

NEC

Thermal Cutoff SEFUSE™ SF/E SERIES

ORGANIC THERMAL SENSITIVE PELLET TYPE 10 AMPERES RATED CURRENT

NEC's thermal cutoff SE/E series is small, solid and reliable product which can be used under 10 amperes of rated current. It protects home appliances and industrial equipment from fire by opening of electrical circuit if it senses an abnormal temperature rise.

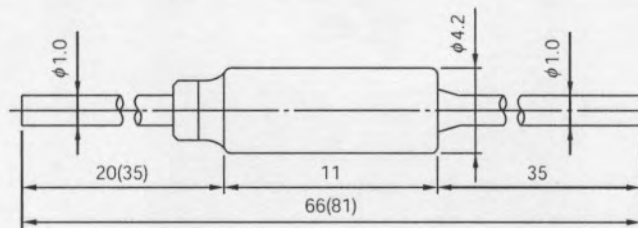
FEATURES

- Approved by UL(USA), CSA(Canada), VDE(Germany), BEAB(UK), and MITI(Japan)
- Single operation
- Compact, durable and reliable by hermetic seal structure
- Excellent sensitive to abnormal temperature rise and high accuracy in operation
- Stable characteristics in a long-term
- Capable of opening at large cutoff current of AC 10 amperes

APPLICATIONS

Electric home appliances
 Electric industrial equipments
 Office automation equipments
 Plain paper copiers
 Transformers
 Motors, etc.

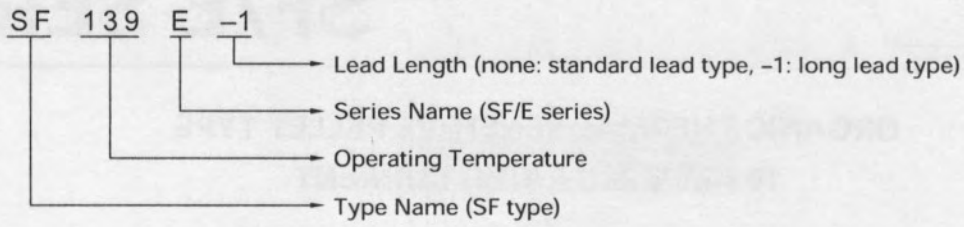
OUTLINE DIMENSIONS (mm)



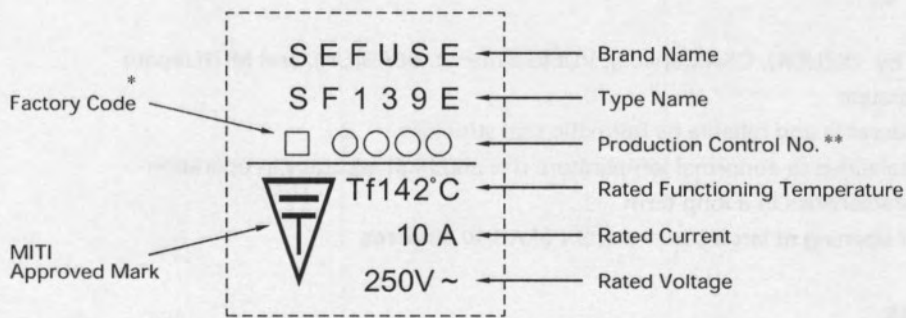
Note: Dimensions in () are for long lead devices.

The information in this document is subject to change without notice.

TYPE NAME DESIGNATION



MARKING

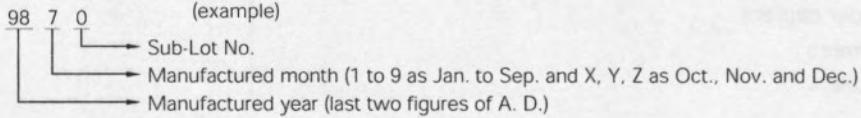


* Factory Code represents the manufactured place as shown below.

