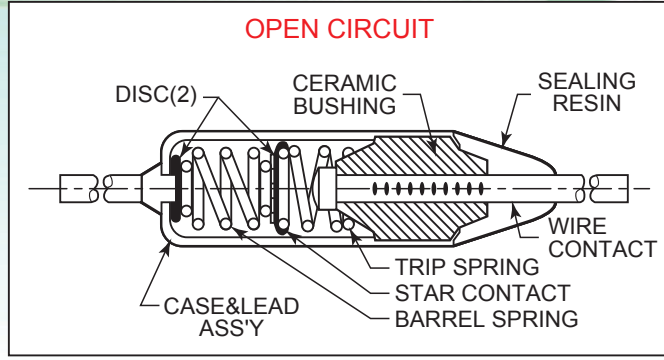
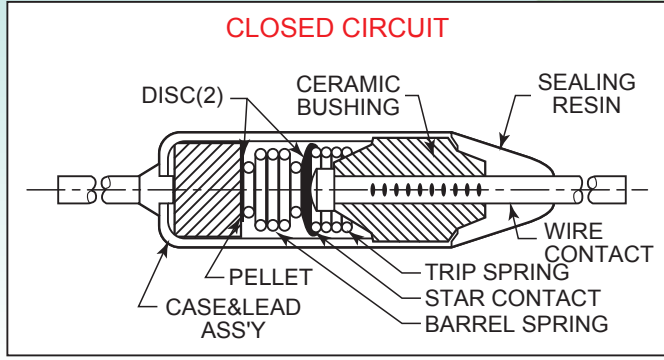
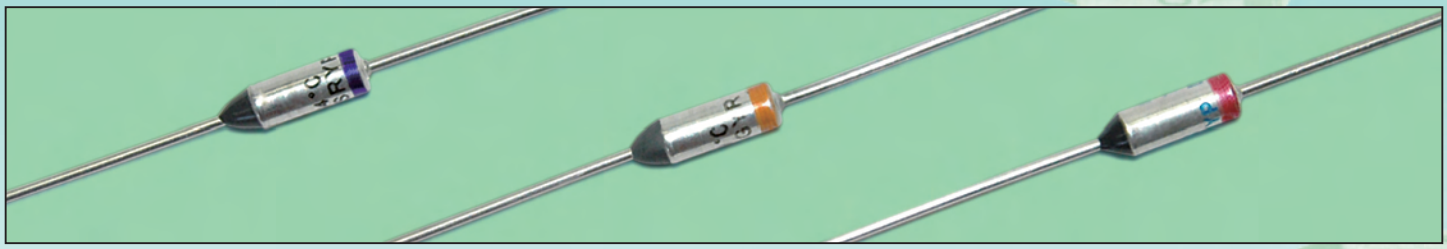


Thermal Cut Offs (Thermal Links)



