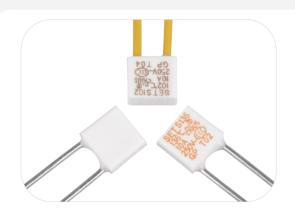


S Series



Description

Thermal-Link (ATCO)-Alloy Type is defined as a non-resettable protective device functioning one time only. It is widely used in electrical equipment. ATCO is mainly consist of fusible alloy, flux resin, case, sealant and lead wires. Normally, fusible alloy is jointed to the two lead wires. Under abnormal conditions, when the temp. reaches to the fusing temp. of ATCO, the fusible alloy melts and quickly retracts to the two lead wire ends with the aid of the flux resin and disconnects the circuit completely.

SETsafe | SETfuse Thermal-Link (ATCO)-Alloy Type S series Rated Functioning Temp. from 102 °C to 150 °C, Rated Current: 10 A, safety certification Includes UL, cUL, TUV, PSE, VDE, CCC, and complies with RoHS and REACH.

Applications

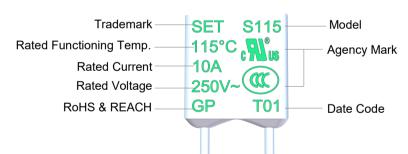
- Surge Protective Devices
- Power Strips
- Lamps
- Switched-Mode Power Supplies
- Home Electrical Appliances
- Batteries

Customization

- Other Temp.
- The Length of Lead Wires
- Taping Packing Available
- Lead Wires can be Insulated
- Leads Forming Types

Marking

Radial (Color for reference only)



Remark: The Date Code means Year and quarter: A stands for 2000, B stands for 2001 and 01 stands for the first quarter, 02 stands for the second quarter, and so on.

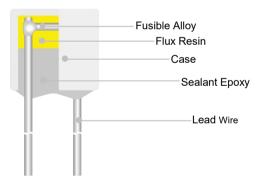
Features

- Non-Resettable
- High Accuracy of Functioning Temp.
- High Surge Capacity
- RoHS & REACH Compliant

Structure Diagrams

Dimensions (mm)

Radial



SET safe SET fuse

S Series

Thermal-Link (ATCO)-Alloy Type

Specifications

		Model	Fusing Temp.	T _h	T _m	I _r	Ur	<i>I</i> n 8 / 20 μs (15 Times)	<i>I</i> _{max} 8 / 20 μs (1 Time)	AI ®	c A1 ®	4	∑ D D			RoHS REACH
			(°C)	(°C)	(°C)	(A)	(V)	(kA)	(kA)	UL	cUL	τυν	VDE	PSE	ссс	
(<i>T</i> _f) °C				118			AC 250			•	•	•	0	•	•	
(Jf	150	S150	145 ± 2	106 ^a	200	10	AC 125	5	10	•	•	0	0	●	0	•
.dr							DC 100			•	•	0	0	0	0	
Ten				106			AC 250			•	•	0	•	●	•	
bu	136	S136	131 ± 2	100	200	10	AC 125	5	10	•	•	0	0	•	0	•
ioni							DC 100			•	•	0	0	0	0	
Rated Functioning Temp.	125	S125	121 ± 2	95 83ª	200	10	AC 250	5	10	0	0	•	0	•	•	•
ed I				85			AC 250			•	•	0	•	•	•	
Rat	115	S115	111 ± 2	73 ^a	200	10	AC 125	5	10	•	•	0	0	•	0	•
							DC 100			•	•	0	0	0	0	
				72			AC 250			●	•	0	•	•	•	
	102	S102	98 ± 2	61 ^a	200	10	AC 125	5	10	●	•	0	0	•	0	•
							DC 100			•	•	0	0	0	0	

Note:

1: "●"Means certificated, "○"Means non-certificated.

2: RoHS & REACH Compliant . 3: " a ": The temperature measurement point for holding temperature (T_h) shall be positioned 50 mm away from the product body, in accordance with the requirements specified in Appendix H.11.2 of IEC 60691:2015 and Appendix I of GB/T 9816.1-2023.

