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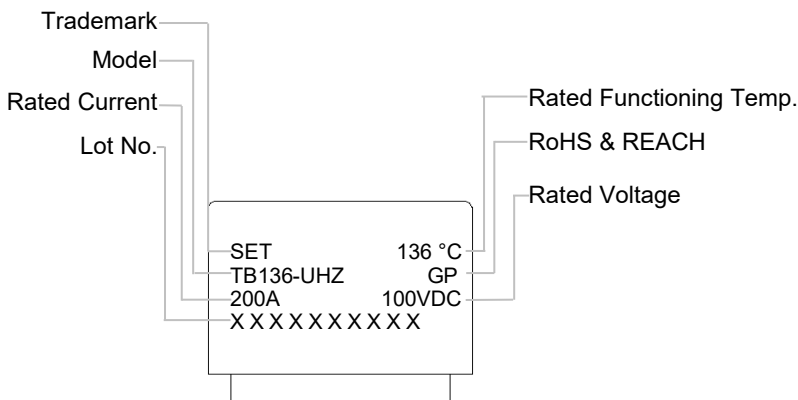## Direct Current Thermal-Link (Alloy Type)

TB 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 a case, the low melting point alloys (thermal element), flux resin, sealant and electrode lead.
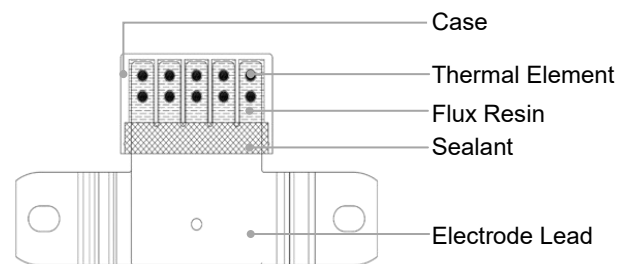
The DC-ATCO is widely employed for over-temperature protection in electrical equipment and electric vehicles. Typically, the low melting point alloys (thermal element) are connected in series between two electrode pins. When the temperature reaches the predetermined fusing temperature of the DC-ATCO, 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 102 °C to 136 °C, rated current 200 A, rated voltage: 100 VDC, 125 VAC. It is compliant with RoHS and REACH regulations.

Marking

Trademark
Model
Rated Current
Lot No.

Rated Functioning Temp.
RoHS & REACH
Rated Voltage

SET   136 °C
TB136-UHZ   GP
200A   100VDC
X X X X X X X X X X

Structure Diagram

Case
Thermal Element
Flux Resin
Sealant
Electrode Lead

Features

- High Accuracy of Functioning Temp.
- Non-Resettable
- RoHS & REACH Compliant
- DC 200 A

Applications

- EV Battery Modules
- Power Supplies

Customization

- Rated Functioning Temp.
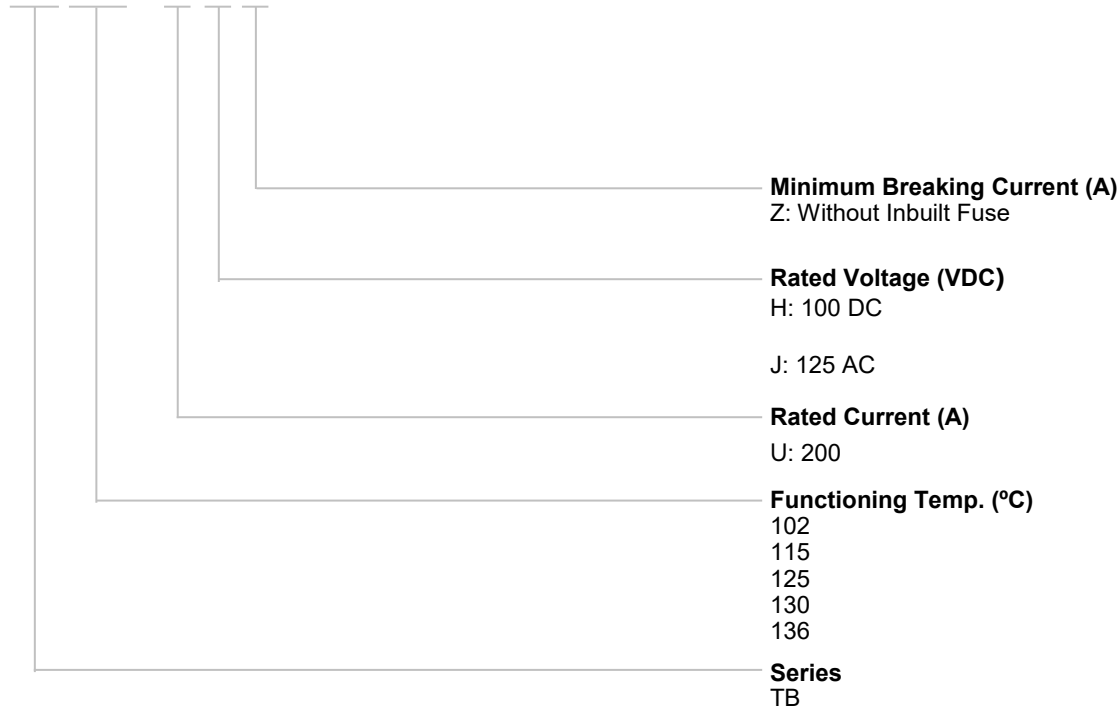- The Shape of Electrode Lead

