SGS-THOMSON MICROELECTRONICS

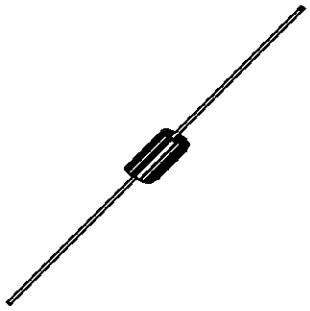
MDV03-400

ULTRA-FAST RECOVERY DIODE

PRELIMINARY DATASHEET

MAJOR PRODUCTS CHARACTERISTICS

$I_{F(AV)}$	**3 A**
V_{RRM}	**400 V**
t_{rr}	**25 ns**
V_F **(max)**	**1.4 V**



DO-201AD
(Plastic)

FEATURES

- VERY LOW REVERSE RECOVERY TIME
- VERY LOW SWITCHING LOSSES
- LOW NOISE TURN-OFF SWITCHING

DESCRIPTION

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		400	V
V_{RSM}	Non repetitive peak reverse voltage		440	V
I_{FRM}	Repetive peak forward current	$t_p \leq 10\mu s$	60	A
$I_{F(AV)}$	Average forward current*	$T_a = 65°C$ $\delta = 0.5$	3	A
I_{FSM}	Surge non repetitive forward current	t_p = 10ms Sinusoidal	60	A
P	Power dissipation *	$T_a = 65°C$	4.2	W
T_{stg} T_j	Storage and junction temperature range		- 40 to + 150 - 40 to + 150	°C

THERMAL RESISTANCES

Symbol	Parameter	Value	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

* On infinite heatsink with 10mm lead lengh.

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Conditions		Typ.	Max.	Unit
I_R *	Reverse Leakage Current	$V_R = V_{RRM}$	Tj = 25°C Tj = 100°C		20 0.5	µA mA
V_F **	Forward Voltage Drop	I_F = 3 A	Tj = 25°C Tj = 100°C		1.5 1.4	V V

Pulse test : *tp=5ms, 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=1A di_F/dt= -15A/µs V_R= 30V		55	ns
		I_F = 0.5A I_R = 1A Irr = 0.25A		25	ns

DYNAMIC ELECTRICAL CHARACTERISTICS
TURN-ON SWITCHING

Symbol	Parameter	Test Conditions	Typ.	Max.	Unit
t_{fr}	Forward Recovery Time	I_F = 3 A dI_F/dt = 60 A/µs Measured at 1.1 V_F max. Tj = 25°C		250	ns
V_{FP}	Peak Forward Voltage			13	V

To evaluate the maximum conduction losses use the following equation :

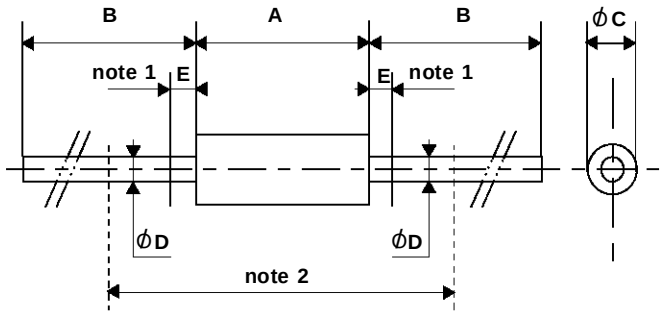
$$P = \frac{1.10 \; x \; I_p}{2} x \; \delta + \frac{0.050 \; x \; I_p \; \hat{} \; 2}{3} \; x \; \delta$$

δ : duty cycle
I_p : Peak current

Ex : for I_p = 3 A and δ = 0.5, P = 0.9 Watts.

PACKAGE MECHANICAL DATA

DO-201AD (Plastic)



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
B	25.40		1.000		2 - The minimum axial lengh within which the device may be placed with its leads bent at right angles is 0.59”(15 mm)
∅ C		5.30		0.209	
∅ D		1.30		0.051	
E		1.25		0.049	

Weight : 1 g
Marking : Type number - Date code
White band indicated cathode
cooling methode : by convertion (method A)