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Agency Information

Agency Symbol	Standards	The File No. and certification No. obtained by SETsafe SETfuse
RI ®	UL 60691	E214712
c FN ®	CAN-CSA-E60691	E214712
A	EN 60691	R50497013
	EN 60691	40018082
PS E	J60691	JET2121-32001-2029、JET2121-32001-2030、JET2121-32001-2031
	GB 9816.1	2020980205000189

Soldering

Hand-Soldering

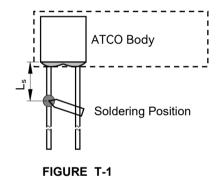
- 1. Soldering should be carried out according to Table T-1.
- 2. The thermal element of ATCO is fusible alloy with low melting point, which is jointed with ATCO lead wires. Improper soldering operation (too high soldering temp., too long soldering time, too short lead wire etc.) may transfer more heat to the thermal element and ATCO may open in advance.
- 3. When soldering conditions are more severe than those listed in Table T-1, a heat sink fixture should be used between soldering point and ATCO body.
- 4. When soldering, please do not pull / push or twist ATCO body or lead wires.
- 5. After soldering, let it naturally cool for longer than 20 seconds. During cooling, never move the ATCO body or lead wires.

TABLE T-1 Hand-Soldering Time

Rated Functioning Temp.		Max. Allov	vable Sol	dering Tin	ne for Differe	nt Lead V	Vire Lengt	h (Fig.T-1)		Max. Soldering Temp.
(<i>T</i> _f)	L _s	Time)	L _s	Time)	L _s	Tim	e	
	Length -	Tinned Copper Wire	CP Wire	Length	Tinned Copper Wire	CP Wire	Length	Tinned Copper Wire	CP Wire	-
(°C)	(mm)	(s)	(s)	(mm)	(s)	(s)	(mm)	(s)	(s)	(°C)
102 to 115	10	1 ^a	4	20	2	5	30	3	6	
116 to 135	10	1ª	4	20	3	6	30	5	8	400
136 to 150	10	3	6	20	5	8	30	5	8	1

Note:

a: Auxiliary Heat Sink Fixture is Required to Avoid ATCO Cutting off Unexpectedly.



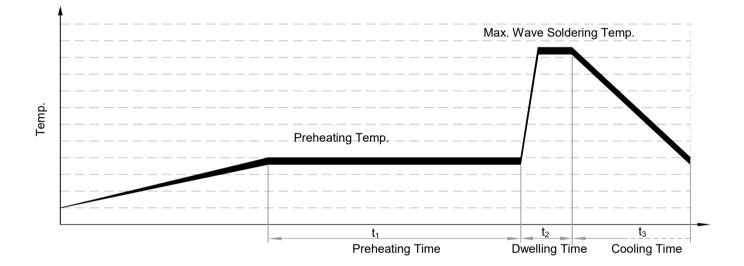
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Wave Soldering

The wave soldering parameters as Table T-2, for reference only, when ATCO is for practice use, you need to do some validation experiments. For example, using X-RAY to see the fusible alloy of ATCO whether damage after wave soldering.

TABLE T-2 Wave Soldering Parameters Setting

Rated Functioning Temp.	Who		ble Preheatir of Lead Wir (Fig.T-1)	ng Temp. re is Different	Preheating Time (t ₁)	Max. Wave Soldering	Dwelling Time (t ₂)	Cooling Time (t ₃)
(<i>T</i> _f)	L _s Length	Preheating Temp.	L _s Length	Preheating Temp.		Temp.		
(°C)	(mm)	(°C)	(mm)	(°C)	(s)	(°C)	(s)	(s)
102 to 130				Recommend	I Hand-Soldering			
131 to 150	20	80	30	90	< 60	≤ 260	≤ 3	≤ 10



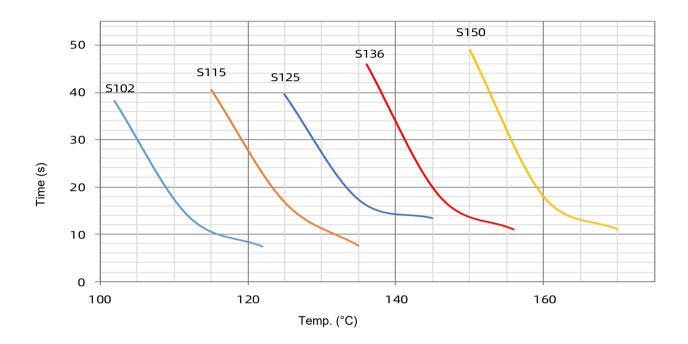
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S Series

