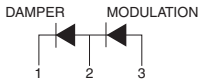
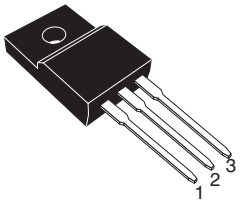
DMV1500L

DAMPER + MODULATION DIODE FOR VIDEO

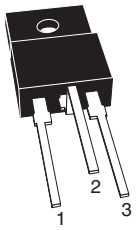
Table 1: Main Product Characteristics

	DAMPER	MODUL.
$I_{F(AV)}$	4 A	3 A
V_{RRM}	1500 V	600 V
t_{rr} (max)	170 ns	50 ns
V_F (max)	1.5V	1.4 V





TO-220FPAB
DMV1500LFD



TO-220FPAB F5 Bending
DMV1500LFD5
(optional)

FEATURES AND BENEFITS

- Full kit in one package
- High breakdown voltage capability
- Very fast recovery diode
- Specified turn on switching characteristics
- Low static and peak forward voltage drop for low dissipation
- Insulated version:
  Insulated voltage = 2000 V_{RMS}
  Capacitance = 7 pF
- Planar technology allowing high quality and best electrical characteristics
- Outstanding performance of well proven DTV as damper and new faster Turbo 2 600V technology as modulation

DESCRIPTION

High voltage semiconductor especially designed for horizontal deflection stage in standard and high resolution video display with E/W correction.
The insulated TO-220FPAB package includes both the DAMPER diode and the MODULATION diode, thanks to a dedicated design.
Assembled on automated line, it offers very low dispersion values on insulating and thermal performances.

Table 2: Order Codes

Part Number	Marking
DMV1500LFD	DMV1500L
DMV1500LFD5	DMV1500L

Table 3: Absolute Maximum Ratings

Symbol	Parameter		Value		Unit
			Damper	Modul.	
V_{RRM}	Repetitive peak reverse voltage		1500	600	V
I_{FSM}	Surge non repetitive forward current	tp = 10ms sinusoidal	50	35	A
T_{stg}	Storage temperature range		-40 to +150		°C
T_j	Maximum operating junction temperature		150		°C

Table 4: Thermal Resistance

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case thermal resistance	4.0	°C/W

Table 5: Static Electrical Characteristics

Symbol	Parameter	Test conditions		Value				Unit
				T_j = 25°C		T_j = 125°C		
				Typ.	Max.	Typ.	Max.	
I_R *	Reverse leakage current	**Damper**	V_R = 1500 V		100	100	1000	µA
		Modul.	V_R = 600 V		20	3	50	
V_F **	Forward voltage drop	**Damper**	I_F = 4 A	1.2	1.7	1.1	1.5	V
		Modul.	I_F = 3 A		1.8	1.1	1.4	

Pulse test: * tp = 5 ms, δ < 2%

** tp = 380 µs, δ < 2%

To evaluate the maximum conduction losses of the **DAMPER** and **MODULATION** diodes use the following equations :

DAMPER: $P = 1.2 \times I_{F(AV)} + 0.075 \times I_F{}^2{}_{(RMS)}$

MODULATION: $P = 1.12 \times I_{F(AV)} + 0.092 \times I_F{}^2{}_{(RMS)}$

Table 6: Recovery Characteristics

Symbol	Parameter	Test conditions		Value				Unit
				Damper		Modul.		
				Typ.	Max.	Typ.	Max.	
t_{rr}	Reverse recovery time	I_F = 100mA I_R =100mA I_{RR} = 10mA	T_j = 25°C	850		110	350	ns
		I_F = 1A dI_F/dt = -50 A/µs V_R =30V	T_j = 25°C	130	170	35	50	

Table 7: Turn-On Switching Characteristics

Symbol	Parameter	Test conditions			Value		Unit
					Typ.	Max.	
t_{fr}	Forward recovery time	**Damper**	I_F = 4 A dI_F/dt = 80 A/µs V_{FR} = 3 V	T_j = 100°C		450	ns
			I_F = 6.5 A dI_F/dt = 50 A/µs V_{FR} = 3 V	T_j = 25°C		450	
		Modul.	I_F = 3 A dI_F/dt = 80 A/µs V_{FR} = 2 V	T_j = 100°C		240	
V_{FP}	Peak forward voltage	**Damper**	I_F = 4 A dI_F/dt = 80 A/µs	T_j = 100°C	28	36	V
			I_F = 6.5 A dI_F/dt = 50 A/µs	T_j = 25°C	13	17	
		Modul.	I_F = 3 A dI_F/dt = 80 A/µs	T_j = 100°C		8	

Figure 1: Power dissipation versus peak forward current (triangular waveform, δ=0.45)

