

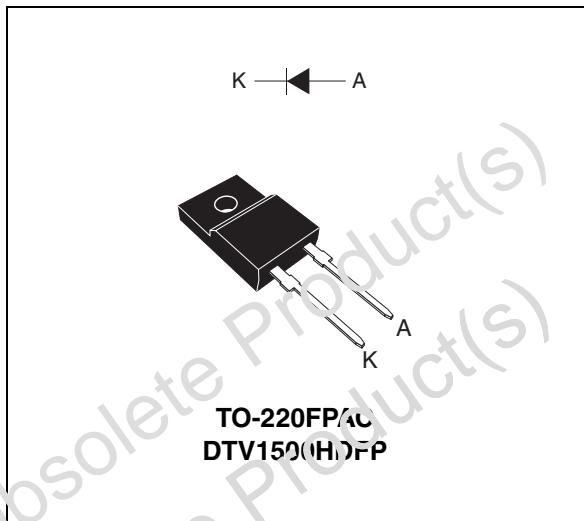


# DTV1500HD

## (CRT TV HORIZONTAL DEFLECTION) HIGH VOLTAGE DAMPER DIODE

**Table 1: Main Product Characteristics**

$I_{F(AV)}$	6 A
$I_{F\text{peak}} \text{ (max)}$	12 A
$V_{RRM}$	1500 V
$T_j$	175°C
$V_F \text{ (typ)}$	1.0 V
$t_{rr} \text{ (typ)}$	150 ns
$V_{FP} \text{ (typ)}$	21 V



### 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 = 12 pF
- Planar technology allowing high quality and best electrical characteristics

**Table 2: Order Codes**

Part Number	Marking
DTV1500HDFP	DTV1500HDFP

### DESCRIPTION

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

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

**Table 3: Absolute Maximum Ratings**

Symbol	Parameter	Value	Unit
$V_{RRM}$	Repetitive peak reverse voltage	1500	V
$I_{F(\text{RMS})}$	RMS forward voltage	15	A
$I_{F\text{peak}}$	Peak working forward current	12	A
$I_{FSM}$	Surge non repetitive forward current	$t_p = 10\text{ms}$ sinusoidal	A
$T_{stg}$	Storage temperature range	-65 to 175	°C
$T_j$	Maximum operating junction temperature	175	°C

## DTV1500HD

**Table 4: Thermal Resistance**

Symbol	Parameter	Value (max.)	Unit
R <sub>th(j-c)</sub>	Junction to case thermal resistance	5.4	°C/W

**Table 5: Static Electrical Characteristics**

Symbol	Parameter	Test conditions		Typ	Max.	Unit
I <sub>R</sub> *	Reverse leakage current	T <sub>j</sub> = 25°C	V <sub>R</sub> = V <sub>RRM</sub>		100	µA
		T <sub>j</sub> = 125°C		100	1000	
V <sub>F</sub> **	Forward voltage drop	T <sub>j</sub> = 25°C	I <sub>F</sub> = 6A	1.1	1.6	V
		T <sub>j</sub> = 125°C		1.0	1.35	

Pulse test: \* tp = 5 ms, Δ < 2%

\*\* tp = 380 µs, Δ < 2%

To evaluate the conduction losses use the following equation: P = 1.15 × I<sub>F(AV)</sub> + 0.033 I<sub>F</sub><sup>2</sup> (RMS)

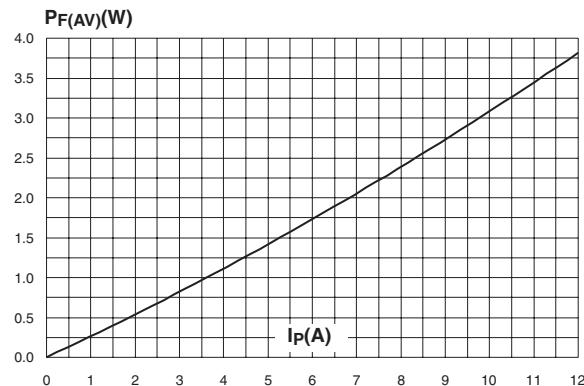
**Table 6: Recovery Characteristics**

Symbol	Parameter	Test conditions		Typ	Max.	Unit
t <sub>rr</sub>	Reverse recovery time	T <sub>j</sub> = 25°C	I <sub>F</sub> = 1A	150	250	ns
			dI <sub>F</sub> /dt = -30 A/µs V <sub>R</sub> = 30V			
			I <sub>F</sub> = 100mA I <sub>rr</sub> = 10mA I <sub>R</sub> = 100mA	1000		

