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, $\delta < 2\%$
** tp = 380 µs, $\delta < 2\%$

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)

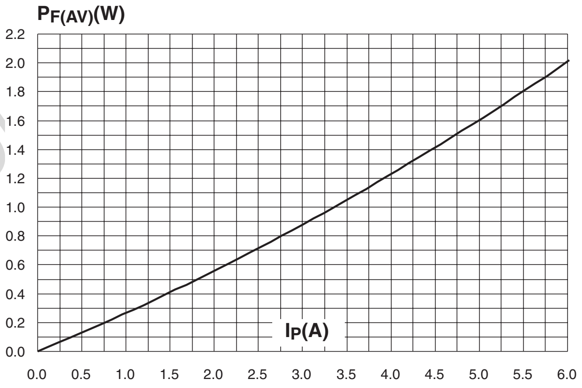


Figure 2: Average forward current versus ambient temperature

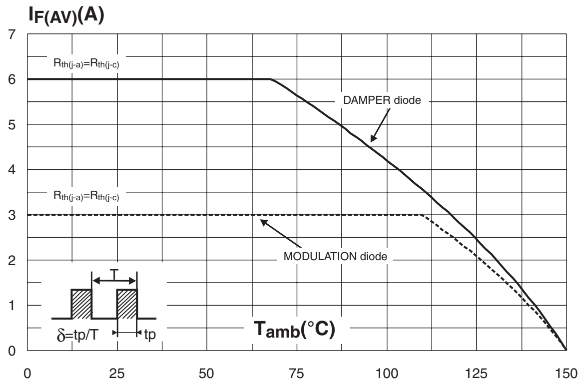


Figure 3: Forward voltage drop versus forward current (damper diode)

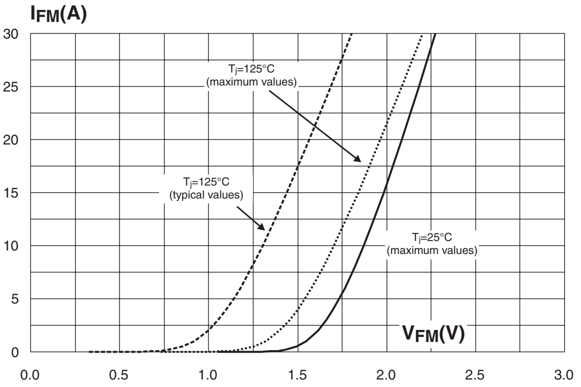


Figure 4: Forward voltage drop versus forward current (modulation diode)

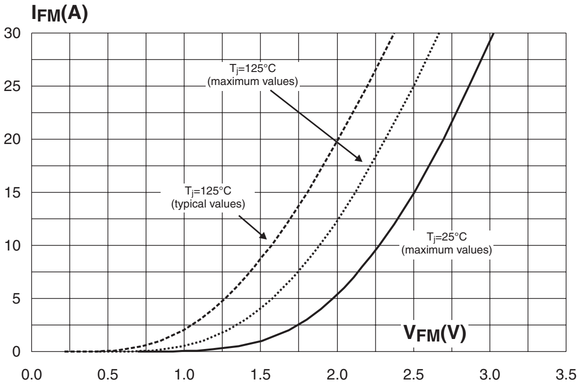


Figure 5: Relative variation of thermal impedance junction to case versus pulse duration

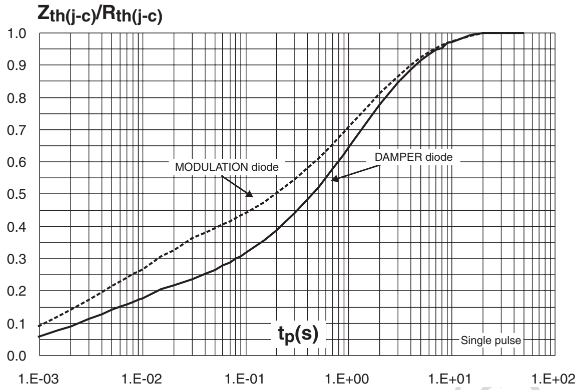


Figure 6: Non repetitive peak forward current versus overload duration (damper diode)

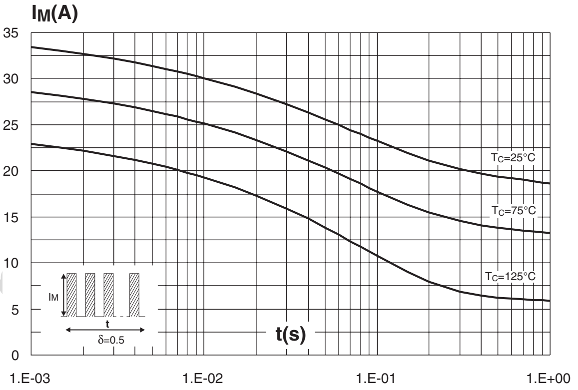


Figure 7: Non repetitive peak forward current versus overload duration (modulation diode)

