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Rev.12 3-Mar-98

142 - 323

Red Electroluminescent Fiber

Product Specifications

Overall Diameter

2.3 mm +/- 0.2mm (0.086" +/- 0.008")

Absolute Maximum Ratings

Power Supply Voltage

130 Volts (RMS)

Storage Temperature

-40 to +65 deg. C (-40 to +149 deg.F)

Operating Temperature

-20 to 155 deg. C (-4 to +131 deg.F)

Stretching Force

1 Kg

Bending Diameter

at least 5 times the fiber diameter

Twisting Angle

30 degrees per meter

Average AC current

50 mAmp/metre

Insulation Breakdown Voltage

4000 Volts per IEC 335-1

Flammability

850 deg C per IEC 335-1

Electro-Optical Characteristics

Typical Initial Performance

Brightness at 100 Volts / 400Hz

10.5 cd/m²

Chromaticity Coordinates at 100V/400 Hz

X = 0.601, Y = 0.351

Brightness at 100 Volts / 800Hz

18 cd/m²

Chromaticity Coordinates at 100 Volts / 800Hz

X = 0.599, Y = 0.350

Brightness at 100 Volts / 2000Hz

38 cd/m²

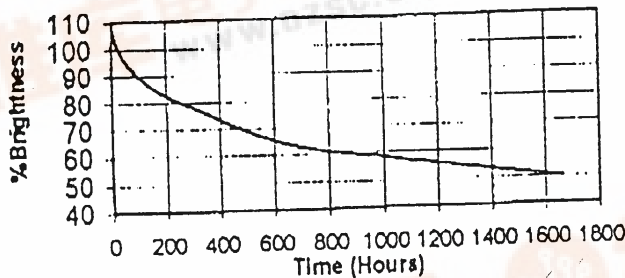
Chromaticity Coordinates at 100 Volts / 2000Hz

X = 0.598, Y = 0.344

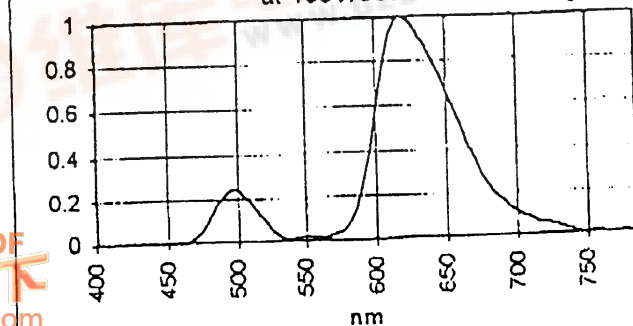
Dynamic Capacitance at 5 VAC in darkness

5.3 nF +/- 0.8 nF

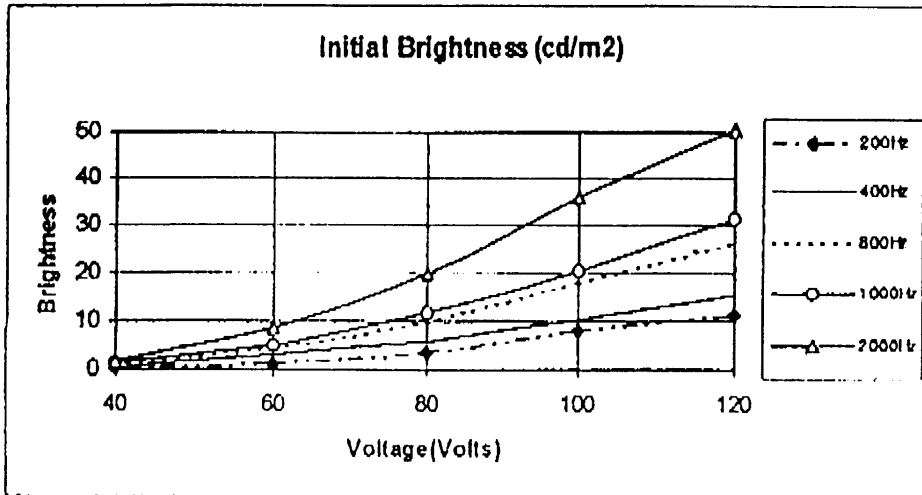
Brightness Vs Time at 120V/400Hz
Room Temp. / R.H.=40%