Part Number System

TB136 - U H Z

Minimum Breaking Current (A)
Z: Without Inbuilt Fuse

Rated Voltage (VDC)
H: 100 DC

J: 125 AC

Rated Current (A)
U: 200

Functioning Temp. (ºC)
102
115
125
130
136

Series
TB

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)
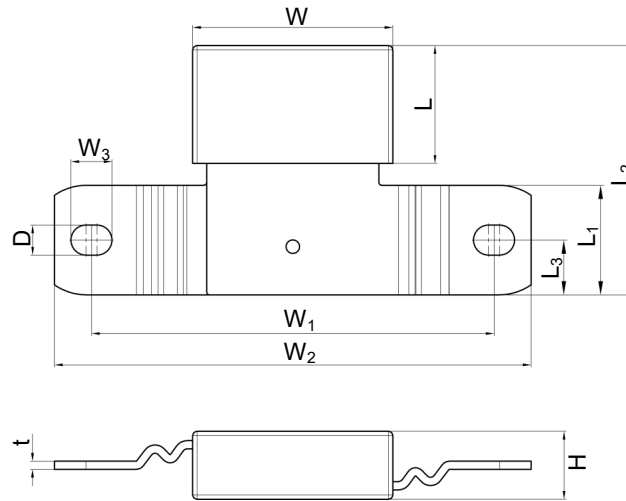
L	L₁	L₂	L₃	W	W₁	W₂	W₃	D	H	t
21.5 ± 0.5	20.0 ± 0.2	45.5 ± 2.0	10.0 ± 0.2	36.5 ± 0.5	73.4 ± 2.0	86.9 ± 2.0	7.50 ± 0.15	5.5 ± 0.2	12.4 ± 0.5	1.50 ± 0.05