Thermal-Link (ATCO)-Alloy Type

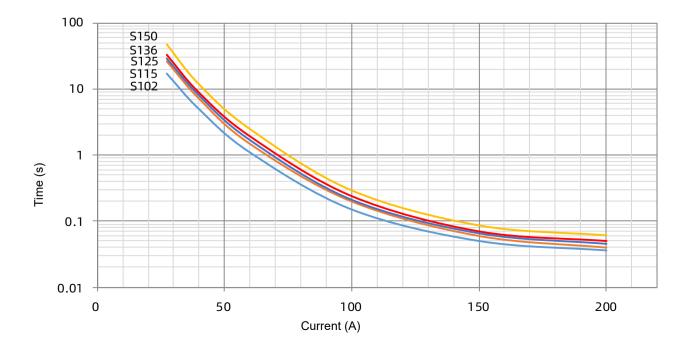
Product Temp.-Time Curve (Reference)

The Temp.-Time Curve of Thermal-Link in different temp. oil bath.



Product Current-Time Curve (Reference)

The Current-Time Curve shows functioning time at multi-times rated current at room temperature 25 ± 2 °C.



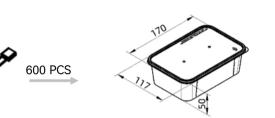
S Series

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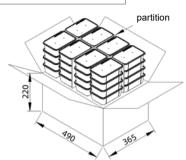
Packaging Information

Bulk

Item	Box	Carton
Dimensions (mm)	170 × 117 × 50	490 × 365 × 220
Quantity (PCS)	600	19200
Gross Weight (kg)		17.3 ± 10%

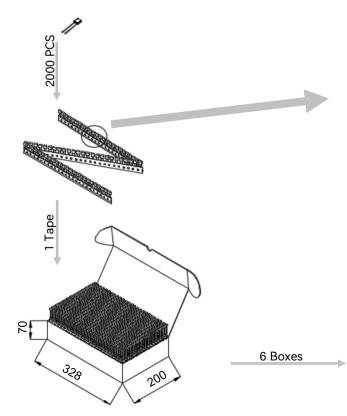


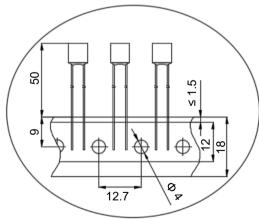
32 Boxes

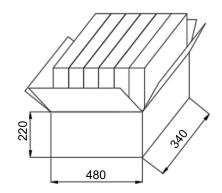


Taping

Item	Вох	Carton
Dimensions (mm)	328 × 200 × 70	480 × 340 × 220
Quantity (PCS)	2000	12000
Gross Weight (kg)	·	12.0 ± 10%