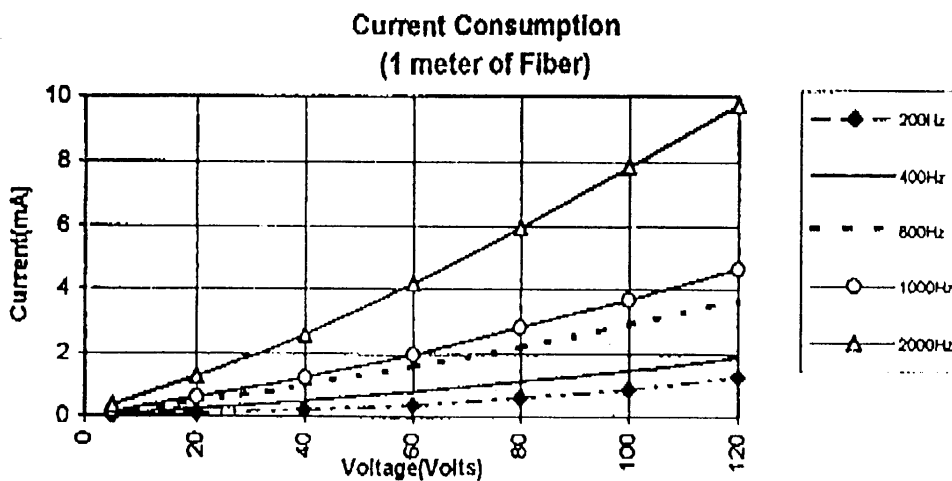
Red Fiber Spectrum
at 100V/800Hz



Voltage (VRMS)	Initial Brightness (cd/m ²)				
	200Hz	400Hz	800Hz	1000Hz	2000Hz
40	0.4	0.6	1.0	1.2	2.0
60	1.5	3.0	4.5	5.0	8.5
80	3.5	6.0	10.0	12.0	20.0
100	8.0	10.5	18.0	20.5	36.0
120	11.5	15.5	28.5	31.5	50.5



Voltage (VRMS)	Current Consumption (mA) of 1 meter				
	200Hz	400Hz	800Hz	1000Hz	2000Hz
5	0.03	0.06	0.12	0.16	0.33
20	0.12	0.24	0.48	0.61	1.27
40	0.23	0.50	1.00	1.24	2.59
60	0.38	0.80	1.62	1.98	4.17
80	0.62	1.12	2.22	2.83	5.94
100	0.88	1.47	2.92	3.66	7.84
120	1.29	1.90	3.68	4.64	9.76

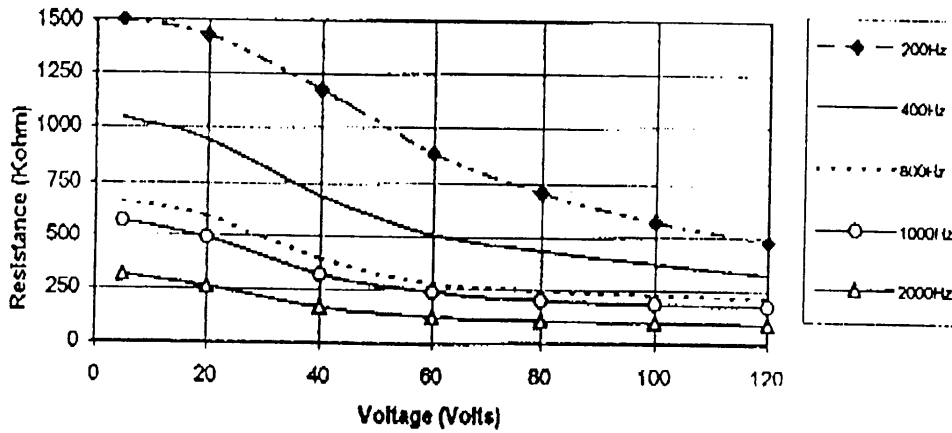


Equivalent Ohmic Resistance(kOhm) of 1 meter

(Ohmic Component of the Parallel RC Circuit)

