



## 2TC49 Series

"Dual Safety™" Circuit Breakers

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### Features

- **Extension of 2TC series**
- **Redundant protection in hard fault catastrophic conditions**
- **Separable link feature**
- **Case color distinguishes 2TC49 from 2TC series**
- **Uses less space and weighs less than other circuit breaker packages**
- **Rating 2½ - 15 amps**



2TC49  
"Dual Safety" Circuit Breaker

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### Overview

The 2TC49 "Dual Safety™" circuit breaker represents a refinement in electrical control and circuit protection. The 2TC dual safety circuit breaker incorporates a fusible element in a standard 2TC (MS 3320) package size to provide redundant protection in hard fault conditions.

#### "Hard Fault" Tripping

The 2TC dual safety circuit breaker operates identically to a standard circuit breaker under all normal conditions, including

short circuit. In the event of circumstances which disable the internal circuit breaker mechanisms, such that the device is able to carry current but unable to clear an overload via its normal means, the dual safety element acts as a built in fuse to provide redundant circuit protection.

The key part in the dual safety design is a two part current carrying element joined by a special alloy. The geometry and material of the element determine its heating properties. The

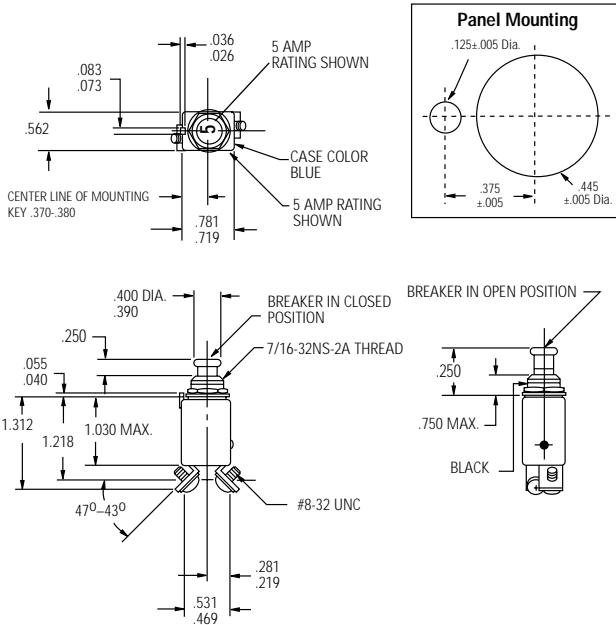
elements heating properties are slower than the bimetal sensor but faster than the smoke curve of the wire the rating is designed to protect. In the case where the standard mechanism is disabled or cannot operate normally, the separable element "fuses" open, interrupting the current.

The benefits of the dual safety design result in calibrated overcurrent protection (based on fuse times) and specified post fuse dielectric properties for system and human protection.

## Characteristics

## "Dual Safety™" 2TC49

### 2TC49



### Link Separation Characteristics

Maximum circuit breaker link separation times for locked contact condition as a function of overload

Amp Rating	% Overload Rated Current						
	400%	500%	600%	700%	800%	900%	1000%
2½	-	-	34.0	20.0	13.0	9.0	6.0
3	-	-	34.0	20.0	13.0	9.0	6.0
5	-	95.0	36.0	18.0	10.0	6.0	3.5
7½	69.0	28.0	14.0	8.0	4.0	3.5	2.0
10	60.0	35.0	20.0	12.0	7.0	4.0	2.5

Time (seconds)

### Calibration: 2½-15 amps

Temp °C	Min ULT Trip	Max ULT Trip	Trip Time - Seconds		
			200%	500%	1000%
+25	115%	138%	5-20	.5-2.0	.12-.53
-54	115%	165%	7-40	.6-3.0	.16-.8
+121	90%	138%	3-13	.33-1.1	.07-.3

Vibration\* ..... 10 G's minimum, 50-50 Hz  
 Mechanical Shock ..... 50 G's  
 Acceleration ..... 10 G's  
 Weight ..... 2TC49 - 25 gm max.

Post-short circuit dielectric ..... 1125 VAC Min (1mA)  
 Post-link separation dielectric ..... 900 VAC (1mA)

### Interrupt Current

2½ - 15 amps: 6000 amps at 28 VDC  
 2½ amps: 2800 amps at 120 VAC, 400 Hz  
 3 - 15 amps: 2500 amps at 120 VAC, 400 Hz

### Endurance

2500 cycles ..... 120 VAC, 400 Hz Inductive  
 5000 cycles ..... 120 VAC, 400 Hz Resistive  
 2500 cycles ..... 30 VDC, Inductive  
 5000 cycles ..... 30 VDC, Resistive  
 10,000 cycles ..... Mechanical, no load

\* Other vibration levels available. Contact factory for details.

TI Number	Voltage Drop (max.)**
2TC49-2½	0.70
2TC49-3	0.55
2TC49-5	0.35
2TC49-7½	0.30
2TC49-10	0.28

\*\* Max. voltage drop at nominal rated current

### Approximate Time-Current Curves - 2TC49 Circuit Breakers

