



# CANTHERM

Supplying high-quality bimetal and thermal sensor products.

## Encapsulated Thermostats for Electronics

### F20-E06

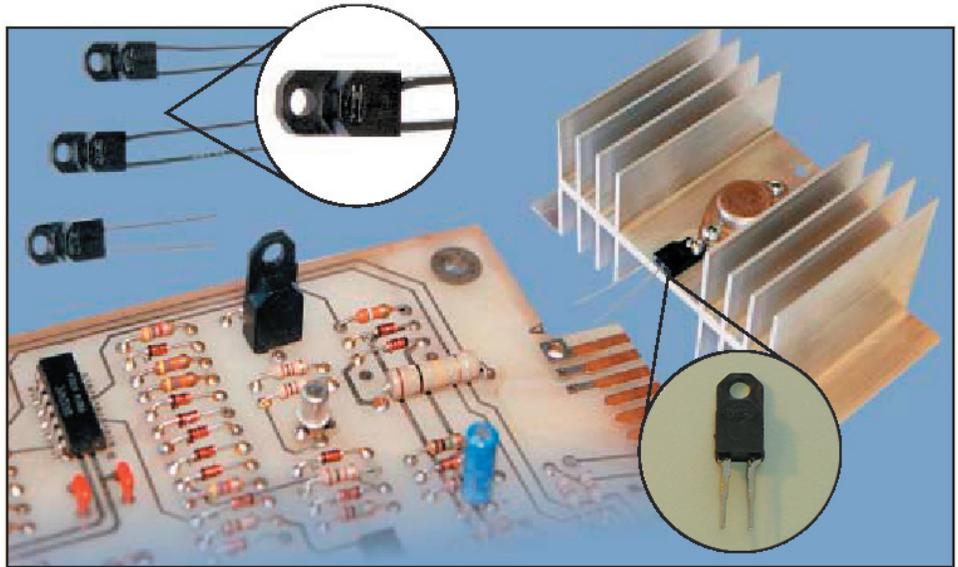
*Formerly Called F11-E06*

#### ADVANTAGES

The miniature size, high switching capability and versatility of its contacts make the JEDEC TO-220 compatible device ideal for printed circuit board mounting. The F20-E06 is epoxy sealed to withstand wave soldering and board washing operations.

#### APPLICATIONS

The F20-E06 is ideal to sense the temperature of a surface or of stagnant air in an enclosure and can be supplied for mounting on a printed circuit board or with flexible wire leads for remote installation. Its high temperature resistance and high dielectric strength make it the favored device for protecting heatsinks. Heat sensitive semiconductors and other valuable equipment can be saved from thermal damage by shutting down the power or simply turning on a fan.



#### DESCRIPTION

The CANTHERM F20-E06 has been designed to protect today's technology and meet the requirements of tomorrow's innovations. The F20 snap action bimetallic element will respond rapidly and accurately to changes in the temperature of the surface to which it is mounted or the air temperature in an enclosure. The single pole, single throw contacts can be configured as either normally open or normally closed, operating on rise in temperature. The average automatic reset will occur at a temperature approximately 20 - 25C below the calibrated set point.

The housing has been designed for demanding conditions such as high continuous temperatures and high voltage electrical isolation. The PC version is supplied with TO-220 style stamped lead-frame leads and are shipped in a 50 piece plastic magazine for ease of insertion and handling.

#### OPERATING TEMPERATURES

The F20-E06 is available from 65°C to 160°C with either normally closed or normally open contacts. Increments are 5°C and standard tolerance is ±5°C.

#### CONNECTIONS

The F20-E06 is available for PC board mount or a variety of flexible wire leads. Standard leads are 6", 24 AWG UL Black up to 3398 150°C and UL1180 Teflon up to the maximum temperature. ADD "-PC" to the part number for solid pins or specify flexible lead type. Other wire types, gauges and lead lengths available upon request.



