DC-ATCO
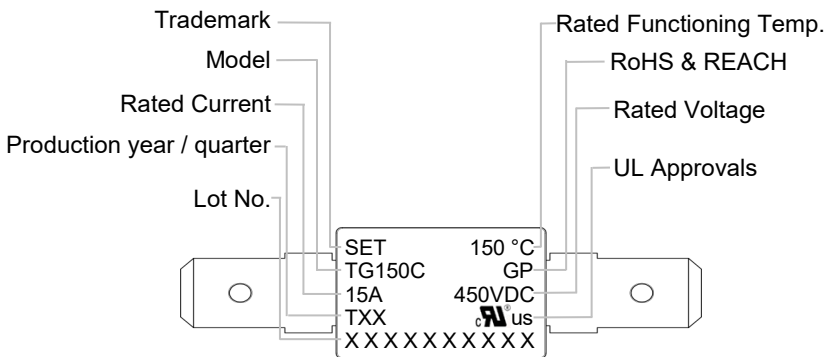## Direct Current Thermal-Link (Alloy Type)

TGxxxC Series

Description

The Direct Current Thermal-Link Alloy Type (DC-ATCO) is a thermal-link that utilizes low melting point alloys, known as the thermal element, which fuse when heated to a specific fusing temperature. This allows for controlled circuit disconnection. The DC-ATCO is composed of various components, including electrode leads, a case, the low melting point alloys (thermal element), flux resin and sealant.

The DC-ATCO is widely employed for over-temperature protection in electrical equipment and electric vehicles. Typically, the low melting point alloys (thermal element) are connected in series between two electrode pins. When the temperature reaches the predetermined fusing temperature of the DC-ATCO, the low melting point alloys (thermal element) melt and swiftly retract to the ends of the two pins, facilitated by the flux resin. This effectively disconnects the circuit.
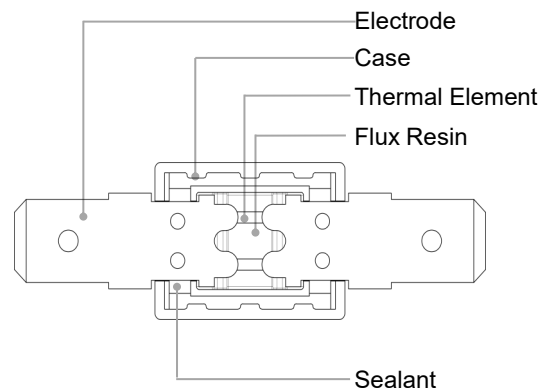
The SETsafe | SETfuse Direct Current Thermal-Link (Alloy Type) is available in axial and radial shapes, with a rated functioning temperature ranging from 86 °C to 150 °C, rated current: 15 A, 20 A, rated voltage: 450 VDC, 400 VDC, 600 VAC. Additionally, it holds UL and cUL Approvals, and is compliant with RoHS and REACH regulations.
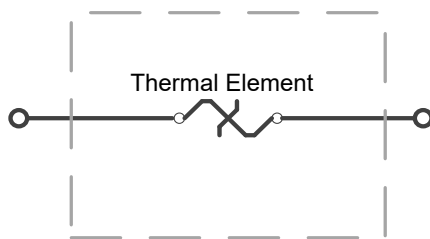
Marking

Trademark
Model
Rated Current
Production year / quarter
Lot No.

Rated Functioning Temp.
RoHS & REACH
Rated Voltage
UL Approvals

SET	150 °C
TG150C	GP
15A	450VDC
TXX	cⓊus
X X X X X X X X X X	

Structure Diagram

Electrode
Case
Thermal Element
Flux Resin
Sealant

Product Schematic

Thermal Element

Features

- 0 to 450 VDC / 0 to 600 VAC Operating Voltage
- High Accuracy of Functioning Temp.
- Ceramic Case
- Non-Resettable
- RoHS & REACH Compliant

Applications

- Battery Cooling Heaters
- Air-Conditioners Heaters
- Pre-charged Resistors
- High Power LED

Agency Information

Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe | SETfuse
Ⓡ Ⓤ Ⓛ	UL60691	E214712
c Ⓡ Ⓤ Ⓛ	CAN-CSA-E60691	E214712

