

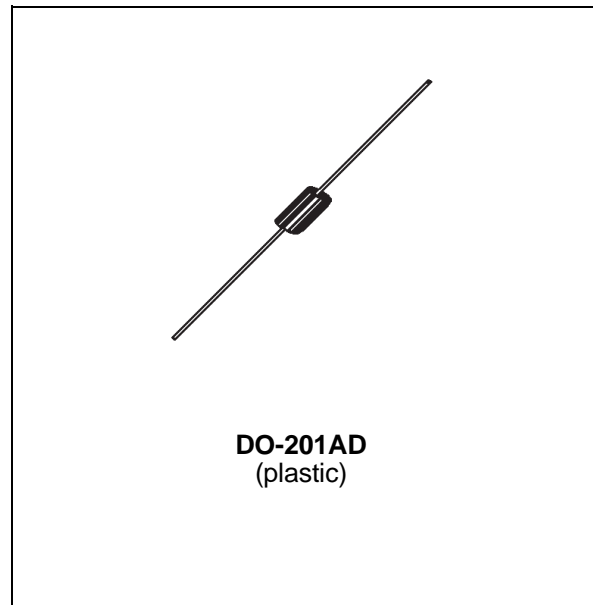
## HIGH VOLTAGE ULTRA-FAST DIODE FOR VIDEO

### MAJOR PRODUCT CHARACTERISTICS

<b>I<sub>Fpeak</sub></b>	<b>4 A</b>
<b>V<sub>RRM</sub></b>	<b>600 V</b>
<b>t<sub>rr</sub></b>	<b>55 ns</b>
<b>V<sub>F</sub> (max)</b>	<b>1.2 V</b>

### FEATURES AND BENEFITS

- TURBOSWITCH™ OUTSTANDING BENEFITS.
- HIGH REVERSE VOLTAGE : 600 V
- LOW POWER LOSSES INDUCING LOW TEMPERATURE AND HIGH RELIABILITY.
- OPTIMIZED TRADE-OFF BETWEEN t<sub>rr</sub> AND SOFTNESS FOR VIDEO HORIZONTAL DEFLECTION.



### DESCRIPTION

High voltage ultra-fast diode especially designed for modulation and flyback rectification in standard and high resolution displays for TV's and monitors.

The device is packaged in a DO-201AD axial envelope.

### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		VALUE	Unit
V <sub>RRM</sub>	Repetitive peak reverse voltage		600	V
I <sub>F peak</sub>	Forward peak current (1)	δ=0.5 Ta=115°C triangular	4	A
I <sub>FRM</sub>	Repetitive peak forward current	t <sub>p</sub> =5μs F=1kHz square	100	A
I <sub>FSM</sub>	Surge non repetitive forward current	t <sub>p</sub> = 10 ms sinusoidal	80	A
T <sub>stg</sub>	Storage temperature range		- 40 to 150	°C
T <sub>j</sub>	Maximum operating junction temperature		150	°C

(1) on infinite heatsink with 10mm lead length

## MDV04-600

### THERMAL RESISTANCES

Symbol	Parameter	Max.	Unit
R <sub>th(j-l)</sub>	Junction to lead	20	°C/W
R <sub>th(j-a)</sub>	Junction to ambient on printed circuit L lead = 10mm	75	°C/W

### STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Conditions		Typ.	Max.	Unit
I <sub>R</sub> *	Reverse leakage current	V <sub>R</sub> = 480V	T <sub>J</sub> = 25°C T <sub>J</sub> = 125°C		50 0.75	μA mA
V <sub>F</sub> **	Forward voltage drop	I <sub>F</sub> = 4 A	T <sub>J</sub> = 25°C T <sub>J</sub> = 125°C		1.28 1.20	V V

Pulse test : \* tp = 5 ms, δ < 2%  
\*\* tp = 380 μs, δ < 2%

### DYNAMIC ELECTRICAL CHARACTERISTICS TURN-OFF SWITCHING

Symbol	Parameter	Test Conditions	Typ.	Max.	Unit
t <sub>rr</sub>	Reverse recovery time	I <sub>F</sub> = 0.5A I <sub>R</sub> = 1A I <sub>rr</sub> = 0.25A	55	75	ns
		I <sub>F</sub> = 100 mA I <sub>R</sub> = 100 mA I <sub>rr</sub> = 10mA	130		ns

