

THOMAS ELECTRONICS

100 RIVERVIEW DRIVE
WAYNE, NEW JERSEY 07470 USA
PHONE: (973) 696-5200
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<http://www.thomaselectronics.com>

FLAT FLUORESCENT LAMP TYPE 10F024PT778

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The 10F024PT778 is a 10 inch diagonal, flat fluorescent lamp, featuring a compact all glass substrate for use in rugged applications. The 10F024PT778 incorporate a hot cathode, designed for high luminous output and improved dimming range.

OPTICAL DATA

Phosphor Type..... PT778

CIE Coordinates..... x = 0.313
y = 0.328

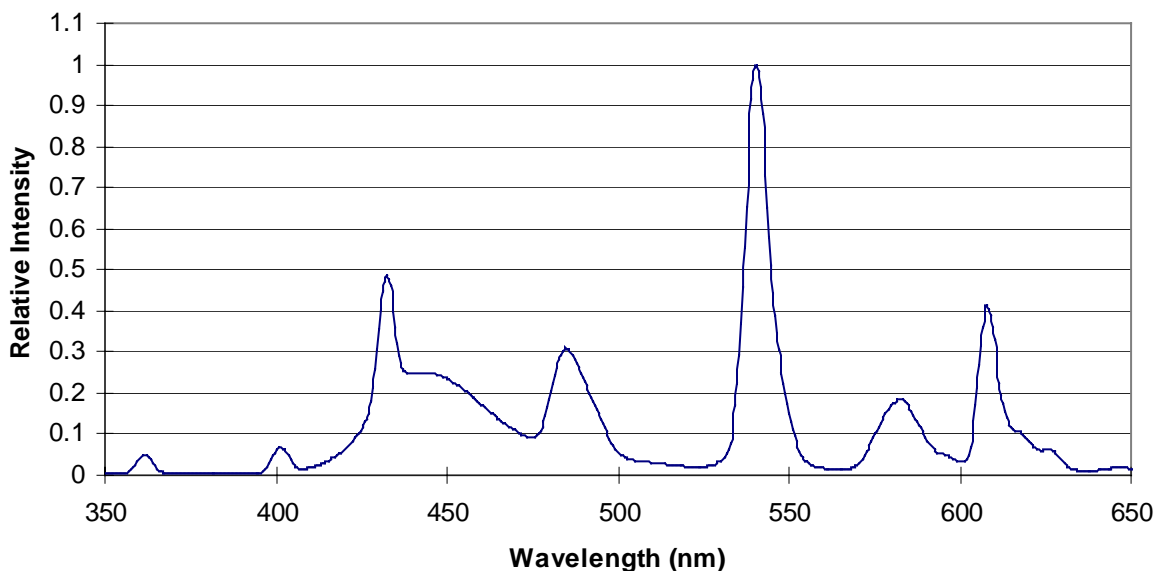
Spectral Peaks..... Red = 611nm
Green = 545nm
Blue = 430nm

Brightness.....10,000 fl.

Uniformity..... < 20% Variation

SPECTRAL DISTRIBUTION

Typical Spectral Response



Other Thomas Electronics proprietary phosphors can be supplied.

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ELECTRICAL DATA

Nominal Power.....	80W @ 10,000 foot Lamberts
Filament Rating, Filament 1.....	275mA @ 5.7 V per cathode
Filament Rating, Filament 2.....	275mA @ 5.7 V per cathode

MECHANICAL DATA

Lamp Size.....	163.6mm x 227.1mm [6.44" x 8.94"]
Weight.....	400 gr
Lead Data	
Wire Type.....	UL 3239
Length / Gauge.....	305mm [12.0 "]; AWG 22
Cathodes leads are fully potted	

TYPICAL OPERATING CONDITIONS

Arc Voltage.....	1,400 Volts
Arc Current.....	57 mA
Operating Temperature.....	50°C to 60°C
Luminous Efficacy.....	46 lumens / watt
Lamp Life.....	20,000 hrs
Dimming Range, with commercial inverter.....	300:1

ENVIRONMENTAL DATA

Ambient Temperature Limits	
Non-operating.....	-55°C to +100°C
Operating.....	-40°C to +85°C
Altitude.....	+70,000 ft
Vibration.....	20 g, 20 to 500 Hz

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APPLICATION NOTES

1/ For optimal temperature range performance, Thomas Electronics recommends the use of an external heater, fitted to the rear of the lamp. Typical design numbers for such a heater are resistance of approximately 15.5 ohms, with a power requirement of 50 watts at 28.0 volts input. Electrical connection to the heater is via AWG 26, stranded, Teflon insulated wire per MIL-W-16878, Type E. Internal temperature sensors can be employed to provide feed back and monitoring. Both heater leads and sensor leads can be terminated in connectors.

Thomas Electronics recommends a maximum temperature rate of change of 5°C per minute.

2/ Thomas Electronics can pot in place a photodiode on the rear of the lamp assembly to measure the lamp light output performance. Output from the photodiode can be used as a calibration reference to compensate for normal lamp light output degradation. Typical photodiode is a Hamamatsu S1787 series or equivalent.

3/ Thomas Electronics recommends potting the lamp assembly to a heat sink. In addition to providing a mechanical means to support the lamp, the heat sink will also allow for thermal management. Thomas Electronics recommends Stycast 4954 as a potting material. Stycast is a thermally conductive, RTV Silicone encapsulant. It is flexible and has good electrical properties.

It is important that the bonding material be distributed correctly between the lamp and sink. Also important is that some level of heat sinking be provided around the cathode assemblies. Since the cathode assemblies are external to the lamp body, typically holes are required in the heat sink to accommodate the cathode assemblies. Thomas Electronics recommends the potting material be extended close to the cathode, with a spacing of approximately 1mm [0.040 inches] between the cathode assembly and encapsulant coating the inside of the holes in the heat sink.

Thomas Electronics can provide the heat sink designed to our specification or the end application.

4/ Diffusers can be incorporated in the lamp design to provide proper uniformity. Thomas Electronics can recommend diffuser design for your application, once the light output and viewing angle information is determined.

5/ The above electrical and light output data is recorded on Thomas Electronics lamps using commercially available inverters. A full understanding of the end drive electronics is necessary for the final lamp design recommendations.

This drawing is not controlled and is subject to revision.

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