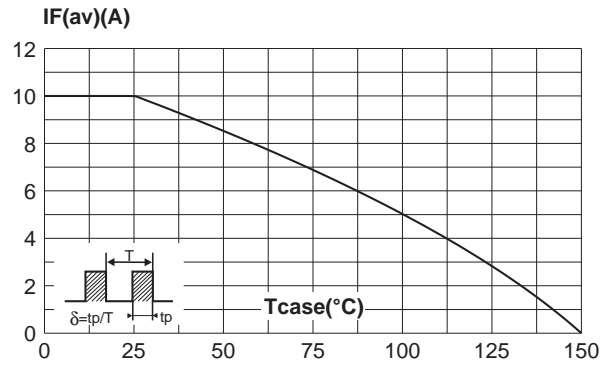
To evaluate the maximum conduction losses use the following equation :

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

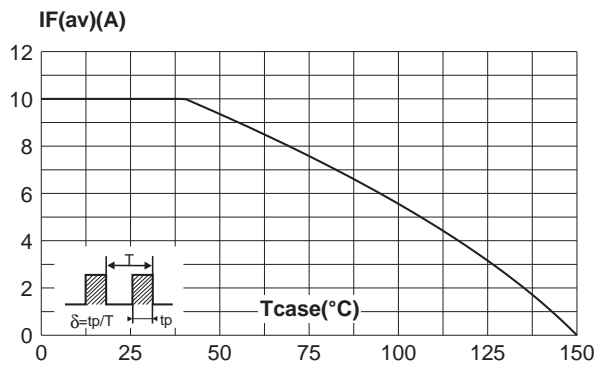
**Fig. 1:** Power dissipation versus peak forward current (triangular waveform,  $\delta = 0.45$ )



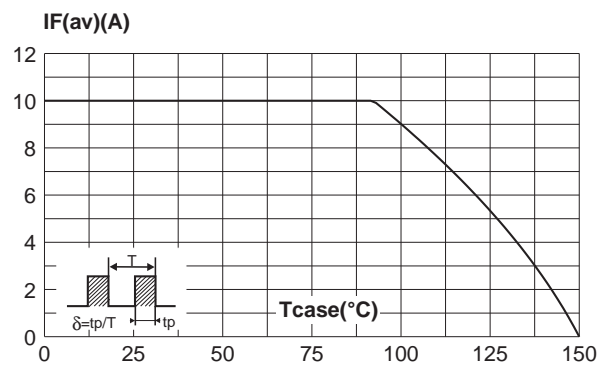
**Fig. 2-1:** Average current versus case temperature ( $\delta = 0.5$ ) (TO-220FPAC)



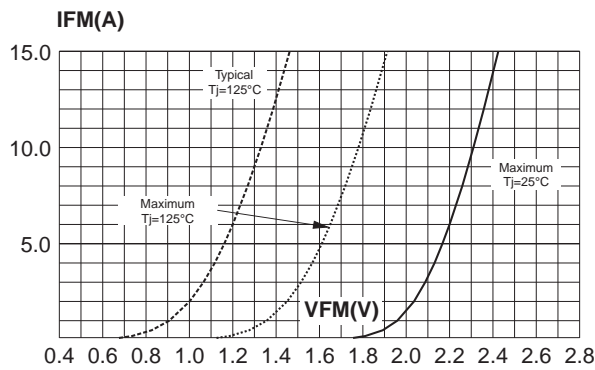
**Fig. 2-2:** Average current versus case temperature ( $\delta = 0.5$ ) (ISOWATT220AC)



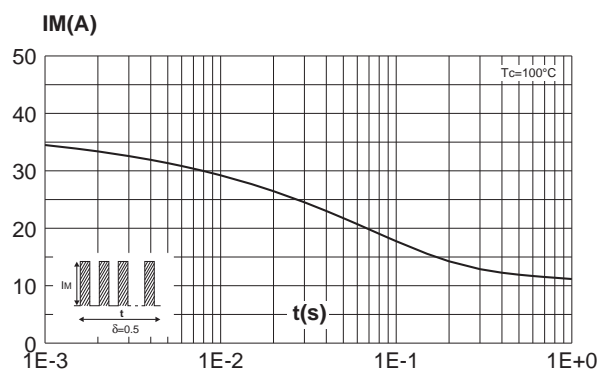
**Fig. 2-3:** Average current versus case temperature ( $\delta = 0.5$ ) (TO-220AC)