Customization

- Rated Functioning Temp.
- The Shape of Electrode

Part Number System

TG150C - H Q Z

Minimum Breaking Current (A)
Z: Without Inbuilt Fuse

Rated Voltage (VDC)
Q: 450 VDC

P: 400 VDC

S: 600 VAC

Rated Current (A)
H: 15

J: 20

Functioning Temp. (ºC)
86
102
115
125
136
150

Series
TGxxxC
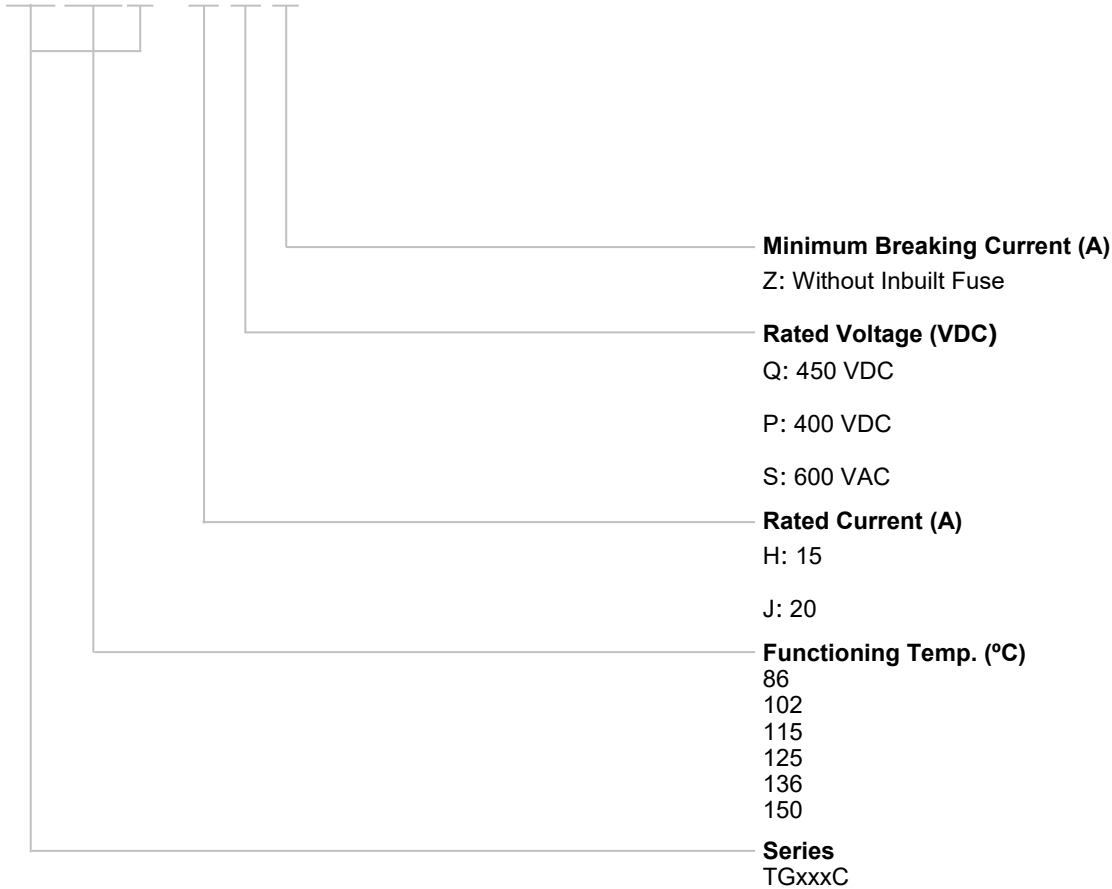
Reminder:

Part numbering system in the datasheet is only for selecting correct parameter and product features. Before placing order, please contact us for specifications and use the part number and product code in the specifications to place order to ensure the part is correct. Product code is the unique indentification.

DC-ATCO
Direct Current Thermal-Link (Alloy Type)

Dimensions (Unit: mm)
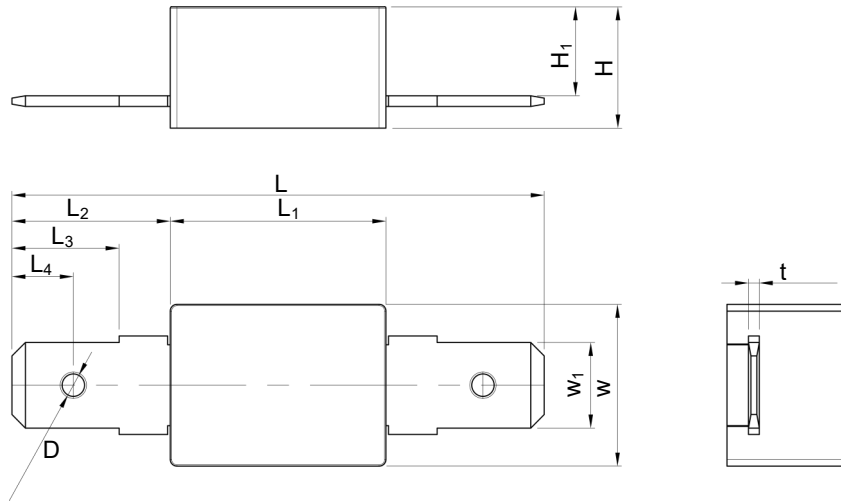
L	L₁	L₂	L₃	L₄	W	W₁	H	H₁	t	D
39.5 ± 2.0	16.0 ± 1.0	11.75 ± 0.30	7.95 ± 0.30	4.55 ± 0.2	12.0 ± 1.0	6.35 ± 0.20	$9.0^{+0.5}_{-0.1}$	$6.0^{+1.0}_{-0.0}$	0.80 ± 0.05	1.65 ± 0.20