**RESPONSIVE,
RELIABLE,
INEXPENSIVE,
" ONE SHOT "**

Introduction

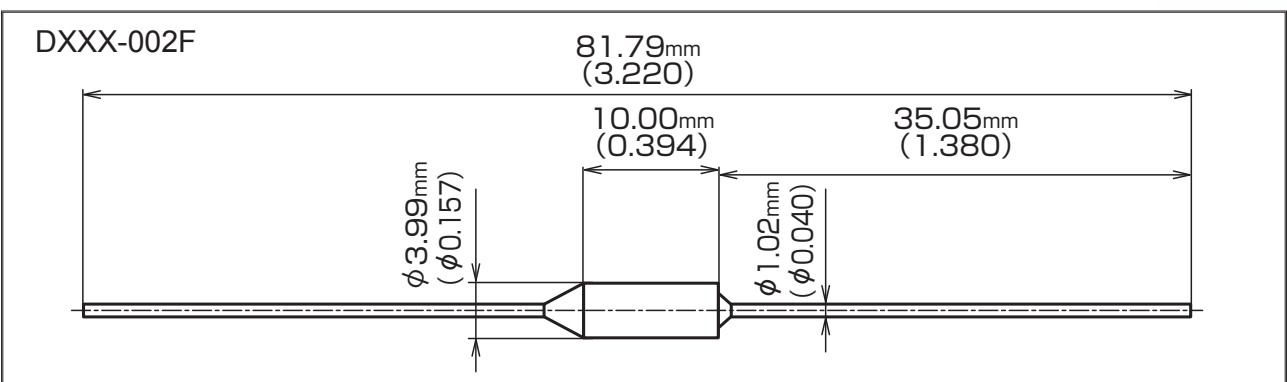
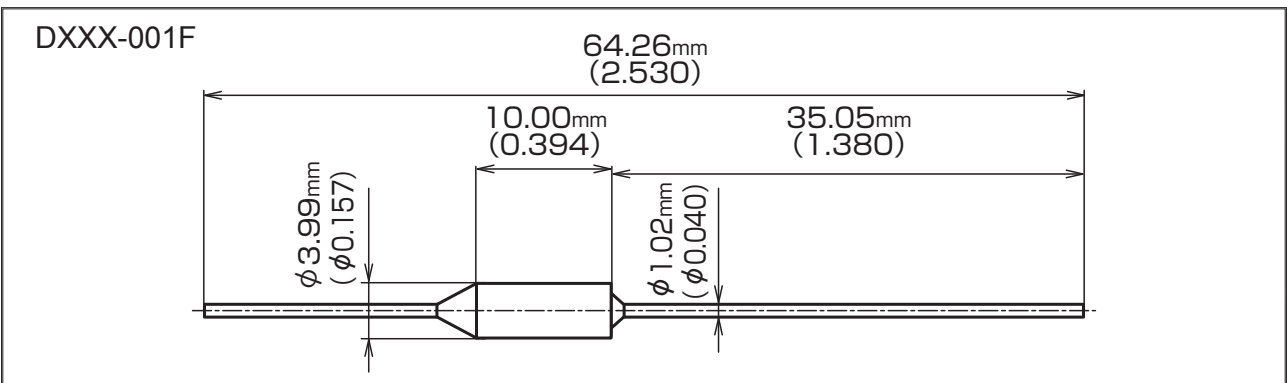


Elmwood Thermal Cut Offs (known as Thermal Links in Europe) interrupt a live electrical circuit based on their exposure to temperatures above their specified set point. These products can provide a cost-effective design alternative for applications which have been identified as requiring thermal protection.

Elmwood offers samples of these products to design engineers for evaluation. Since each application has its own unique thermal dynamics, Elmwood always requires customers to test samples of these products to determine suitability in each application. Your new design evaluation is supported by both Elmwood's responsive sample policy and leading industry leadtimes.

In addition to the standard products, Elmwood offers a wide variety of custom configurations. Options range from mounting brackets and wire leads to unique lead bending and electrical insulation. These configurations can provide a cost-effective alternative to performing secondary operations in-house. With an experience of secondary operation service over 25 years, Elmwood has confidence to make suitable products according to customer's various applications.

Overview Drawing



<Notification> The letter "F" following the part number only means RoHS compliant.

APPROVAL RATINGS

Type	Rated Functioning Temperature (Tf) and Tolerance			Holding Temperature (Th) °C	Maximum Temperature Limit (Tm) °C	Safety Approval	
	°C	°F	°C				
D070	72	162	+0/-4°C	65	115	UL,CSA,VDE NEMKO,SEMKO CCC	
D076	77	171	+0/-4°C	67	150		
D081	84	183	+0/-4°C	76	115		
D088	90	194	+0/-4°C	81	150		
D090	93	199	+0/-6°C	85	315		
D098	100	212	+0/-4°C	93	130		
D103	104	219	+0/-4°C	98	315		
D108	109	228	+0/-4°C	103	315		
D115	117	243	+0/-4°C	110	130		UL,CSA,VDE ※ 1
D118	121	250	+0/-6°C	113	315		UL,CSA,VDE NEMKO,SEMKO CCC ※ 2, ※ 3
D125	128	262	+0/-4°C	119	180		
D139	141	286	+0/-6°C	134	170		
D142	144	291	+0/-6°C	135	180		
D165	169	336	+0/-6°C	162	270(120V) 210(250V)		
D181	184	363	+0/-4°C	174	210		
D213	216	421	+0/-4°C	210	375		
D226	228	442	+0/-6°C	212	260(120V) 230(250V)-UL 260(120V) 240(250V)-VDE		
D230	230	446	+0/-6°C	212	375		
D242	240	464	+0/-6°C	215	375		
D213C	216	421	+0/-4°C	212	375	UL,CSA,VDE NEMKO,SEMKO	
D242C	240	464	+0/-6°C	215	375		

Rated Functioning Temperature: T_f

The maximum temperature at which the thermal cut offs changes its state of conductivity to open circuit with detection current as the only load.