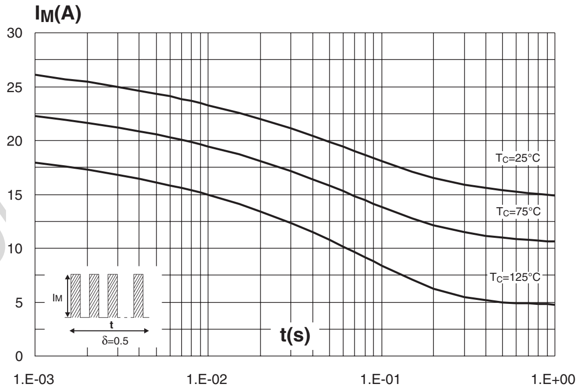


Figure 8: Reverse recovery charges versus dIF/dt (damper diode)

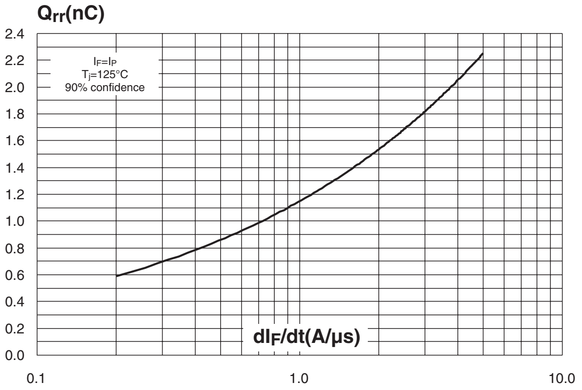


Figure 9: Reverse recovery charges versus dI_F/dt (modulation diode)

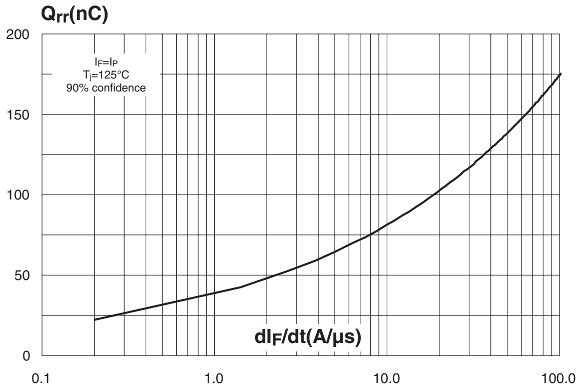


Figure 10: Peak reverse recovery current versus dI_F/dt (damper diode)

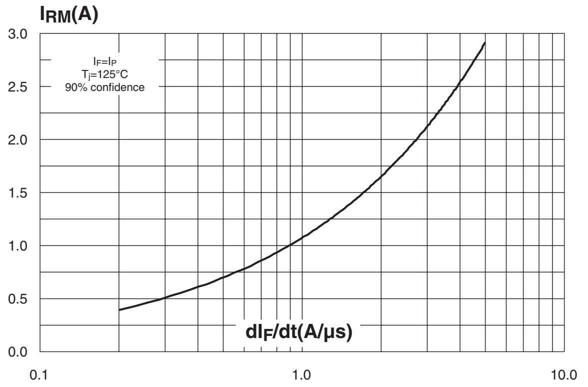


Figure 11: Peak reverse recovery current versus dI_F/dt (modulation diode)

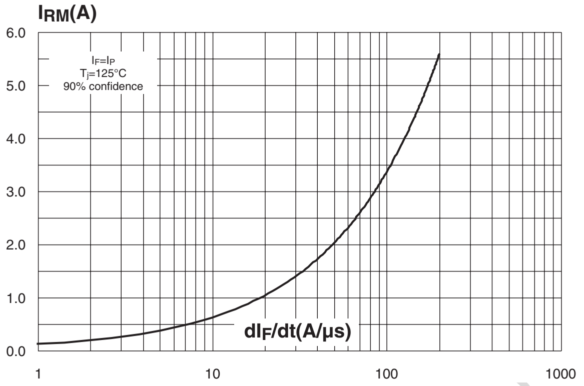


Figure 12: Transient peak forward voltage versus dI_F/dt (damper diode)