CANTHERM

Division of Microtherm  
International Corporation

8415 Mountain Sights Avenue • Montreal (Quebec), H4P 2B8, Canada

Tel: (514) 739-3274 • 1-800-561-7207 • Fax: (514) 739-2902

E-mail: sales@cantherm.com • Website: www.cantherm.com

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		F20A	F20B
Type		N/C	N/O
Voltage Rating 50-60 Hz		120 V / 250 V	120 V / 250 V
Current rating	RESISTIVE INDUCTIVE	3.0 A / 2.0 A 1.8A / 1.2 A	1 A / 1 A * 1 A / 1 A
max. load RES. short circuit current upto		4.0 A 6.3 A	4.0 A 6.3 A
Contact Arrangement	Normally closed N/C Normally open N/O		
Contact resistance		< 40 mΩ	< 40 mΩ
Response temperature range		70°C to 160°C	+65°C to +150°C
Tolerance (minimum range)		+/- 15°C, +/-10°C, +/-5°C	+/- 15°C, +/-10°C, +/-5°C
Max. permanent temperature - Housing Switch mechanism		220°C ** 175°C	220°C ** 175°C

## CURRENT SENSIVITY

The thermostats are not current sensitive at rated currents. At loads above the rated values, up to maximum loading there is self-heating of the current carrying contacts.

\* When N/O contacts are closed, self heating will occur at currents exceeding normal rating. It is possible that, given certain combinations of set temperature current & ambient temperature, the contacts will not reset.

\*\* Wire insulation must be appropriate

## INSULATION RESISTANCE

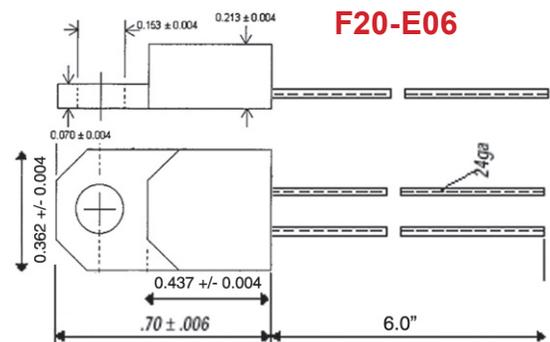
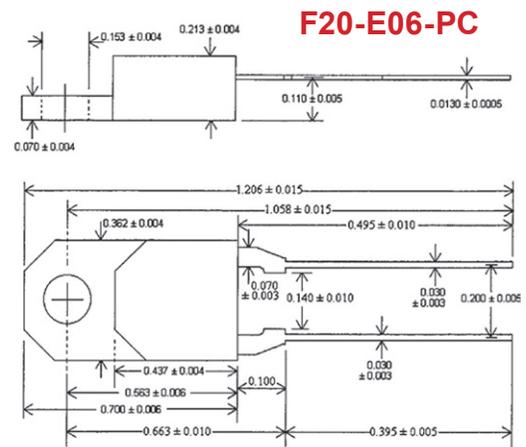
Leads to Earth	2500 V @ 25°C 1500 V @ 100°C
On request (Requires special testing)	up to 4000 V eff. AC @ 200°C
Across open contacts, dependent on response temperature	500 V eff. AC

## RESPONSE TEMPERATURES, TOLERANCE

Temperature stepped in 5°C increments. Special switch-off and reset temperatures available on request. Rate of temperature rise from 0.1° C/min. to max. 1.0° C/min. Insulation of the housing will slow down the cutout's response.

## QUALITY ASSURANCE

Housing material - PPS (UL 94 V-0)  
Contacts - Silver plated  
MTBF - 10,000 cycles at rated current and voltage  
Minimum switching current 50ma  
Random sample quality testing  
Function test to AQL 1.0  
Nominal response temperature AQL 1.0  
Measurement tolerance ±2°C AQL 4.0  
Other values AQL 4.0  
Thermal conductivity - 4.0 BTU In/hr/Ft²/°F



## MARKING

F20 A	A = N/C B = N/O
E06	Housing
12505	Response Temperature & Tolerance 125°C, ±5K
0409C	Date Code & Factory April 2009, Country Canada

## ORDERING INFORMATION

Quantity	Type	Version N/C or N/O	Response Temp.	Tolerance +/- 5°C
100	F20	A or B	125°	05

We reserve the right to change specifications without prior notice. ADD - PC to part number for PC lead frame leads.

Typical PC P/N = F20A125053600060  
With Leads P/N = F20A12505ACFA06E



UL E46827  
VDE 4523-4510-1015  
It is the responsibility of the customer to insure that the devices described above are used in a safe manner and within published parameters.