### DYNAMIC ELECTRICAL CHARACTERISTICS TURN-ON SWITCHING

Symbol	Parameter	Test Conditions	Typ.	Max.	Unit
t <sub>fr</sub>	Forward recovery time	I <sub>F</sub> = 4 A dI <sub>F</sub> /dt = 100 A/μs Measured at 1.1 x V <sub>F</sub> max. T <sub>J</sub> = 25°C		0.5	μs
V <sub>FP</sub>	Peak forward voltage			15	V

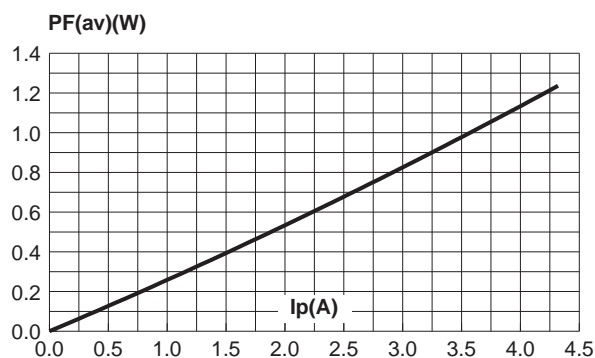
To evaluate the maximum conduction losses use the following equation :

$$P = \frac{1.0 \times I_p}{2} \times \delta + \frac{0.050 \times I_p^2}{3} \times \delta$$

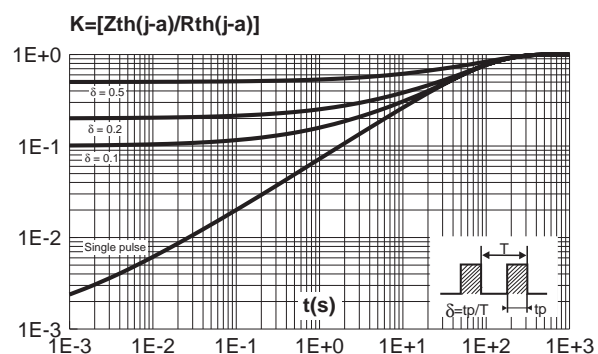
δ : duty cycle  
I<sub>p</sub> : Peak current

Ex : for I<sub>p</sub> = 4 A and δ = 0.5, P = 1.2 Watts.

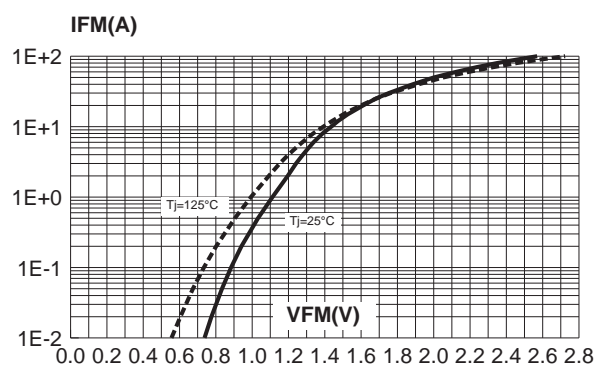
**Fig. 1:** Power dissipation versus peak forward current (triangular waveform,  $\delta=0.5$ ).



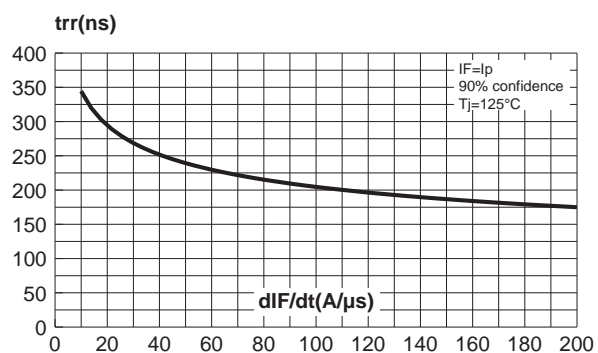
**Fig. 2:** Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy printed circuit board,  $e(Cu)=35\mu m$ ), recommended pad layout).



