

CARDGARD® 2 Miniature Circuit Protector

Overview

The Airpax CARDGARD® 2 circuit protector represents the latest refinement in circuit board protection. This miniature thermal sensing overload protector incorporates a new trip free on-off mechanism with push-pull switching actuation.

Unlike fuses, CARDGARD 2 is resettable, eliminating the need to keep replacements on hand. A fault terminal allows triggering of external warning systems in addition to the visual handle position indication for trip monitoring.

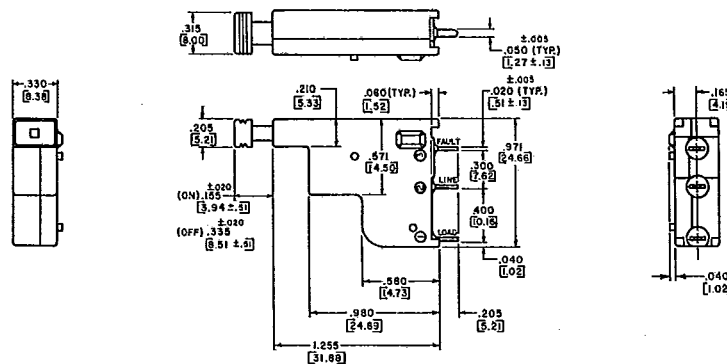
The CARDGARD 2 is mounted directly to the printed circuit board. Solderable terminals are available for both vertical and horizontal mounting to adapt to your specific needs.

Its bright orange color makes it easy to locate on the board.

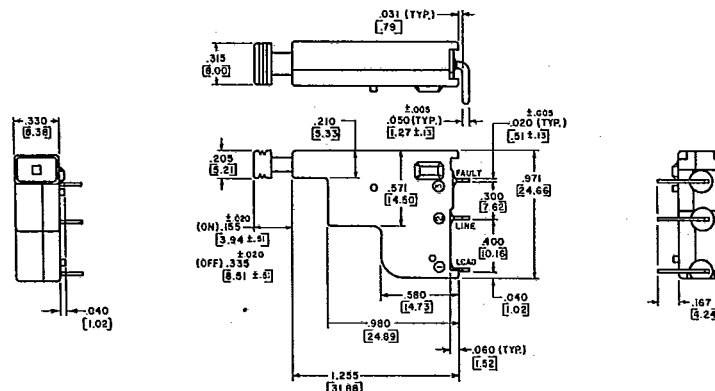
Using the CARDGARD 2, you can design with confidence. It is UL-recognized under conditions of UL-1077. The CARDGARD 2 meets the requirements of VDE and IEC for installation in clean, dry or otherwise protected areas.

The CARDGARD 2 can tolerate many of the same chemical cleaning processes as the other components on your p.c. board, however, vapor and immersion cleaning is not recommended. Units may be cleaned in typical p.c. board aqueous spray cleaners with uncontaminated water. It is recommended that units be allowed to dry at ambient temperature in open air for 24 hours prior to use.

Vertical Mounting



Horizontal Mounting



CARDGARD 2 Operating Characteristics and Delay Curve

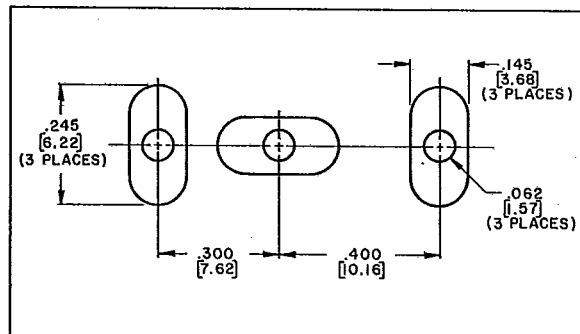
Preliminary Nominal Ratings at Ambient Temperature

Temp.	1.0A	2.0A	3.0A	4.0A	5.0A	6.0A
-20 Deg. C	1.23	2.35	3.49	4.67	5.67	7.19
-10 Deg. C	1.19	2.31	3.43	4.58	5.58	7.04
0 Deg. C	1.15	2.22	3.31	4.42	5.42	6.76
10 Deg. C	1.09	2.14	3.19	4.26	5.26	6.46
25 Deg. C	1	2	3	4	5	6
30 Deg. C	0.97	1.95	2.93	3.91	4.91	5.84
40 Deg. C	0.9	1.85	2.79	3.72	4.73	5.49
50 Deg. C	0.83	1.75	2.65	3.52	4.54	5.12
60 Deg. C	0.74	1.63	2.49	3.32	4.34	4.72