Holding Temperature: T_h

The maximum temperature at which, when applying no electrical load to the thermal cut offs, the state of conductivity will not change during a period of 168 hours.

Maximum Temperature Limit: T_m

The maximum temperature of thermal cut offs, having changed its state of conductivity, can be maintained for 10 minutes during which its mechanical and electrical properties will not be impaired.

ELECTRICAL RATINGS

<DXXX Electrical Rating>

	Voltage(AC)	Resistive Current		Inductive Current	
	(Vr)	(Ir)	(Ib)	(Ir)	(Ib)
UL,CSA,VDE,SEMKO, NEMKO,CCC	120V / 250V	16.7A/16.7A	25A/25A	0.84A	5 LRA

※ 1 <D115>

	Voltage(AC)	Resistive Current		Inductive Current	
	(Vr)	(Ir)	(Ib)	(Ir)	(Ib)
UL,CSA	120V / 250V	16.7A/16.7A	25A/25A	0.84A	5 LRA
VDE	120V / 250V	16.7A/10A	25A/15A	14A/8A (AC inductive)	

※ 2 <D139>

	Voltage(AC)	Resistive Current		Inductive Current	
	(Vr)	(Ir)	(Ib)	(Ir)	(Ib)
UL,CSA,VDE,SEMKO, NEMKO,CCC	120V	16.7A/16.7A	25A/25A	0.84A	5 LRA

※ 3 <D213>

	Voltage(AC)	Resistive Current		Inductive Current	
	(Vr)	(Ir)	(Ib)	(Ir)	(Ib)
UL,CSA	120V / 250V	16.7A/16.7A	25A/25A	0.84A	5 LRA
VDE,SEMKO, NEMKO,CCC		12A/10A	18A/15A		

<D213C,D242C>

	Voltage(AC)	Resistive Current		Inductive Current	
	(Vr)	(Ir)	(Ib)	(Ir)	(Ib)
UL,CSA,VDE,SEMKO, NEMKO,CCC	120V / 250V	10A	15A	-	-

*<Note>All types are RoHS compliant.



Mounted in an insulating ceramic base, a one shot, hi-limit with configurations to suit your requirements...

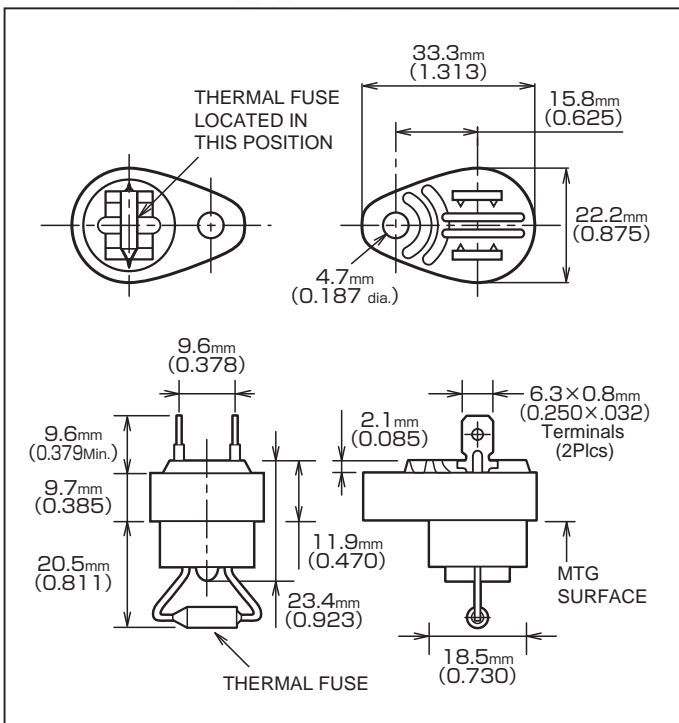
RD Series Tear Drop Style

The TCO responds to temperature by interrupting an electrical circuit when the operating and /or environmental temperature exceeds the thermal rating of the fuse. This is accomplished when the organic pellet experiences a phase change, allowing the spring activated contacts to permanently open the circuit.