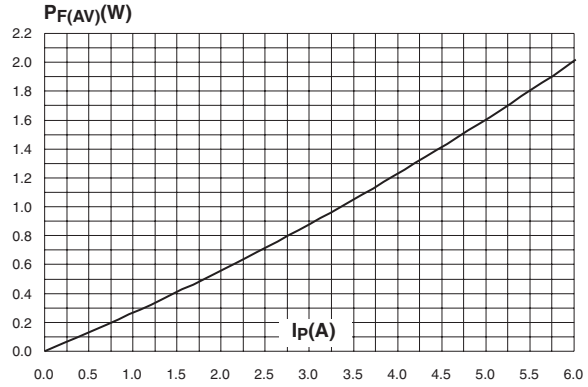


Figure 2: Average forward current versus ambient temperature

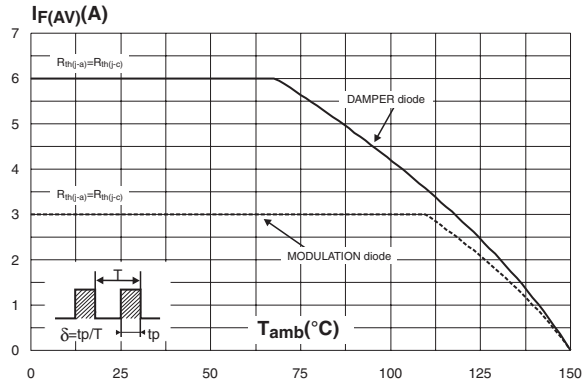


Figure 3: Forward voltage drop versus forward current (damper diode)

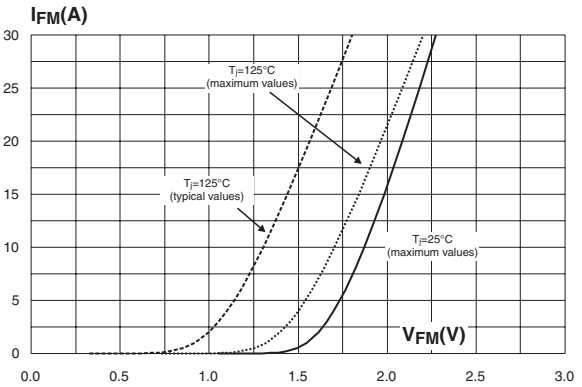


Figure 4: Forward voltage drop versus forward current (modulation diode)

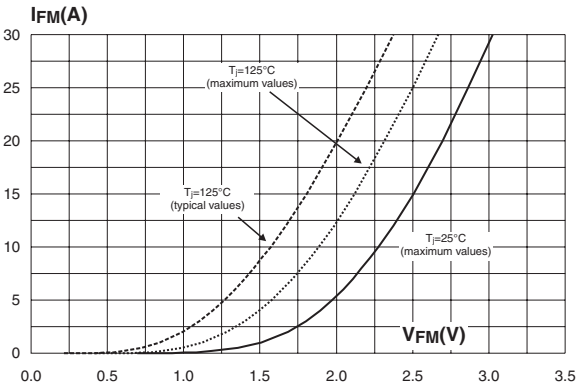


Figure 5: Relative variation of thermal impedance junction to case versus pulse duration

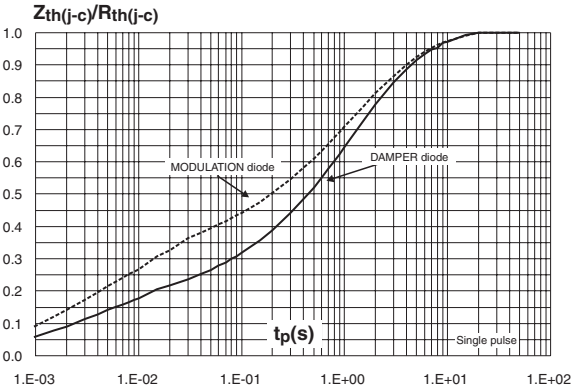


Figure 6: Non repetitive peak forward current versus overload duration (damper diode)

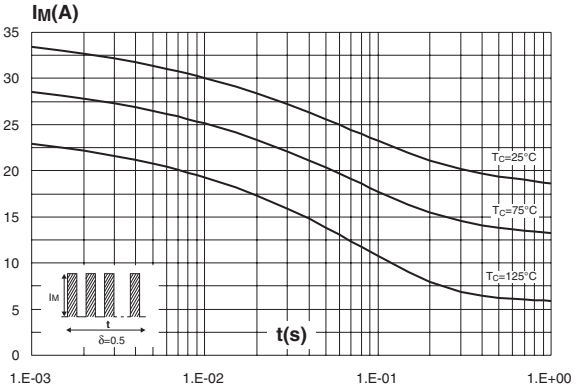


Figure 7: Non repetitive peak forward current versus overload duration (modulation diode)

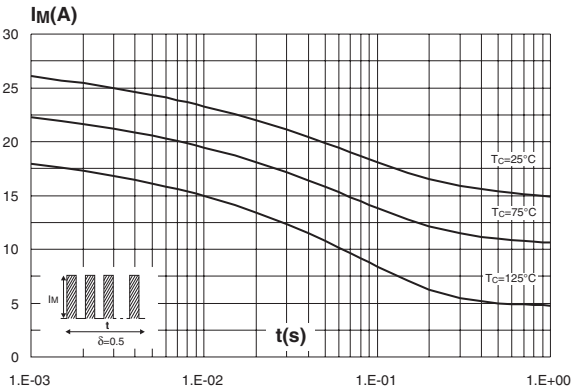


Figure 8: Reverse recovery charges versus dI_F/dt (damper diode)

