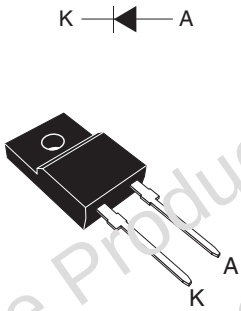
DTV1500HD

(CRT TV HORIZONTAL DEFLECTION) HIGH VOLTAGE DAMPER DIODE

Table 1: Main Product Characteristics

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



TO-220FPAC
DTV1500HDFP

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
$I_{F(RMS)}$	RMS forward voltage		15	A
I_{Fpeak}	Peak working forward current	F = 56kHz	12	A
I_{FSM}	Surge non repetitive forward current	t_p = 10ms sinusoidal	75	A
T_{stg}	Storage temperature range		-65 to 175	°C
T_j	Maximum operating junction temperature		175	°C

Table 4: Thermal Resistance

Symbol	Parameter	Value (max).	Unit
$R_{th(j-c)}$	Junction to case thermal resistance	5.4	°C/W

Table 5: Static Electrical Characteristics

Symbol	Parameter	Test conditions		Typ	Max.	Unit
I_R *	Reverse leakage current	T_j = 25°C	$V_R = V_{RRM}$		100	µA
		T_j = 125°C		100	1000	
V_F **	Forward voltage drop	T_j = 25°C	I_F = 6A	1.1	1.6	V
		T_j = 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: $P = 1.15 \times I_{F(AV)} + 0.033\ I_F{}^2{}_{(RMS)}$

Table 6: Recovery Characteristics

Symbol	Parameter	Test conditions		Typ	Max.	Unit
t_{rr}	Reverse recovery time	T_j = 25°C	I_F = 1A dI_F/dt = -50 A/µs V_R =30V	150	250	ns
			I_F = 100mA I_{rr} = 10mA I_R =100mA	1000		

Table 7: Turn-On Switching Characteristics

Symbol	Parameter	Test conditions		Typ	Max.	Unit
t_{fr}	Forward recovery time	T_j = 100°C	I_F = 6A dI_F/dt = 80 A/µs V_{FR} = 3V		470	ns
V_{FP}	Peak forward voltage		I_F = 6A dI_F/dt = 80 A/µs	21	29	V

Figure 1: Conduction losses versus average current (δ=0.45)

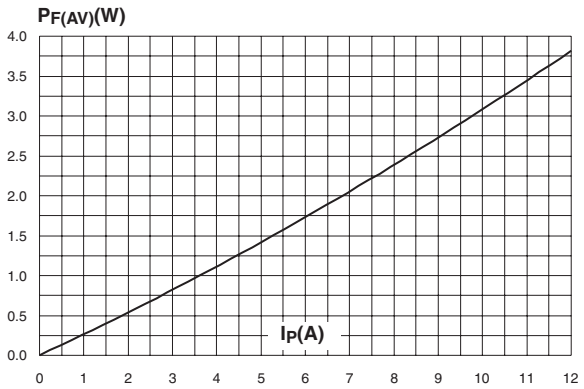


Figure 2: Forward voltage drop versus forward current

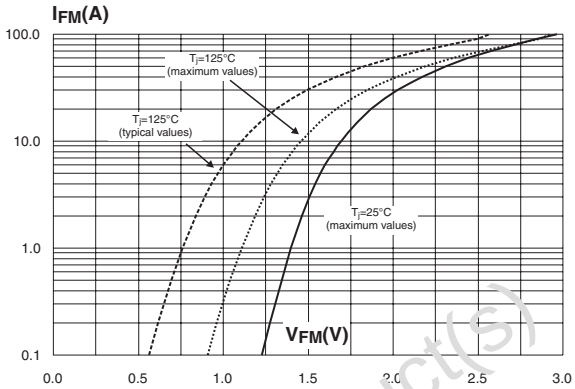


Figure 3: Reverse recovery charges versus dI_F/dt (typical values)

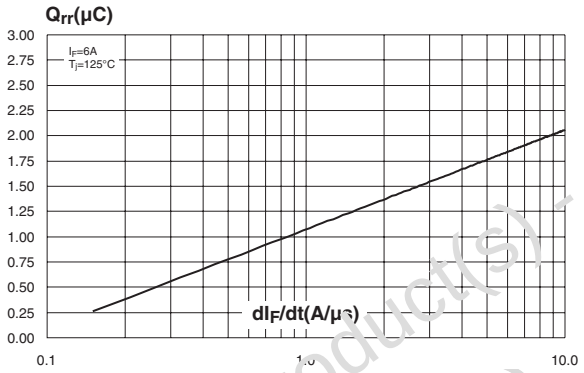


Figure 4: Peak reverse recovery current versus dI_F/dt (typical values)

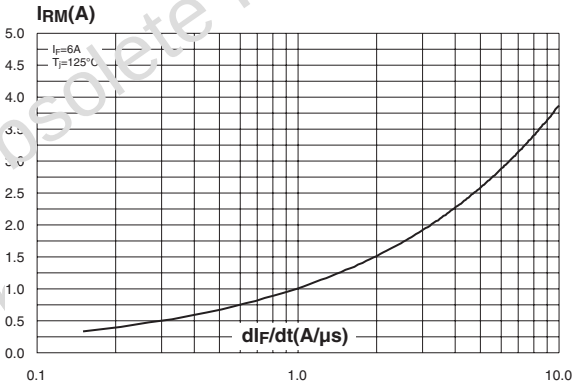


Figure 5: Transient peak forward voltage versus dI_F/dt (typical values)

