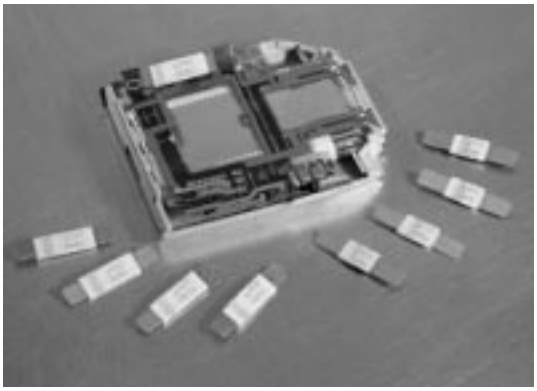
tyco / Electronics

Raychem
CIRCUIT PROTECTION

VLR Series
PolySwitch Battery Protectors

Preliminary Data

New VLR Low Resistance PolySwitch Resettable Strap Devices Enhance Thermal Protection for Li-Ion and NiMH Battery Packs



Tyco Electronics Corporation has developed the next generation in its popular line of PolySwitch® PPTC (Polymeric Positive Temperature Coefficient) resettable strap devices. The VLR230 and VLR170 devices provide very low series resistance and enhanced thermal protection for Lithium-Ion (Li-Ion) and Nickel Metal Hydride (NiMH) rechargeable battery packs typically used in cell phones, laptops, radios, camcorders, and other portable equipment. VLR devices are well suited for single-cell Li-Ion applications. The VLR device's narrow, low-profile form factor allows it to be welded directly onto battery cells, thus saving space and added installation costs. VLR devices lower trip temperature (~5ºC lower compared to the VTP strap devices) and fast time-to-trip (typically 2.4 seconds or better at 10A) provide enhanced protection for rechargeable battery applications, while allowing longer battery pack life and extended equipment operation time.

Target Applications:

- Mobile phone battery packs
- Cordless phone battery packs
- Mobile radio packs
- Computer battery packs
- Camcorder battery packs

Features:

- Broadest range of resettable fuses available in the industry
- Current rating of 100A
- Voltage rating of 12V
- Agency recognition pending
- Industry fastest time-to-trip
- Industry lowest resistance devices

Benefits:

- Provides overcurrent and overtemperature protection
- Ideal protection for single cell Li-Ion battery packs
- Compatible with high volume electronics assembly
- Assists in meeting regulatory requirements

Electrical Characteristics

Electrical Rating
Voltage: 12 V MAX
Current: 100A MAX

	I Hold	Current Trip Limits						Time to Trip			Reference Resistance		One-Hour Post-Trip Resistance		Tripped-State Power Dissipation	
	AMPS 25˚C	AMPS AT 0˚C		AMPS AT 25˚C		AMPS AT 60˚C		SECONDS AT 25˚C			OHMS AT 25˚C		OHMS AT 25˚C		WATTS AT 25˚C, 12V	
PART #	HOLD	HOLD	TRIP	HOLD	TRIP	HOLD	TRIP	A	TYP	MAX	MIN	MAX	MIN	MAX	TYP	MAX
VLR170	1.7	2.4	5.6	1.7	4.1	0.7	1.9	8.5	–	5.0	0.018	0.032	0.018	0.064	-	1.4
VLR230	2.3	3.4	6.6	2.3	5.0	0.9	2.3	10.0	2.4	5.0	0.012	0.018	0.012	0.036	1.4	2.5

Reference Documents: PS300
Precedence: This specification takes precedence over documents referenced herein.
Effectivity: Reference documents shall be the issue in effect on the date of invitation for bid.
CAUTION: Operation beyond the rated voltage or current may result in rupture, electrical arcing or flame.

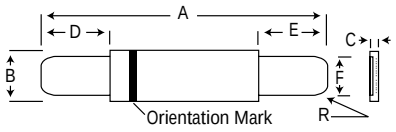
Dimensions (millimeters/inches)

	A		B		C		D		E		F		R	
	min	max	min	max	min	max	min	max	min	max	min	max	min	max
VLR170 mm:	20.8	23.2	3.5	3.9	--	0.8	4.5	6.5	4.5	6.5	2.4	2.6	–	–
VLR170 in*:	(0.82)	(0.91)	(0.14)	(0.15)	--	(0.03)	(0.18)	(0.26)	(0.18)	(0.26)	(0.09)	(0.10)	–	–
VLR230 mm:	20.9	23.1	4.9	5.3	--	0.8	4.1	5.8	4.1	5.8	3.9	4.1	1.0	–
VLR230 in*:	(0.82)	(0.91)	(0.19)	(0.21)	--	(0.03)	(0.16)	(0.23)	(0.16)	(0.23)	(0.15)	(0.16)	(0.039)	–

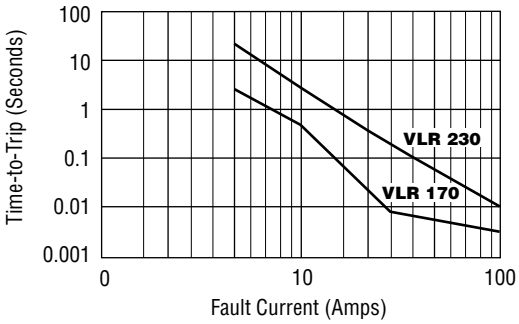
*rounded off approximation

Leads:
Nickel: 0.125 mm nom.
Tape:
Polyester

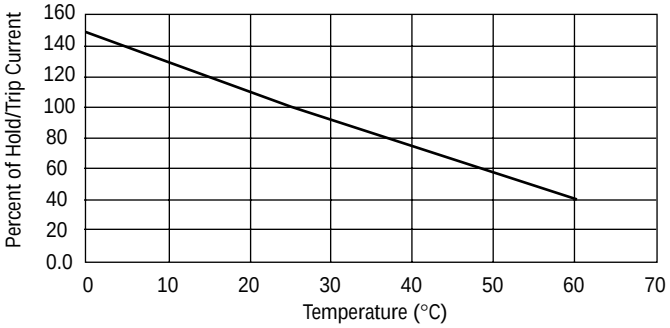
Marking:
Manufacturer's Mark
XXR17 — Part Identification (R17, VLR170 and R23, VLR230)
□□□□ — Lot Identification



Typical Time to Trip Characteristics



Thermal Derating Curve



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