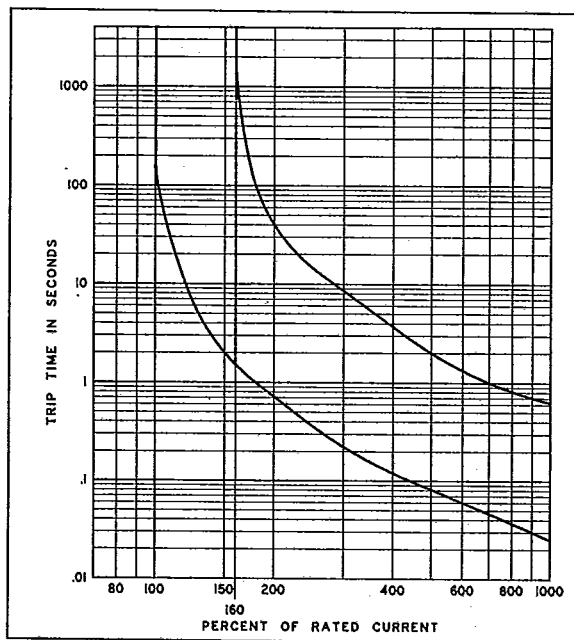
Note: Circuit Breaker (type 252) is marked for a nominal current rating at 25°C. This rating varies inversely with ambient temperature changes (i.e. a unit rated at 4.0A would have a rating of 3.72A at 40°C or 4.42A at 0°C). This trip curve applies at these ratings.

Board Configuration

P.C. Board Pad configuration for mounting the CARDGARD 2 for proper operation and conformation with MIL-STD-275C and IPG-ML-910:



Percent of Rated Current



CARDGARD 2 Specifications

Single Pole/Series Trip

The type 252 CARDGARD devices are single pole appliance protectors which operate as series trip, thermal current sensing overload protectors. These devices are push-pull actuated and are trip free.

Endurance

Rated for 50 electrical operations at 150% overload current followed by 6,000 mechanical operations at 100% rated current at rated voltage.

Current Ratings

1.0 to 6.0 amperes (one ampere increments).
Minimum trip point for all ratings - 160% (see trip curve).

Voltage Ratings

50Vdc, 250Vac.

Terminals and Mounting

Overload sensing is provided between line and load terminals. In the "ON" position the load and line terminals are electrically connected and the fault indicator terminal isolated. When in the "OFF" position, whether by handle actuator or by over current trip, the load terminal is electrically isolated and the line terminal is switched to connect the fault indicator. The fault indicator terminal has a 1.0 ampere rating allowing trip indication. There are two styles available for mounting. Unit can be either vertically or horizontally mounted. Terminals have been designed at .100" increments for standard PC board use and are sealed at their base.

Interrupt Capacity

10 times rated current at rated voltage.

Temperature (Storage and Operation)

-20 to +60°C.

DCR Reading

Ampere Rating	DCR (OHMS)
1.0	.152
2.0	.065
3.0	.051
4.0	.033
5.0	.018
6.0	.021

Note: DCR's are measured by voltmeter/ammeter method.
All ratings are $\pm 50\%$ tolerance.

Handle Operating Force

Operating force of handle should not exceed 4 lbs.

Soldering

Wave:

Temperature of solder 450-520°F. Belt speed 5-10 feet per minute.

Hand:

35 watt maximum soldering iron applied for 3 seconds maximum.

Cleaning

Units may be cleaned in typical PC board aqueous spray cleaner with uncontaminated water. It is recommended units be allowed to dry at ambient temperature in open air for 24 hours minimum prior to use. Immersions and vapor cleaning are not recommended.

Shock

Withstands 50G without tripping while carrying 80% of rated current per MIL STD 202C, method 213, test condition A.

Vibration

Withstands 5G without tripping while carrying 80% of rated current per MIL STD 202C, method 204, test condition A.

CARDGARD 2 Part Number Decision Tables

How to Order

The ordering code for CARDGARD 2 Circuit Breakers may be determined by following the steps in the decision tables shown here.

The example shown below is for a 1 amp unit with horizontal mount (right angle) terminals.

To determine the ordering number for your particular unit, simply follow the steps shown. You may use the number to place an order or as a reference for further questions you may have.

1	First Decision
	Product Code
	252

2	Second Decision
	Amp Rating
	1.0A
	2.0A
	3.0A
	4.0A
	5.0A
	6.0A

3	Third Decision
	Mounting and Terminal Configuration
H	Horizontal Mount
V	Vertical Mount
	Right Angle Terminals
	Straight Terminals

Example

252-1.0A-H

1

2

3