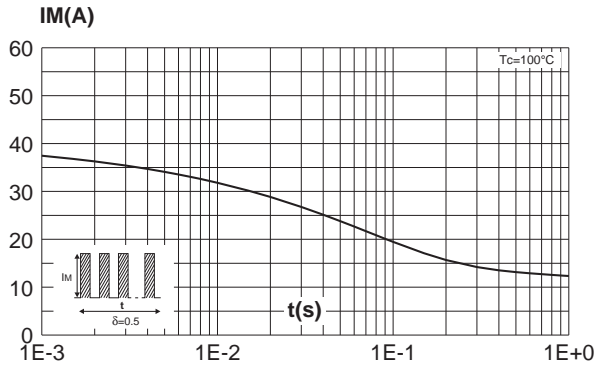
**Fig. 3:** Forward voltage drop versus forward current (DTV1500MFP/F/D)



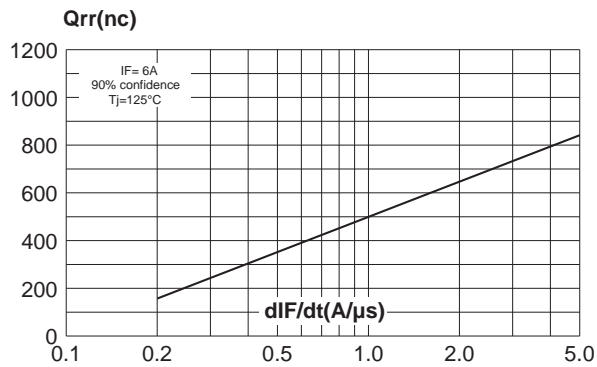
**Fig. 4-1:** Non repetitive surge peak forward current versus overload duration (TO-220FPAC)



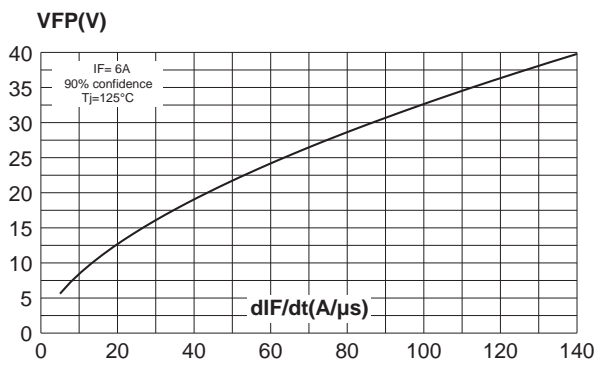
**Fig. 4-2:** Non repetitive surge peak forward current versus overload duration (ISOWATT220AC)



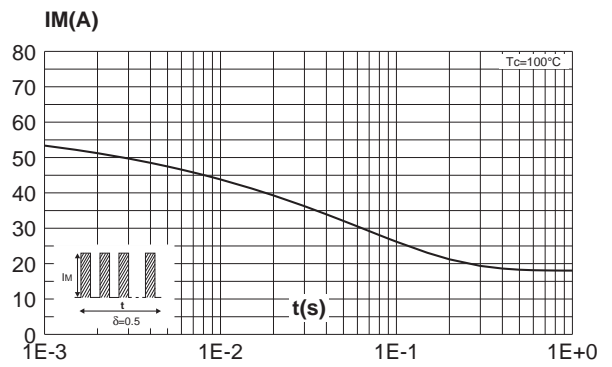
**Fig. 5:** Reverse recovery charges versus dIF/dt.



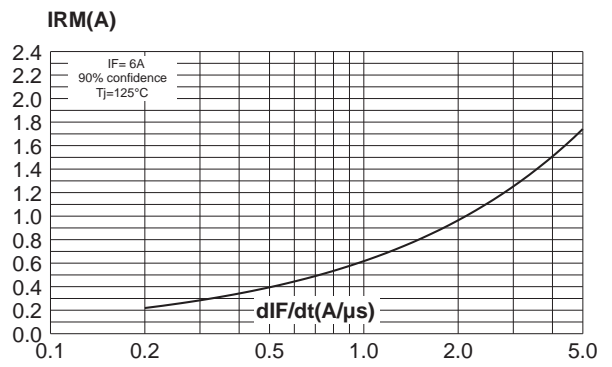
**Fig. 7:** Transient peak forward voltage versus dIF/dt.