Japan : none, Thailand : B

** Designation of Production Control No.

(example)



STANDARD RATINGS

Type Name	Rated Functioning Temperature	Operating Temperature	T _H T _h T _C	T _M T _m	Rated Current ³⁾	Rated Voltage ³⁾	Safety Standard					
							UL	CSA	VDE	BEAB	made in Japan	made in Thailand
SF70E	73 °C	70±2 °C	45 °C	150 °C	10 Aac (Resistive)	250 Vac (Resistive)	E71747	LR 52330	6778.2 -4510- 1008	C0623		
SF76E	77 °C	76± ⁰ / ₄ °C	51 °C	150 °C							33-312	33-835
SF91E	94 °C	91± ³ / ₁ °C	66 °C	150 °C							33-331	33-834
SF96E	99 °C	96±2 °C	71 °C	150 °C							33-332	33-833
SF109E	113 °C	109± ³ / ₁ °C	84 °C	150 °C							33-333	33-832
SF119E	121 °C	119±2 °C	94 °C	150 °C							33-334	33-831
SF129E	133 °C	129±2 °C	104 °C	159 °C							33-335	33-830
SF139E	142 °C	139±2 °C	114 °C	159 °C							33-336	
SF152E	157 °C	152±2 °C	127 °C	172 °C							33-549	33-827
SF169E	172 °C	169± ¹ / ₃ °C	144 °C	189 °C							33-354	33-828
SF188E	192 °C	188± ³ / ₁ °C	164 °C	300 °C								
SF214E	216 °C	214± ¹ / ₃ °C	189 °C	350 °C								
SF226E	227 °C	226± ¹ / ₃ °C	190 °C	2))								
SF240E	240 °C	237±2 °C	190 °C	350 °C								

Notes : 1) The type are for standard lead. When long lead type is required, add "-1" at the end of type name.

2) The maximum temperature limit of SF226E is partially approved as shown below.

RECOGNIZED MAXIMUM TEMPERATURE LIMIT OF SF226E

	UL	CSA	VDE	BEAB
SF226E	240°C *	330°C	300°C	300°C

* Under application to increase to 300°C

3) The additional electrical ratings are recognized by UL and CSA as follows.

UL : 277 Vac / 15 A (Resistive), 240 Vac / 15 A (Resistive), 120 Vac / 15 A (Resistive, Inductive),

CSA : 250 Vac max. / 15 A max. (Resistive, Inductive)

4) SF169E, SF188E, SF214E, SF226E and SF240E are recognized the Conductive Heat Aging Test (CH-ratings) of UL.

Definition of Terms

- **Rated Functioning Temperature**

Rated functioning temperature is the operating temperature of thermal cutoffs, measured using the method specified in the safety standard. In Electrical Appliance and Material Control Law of Japan, case operation should be within the specified operating temperature range of ± 7 °C. In standards that comply with the IEC standard (such as UL, CSA, VDE, BEAB), it is called the rated functioning temperature, and should operate within the prescribed temperature range of $+0/-10$ C.

It is represented by the symbol TF in the UL standard, and by the symbol Tf in the CSA, VDE and BEAB standards.

In SEFUSE, a temperature that complies with both standards is set as the rated functioning temperature, and is indicated on the body of the thermal cutoff.

- **Operating Temperature**

Operating temperature is the operating temperature range when the thermal cutoff is made to operate inside a constant temperature oven whose temperature is raised at the rate of 1 °C/min. while a detection current of 100 mA or lower is applied.

The operating temperature is a standard set by NEC and is not specified by a safety standard.

- **TH, Th, Tc (Holding Temperature)**

Holding temperature is the maximum temperature at which, when applying a rated current to the thermal cutoff, the state of conductivity is not changed during 168 hours.

It is represented by the symbol TH in the UL standard, Th in the CSA standard, and Tc in the VDE and BEAB standards.

- **TM, Tm (Maximum Temperature Limit)**

Maximum temperature limit is the maximum temperature for which conductivity does not occur again after thermal cutoff operation.

It is represented by the symbol TM in the UL standard and by Tm in the CSA, VDE and BEAB standards.

- **Rated Current**

Maximum alternating current that can pass through the thermal cutoff and that the thermal cutoff can cut off in safety and reliability.

- **Rated Voltage**

Maximum circuit voltage that the thermal cutoff can cut off in safety and reliability.