Specifications

Rated Functioning Temp. (T_f) °C	Model	I_r (A)	U_r (V)	Rated Functioning Temp. (°C)	T_h (°C)	T_m (°C)	UL	cUL	RoHS REACH
150	TG150C	15	DC 450	146 ± 3	100	250	●	●	●
		20	DC 400				●	●	●
		20	AC 600				●	●	●
136	TG136C	15	DC 450	131 ± 3	100	250	●	●	●
		20	DC 400				●	●	●
		20	AC 600				●	●	●
125	TG125C	15	DC 450	122 ± 3	85	250	●	●	●
		20	DC 400				●	●	●
		20	AC 600				●	●	●
115	TG115C	15	DC 450	112 ± 3	72	250	●	●	●
		20	DC 400		70		●	●	●
		20	AC 600				●	●	●
102	TG102C	15	DC 450	99^{+5}_{-3}	65	250	●	●	●
		20	DC 400		62		●	●	●
		20	AC 600				●	●	●
86	TG86C	15	DC 450	81 ± 3	43	250	●	●	●
		15	AC 600				●	●	●

Note:
1. "●" Means certificated, "○" Means non-certificated.
2. RoHS & REACH Comply.
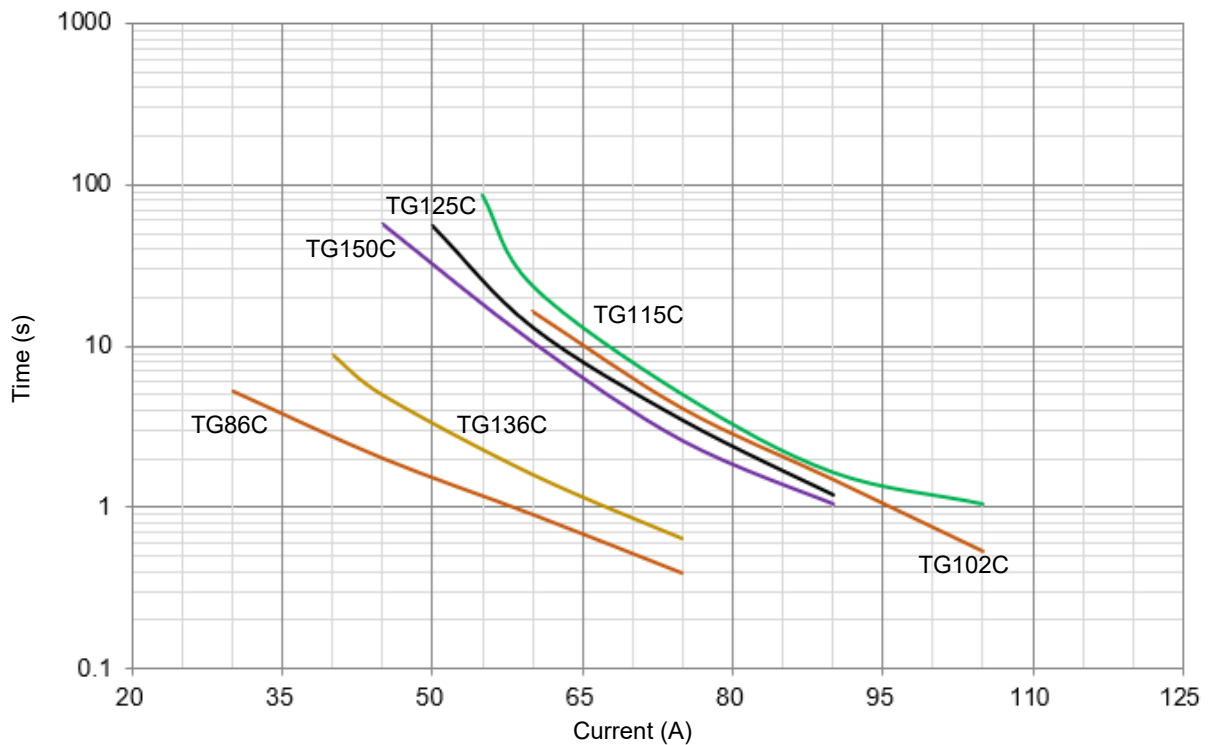
Temp.-Time Curve

