MDV04-600

HIGH VOLTAGE ULTRA-FAST DIODE FOR VIDEO

MAJOR PRODUCT CHARACTERISTICS

I_{Fpeak}	**4 A**
V_{RRM}	**600 V**
t_{rr}	**55 ns**
V_F **(max)**	**1.2 V**

DO-201AD
(plastic)

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_{rr} 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 enveloppe.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		VALUE	Unit
V_{RRM}	Repetitive peak reverse voltage		600	V
I_F peak	Forward peak current (1)	δ=0.5 Ta=115°C triangular	4	A
I_{FRM}	Repetitive peak forward current	tp=5µs F=1kHz square	100	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms sinusoidal	80	A
T_{stg}	Storage temperature range		- 40 to 150	°C
T_j	Maximum operating junction temperature		150	°C

(1) on infinite heatsink with 10mm lead length

THERMAL RESISTANCES

Symbol	Parameter	Max.	Unit
$R_{th(j-l)}$	Junction to lead	20	°C/W
$R_{th(j-a)}$	Junction to ambient on printed circuit L lead = 10mm	75	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Conditions		Typ.	Max.	Unit
I_R *	Reverse leakage current	V_R = 480V	Tj = 25°C Tj = 125°C		50 0.75	µA mA
V_F **	Forward voltage drop	I_F = 4 A	Tj = 25°C Tj = 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_{rr}	Reverse recovery time	I_F = 0.5A I_R = 1A Irr = 0.25A	55	75	ns
		I_F = 100 mA I_R = 100 mA Irr = 10mA	130		ns

DYNAMIC ELECTRICAL CHARACTERISTICS
TURN-ON SWITCHING

Symbol	Parameter	Test Conditions	Typ.	Max.	Unit
t_{fr}	Forward recovery time	I_F = 4 A dI_F/dt = 100 A/µs Measured at1.1 x V_F max. Tj = 25°C		0.5	µs
V_{FP}	Peak forward voltage			15	V

To evaluate the maximum conduction losses use the following equation :

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

δ : duty cycle
I_p : Peak current

Ex : for I_p = 4 A and δ = 0.5, P = 1.2 Watts.

Fig. 1: Power dissipation versus peak forward current (triangular waveform, δ=0.5).

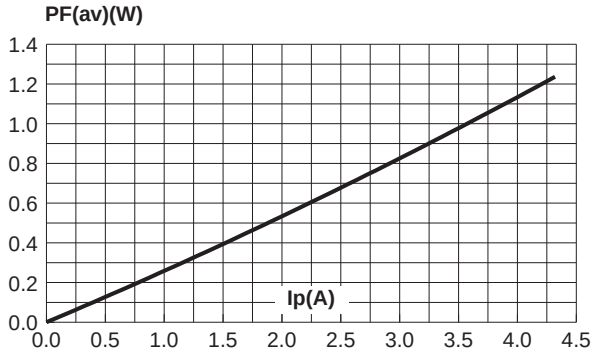


Fig. 2: Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy printed circuit board, e(Cu)=35µm), recommended pad layout).

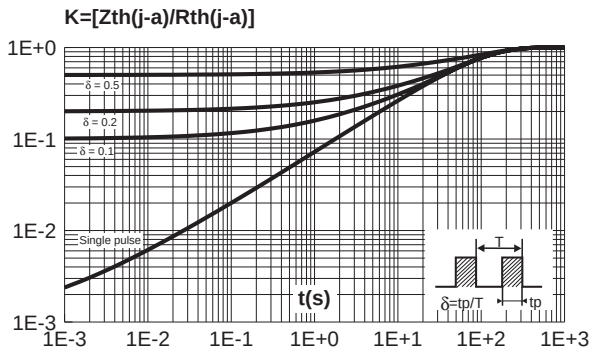


Fig. 3: Forward voltage drop versus forward current (maximum values).

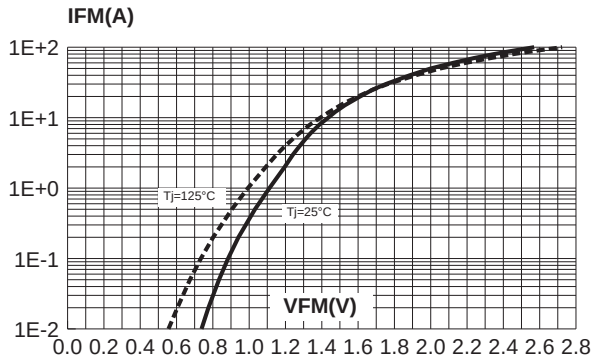


Fig. 4: Reverse recovery time versus dIF/dt.