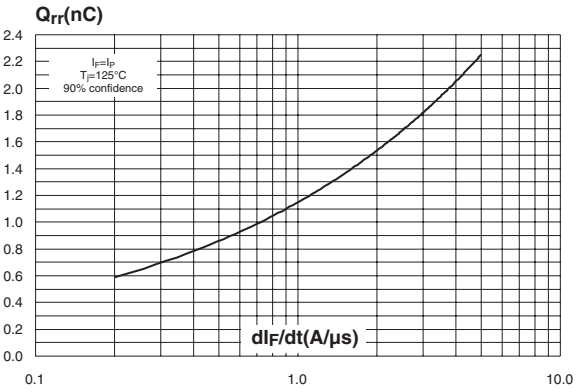


Figure 9: Reverse recovery charges versus dI_F/dt (modulation diode)

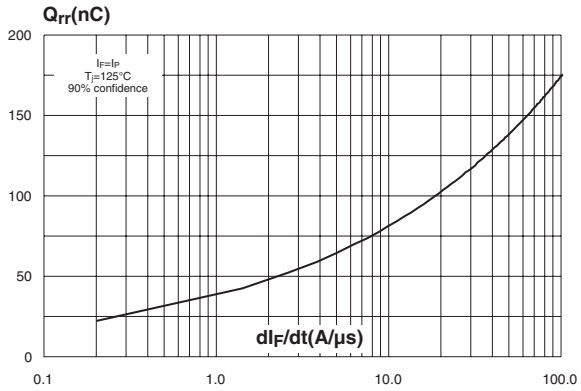


Figure 10: Peak reverse recovery current versus dI_F/dt (damper diode)

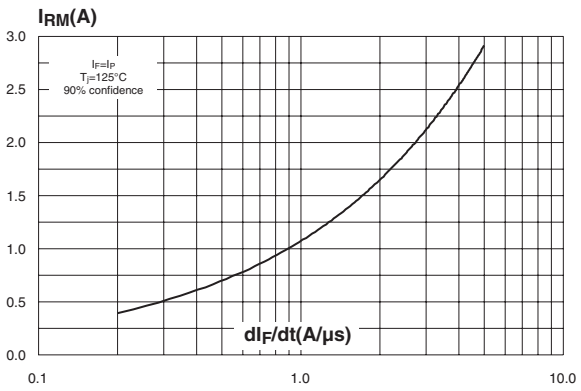


Figure 11: Peak reverse recovery current versus dI_F/dt (modulation diode)

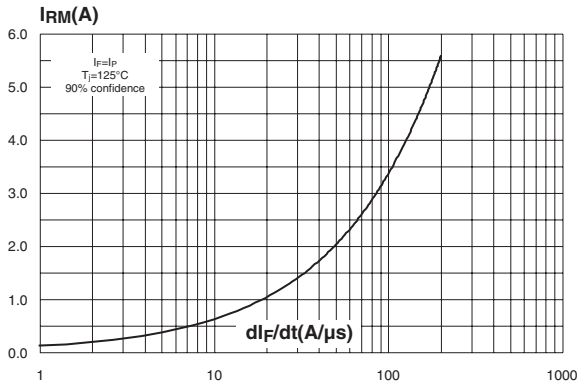


Figure 12: Transient peak forward voltage versus dI_F/dt (damper diode)

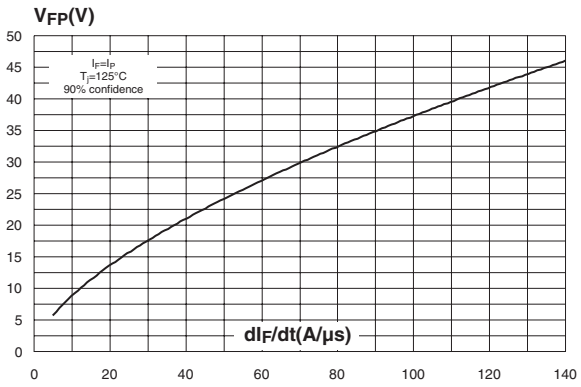


Figure 13: Transient peak forward voltage versus dI_F/dt (modulation diode)

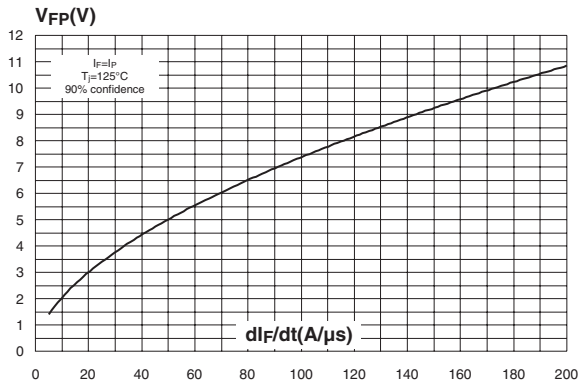


Figure 14: Forward recovery time versus dI_F/dt (damper diode)