

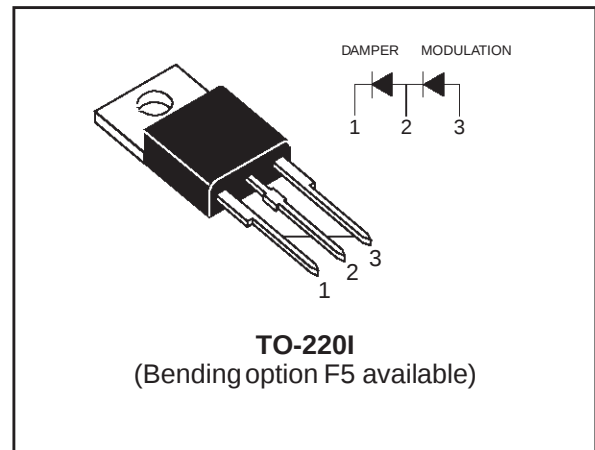
DAMPER + MODULATION DIODE FOR VIDEO

MAIN PRODUCT CHARACTERISTICS

	MODUL	DAMPER
$I_{F(AV)}$	6 A	6 A
V_{RRM}	600 V	1500 V
t_{rr}	50 ns	135 ns
V_F (max)	1.5 V	1.5 V

FEATURES AND BENEFITS

- FULL KIT IN ONE PACKAGE
- DMV56 IS SUITED FOR A MINIMUM OF 56 KHz DEFLECTION
- OUTSTANDING PERFORMANCE OF DTV56 AS DAMPER AND TURBOSWITCH™ "A" AS MODULATION
- LEAD BENDING OPTION AVAILABLE
- INSULATED PACKAGE (2500 V_{RMS})



DESCRIPTION

High voltage semiconductor especially designed for horizontal deflection stage in standard and high resolution video display with E/W correction.

The TO-220I insulated package includes both the DAMPER diode and the MODULATION diode. Assembled on automated line and UL recognized. Best insulating and dissipating characteristics, thanks to the internal ceramic insulation layer.

ABSOLUTE RATINGS

Symbol	Parameter		VALUE		Unit
			MODUL	DAMPER	
V _{RRM}	Repetitive peak reverse voltage		600	1500	V
I _{F(AV)}	Forward average current	T _c = 130°C, δ= 0.5	6	6	A
I _{FSM}	Surge non repetitive forward current	t _p = 10 ms	60	80	
T _{stg}	Storage temperature range		- 40 to + 150		°C
T _j	Maximum operating junction temperature		150		

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ELECTRICAL CHARACTERISTICS OF THE DAMPER DIODES OF THE DMV56

Symbol	Parameter	Test Conditions		Typ.	Max.	Unit
I_R^*	Reverse leakage current	$V_R = V_{RRM}$	$T_j = 25^\circ\text{C}$		100	μA
			$T_j = 125^\circ\text{C}$	0.1	1	mA
V_F^{**}	Forward voltage drop	$I_F = 6\text{ A}$	$T_j = 25^\circ\text{C}$		1.8	V
			$T_j = 125^\circ\text{C}$	1.0	1.5	
t_{rr}	Reverse recovery time	$I_F = 1\text{ A}$ $di_F/dt = -50\text{ A}/\mu\text{s}$ $V_R = 30\text{ V}$	$T_j = 25^\circ\text{C}$	110	135	ns
		$I_F = 100\text{ mA}$ $I_R = 100\text{ mA}$ $I_{RR} = 10\text{ mA}$		750		
t_{fr}	Forward recovery time	$I_F = 6\text{ A}$ $di_F/dt = 80\text{ A}/\mu\text{s}$ Measured at $V_{FR} = 3\text{ V}$	$T_j = 100^\circ\text{C}$	350		ns
V_{FP}	Peak forward voltage			19	26	V