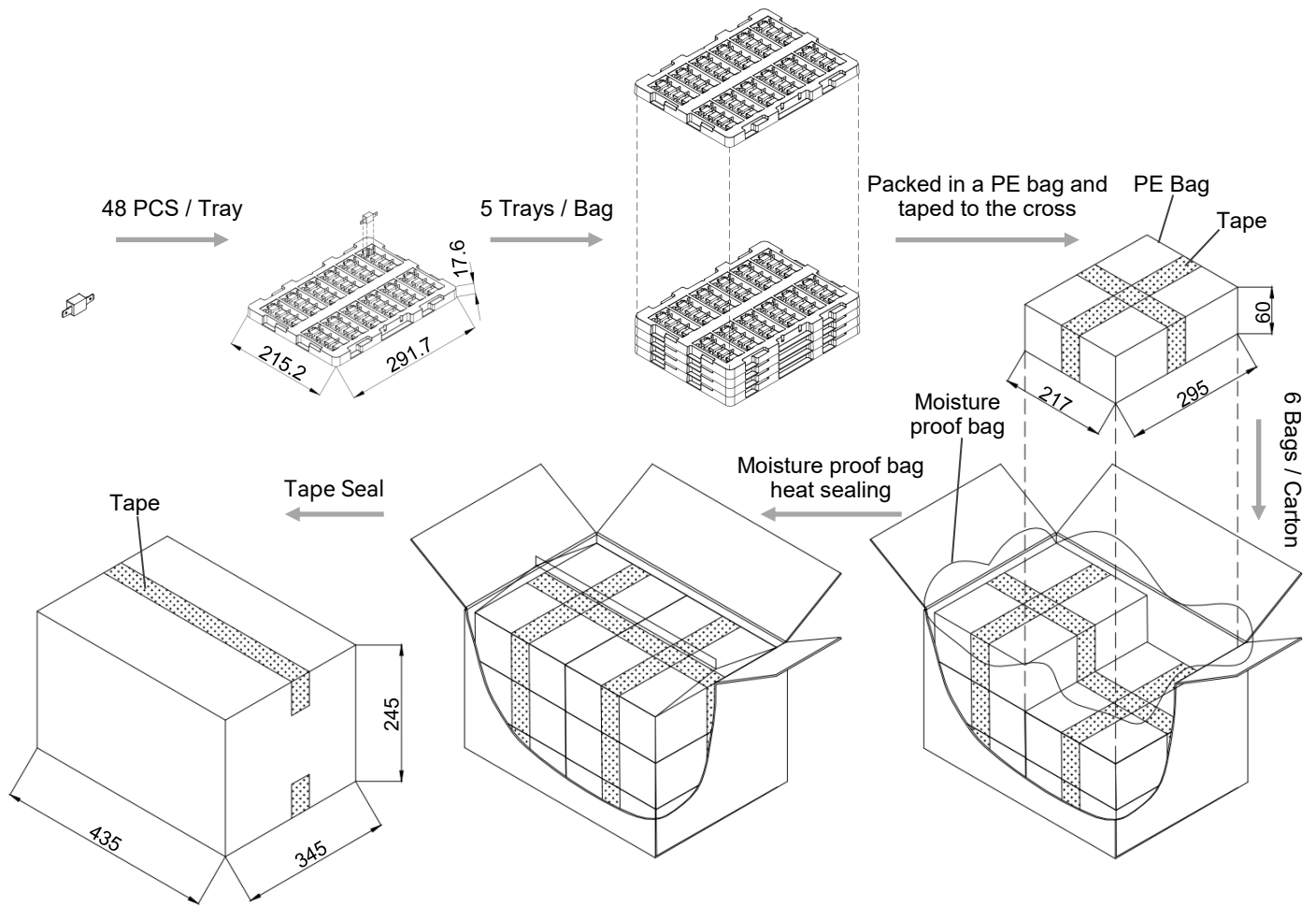The functioning temperature time curve of Alloy Thermal-Link in different Temp. oil bath (For reference only).
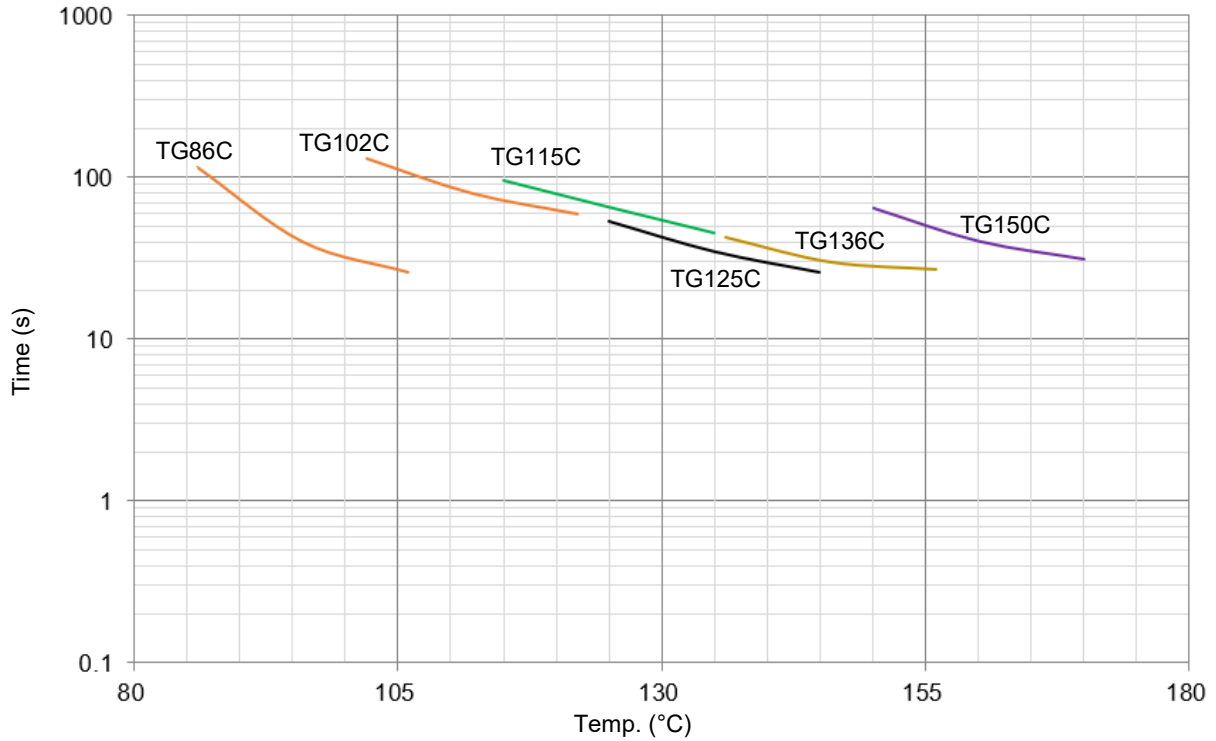
Current-Time Curve