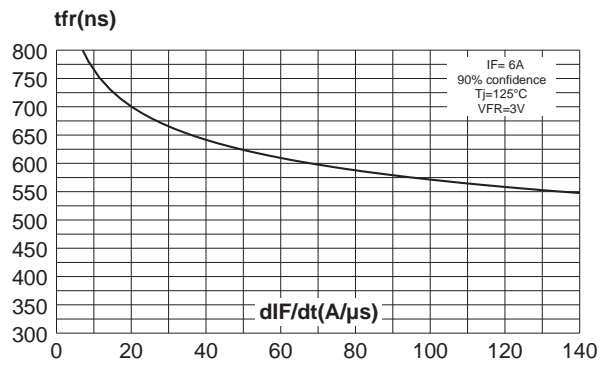
**Fig. 4-3:** Non repetitive surge peak forward current versus overload duration (TO-220AC)



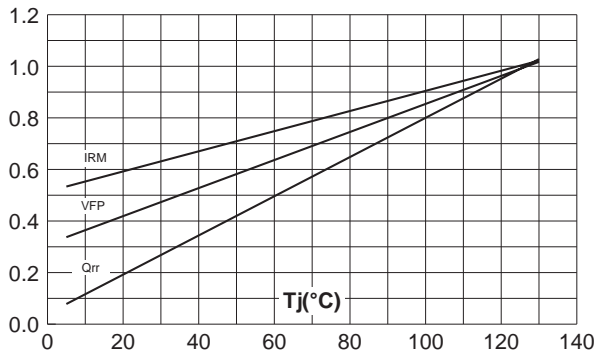
**Fig. 6:** Reverse recovery current versus dIF/dt.



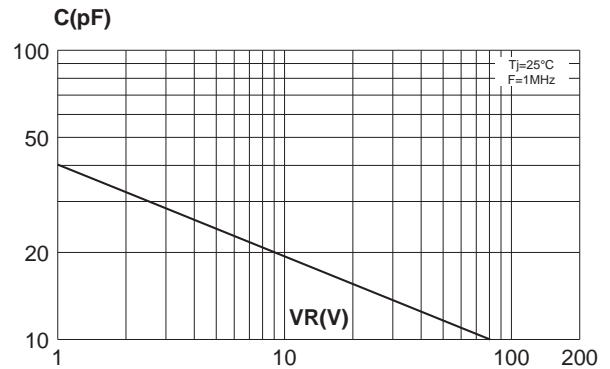
**Fig. 8:** Forward recovery time versus dIF/dt



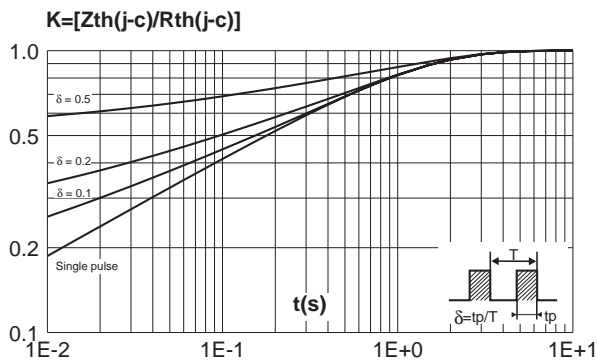
**Fig. 9:** Dynamic parameters versus junction temperature



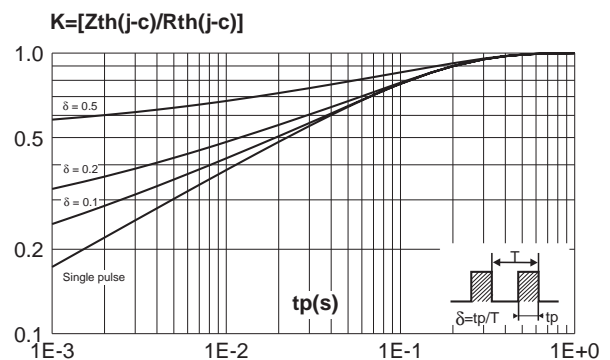
**Fig. 10:** Junction capacitance versus reverse voltage applied (typical values)