Specifications

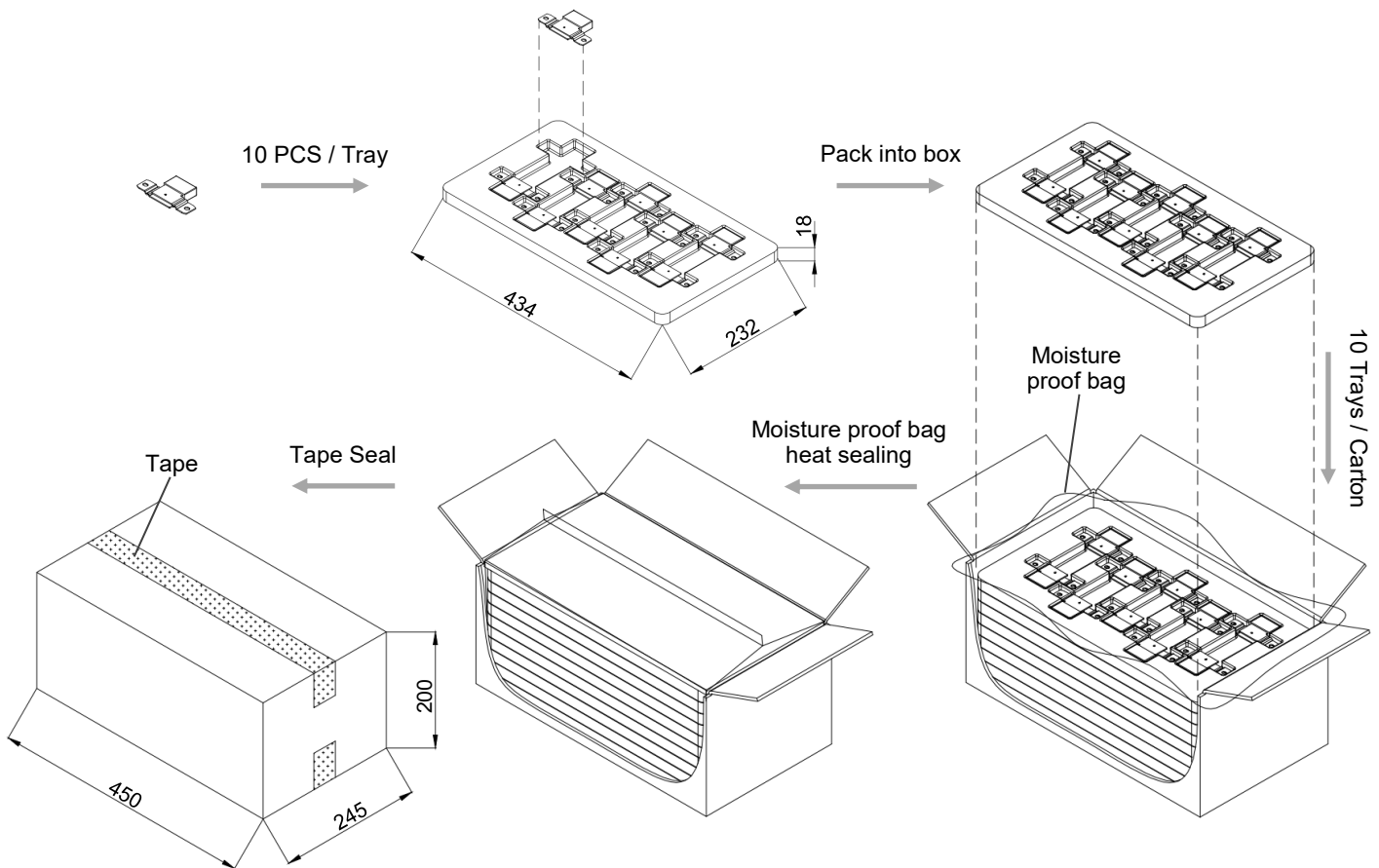| Rated Functioning Temp. (T_f) °C		Model	I_r	U_r	Rated Functioning Temp.	T_h	T_m	RoHS REACH
			(A)	(V)	(°C)	(°C)	(°C)	
136		TB136-UHZ	200	DC 100	131 ± 3	91	180	●
		TB136-UJZ		AC 125				●
130		TB130-UHZ	200	DC 100	126 ± 3	85	180	●
		TB130-UJZ		AC 125				●
125		TB125-UHZ	200	DC 100	122 ± 3	80	180	●
		TB125-UJZ		AC 125				●
115		TB115-UHZ	200	DC 100	112 ± 3	70	180	●
		TB115-UJZ		AC 125				●
102		TB102-UHZ	200	DC 100	$99\,^{+5}_{-3}$	57	180	●
		TB102-UJZ		AC 125				●

Note:
1. RoHS & REACH Comply.