This is an illustrated curve, describing the opening time at Multi-times rated current in the condition of the room Temp. 25 °C (For reference only).

Packaging Information

Item	Pearl cotton tray	PE Bag	Carton
Dimensions (mm)	291.7 x 215.2 x 17.6	295 x 217 x 60	435 x 345 x 245
Quantity (PCS)	48	240	1440
Gross Weight (kg)			11 ± 10%

48 PCS / Tray

5 Trays / Bag

Packed in a PE bag and taped to the cross

PE Bag

Tape

Moisture proof bag

6 Bags / Carton

Moisture proof bag heat sealing

Tape Seal

Tape

Glossary

Item	Description
DC-ATCO	**DC-Alloy Thermal-Link** DC-Alloy type Thermal-Link, Alloy is thermal element.
T_f	**Rated Functioning Temp.** The temperature of the Thermal-Link which causes it to change the state of conductivity with a detection current up to 10 mA as the only load. Tolerance: T_f (0 / -10) °C (GB 9816, EN 60691, K60691). Tolerance: T_f ± 7 °C (J60691).
Fusing Temp.	**Fusing Temp.** The temperature of the Alloy Thermal-Link which causes it to change its state of conductivity is measured with silicone oil bath in which the temperature is increased at the rate of 0.5 °C to 1 °C / minute, with a detection current up to 10 mA as the only load.
T_h	**Holding Temp.** The Maximum temperature at which a Thermal-Link will not change its state of conductivity when conducting rated current for 168 hours.
T_m	**Maximum Temp. Limit** The temperature of the Thermal-Link stated by the manufacturer, up to which the mechanical and electrical properties of the Thermal-Link having changed its state of conductivity, will not be impaired for a given time.
I_{min}	**Minimum Breaking Current** The minimum current that Fuse requires after the Alloy of Thermal-Link opens in the circuit.
I_r	**Rated Current** The current used to classify a Thermal-Link, which is the maximum current that Thermal-Link allows to carry and is able to cut off the circuit safely.
U_r	**Rated Voltage** The voltage used to classify a Thermal-Link, which is the maximum voltage that Thermal-link allows to carry and is able to cut off the circuit safely.

ATTENTION

Usage

1. When atmosphere pressure is from 80 kPa to 106 kPa, the related altitude shall be from –500 m to 2000 m.
2. Operating voltage less than rated voltage of DC-ATCO, operating current less than rated current of DC-ATCO.
3. Do not touch the DC-ATCO body or lead wires directly when power is on, to avoid burn or electric shock.

Replacement

DC-ATCO is a non-repairable product. For safety sake, it shall be replaced by an equivalent DC-ATCO from the same manufacturer, and mounted in the same way.

Storage

Do not store the DC-ATCO at the high temp., high humidity or corrosive gas environment. The product shall be stored at 25 ± 5 °C and ≤ 70% RH, avoid direct sunlight and shall use them up within 1 year after receiving the goods.

Installation

Make Sure the Temp. of Installation Position

1. It is recommended that a dummy DC-ATCO with inbuilt thermo-couple shall be used to determine the proper temp.

2. he terminal product should be tested to ensure that potential abnormal conditions do not cause ambient temp. to exceed the T_m of the DC-ATCO.

3. Mount the DC-ATCO at the location where temp. rises evenly.

Installation position of mechanical performance requirements

1. Ensure that the lead wire is long enough, and avoid actions such as press, tensile or twist.

2. The seal or body of DC-ATCO must not be damaged, burned or over heated.
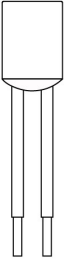
Mechanical Connection

Riveting
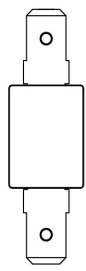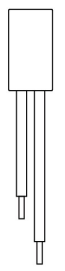
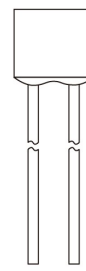1. Choose small resistivity riveting material and be riveted.