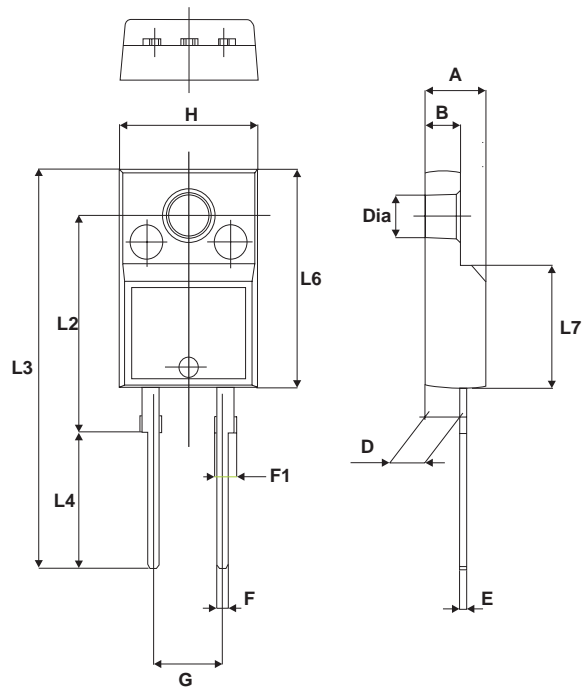
**Fig. 11-1:** Relative variation of thermal impedance junction to case versus pulse duration (ISOWATT220AC & TO-220FPAC)