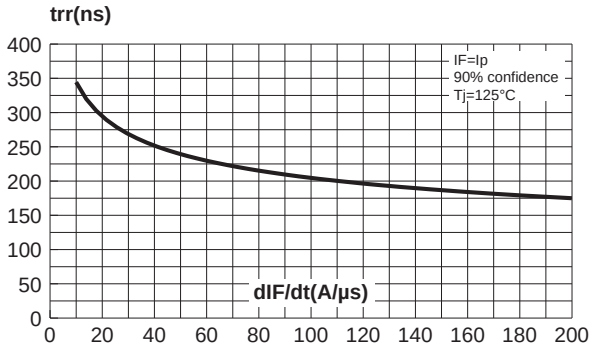


Fig. 5: Transient peak forward voltage versus dIF/dt.

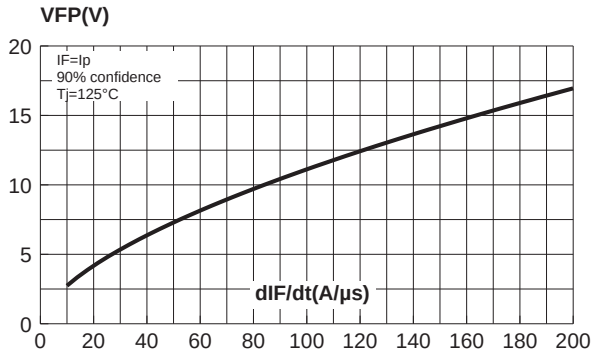
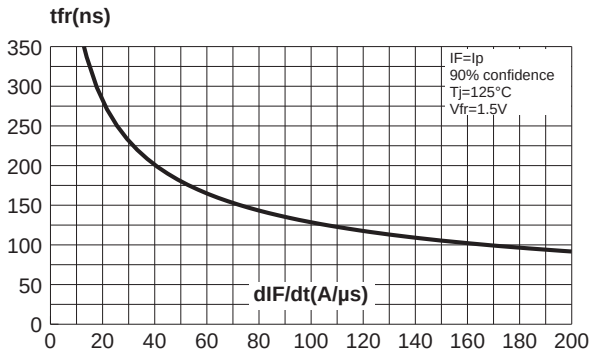
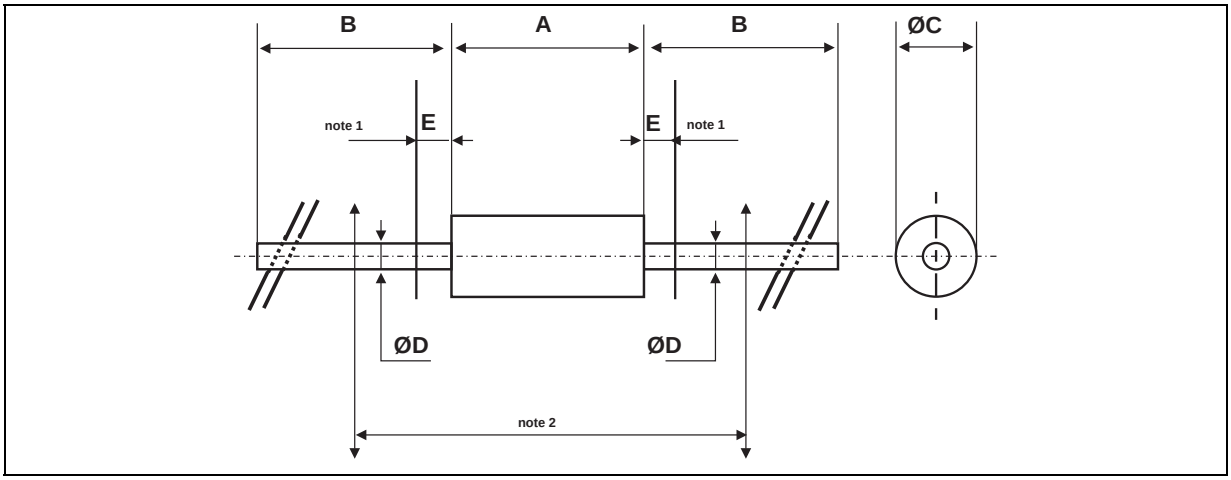


Fig. 6: Forward recovery time versus dIF/dt.



PACKAGE MECHANICAL DATA

DO-201AD



REF.	DIMENSIONS				NOTES
	Millimeters		Inches		
	Min.	Max.	Min.	Max.	
A		9.50		0.374	1 - The lead diameter ∅ 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		
∅ C		5.30		0.209	
∅ 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