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).
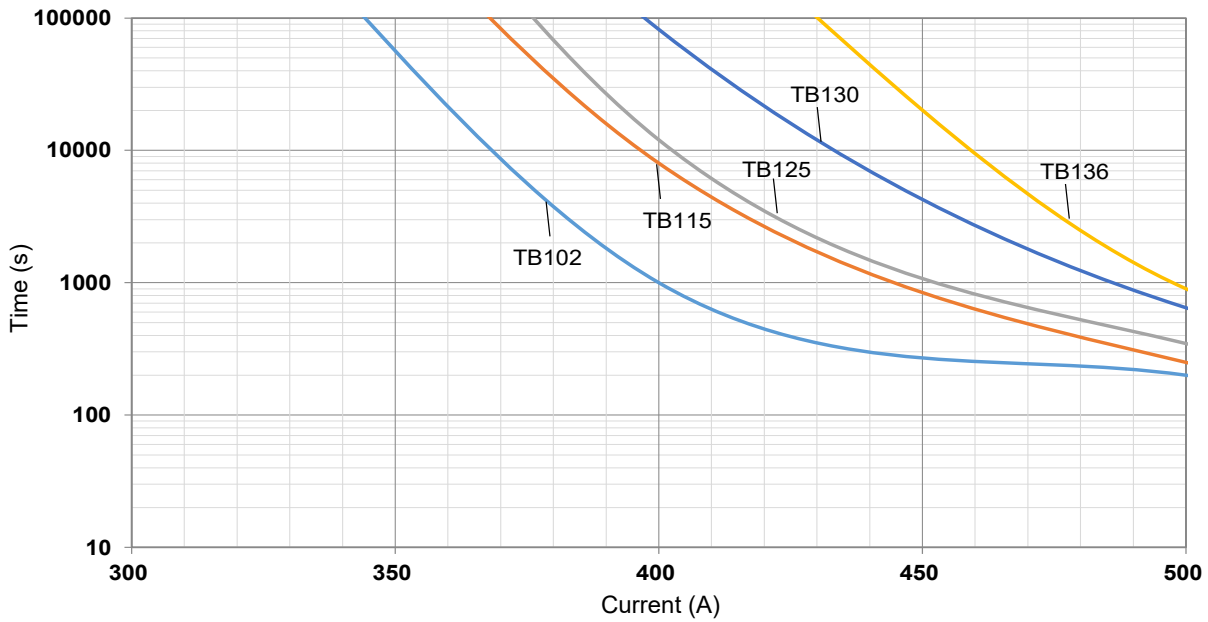
Packaging Information

Item	Tray	Carton
Dimensions (mm)	434 x 232 x 18	450 x 245 x 200
Quantity (PCS)	10	100
Gross Weight (kg)		7.6 ± 10%

10 PCS / Tray

Pack into box

Moisture proof bag

Moisture proof bag heat sealing

10 Trays / Carton

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
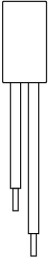
Riveting

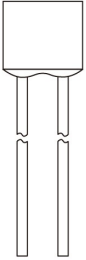1. Choose small resistivity riveting material and be riveted.

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_r) °C — **Model**

T_r °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	○	○			○			○	○
Product Structure	Axial Shape	Radial Shape			Axial Shape	Radial Shape		Axial Shape	Radial Shape	Axial Shape

SETsafe | SETfuse

TB Series

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

Rated Functioning Temp. (T_f) °C

T_f °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	○	○	○	○	○	○	○	○	○	○	○	○

	Col1	Col2	Col3	Col4	Col5	Col6	Col7	Col8	Col9	Col10	Col11	Col12
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		○		○		

Product Structure

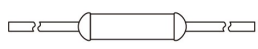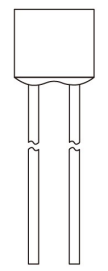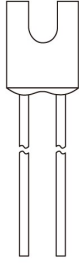Axial Shape — Radial Shape — Axial Shape — Radial Shape

Model

TB Series

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

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

T_f (°C)													
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			20			200		100		10	15 / 16	50
U_r (VDC)^ Rated Voltage	120						100	○	100		100		60
U_r (VAC)* Rated Voltage	400	300	250	400	300	250	○	125	○	125	○		○

Product Structure

Radial Shape   Axial Shape

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

Rated Functioning Temp. (T_r) °C (vertical axis) vs **I_r (A) Rated Current** (horizontal axis)

T_r (°C)	15	10	9	8.5	8	6	5	4	3	2.5	2	1	4	3	2	1
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

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

Model — Rated Functioning Temp. (T_f) °C

T_f (°C)	XG	KG	C7	C	C	B	B	H	H	V	V	ADN230B-NDZ^	ADN230B-PDZ^	ADN205B-NDZ^	ADN230B-QBZ^
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	125	250	125	250	125	250	125	○	○	○	○

Product Structure

Radial Shape

Axial Shape

SETsafe | SETfuse

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