2. A flexible lead or lead with low resistance should be used to rivet the DC-ATCO.

3. Contact resistance should be minimal, Large contact resistance will lead to higher temp., DC-ATCO Functioning in advance.
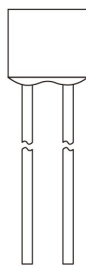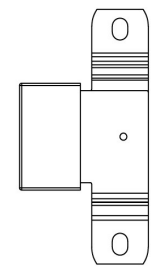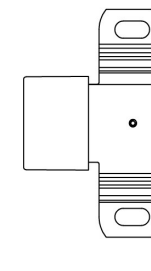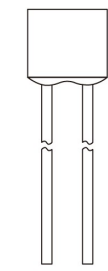
Direct Current Thermal-Link Alloy Type (DC-ATCO) Features & Model List Overview

Rated Functioning Temp. (T_f) °C									
230	○	○	○	○	○	○	○	○	○
221	○	○	○	○	○	○	○	○	○
205	○	○	○	○	○	○	○	○	○
200	○	○	○	○	○	○	○	○	○
187	TGH187-HVS^	ASL187A-LSF^	RSK187A-KSS^	RVH187-HSF^	ARL187-LRA^			RQF187-FQS^	
160	○	○	○	○	○	○	○	○	○
150	TGH150-HVS^	ASL150A-LSF^	RSK150A-KSS^	RVH150-HSF^	ARL150-LRA^	RPK150-HRZ^	TG150C-HQZ^	RQF150-FQS^	TG150C-JPZ^
145	○	○	○	○	○	○	○	○	○
139	○	○	○	○	○	○	○	○	○
136	TGH136-HVS^	ASL136A-LSF^	RSK136A-KSS^	RVH136-HSF^	ARL136-LRA^	RPK136-HRZ^	TG136C-HQZ^	RQF136-FQS^	TG136C-JPZ^
135	○	○	○	○	○	○	○	○	○
133	○	○	○	○	○	○	○	○	○
130	TGH130-HVS^			RVH130-HSF^	○	○	○	RQF130-FQS^	○
125	TGH125-HVS^	ASL125A-LSF^	RSK125A-KSS^	RVH125-HSF^	ARL125-LRA^	RPK125-HRZ^	TG125C-HQZ^	RQF125-FQS^	TG125C-JPZ^
123	○	○	○	○	○	○	○	○	○
120	○	○	○	○	○	○	○	○	○
115	TGH115-HVS^	ASL115A-LSF^	RSK115A-KSS^	RVH115-HSF^	ARL115-LRA^	RPK115-HRZ^	TG115C-HQZ^	RQF115-FQS^	TG115C-JPZ^
105	○	○	○	○	○	○	○	○	○
102	TGH102-HVS^	ASL102A-LSF^	RSK102A-KSS^	RVH102-HSF^	ARL102-LRA^	RPK102-HRZ^	TG102C-HQZ^	RQF102-FQS^	TG102C-JPZ^
97	○	○	○	○	○	○	○	○	○
93	○	○	○	○	○	○	○	○	○
86	○	○	○	○	ARL86-LRA^	○	TG86C-HQZ^	RQF86-FQS^	○
76	○	○	○	○	○	○	○	○	○

I_r (A) Rated Current	15	30	25	15	30	15	15	10	20
U_r (VDC)^ Rated Voltage	850		600		500		450		400
U_r (VAC)* Rated Voltage	○		○		○		○		○

Model

Product Structure

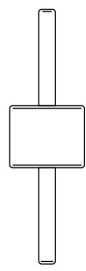| Axial Shape	Radial Shape	Axial Shape	Radial Shape	Axial Shape	Radial Shape	Axial Shape

