

Description

The new ST Series device provides reliable, noncycling protection against overcharging and short circuits events for rechargeable battery cells where resettable protection is desired.



Features

- RoHS compliant and lead-free
- Weldable Nickel terminals
- Low resistance
- Provides overcurrent protection at 125°C trip temperature



Applications

- Rechargeable battery cell protection

Agency Approvals

AGENCY	AGENCY FILE NUMBER
	E183209
	R50119583

Electrical Characteristics

Part Number	I_{hold} (A)	I_{trip} (A)	V_{max} (Vdc)	I_{max} (A)	P_d max. (W)	Maximum Time To Trip		Resistance			Agency Approvals	
						Current (A)	Time (Sec.)	R_{min} (Ω)	R_{typ} (Ω)	R_{1max} (Ω)		
15ST120	1.2	2.7	15	100	1.2	6.00	5.00	0.085	0.160	0.220	X	X
15ST120S	1.2	2.7	15	100	1.2	6.00	5.00	0.085	0.160	0.220	X	X
15ST175	1.75	3.8	15	100	2.5	8.75	5.00	0.050	0.090	0.120	X	X
15ST175S	1.75	3.8	15	100	2.5	8.75	5.00	0.050	0.090	0.120	X	X
30ST200	2.00	4.4	30	100	1.9	10.00	4.00	0.030	0.060	0.100	X	X
30ST350	3.50	6.3	30	100	2.5	20.00	3.00	0.017	0.031	0.050	X	X
30ST420	4.20	7.6	30	100	2.9	20.00	6.00	0.012	0.024	0.040	X	X

Items with S at end of part number identify items with slit lead option. See Dimension Drawing and Part Ordering Number System sections of this document for more information.

I_{hold} = Hold current: maximum current device will pass without tripping in 20°C still air.

I_{trip} = Trip current: minimum current at which the device will trip in 20°C still air.

V_{max} = Maximum voltage device can withstand without damage at rated current (I_{max})

I_{max} = Maximum fault current device can withstand without damage at rated voltage (V_{max})

P_d = Power dissipated from device when in the tripped state at 20°C still air.

R_{min} = Minimum resistance of device in initial (un-soldered) state.

R_{typ} = Typical resistance of device in initial (un-soldered) state.

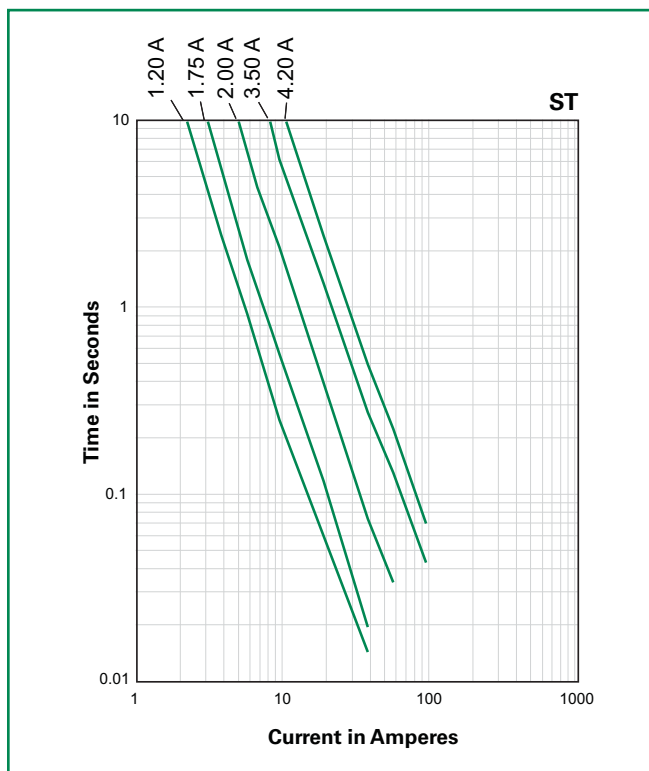
R_{1max} = Maximum resistance of device at 20°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.

Caution: Operation beyond the specified rating may result in damage and possible arcing and flame.

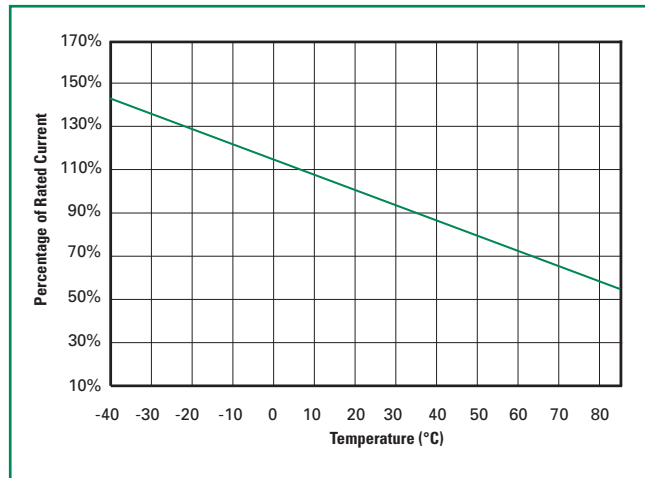
Temperature Derating

Part Number	Ambient Operation Temperature								
	-40°C	-20°C	0°C	23°C	40°C	50°C	60°C	70°C	85°C
Hold Current (A)									
15ST120	1.90	1.70	1.50	1.20	1.00	0.90	0.80	0.70	0.50
15ST120S	1.90	1.70	1.50	1.20	1.00	0.90	0.80	0.70	0.50
15ST175	2.50	2.30	2.00	1.75	1.50	1.30	1.20	1.10	0.90
15ST175S	2.50	2.30	2.00	1.75	1.50	1.30	1.20	1.10	0.90
30ST200	3.20	2.80	2.50	2.00	1.70	1.60	1.40	1.20	0.90
30ST350	5.40	4.80	4.30	3.50	3.00	2.80	2.50	2.20	1.70
30ST420	6.40	5.70	5.10	4.20	3.60	3.30	3.00	2.60	2.10