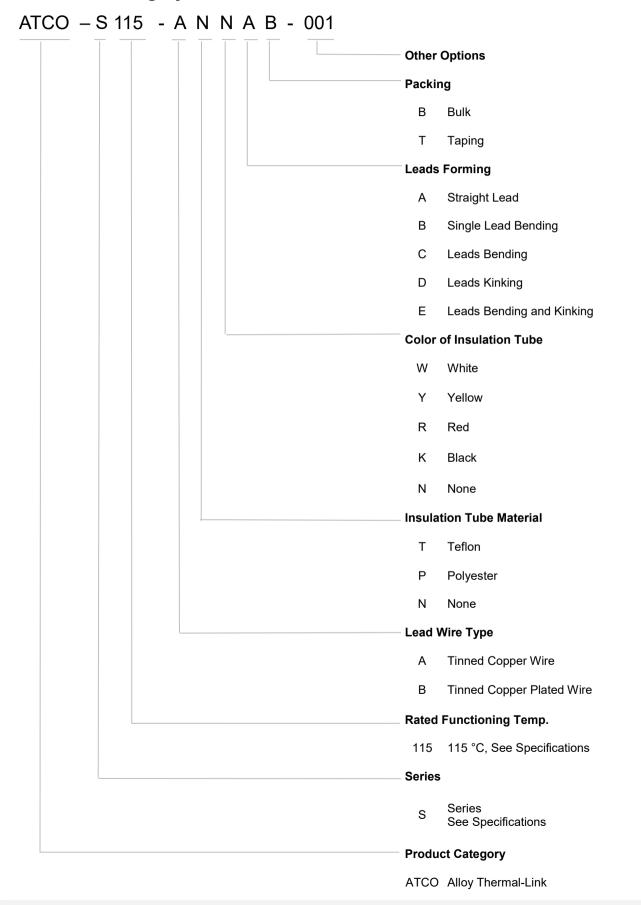






S Series

Part Numbering System





S Series

Glossary

ltem	Description
тсо	Thermal-Link A non-resettable device incorporating a THERMAL ELEMENT which will open a circuit once only when exposed for a sufficient length of time to a temperature in excess of that for which it has been designed. — (GB 9816.1)
АТСО	Alloy Thermal-Link Alloy Type Thermal-Link, Alloy is the thermal element. — (GB 9816.1)
Tf	Rated Functioning Temp. The temperature of the Alloy Thermal-Link which causes it to change the state of conductivity with a detection current up to 10 mA as the only load.
	— (GB 9816.1) Tolerance: <i>T</i> _f °C (GB 9816.1, EN 60691, K60691). Tolerance: <i>T</i> _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. — (GB 9816.1)
T _h	Holding Temp. The Maximum temperature at which a Alloy Thermal-Link will not change its state of conductivity when conducting rated current for 168 hours. — (GB 9816.1)
T _m	Maximum Temp. Limit The temperature of the Alloy Thermal-Link stated by the manufacturer, up to which the mechanical and electrical properties of the Alloy Thermal-Link having changed its state of conductivity, will not be impaired for a given time. — (GB 9816.1)
I,	Rated Current The current used to classify a Alloy Thermal-Link, which is the Maximum current that Alloy Thermal-Link allows to carry and is able to cut off the circuit safely. — (GB 9816.1)
U _r	Rated Voltage The voltage used to classify a Alloy Thermal-Link, which is the Maximum voltage that Alloy Thermal-Link allows to carry and is able to cut off the circuit safely. — (GB 9816.1)
<i>I</i> n	Nominal Discharge Current Being able to withstand 15 peak currents of waveform 8/20 µs to test the product's durability of withstanding pulse current. — (UL 1449)
I _{max}	Max. Discharge Current Being able to withstand 1 peak current of waveform 8/20 μs to test max. pulse current that the product can withstand. — (UL 1449)

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S Series



ATTENTION

Usage

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

Replace

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

Storage

Do not store the ATCO at the high temp., high humidity or corrosive gas environment, avoid influencing the solder-ability of the lead wires, the product shall be used up within 1 year after receiving the goods.

Installation

Make Sure the Temp. of Installation Position.

- 1. It is recommended that a dummy ATCO with inbuilt thermo-couple shall be used to determine the proper temp.
- 2. The terminal product should be tested to ensure that potential abnormal conditions do not cause ambient temp. to exceed the T_m of the ATCO.
- 3. Mount the ATCO at the location where temp. rises evenly.

Installation position of mechanical performance requirements.

- 1. Do not locate the ATCO in a place where severe vibration always occurs.
- 2. Ensure that the lead wire is long enough, and avoid actions such as press, tensile or twist.
- 3. The seal or body of ATCO must not be damaged, burned or over heated.



S Series

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 ATCO.
- 3. Contact resistance should be minimal, large contact resistance will lead to higher temp., ATCO Functioning in advance.

Crimping

- 1. Choose small resistivity crimping material and be crimped.
- 2. A flexible lead or lead with low resistance should be used to rivet the ATCO.
- 3. Contact resistance should be minimal, large contact resistance will lead to higher Temp., ATCO Functioning in advance.

Lead Wire Forming

- 1. If lead wire has to be bent, please pay attention to the distance between body and bending point. Refer to Table T-3.
- 2. When bending leads, please use pincher or similar tools to fix the product as shown in Fig.T-2, to avoid damaging the product.
- 3. During forming and mounting, lead wire should not be cut, nicked, bent sharply, to avoid breaking the product.
- 4. Tangential forces on the leads must be avoided (i.e. pushing or pulling on the leads at angle to ATCO body) as such forces may damage the seal of ATCO.