Voltage	200Hz	400Hz	800Hz	1000Hz	2000Hz
5	1504	1043	663	589	314
20	1428	942	592	494	259
40	1175	691	393	316	165
60	886	510	280	235	123
80	709	435	243	200	107
100	572	374	228	184	101
120	480	323	210	174	94

**Equivalent Ohmic Resistance
(1 meter)**

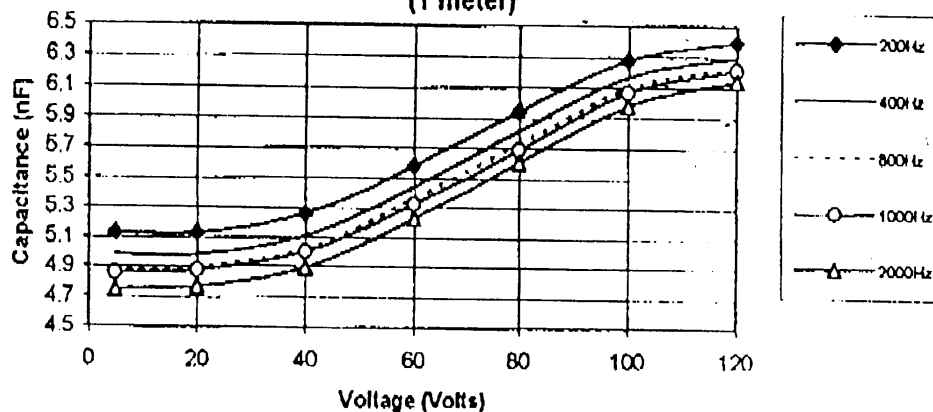


Equivalent Capacitance(nF) of 1 meter

(Capacitive Component of the Parallel RC Circuit)

Voltage (VRMS)	200Hz	400Hz	800Hz	1000Hz	2000Hz
5	5.1	5.0	4.9	4.9	4.7
20	5.1	5.0	4.9	4.9	4.8
40	5.3	5.1	5.0	5.0	4.9
60	5.6	5.4	5.4	5.3	5.2
80	5.9	5.8	5.7	6.7	5.6
100	6.3	6.2	6.1	6.1	6.0
120	6.4	6.3	6.2	6.2	6.1

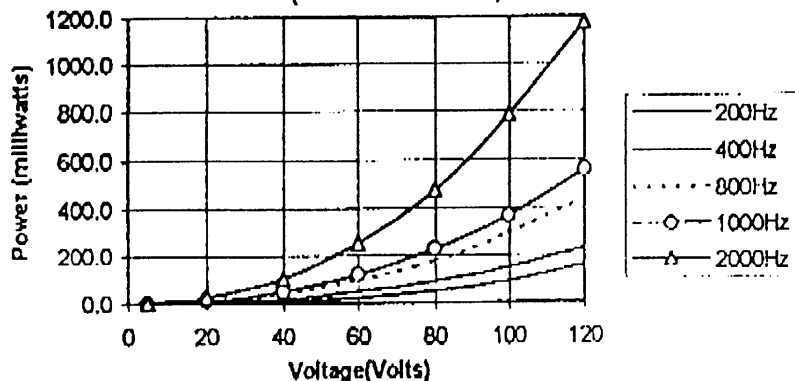
**Equivalent Capacitance
(1 meter)**



Power Consumption (milliWatt/meter)