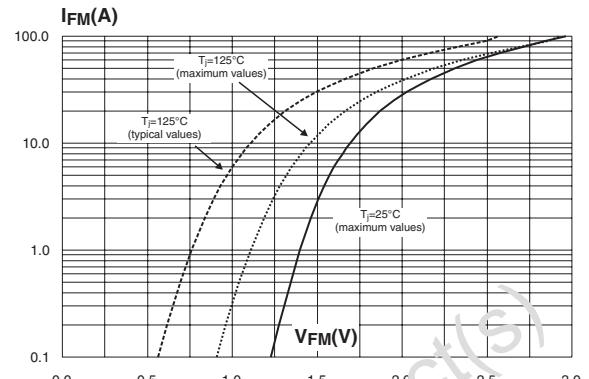
**Table 7: Turn-On Switching Characteristics**

Symbol	Parameter	Test conditions		Typ	Max.	Unit
t <sub>fr</sub>	Forward recovery time	T <sub>j</sub> = 100°C	I <sub>F</sub> = 6A	470	ns	
			dI <sub>F</sub> /dt = 80 A/µs V <sub>FR</sub> = 3V			
V <sub>FP</sub>	Peak forward voltage	T <sub>j</sub> = 100°C	I <sub>F</sub> = 6A	21	29	V
			dI <sub>F</sub> /dt = 80 A/µs			

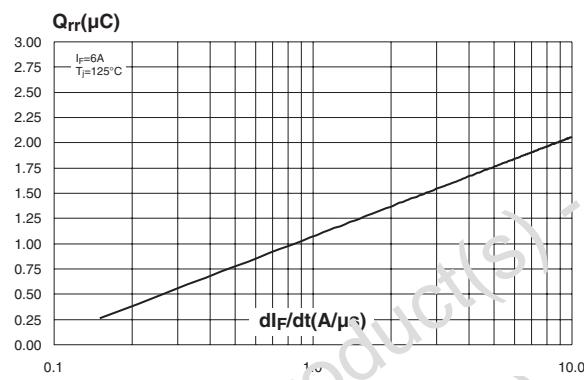
**Figure 1: Conduction losses versus average current ( $\delta=0.45$ )**



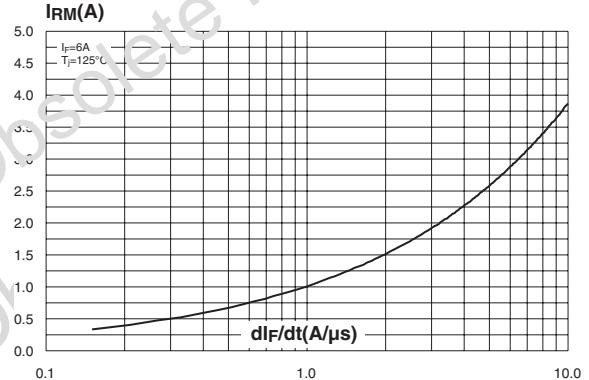
**Figure 2: Forward voltage drop versus forward current**



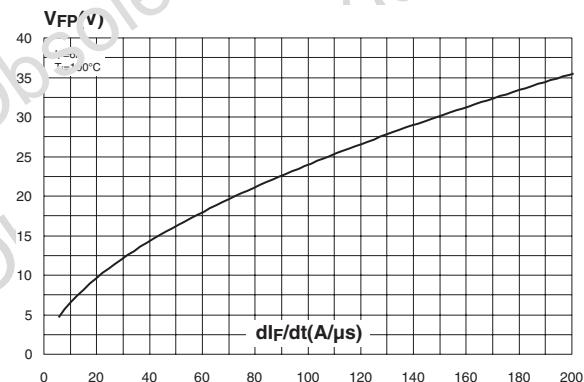
**Figure 3: Reverse recovery charges versus  $dI_F/dt$  (typical values)**



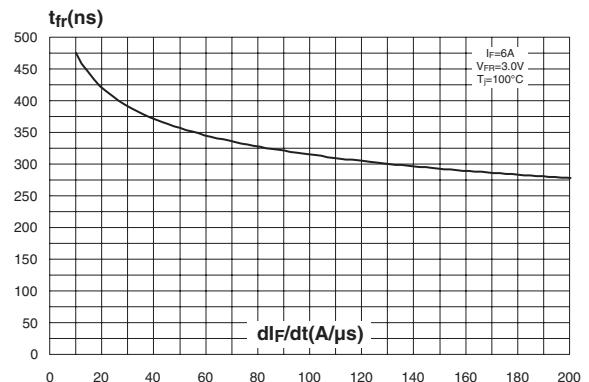
**Figure 4: Peak reverse recovery current versus  $dI_F/dt$  (typical values)**



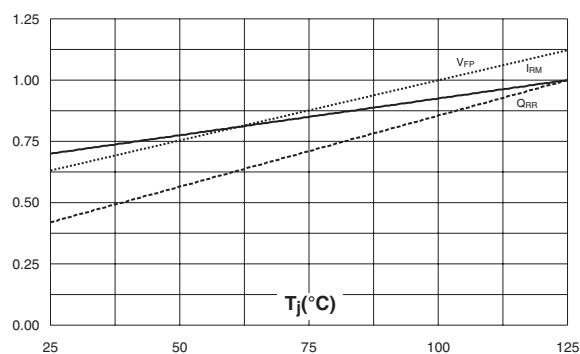
**Figure 5: Transient peak forward voltage versus  $dI_F/dt$  (typical values)**