Direct Current Thermal-Link Alloy Type (DC-ATCO) Features & Model List Overview

Rated Functioning Temp. (T_r) °C

T_r (°C)	Col1	Col2	Col3	Col4	Col5	Col6	Col7	Col8	Col9	Col10	Col11	Col12
230	○	○	○	○	○	○	○	○	○	○	○	○
221	○	○	○	○	○	○	○	○	○	○	○	○
205	○	○	○	○	○	○	○	○	○	○	○	○
200	○	○	○	○	○	○	○	○	○	○	○	○
187	○	○	○	○	○	○	○	○	○	○	○	○
160	○	○	○	○	○	○	○	○	○	○	○	○
150	TG150C-JSZ*	○	○	○	HN150^*	HP150^*	HS150^*	○	QD150^	PD150^	TD150^	SD150^
145	○	○	○	○	○	○	○	○	○	○	○	○
139	○	○	○	○	○	○	○	○	○	○	○	○
136	TG136C-JSZ*	○	○	○	HN136^*	HP136^*	HS136^*	○	QD136^	PD136^	TD136^	SD136^
135	○	○	○	○	○	○	○	○	○	○	○	○
133	○	○	○	○	○	○	○	○	○	○	○	○
130	○	○	○	○	○	○	○	○	QD130^	PD130^	TD130^	SD130^
125	TG125C-JSZ*	○	○	○	HN125^*	HP125^*	HS125^*	ALP125-PLZ^	QD125^	PD125^	TD125^	SD125^
123	○	○	○	○	○	○	○	○	○	○	○	○
120	○	○	○	○	○	○	○	○	○	○	○	○
115	TG115C-JSZ*	○	○	ALP115-HLZ^	○	○	○	○	QD115^	PD115^	TD115^	SD115^
105	○	○	○	○	○	○	○	○	○	○	○	○
102	TG102C-JSZ*	○	○	○	○	○	○	ALP102-PLZ^	QD102^	PD102^	TD102^	SD102^
97	○	○	○	○	○	○	○	○	○	○	○	○
93	○	○	○	○	○	○	○	○	○	○	○	○
86	○	TG86C-HSZ*	RPF86-FPF^	○	○	○	○	○	○	○	○	○
76	○	○	○	○	○	○	○	○	○	○	○	○
I_r (A) Rated Current	20	15	10	15	15	10	5	60	20	15 / 16	10	25
U_r (VDC)^ Rated Voltage	○	400			200			180	125			
U_r (VAC)* Rated Voltage	600	○	○	690		500		○	○			

Model

Product Structure

Axial Shape   Radial Shape   Axial Shape   Radial Shape

SETsafe | SETfuse

TGxxxC Series

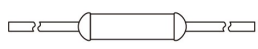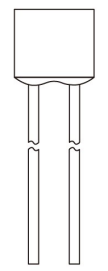# Direct Current Thermal-Link Alloy Type (DC-ATCO) Features & Model List Overview

Rated Functioning Temp. (T_f) °C — **Model**

T_f (°C)	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13
230	○	○	○	○	○	○	○	○	○	○	○	○	ADN230B-NEZ
221	○	○	○	○	○	○	○	○	○	○	○	○	○
205	○	○	○	○	○	○	○	○	○	○	○	○	○
200	○	○	○	○	○	○	○	○	○	○	○	○	○
187	○	○	○	○	○	○	○	○	○	○	○	○	○
160	○	○	○	○	○	○	○	○	○	○	○	○	○
150	○	○	○	○	○	○	○	○	○	○	S150^	T150^	○
145	○	○	○	○	○	○	○	○	○	○	○	○	○
139	○	○	○	○	○	○	○	○	○	○	○	○	○
136	Q136^*	Q136*	Q136*	P136^*	P136*	P136*	TB136-UHZ^	TB136-UJZ*	TS136-RHZ^	TS136-RJZ*	S136^	T136^	○
135	○	○	○	○	○	○	○	○	○	○	○	○	○
133	○	○	○	○	○	○	○	○	○	○	○	○	○
130	○	○	○	○	○	○	TB130-UHZ^	TB130-UJZ*	○	○	○	○	○
125	Q125^*	○	○	P125^*	○	○	TB125-UHZ^	TB125-UJZ*	TS125-RHZ^	TS125-RJZ*	○	○	○
123	○	○	○	○	○	○	○	○	○	○	○	○	○
120	○	○	○	○	○	○	○	○	○	○	○	○	○
115	Q115^*	Q115*	Q115*	P115^*	P115*	P115*	TB115-UHZ^	TB115-UJZ*	TS115-RHZ^	TS115-RJZ*	S115^	T115^	○
105	○	○	○	○	○	○	○	○	○	○	○	○	○
102	Q102^*	○	○	P102^*	P102*	P102*	TB102-UHZ^	TB102-UJZ*	TS102-RHZ^	TS102-RJZ*	S102^	T102^	○
97	○	○	○	○	○	○	○	○	○	○	○	○	○
93	○	○	○	○	○	○	○	○	○	○	○	○	○
86	○	○	○	○	○	○	○	○	○	○	○	○	○
76	○	○	○	○	○	○	○	○	○	○	○	○	○

I_r (A) Rated Current: 25 (C1–C3) | 20 (C4–C6) | 200 (C7–C8) | 100 (C9–C10) | 10 (C11) | 15/16 (C12) | 50 (C13)

U_r (VDC)^ Rated Voltage: 120 (C1–C6) | 100 (C7–C8) | 100 (C9–C10) | 100 (C11–C12) | 60 (C13)

U_r (VAC)* Rated Voltage: 400 | 300 | 250 | 400 | 300 | 250 | 125 (C7–C8) | 125 (C9–C10)

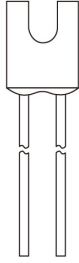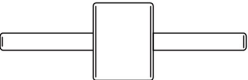**Product Structure**