Pulse test : * $t_p = 5\text{ ms}$, $\delta < 2\%$

** $t_p = 380\text{ }\mu\text{s}$, $\delta < 2\%$

To evaluate the maximum conduction losses use the following equations:

$$P = 1.15 \times I_{F(AV)} + 0.059 \times I_F^2(RMS)$$

ELECTRICAL CHARACTERISTICS OF THE MODULATION DIODE OF THE DMV56

Symbol	Parameter	Test Conditions		Typ.	Max.	Unit
I_R^*	Reverse leakage current	$V_R = 480\text{ V}$	$T_j = 25^\circ\text{C}$		100	μA
			$T_j = 125^\circ\text{C}$		2	mA
V_F^{**}	Forward voltage drop	$I_F = 5\text{ A}$	$T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$		1.75 1.5	V
t_{rr}	Reverse recovery time	$I_F = 1\text{ A}$ $di_F/dt = -50\text{ A}/\mu\text{s}$ $V_R = 30\text{ V}$	$T_j = 25^\circ\text{C}$		50	ns
		$I_F = 100\text{ mA}$ $I_R = 100\text{ mA}$ $I_{RR} = 10\text{ mA}$		110	350	ns
t_{fr}	Forward recovery time	$I_F = 5\text{ A}$ $di_F/dt = 80\text{ A}/\mu\text{s}$ Measured at $V_{FR} = 1.1 \times V_F(\text{max})$	$T_j = 100^\circ\text{C}$		300	ns
V_{FP}	Peak forward voltage				10	V

To evaluate the maximum conduction losses use the following equations :

$$P = 1.15 \times I_{F(AV)} + 0.07 \times I_F^2(RMS)$$

Pulse test : * $t_p = 5\text{ ms}$, $\delta < 2\%$

** $t_p = 380\text{ }\mu\text{s}$, $\delta < 2\%$

THERMAL RESISTANCES

Symbol	Parameter	Max.	Unit
$R_{th(j-c)}$	Damper junction to case	2	$^\circ\text{C}/\text{W}$
$R_{th(j-c)}$	Modulation junction to case	3.5	
$R_{th(c)}$	Coupling	0.2	
$R_{th(j-c)}$	Total as per full $I_{F(AV)}$ maximum ratings	2.2	

ORDERING INFORMATION

DMV56 / F5
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 DAMPER AND MODULATION DIODES FOR VIDEO
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 LEAD BENDING (OPTION)

Fig. 1-1: Power dissipation versus peak forward current (triangular waveform, $\delta=0.45$) (damper diode.)

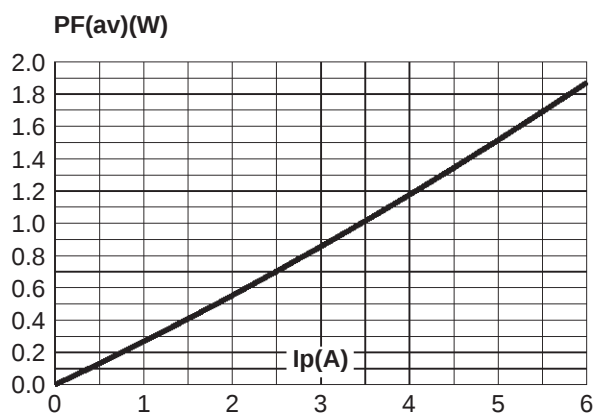


Fig. 1-2: Power dissipation versus peak forward current (triangular waveform, $\delta=0.45$) (modulation diode)

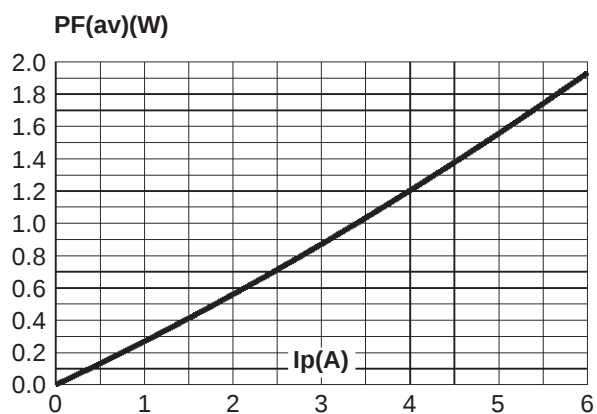


Fig. 2: Average forward current versus ambient temperature.

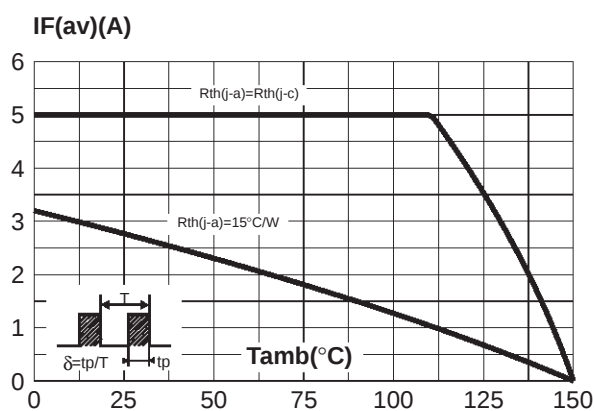


Fig. 3-1: Forward voltage drop versus forward current (damper diode).