Voltage(VRMS)	200Hz	400Hz	800Hz	1000Hz	2000Hz
5	0.2	0.3	0.6	0.8	1.7
20	2.5	4.9	9.7	12.2	25.5
40	9.1	20.2	39.9	49.7	103.6
60	22.8	47.8	97.1	118.9	250.5
80	49.6	89.8	177.2	226.6	475.4
100	88.0	147.0	291.8	366.4	783.8
120	154.4	227.5	442.2	557.2	1170.6

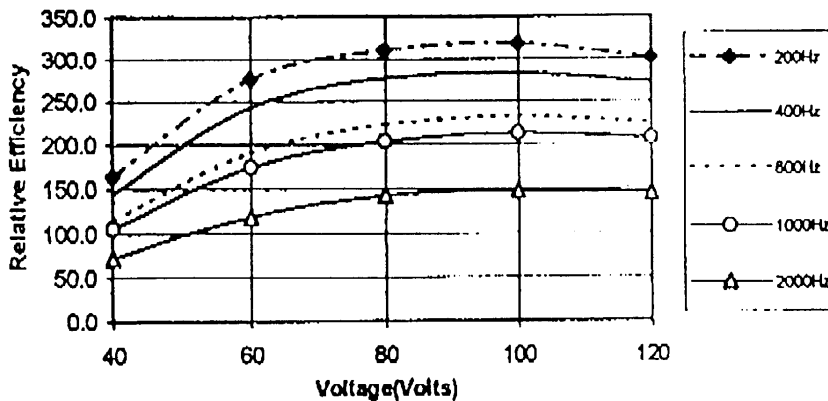
**Power Consumption
(1 meter of Fiber)**



Relative Efficiency

Voltage(VRMS)	200Hz	400Hz	800Hz	1000Hz	2000Hz
40	164.0	144.5	115.6	105.9	72.6
60	276.3	243.4	190.6	174.1	118.8
80	310.5	277.1	223.2	203.3	142.2
100	318.2	282.2	231.6	212.8	147.5
120	301.0	271.8	224.9	206.7	145.0

Relative Efficiency



Contact Preparation

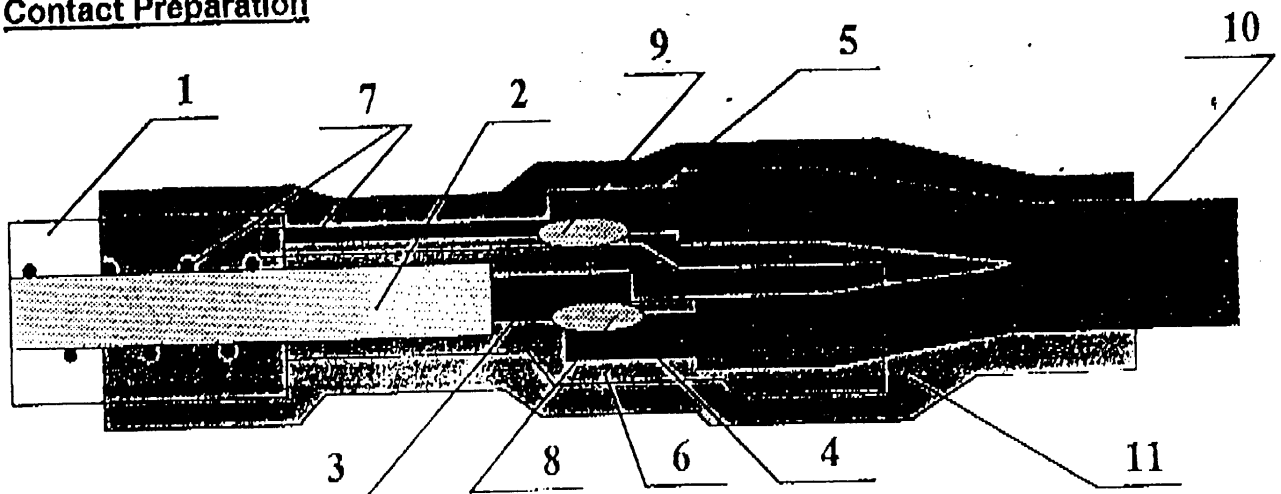


Fig. 1

Step by step instructions for connection preparation:

1. Strip the external insulator(1) off using a usual wire stripper. Be carefull not to damage the additional electrodes (7).
2. Pull the free ends of the additional electrodes(7) back 3. Strip the dielectric layers(2) off the core copper electrode(3) using a magnet wire stripper or a sharp knife.
4. Strip the insulation off both edges (4 and 5) of a dual conductor flexible insulated wire(10) leaving the ends ~4cm long.
5. Put a 3 cm long shrinkable tube (6) on the insulated wire (4), solder the edge of wire (4) to the core electrode (3), pull the tube (6) to cover the soldering area (8) and shrike the tube (6) with the heat gun.
6. Bring the free ends of the additional electrodes (7) forward and solder them to the edge of the insulated wire (5).
7. Cover the contact areas (8 and 9) with a 6 cm long shrinkable tube (11) in such way that one side of the tube (11) is on top of the ELF (1) and the other side is on top and shrink it using a heat gun.
8. The ELF can be connected to an AC power source by soldering contacts A and B.

• Recommended Components:

(6) 3M Shrink Tubing 1/8 inch 80610220230 MW Black
or Raychem Shrink Tubing CGAT 3/1-0 MW Black

(11) 3M Shrink Tubing 1/4 inch 80610220255 MW Black
or Raychem Shrink Tubing CGAT 6/2-0 MW Black

ELF Free End Termination

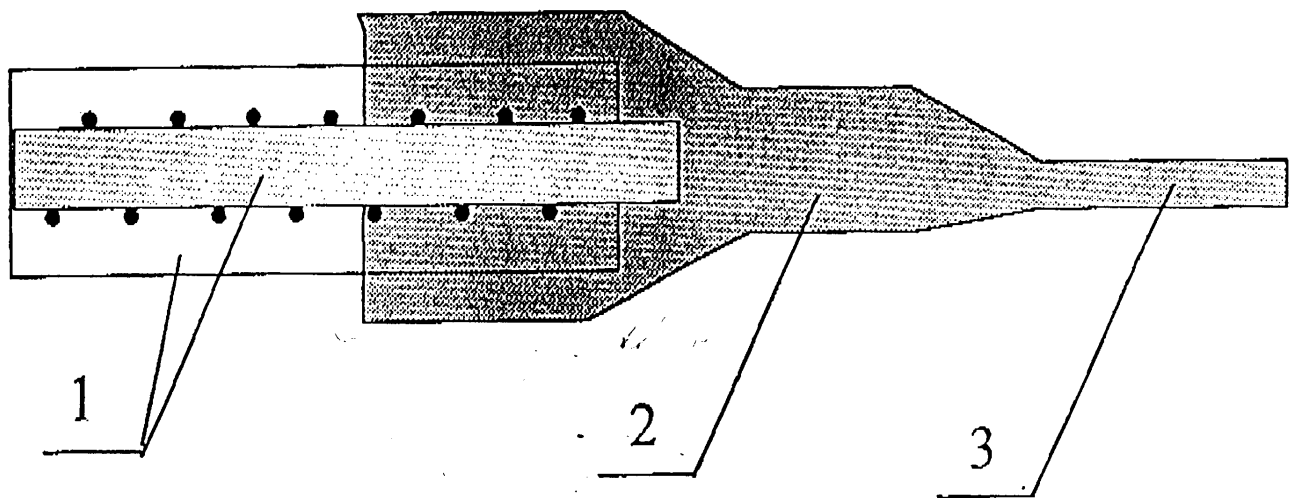


Fig. 3

1. ELF
2. Shrinkable Tube
3. Shrink Edge Sealed off

It is recommended to terminate the free end of the ELF to reduce moisture penetration into the phosphor layers.

- Recommended Components:
 - (2) 3M Shrink Tubing 1/8 inch 80610220230 MW Black
or Raychem Shrink Tubing CGAT 3/1-0 MW Black