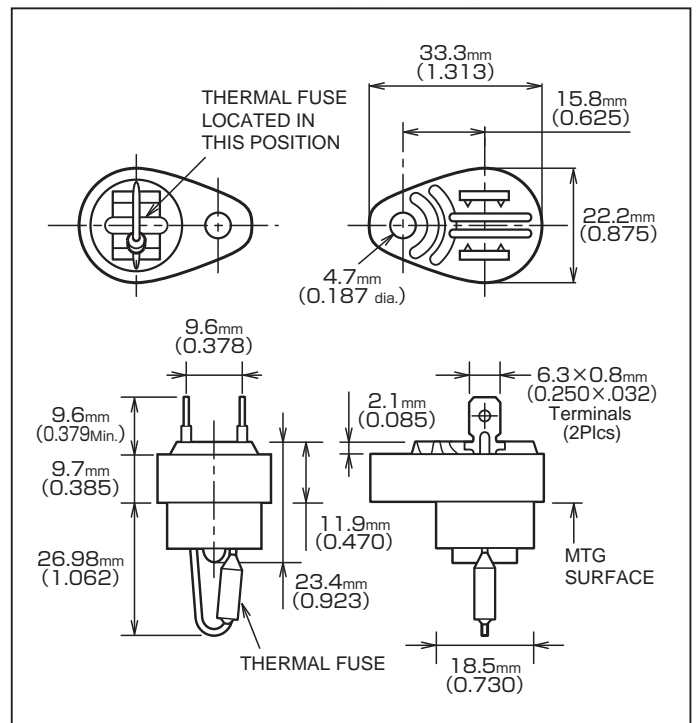
The electrical resistance of a RD Series thermal cut offs is comparable to that found in an equal length of 18 gauge solid copper wire. With proper air flow, heat generation below 15 Amperes is minimal. Above 15 Amperes, the upper limit on current capacity will depend on the environment for each specific application.

Overview Drawing

RDXXX-001F



RDXXX-002F



ELECTRICAL RATINGS

<RDXXX Electrical Rating>

	Voltage(AC)	Resistive Current		Inductive Current	
	(Vr)	(Ir)	(Ib)	(Ir)	(Ib)
UL	120V / 250V	16.7A	25A	-	-
	120V for only D139			All types except for D139,D226,D230	

*<Note>All types are RoHS compliant.

Installation

The performance of the Elmwood thermal cut offs requires proper handling during installation for it to operate in its intended manner. These instructions are intended to be used to reduce the risk of malfunction of the thermal cut offs which may result from improper installation during forming of leads, splicing, welding and soldering.

1. BENDING LEADS

Care should be taken when forming the Thermal Cut Offs (TCO) leads. The TCO leads must be supported 1/8" from bend and case ; and 1/8" from bend and epoxy. This will prevent the epoxy seal from cracking which may result in premature degradation of the pellet. A close visual inspection should be performed to make sure that the TCO leads have not been cut, nicked, folded sharply, fractured or burned.

2. MECHANICAL FORCES DURING APPLIANCE CONNECTION

- When installing the TCO, avoid unnecessary bending, twisting, pulling or pushing on the TCO leads.
Care should be taken to avoid cracking or chipping of the epoxy which may result from sharp twisting or bending of the lead.
- The TCO body must maintain its cylindrical shape to function properly.
Excessive clamping could cause denting or crushing of the TCO body, which may lead to failure. X-ray and visual inspection of the TCO will determine if the fuse body has been damaged.
- Note that the TCO body is electrically live and must be insulated before applying a metal clamp over the TCO body.
- Care should be used when pushing the epoxy end lead, to avoid the lead being forced into the TCO body.
This could result in failure.

3. SPLICES AND TERMINATIONS

By attaching free wire to the TCO leads, connections can be made by bending the free wire ; and keeping the TCO leads from being subjected to undue stresses. Splices should be sized according to the size of the wire plus the TCO lead wire. The connections must be electrically sound to prevent high resistance and secure enough to withstand the rated cutoff temperature. Improper connections may cause damage to the seal or other parts and may result in nuisance tripping of the devices due to the generation of excessive heat at a faulty high resistance junction. High resistance junctions may form after normal operation of end use equipment and if the TCO has been subjected to several high temperature cycles. Lead connections used at 150°C (302°F) or higher should be soldered or welded.