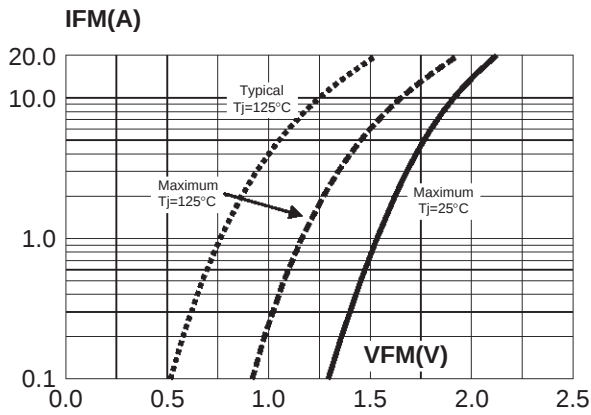


Fig. 3-2: Forward voltage drop versus forward current (modulation diode).

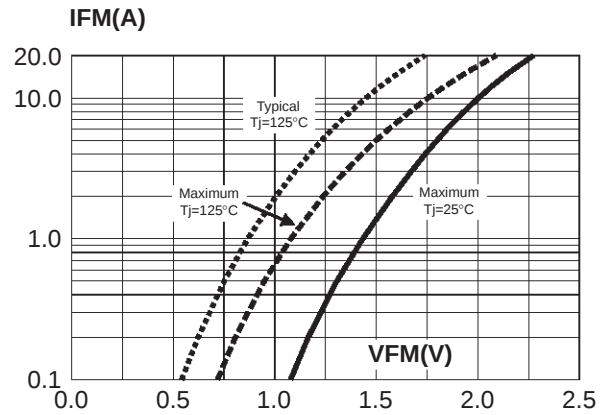


Fig. 4: Relative variation of thermal impedance junction to case versus pulse duration.

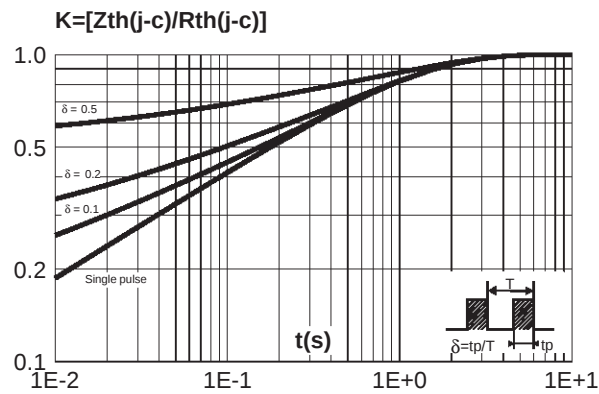


Fig. 5-1: Non repetitive surge peak forward current versus overload duration (modulation diode).

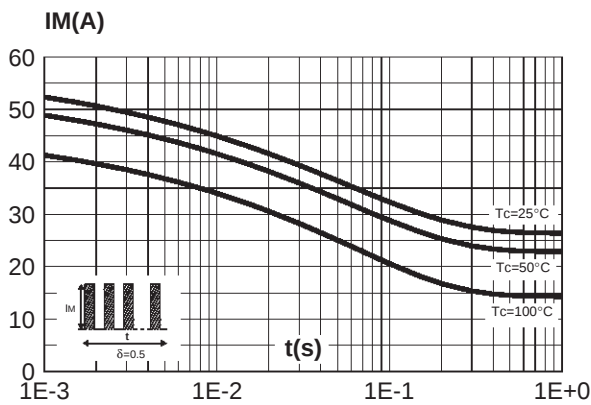


Fig. 5-2: Non repetitive surge peak forward current versus overload duration (damper diode).

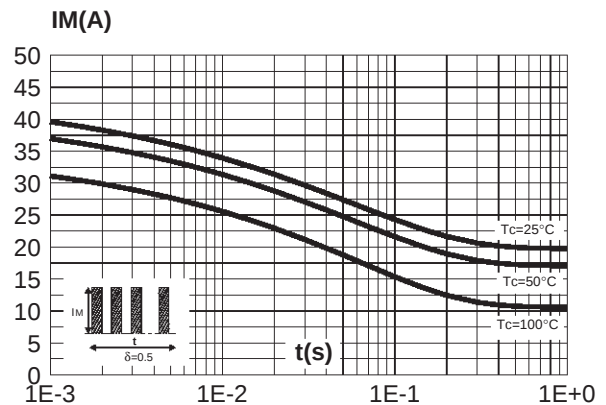


Fig. 6-1: Reverse recovery charges versus dI_F/dt (damper diode).