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

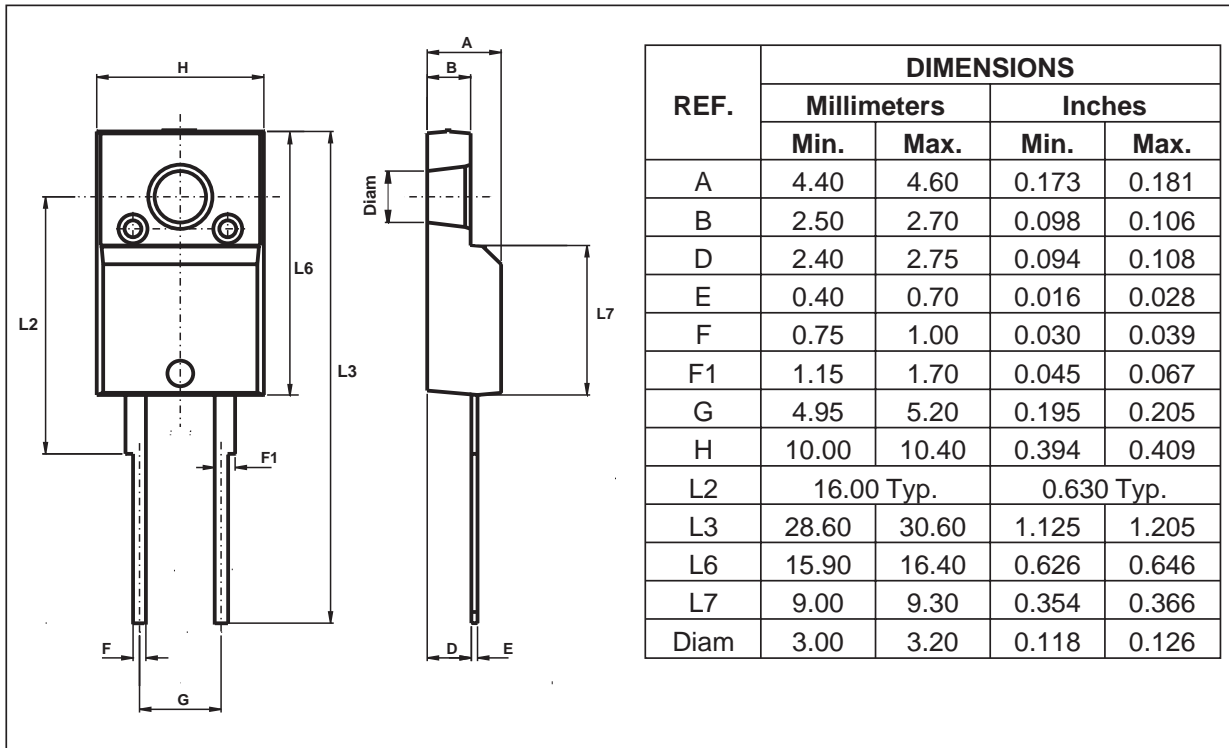


**PACKAGE DATA**  
TO-220FPAC

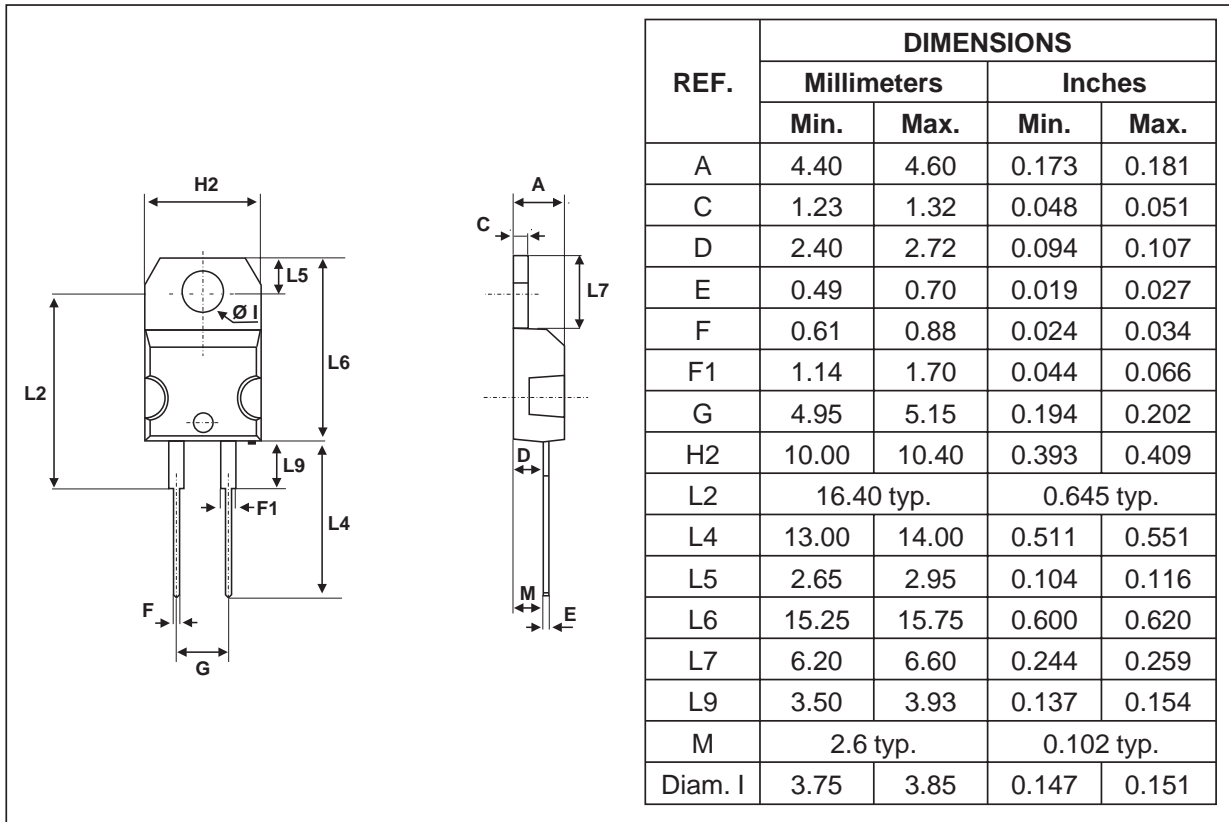


REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.4	4.9	0.173	0.193
B	2.5	2.9	0.098	0.114
D	2.45	2.75	0.096	0.108
E	0.4	0.70	0.016	0.027
F	0.60	1	0.024	0.039
F1	1.15	1.70	0.045	0.067
G	4.95	5.20	0.195	0.204
H	10	10.7	0.393	0.421
L2	16 Typ.		0.63 Typ.	
L3	28.6	30.6	1.126	1.204
L4	9.8	10.7	0.385	0.421
L6	15.8	16.4	0.621	0.645
L7	9.00	9.90	0.354	0.389
Dia.	2.9	3.50	0.114	0.138

**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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