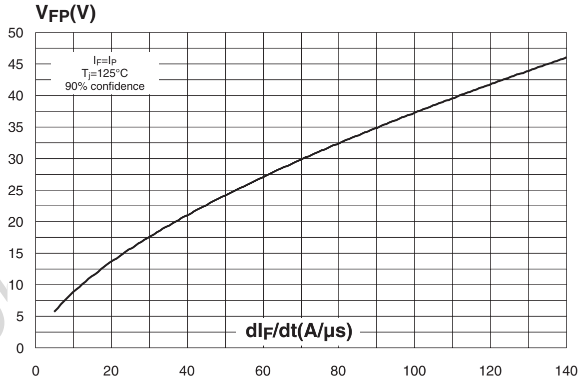


Figure 13: Transient peak forward voltage versus dI_F/dt (modulation diode)

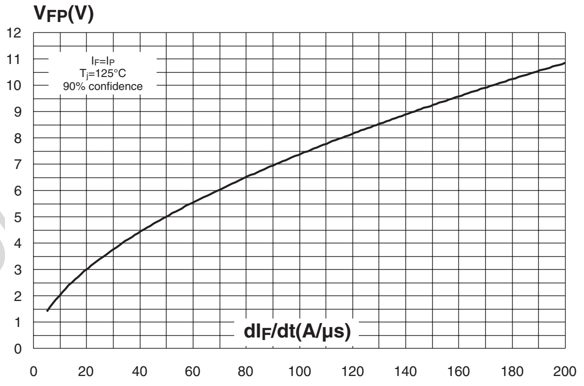


Figure 14: Forward recovery time versus dI_F/dt (damper diode)

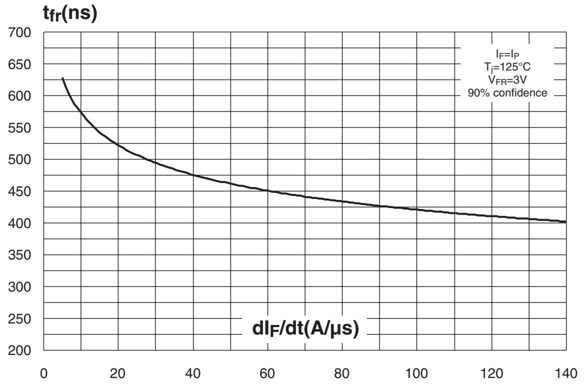


Figure 15: Forward recovery time versus dI_F/dt (modulation diode)

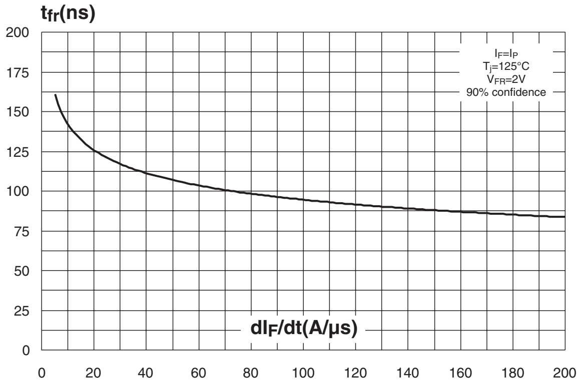


Figure 16: Relative variation of dynamic parameters versus junction temperature

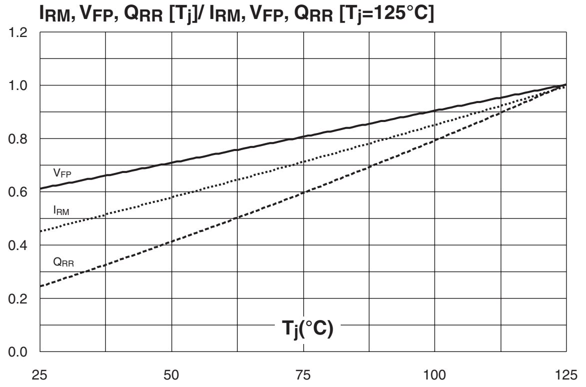


Figure 17: Junction capacitance versus reverse voltage applied (typical values)