Average Time Current Curves



Temperature Derating Curve



The average time current curves and Temperature Derating curve performance is affected by a number of variables, and these curves provided as guidance only. Customer must verify the performance in their application.

Physical Specifications

Lead Material	0.13mm nominal thickness, quarter-hard Nickel
Insulating Material	Polyester tape

Environmental Specifications

Operating/Storage Temperature	-40°C to +85°C
Maximum Device Surface Temperature in Tripped State	125°C
Passive Aging	+70°C, 1000 hours -/+5% typical resistance change
Humidity Aging	+85°C, 85% R.H., 7 days, -/+5% typical resistance change
Vibration	MIL-STD-883C, Condition A, No change

Dimensions

Figure 1

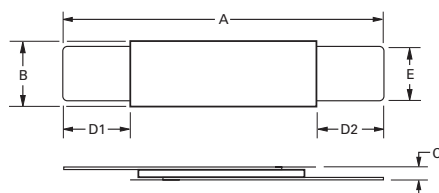
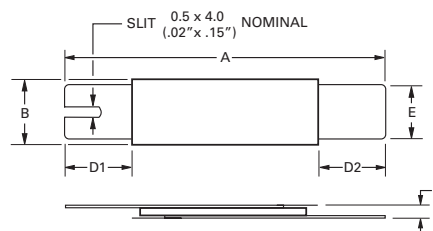


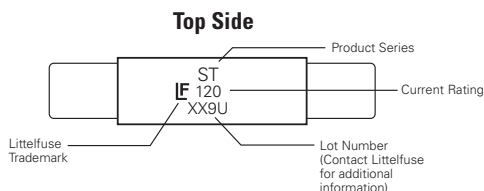
Figure 2

(Items with S at end of part number)

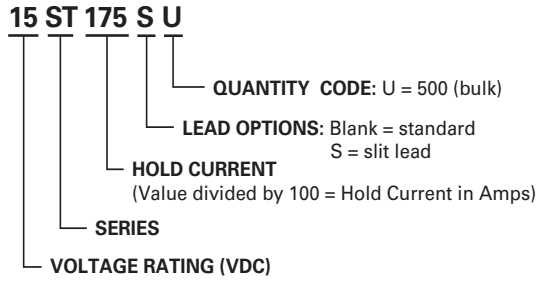


Part Number	Fig.	A				B				C				D1		D2		E			
		Inches		mm		Inches		mm		Inches		mm		Inches	mm	Inches	mm	Inches		mm	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Min.	Min.	Min.	Min.	Max.	Min.	Max.
15ST120	1	0.78	0.87	19.9	22.1	0.19	0.20	4.9	5.2	0.02	0.04	0.6	1.0	0.22	5.5	0.22	5.5	0.01	0.22	3.9	4.1
15ST120S	2	0.78	0.87	19.9	22.1	0.19	0.20	4.9	5.2	0.02	0.04	0.6	1.0	0.22	5.5	0.22	5.5	0.01	0.22	3.9	4.1
15ST175	1	0.82	0.91	20.9	23.1	0.19	0.20	4.9	5.2	0.02	0.04	0.6	1.0	0.16	4.1	0.16	4.1	0.01	0.16	3.9	4.1
15ST175S	2	0.82	0.91	20.9	23.1	0.19	0.20	4.9	5.2	0.02	0.04	0.6	1.0	0.16	4.1	0.16	4.1	0.01	0.16	3.8	4.2
30ST200	1	0.84	0.92	21.3	23.4	0.40	0.43	10.2	11.0	0.02	0.04	0.5	1.1	0.20	5.0	0.20	5.0	0.19	0.21	4.8	5.4
30ST350	1	1.12	1.25	28.4	31.8	0.51	0.53	13.0	13.5	0.02	0.04	0.5	1.1	0.25	6.3	0.25	6.3	0.24	0.26	6.0	6.6
30ST420	1	1.20	1.28	30.6	32.4	0.51	0.54	12.9	13.6	0.02	0.04	0.5	1.1	0.20	5.0	0.20	5.0	0.24	0.26	6.0	6.7

Part Marking System



Part Ordering Number System



Packaging

Part Number	Ordering Number	I_{hold} (A)	I_{hold} Code	Packaging Option	Quantity	Quantity & Packaging Codes
15ST120	15ST120U	1.2	120	Bulk	500	U
15ST120S	15ST120SU	1.2	120	Bulk	500	U
15ST175	15ST175U	1.75	175	Bulk	500	U
15ST175S	15ST175SU	1.75	175	Bulk	500	U
30ST200	STD200U	2.00	200	Bulk	500	U
30ST350	STD350U	3.50	350	Bulk	500	U
30ST420	STD420U	4.20	420	Bulk	500	U