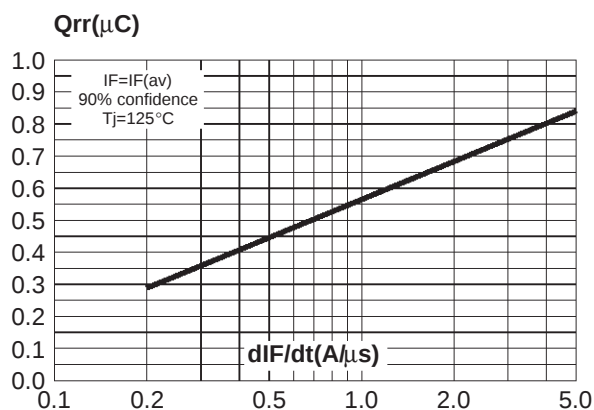


Fig. 6-2: Reverse recovery charges versus dI_F/dt (modulation diode).

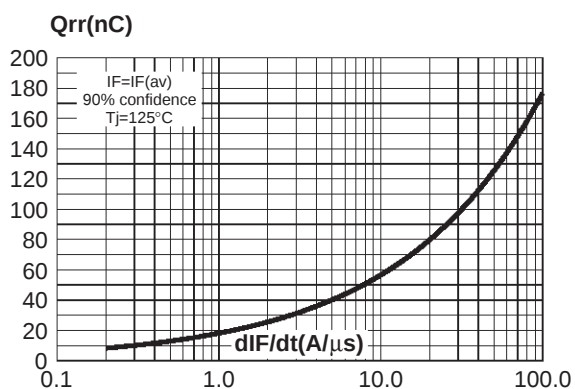


Fig. 7-1: Reverse recovery current versus dI_F/dt (damper diode).

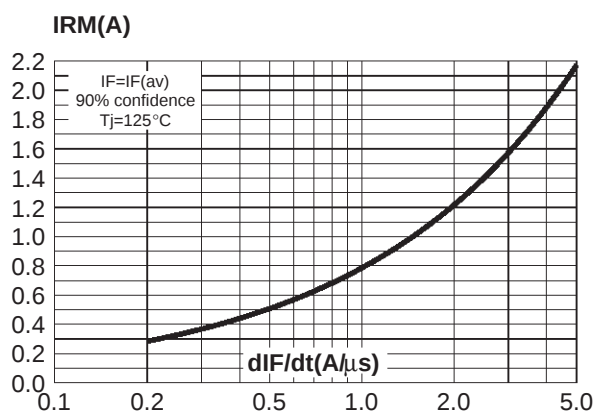


Fig. 7-2: Reverse recovery current versus dI_F/dt (modulation diode).

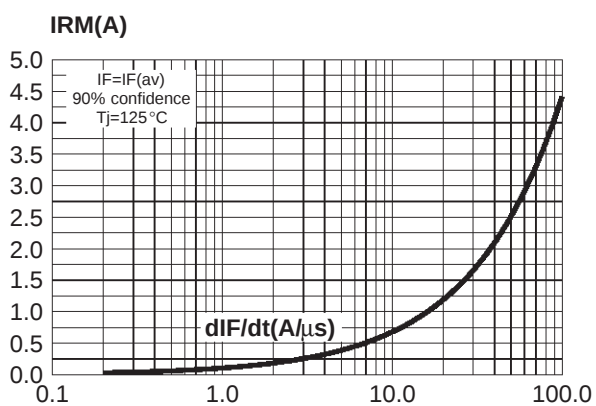


Fig. 8-1: Transient peak forward voltage versus dI_F/dt (damper diode).