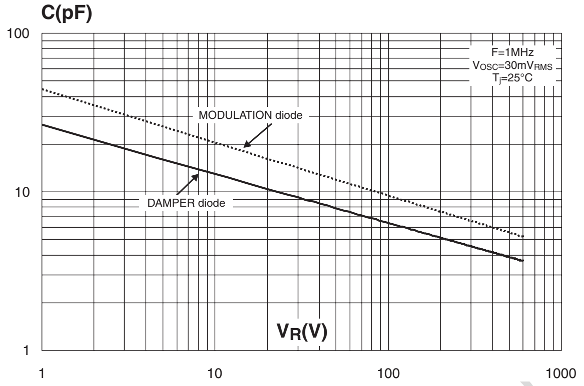
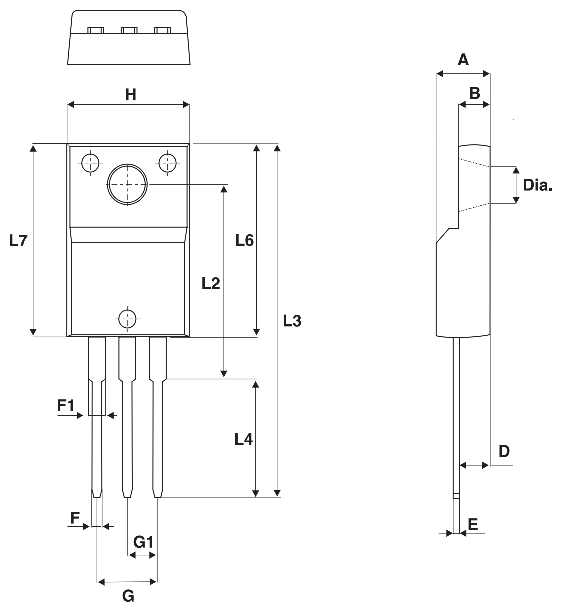
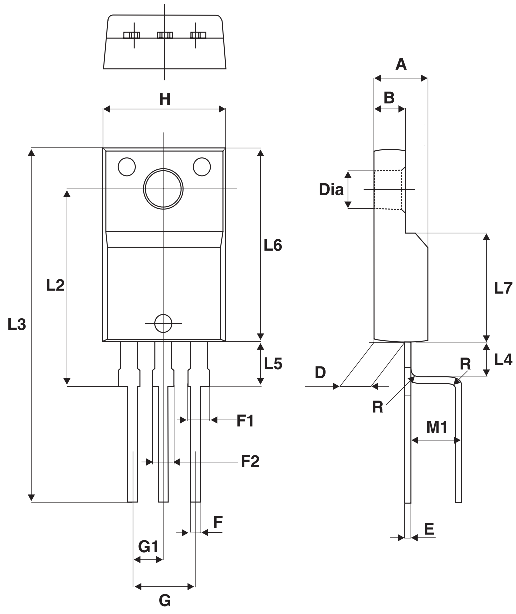


Figure 18: TO-220FPAB Package Mechanical Data



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.4	4.9	0.173	0.192
B	2.5	2.9	0.098	0.114
D	2.45	2.75	0.096	0.108
E	0.4	0.7	0.016	0.027
F	0.6	1	0.024	0.039
F1	1.15	1.7	0.045	0.067
F2	1.15	1.7	0.045	0.067
G	4.95	5.2	0.195	0.205
G1	2.4	2.7	0.094	0.106
H	10	10.7	0.393	0.421
L2	16 Typ.		0.630 Typ.	
L3	28.6	30.6	1.126	1.205
L4	9.8	10.7	0.385	0.421
L6	15.8	16.4	0.622	0.646
L7	9	9.9	0.354	0.390
Dia.	2.9	3.5	0.114	0.138

Figure 19: TO-220FPAB F5 Bending (option) Package Mechanical Data



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.4	4.9	0.173	0.192
B	2.5	2.9	0.098	0.114
D	2.45	2.75	0.096	0.108
E	0.4	0.7	0.016	0.027
F	0.6	1	0.024	0.039
F1	1.15	1.7	0.045	0.067
F2	1.15	1.7	0.045	0.067
G	4.95	5.2	0.195	0.205
G1	2.4	2.7	0.094	0.106
H	10	10.7	0.393	0.421
L2	16 Typ.		0.630 Typ.	
L3	24.16	26.9	0.951	1.059
L4	1.65	2.41	0.065	0.095
L6	15.8	16.4	0.622	0.646
L7	9	9.9	0.354	0.390
M1	2.92	3.3	0.115	0.130
R	1.4 Typ.		0.055 Typ.	
Dia.	2.9	3.5	0.114	0.138

Table 8: Ordering Information

Part Number	Marking	Package	Weight	Base qty	Delivery mode
DMV1500LFD	DMV1500L	TO-220FPAB	2.4 g	50	Tube
DMV1500LFD5	DMV1500L	TO-220FPAB F5	2.4 g	45	Tube

Table 9: Revision History

Date	Revision	Description of Changes
07-Sep-2004	1	First issue

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