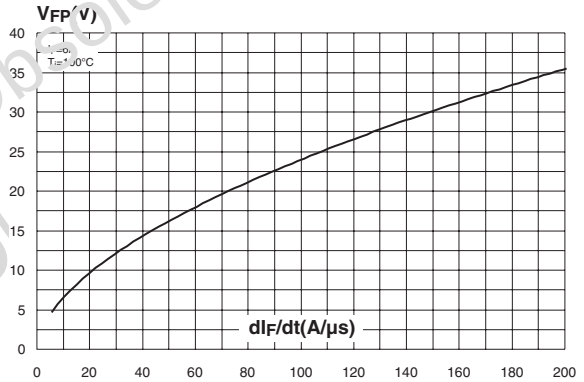


Figure 6: Forward recovery time versus dI_F/dt (typical values)

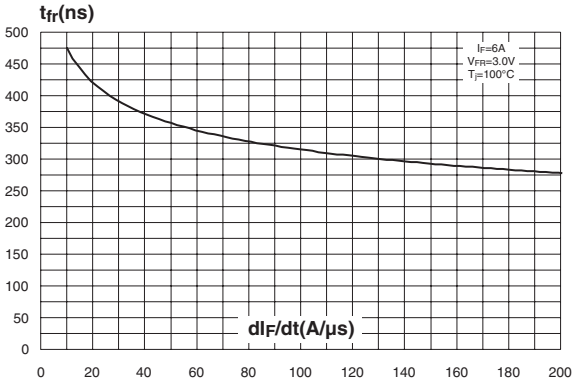


Figure 7: Relative variations of dynamic parameters versus junction temperature

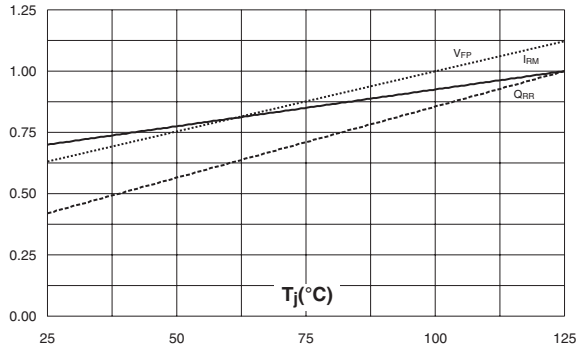


Figure 8: Junction capacitance versus reverse voltage applied (typical values)

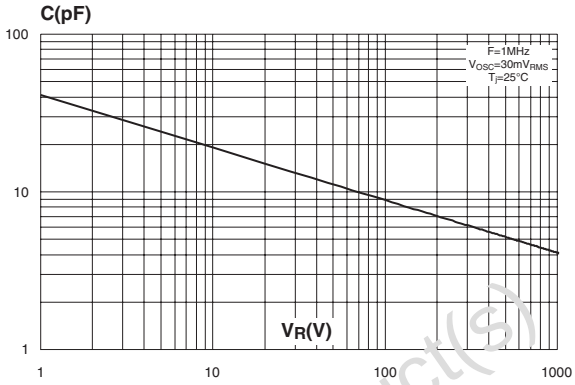


Figure 9: Relative variation of thermal impedance junction case versus pulse duration

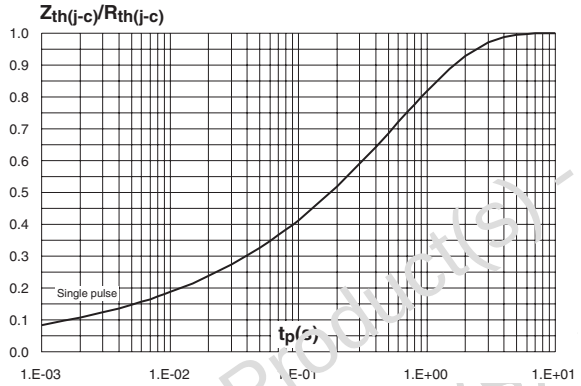
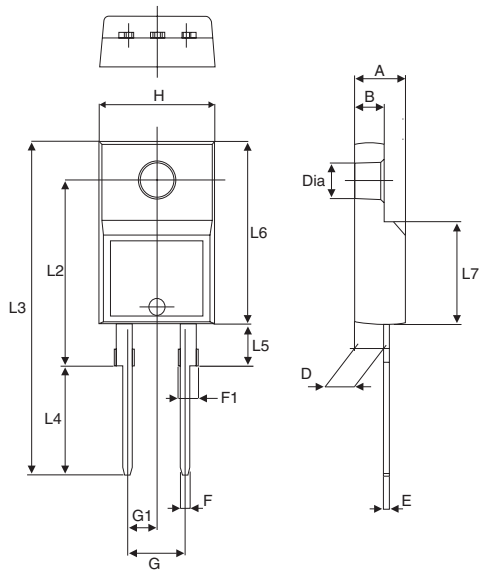


Figure 10: TO-220FPAC Package Mechanical Data



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}(µs).
25-Nov-2004	3	Minor layout update.
16-Mar-2005	4	I_{Fpeak} parameter included.