4. SOLDERING LEADS

The TCO leads require heat sinking during soldering operations. Lower temperature rated fuses may require more heat sinking than do higher rated fuses. Samples should be X-rayed before and after soldering to insure a consistent pellet height. Reduction of dimension of the thermal pellet indicates that more heat sinking is required. Also, excessive heat conducted by the leads could shorten the life of the TCO as well as burn the epoxy. Assure that the leads are supported during soldering to avoid breaking or cracking of the epoxy.

5. WELDING LEADS

Excessive heat from resistance welding should not be conducted to the body of the TCO.

To avoid welding, internal parts, care should be taken that none of the welding current is conducted through the TCO. A welding current of hundreds of amperes could weld the internal parts together resulting in a failure. The leads must also be supported during welding to avoid breaking or cracking of the epoxy.

6. PROTECTION AGAINST OVERHEATING

A certain amount of heat is transmitted to the body of the TCO through the connecting lead on some applications.

By attaching the epoxy lead to the heat source, you thereby minimize the temperature increase of the TCO body from this heat flow. When locating the TCO near a heat source, the device should be protected from overheating during operation. Normal operation overheating may cause premature opening of the device and excess overshoot may cause damage to the TCO.

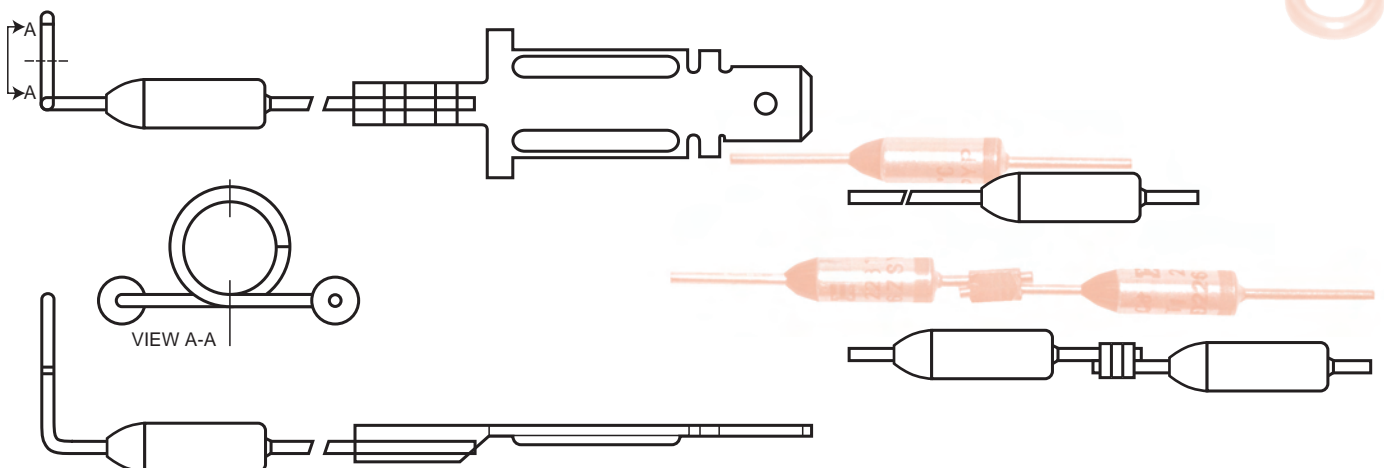
7. EXAMINATION FOR DAMAGE

An examination for damage of the TCO should be done after the device-to-appliance connections are made. X-raying before and after the assembly operation and close visual inspection, with special attention made at the epoxy, should be performed on early production samples.

REPLACEMENT

It should be made clear for reasons of safety, that a TCO is a non-repairable item and that in case of replacement an equivalent TCO with the same catalogue number shall be used and mounted in exactly the same way.

Secondary Operations: Cut Leads To Custom Lengths





World-wide Headquarters
THE HOSHO CORPORATION

Yushi Kogyo Kaikan
13-11 , 3chome Nihonbashi
Chuo-ku , Tokyo 103-0027
JAPAN

Tel : +81-3-3274-2434

Fax : +81-3-3274-2207

Web : www.elmwood-tco.com

Printed: Feb/08

Distributor in Switzerland:

sibalco

Sibalco AG • Birmanngasse 8
CH-4009 Basel • Switzerland
T +41 61 264 10 10 • F +41 61 264 10 15
info@sibalco.ch • www.sibalco.com