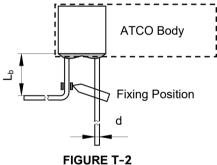


TABLE T-3 Distance between Body and Bending Point

	d	(mm)	< 1.0	1.0 - 1.2	> 1.2
Circular lead	L _b	(mm)	≥ 3	≥5	≥ 10

S Series

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										Μ	od	el										1	N		
0	TK221	TK205	0	0	TK160	TK150	TK145	0	0	TK135	0	TK130	TK125	0	0	TK115	0	TK102	0	0	0	0	15 16		
SE230			SE200			SE150	SE145			SE135			SE125			SE115		SE102				0	10		
SKL230			SKL200																			0	10		
0	SK221	SK205	0		SK160	SK150	SK145			SK135		SK130	SK125			SK115		SK102				0	10		
0	XG31	XG32			XG16				XG9		XG8	XG4	XG3			XG2		XG1			XG18	XG0	e		
	KG31	KG32			KG16		KG6		KG9	KG5	KG8	KG4	KG3			KG2		KG1			KG18	KGO	5		
0	0				0	G150			G136			G130	G125			G115		G102			0	0	40		11 11 11
						N150 0			N136 (N130 0	N125 (N115		N102 0				0	30		1 1 1
0						0			Q136			0	0			Q115 1						0	25		
									P136 0							P115 0						0	20		
						T150			T136 F				T125			T115 F		T102				0	15 16	250	
						S150			S136				S125			S115		S102				0	6		
0				Υ17	Y16	77			6,		Υ8	Υ4	۲3 ۲3			Υ2		7			Y18	۲o	5		
	X31	X32		X17	X16	X7	X6		6X	X5	X8	Х4	X3			Х2		X1			X18	ОX	e		
	K31	K32		K17	K16	K7	К6		6X	K5	К8 8	К 4	ξ			\$		Ę			K18	У Х	2		
					F16	F7	F6				8 1	F4	£			F2		μ			F18	ЪО	-		1 1 1
						RQ150						RQ130	RQ125			RQ115						0	20		
0	R31	R32			R16	R7	R6			R5		R4	R3			R2		R1			R18	RO	15		∏ ∩
0	U31	U32			U16	U7	00			U5		U4	U3			U2		IJ			U18	ŝ	10		\square
0	C31	C32			C16	C7	C6	C13	60	C5	C8	C4	ទ			C2		G	C21		C18	C	5		
0	B31	B32			B16	B7	B6	B13	B9	B5	B8	B4	B3			B2		B1	B21		B18	BO	e		Ĭ
0	H31	H32			H16	H7	9H	H13	бH	H5	H8	H4	H3			H2		H	H21		H18	ЮН	2		Ĩ
0	V31	V32	0	0	V16	77	90	V13	67	V5	V8	V4	V3	0	0	V2	0	۲۱	V21	0	V18	0N	۲		
230	221	205	200	187	160	150	145	139	136	135	133	130	125	123	120	115	105	102	97	95	86	76	V) irrent	AC) Itage	uct ture
				;) 。	(!	L)	٠dı	uə _.	L 6	ui	uo	ito	ur	Ы	pə	1e)	Ы					<pre>/r (A) Rated Current</pre>	Ur (VAC) Rated Voltage	Product Structure