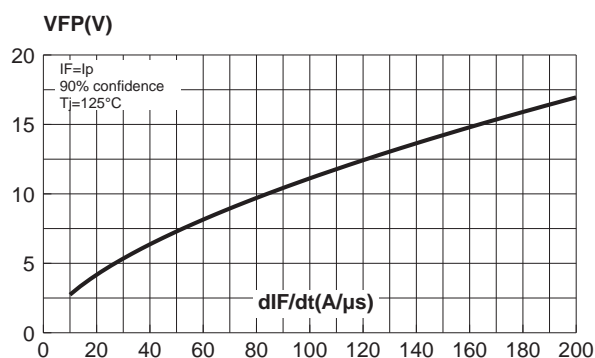
**Fig. 3:** Forward voltage drop versus forward current (maximum values).



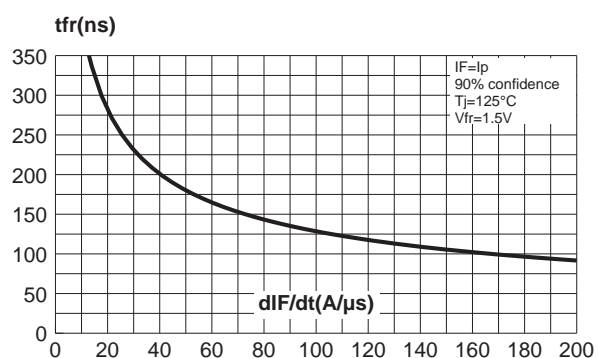
**Fig. 4:** Reverse recovery time versus  $dI_F/dt$ .



**Fig. 5:** Transient peak forward voltage versus  $dI_F/dt$ .

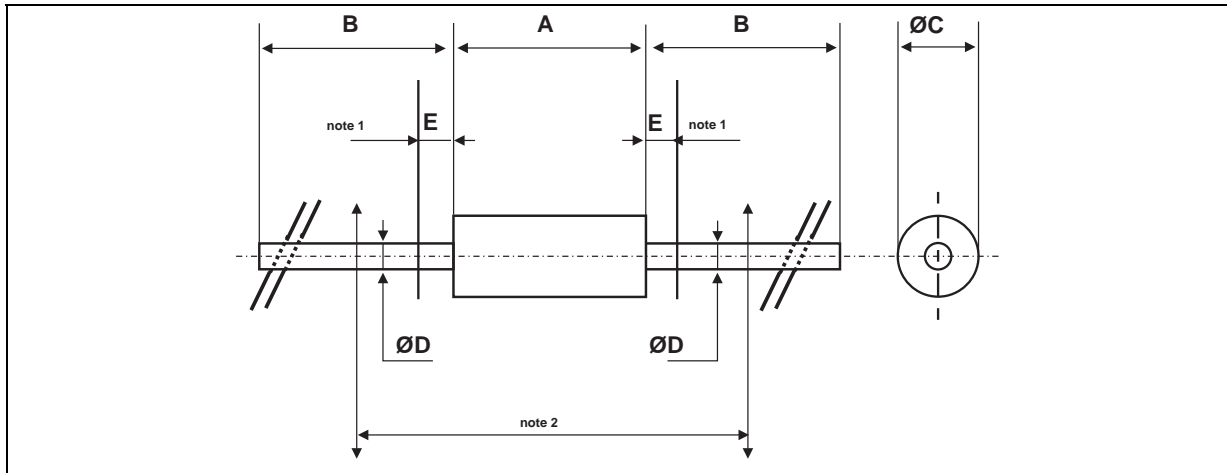


**Fig. 6:** Forward recovery time versus  $dI_F/dt$ .



## MDV04-600

### PACKAGE MECHANICAL DATA DO-201AD



REF.	DIMENSIONS				NOTES
	Millimeters		Inches		
	Min.	Max.	Min.	Max.	
A		9.50		0.374	1 - The lead diameter Ø D is not controlled over zone E  2 - The minimum axial length within which the device may be placed with its leads bent at right angles is 0.59"(15 mm)
B	25.40		1.000		
Ø C		5.30		0.209	
Ø D		1.30		0.051	
E		1.25		0.049	

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
MDV04-600	MDV04-600	DO-201AD	1.166g.	600	Ammopack
MDV04-600RL	MDV04-600	DO-201AD	1.166g.	1900	Tape & reel

- Epoxy meets UL94,V0
- Polarity : Cathode indicated by polarity band

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