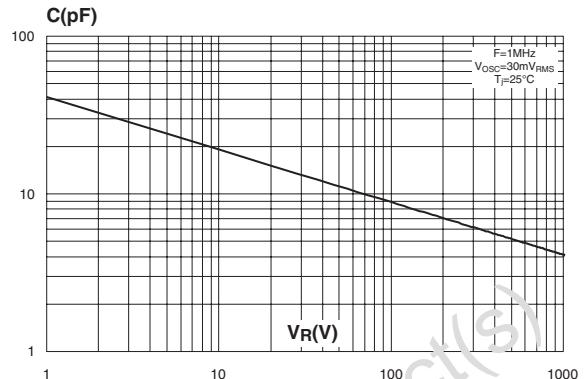
**Figure 6: Forward recovery time versus  $dI_F/dt$  (typical values)**



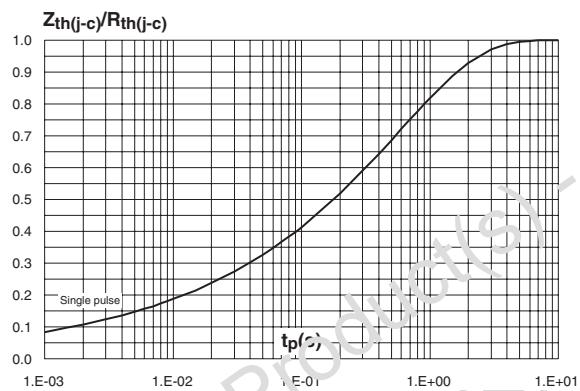
**Figure 7: Relative variations of dynamic parameters versus junction temperature**

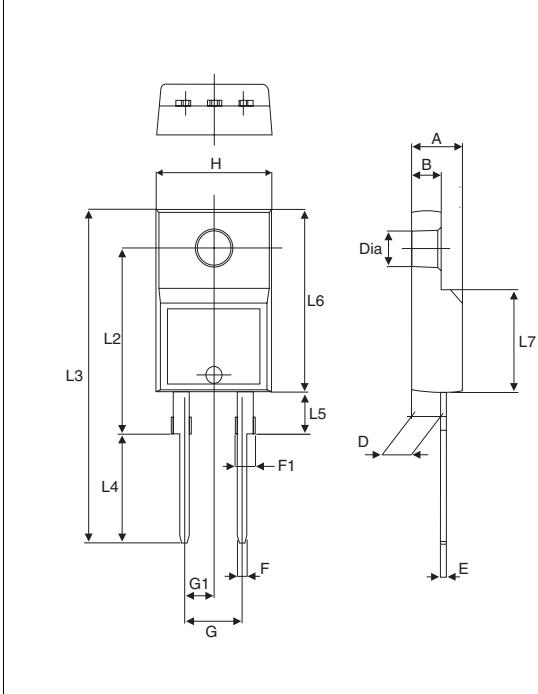


**Figure 8: Junction capacitance versus reverse voltage applied (typical values)**



**Figure 9: Relative variation of thermal impedance junction case versus pulse duration**



**Figure 10: TO-220FPAC Package Mechanical Data**


REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.4	4.6	0.173	0.181
B	2.5	2.7	0.098	0.106
D	2.5	2.75	0.098	0.108
E	0.45	0.70	0.017	0.027
F	0.75	1	0.030	0.039
F1	1.15	1.70	0.045	0.067
F2	1.15	1.70	0.045	0.067
G	4.95	5.20	0.195	0.204
G1	2.40	2.70	0.094	0.106
H	10	10.4	0.393	0.409
L2	16 Typ.		0.63 Typ.	
L3	28.6	30.6	1.126	1.204
L4	9.8	10.6	0.385	0.417
L6	15.9	16.4	0.626	0.645
L7	9.00	9.30	0.354	0.366
Dia.	3	3.20	0.118	0.126

**Table 8: Ordering Information**

Part Number	Marking	Package	Weight	Base qty	Delivery mode
DTV1500HDFP	DTV1500HDFP	TO-220FPAC	1.8 g	50	Tube

**Table 9: Revision History**

Date	Revision	Description of Changes
05-Jul-2004	1	First issue.
19-Nov-2004	2	Figure 3 on page 3: $Q_{rr}(nC)$ changed to $Q_{rr}(\mu s)$ .
25-Nov-2004	3	Minor layout update.
16-Mar-2005	4	$I_{Fpeak}$ parameter included.

Obsolete Product(s) - Obsolete Product(s)  
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