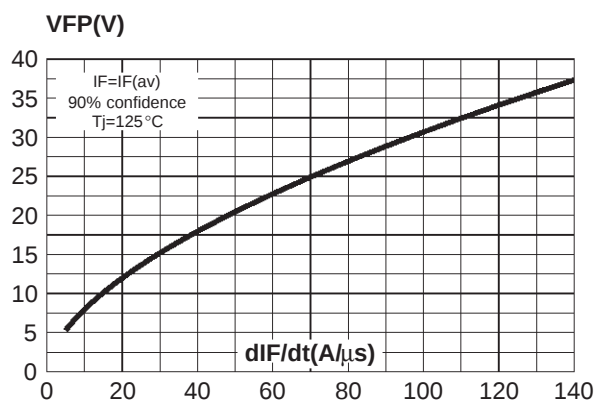


Fig. 8-2: Transient peak forward voltage versus dI_F/dt (modulation diode).

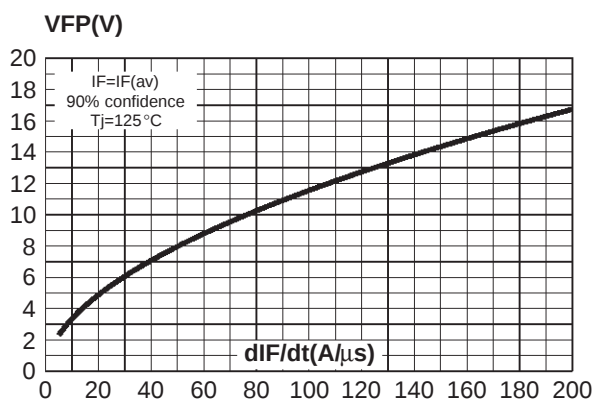


Fig. 9-1: Forward recovery time versus dI_F/dt (damper diode).

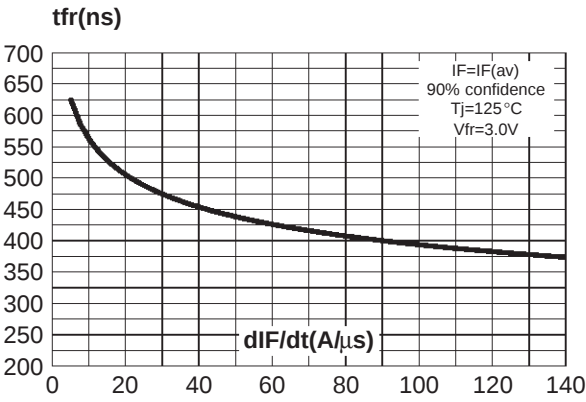


Fig. 9-2: Forward recovery time versus dI_F/dt (modulation diode).

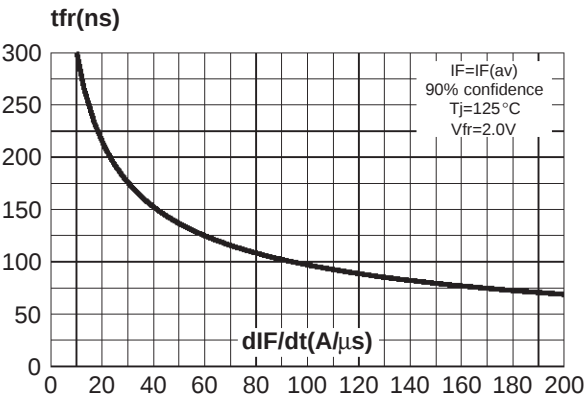


Fig. 10: Dynamic parameters versus junction temperature.