Thermal-Link (ATCO)-Alloy Type Feature & Model List Overview

S Series

SET safe | SET fuse

			ſ	/										el	od	M										
	0	2	!	HWO	HW18	0	0	HW1	0	HW2	0	0	HW3	HW4	0	HW5	0	0	HW6	HW7	0	0	0	0	0	0
2	800	2		HLO	HL18	0	0	HL1	0	HL2	0	0	HL3	HL4	0	HL5	0	0	HL6	HL7	0	0	0	0	0	0
		2	!	0	0	0	0	0	0	0	0	0	HN125	0	0	0	HN136	0	HN145	0	0	0	0	0	0	0
2		0		HC0	HC18	0	0	HC1	0	HC2	0	0	HC3		0	HC5	0	0	HC6	HC7	0	0	0	0	0	0
		2		0	0	0	0	0	0	0	0	0	HP125	0	0	0	HP136	0	HP145	0	0	0	0	0	0	0
		0		0	0	0	0	0	0	0	0	0	HS125	0	0	0	HS136	0	HS145	0	0	0	0	0	0	0
	500	2		HRO	HR18	0	0	HR1	0	HR2	0	0	HR3	HR4		HR5	0	0	HR6 I	HR7	0	0	0	0	0	0
22		2		HUO	HU18	0	0	HU1	0	HU2	0	0	HU3	HU4	0	HU5	0	0	HU6	HU7	0	0	0	0		0
		67		0	0	0	0	Q102	0	Q115	0	0	Q125	0	0	0	Q136	0	0	0	0	0	0	0	0	0
	400	N _		0	0	0	0	P102	0	P115	0	0	P125 (0	0	0	P136	0	0	0	0	0	0	0	0	0
		0		0	0	0	0	0	0	0	0	0	XM3	XM4		XM5	0	0	0	XM7	0	0	0	0	0	0
	320	7		0	0	0	0	0	0	0	0	0	KM3	KM4	0	KM5	0	0	0	KM7	0	0	0	0		0
				0	0	0	0	0	0	Q115	0	0		0			Q136	0	0	0	0	0	0	0	0	0
		16	15	0	0	0	0	TM102	0	TM115 0	0	0	0	0	0	0	TM136 0	0	0	TM150	0	0	0	0		0
		01		0	0	0	0	SM102 T	0	SM115 T	0	0	0	0	0	0	SM136 T	0	0	SM150 T	0	0	0	0	0	0
	300	S		0	0	0	0		0		0	0	0	YM4	0	0	YM9 S	0	0	YM7 S	0	0	0	0	0	0
		Ω ا		0	0	0	0	0	0	0	0	0	0	Υ4	0	0	۲9	0	0	۲۲		0	0	0		0
		n		0	0	0	0	0	0	0	0	0	0	XM4	0	XM5	0	0	0	XM7	0	0	0	0	0	0
		.7		0	0	0	0	0	0	0	0	0	0	KM4	0	KM5	0		0	KM7	0	0	0	0		0
		15		0	0	TY95	0	0	TY105	TY115	TY120	0	TY125	TY130	0	0	0	0	TY145	0	0	0	0	0	0	0
	250			0	0	SY95 1	0	0	SY105 T	SY115 T	SY120 T	0	SY125 T	SY130 T	0	0	0	0	SY145 T	0	0	0	0	0	0	0
# 9		ţ		76	86	95	97	102	105	115	120	123			133	135	136	139	145 \$	150	160	187	200	205	221	230
Product Structure	Ur (VAC) Rated Voltage	Rated Current	1 101						tes														. 4	- 4	• •	

Thermal-Link (ATCO)-Alloy Type Feature & Model List Overview

S Series

SET safe | SET fuse

Thermal-Link (ATCO)-Alloy Type

										Μ	od	el										1				
0	0	0	0	0	0	0	0	CR13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15			
0	R31	R32	0	0	R16	R7	R6	0	0	R5	0	R4	R3	0	0	R2	0	R1		0	R18	RO	15			
0	U31	U32	0	0	U16	U7	00	0	0	U5	0	U4	U3	0	0	U2	0	U1	0	0	U18	ΟN	10			
0	0	0	0	0	0	0	C6	0	0	0	0	0	0	0	0	0	0	0	0	0		0	10			
0	0	0		0	0	0	0	M13	0	0	0	0		0	0	0	0	0	0	0	0	0	6			
0	0	0	0	0	0	0	0	C13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.5			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C2	0	0	0	0	0	0	œ			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C18	0	9			
0	C31	C32	0	0	C16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	60	П	
0	0	0	0	0	0	0	0	V13	0	0	V8	V4	0	0	0	V2	0	0	0	0	0	0	4		Ĩ	
0	0	0		0	0	0	0	SF13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5			
0	0	0	0	0	0	0	0	0	0	0	SF8	SF4	0	0	0	SF2	0	0		0		0	ю		Ţ	
0	B31	B32	0	0	B16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	ъ		Ĩ	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	V18	0	2.5			
0	H31	H32	0	0	H16	0	0	0	0	0	0	0	H3	0	0	0	0	0	0	0	0	0	2			
0	V31	V32	0	0	V16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-			
0	0	0	0	0	0	C7	C6	C13	C9	C5	C8	C4	ប	0	0	C2	0	0	0	0	0	0	7			
0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	5	C21	0	C18	CO	5			
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Thermal-Link (ATCO)-Alloy Type Feature & Model List Overview

SET safe | SET fuse

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0										6 HN136				5 HN125									0	15		Axial Shape (Flat Electrode)
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						01100	061.05			SD136			SD130	SD125			SD115		SD102				0	10		
						0.440	GATSU			GA136			GA130	GA125			GA115		GA102			GA86	GA76	50		
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