Radial Shape   Axial Shape

SETsafe | SETfuse

TGxxxC Series

Direct Current Thermal-Link Alloy Type (DC-ATCO) Features & Model List Overview

Rated Functioning Temp. (T_r) °C vs **Model**

T_r (°C)	15	10	9	8.5	8	6	5	4	3	2.5	2	1	4 (R)	3 (R)	2 (R)	1 (R)
230																
221	R31^*	U31^*				C31^*			B31^*		H31^*	V31^*	V31*	X31*	K31*	
205	R32^*	U32^*				C32^*			B32^*		H32^*	V32^*	V32*	X32*	K32*	
200																
187														X17^*	K17^*	
160	R16^*	U16^*				C16^*					H16^*	V16^*		X16^*	K16^*	F16*
150	R7^*	U7^*												X7*	K7*	F7*
145	R6^*	U6^*	C6^				X6^					K6^	F6^	X6*	K6*	F6*
139	CR13^			M13^	C13^		SF13^	V13^					F13^			F13*
136							X9^					K9^		X9*	K9*	
135	R5^*	U5^*												X5*	K5*	
133								V8^	SF8^				F8^	X8*	K8*	F8*
130	R4^*	U4^*						V4^	SF4^				F4^	X4*	K4*	F4*
125	R3^*	U3^*									H3^*			X3^*	K3^*	F3*
123																
120																
115	R2^*	U2^*			C2^			V2^	SF2^				F2^	X2^*	K2^*	F2*
105																
102	R1^*	U1^*											F1^	X1^*	K1^*	F1*
97																
93																
86	R18^*	U18^*				C18^		V18^					F18^	X18^*	K18^*	F18*
76	R0^*	U0^*												X0*	K0*	F0*
I_r (A) Rated Current	15	10	9	8.5	8	6	5	4	3	2.5	2	1	4	3	2	1
U_r (VDC)^ Rated Voltage							60									
U_r (VAC)* Rated Voltage	250	250					250		250		250	125		250		

Product Structure

Axial Shape

Radial Shape

DC-ATCO
Direct Current Thermal-Link (Alloy Type)

SETsafe | SETfuse

TGxxxC Series

Direct Current Thermal-Link Alloy Type (DC-ATCO) Features & Model List Overview

Rated Functioning Temp. (T_f) °C

Model

T_f (°C)	XG	KG	C^	C*	C	B^	B	H^	H	V^	V	ADN	ADN	ADN	ADN
230	○	○	○	○	○	○	○	○	○	○	○	ADN230B-NDZ^	ADN230B-PDZ^	○	ADN230B-QBZ^
221	XG31*	KG31*	○	○	C31*	○	B31*	○	H31*	○	○	○	○	ADN205B-NDZ^	○
205	XG32*	KG32*	○	○	C33*	○	B32*	○	H32*	○	○	○	○	○	○
200	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
187	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
160	XG16*	KG16*	○	○	○	B16*	○	○	○	○	○	○	○	○	○
150	XG7*	KG7*	C7^	C7*	○	B7^*	○	H7^*	○	V7^*	○	○	○	○	○
145	XG6*	KG6*	C6^	C6*	○	B6^*	○	H6^*	○	V6^*	○	○	○	○	○
139	○	○	C13^	C13*	○	B13^*	○	H13^*	○	V13^*	○	○	○	○	○
136	XG9*	KG9*	C9^	C9*	○	B9^*	○	H9^*	○	V9^*	○	○	○	○	○
135	XG5*	KG5*	C5^	C5*	○	B5^*	○	H5^*	○	V5^*	○	○	○	○	○
133	XG8*	KG8*	C8^	C8*	○	B8^*	○	H8^*	○	V8^*	○	○	○	○	○
130	XG4*	KG4*	C4^	C4*	○	B4^*	○	H4^*	○	V4^*	○	○	○	○	○
125	XG3^*	KG3^*	C3^	C3*	○	B3^*	○	○	○	V3^*	○	○	○	○	○
123	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
120	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
115	XG2^*	KG2^*	C2^	C2*	○	B2^*	○	H2^*	○	V2^*	○	○	○	○	○
105	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
102	XG1^*	KG1^*	○	C1^*	C1*	B1^*	B1*	H1^*	H1*	V1^*	V1*	○	○	○	○
97	○	○	○	C21^*	○	B21^*	○	H21^*	○	V21^*	○	○	○	○	○
93	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
86	XG18^*	KG18^*	○	C18^*	C18*	B18^*	B18*	H18^*	H18*	V18^*	V18*	○	○	○	○
76	XG0*	KG0*	○	C0*	○	B0^*	B0*	H0^*	H0*	V0^*	V0*	○	○	○	○
I_r (A) Rated Current	3	2	7	5	5	3	3	2	2	1	1	50	55	50	80
U_r (VDC)^ Rated Voltage	60	60	50	50	50	50	50	50	50	50	50	49	48	48	24
U_r (VAC)* Rated Voltage	250	250	○	250	125	250	125	250	125	250	125				

Product Structure

Radial Shape

Axial Shape