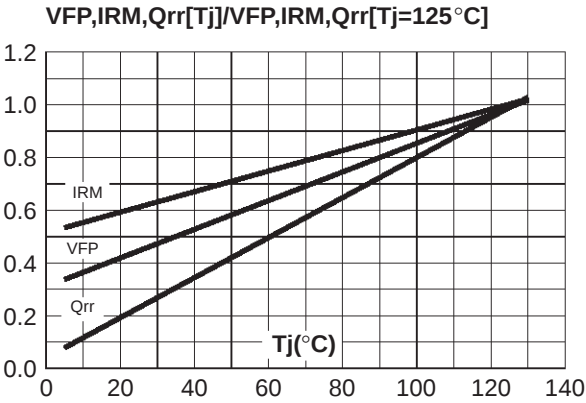
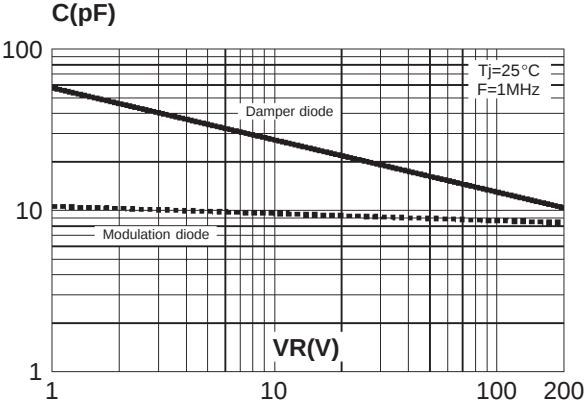
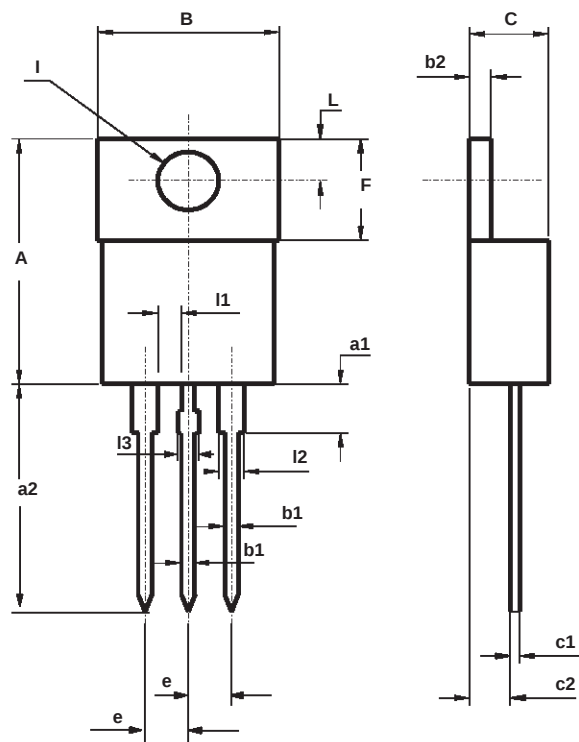


Fig. 11: Junction capacitance versus reverse voltage applied (typical values).

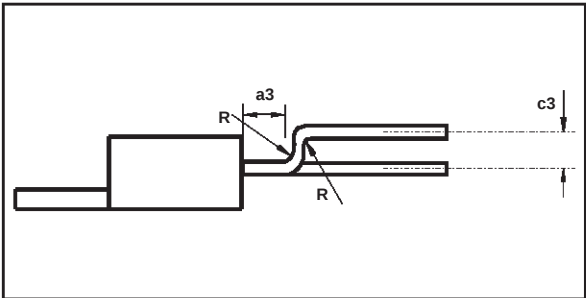


PACKAGE MECHANICAL DATA
 TO-220I


REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	15.07	15.32	0.593	0.603
a1		4.50		0.177
a2	12.70	14.70	0.500	0.579
B	10.20	10.45	0.402	0.411
b1	0.64	0.96	0.025	0.038
b2	1.15	1.39	0.045	0.055
C	4.48	4.82	0.176	0.190
c1	0.35	0.65	0.020	0.026
c2	2.10	2.70	0.083	0.106
e	2.29	2.79	0.090	0.110
F	5.85	6.85	0.230	0.270
I	3.55	4.00	0.140	0.157
L	2.56	2.67	0.100	0.101
I1	1.30		0.051	
I2	1.45	1.75	0.057	0.069
I3	0.80	1.20	0.031	0.047

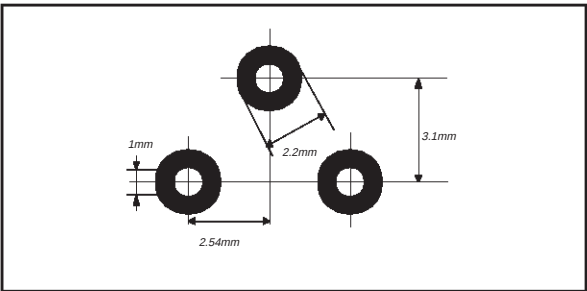
BENDING OPTION "F5"

Recommended for high voltage layout clearance



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
a3	1.65	2.41	0.065	0.095
c3	2.92	3.30	0.115	0.130
R	1.00 typ.		1.00 typ.	

PRINTED CIRCUIT LAYOUT FOR F5 LAYOUT



- **Marking:** Type number
- Cooling method: C
- Weight: 2.3 g
- Recommended torque value: 0.8 m.N.
- Maximum torque value: 1 m.N.
- Epoxy meets UL94,V0
- Capacitance: 7 pF
- Shipped: 50 units per tube

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