

**ET1 SERIES**

**FEATURES**

- 50% less relay volume than conventional relay (EP1 Series)
- 75% less relay space than conventional relay (EP1 Series)
- 70% less relay height than conventional relay (EP1 Sereis)
- 50% less relay weight than conventional relay (EP1 Sereis)
- Contact switching current of 25A max.
- Flux tight housing
- Delivered in stick-tube for automatic insertion machine
- Washable type available

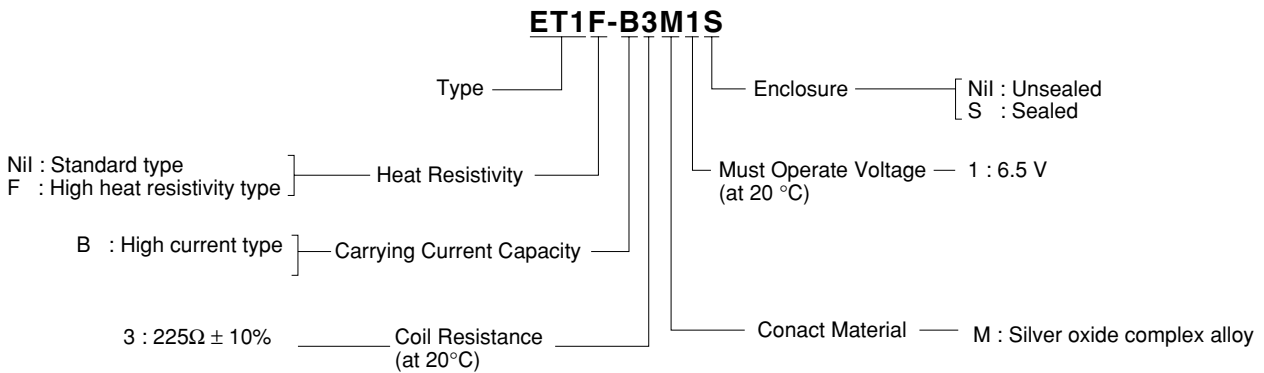


**PART NUMBERS AND COIL RATINGS**

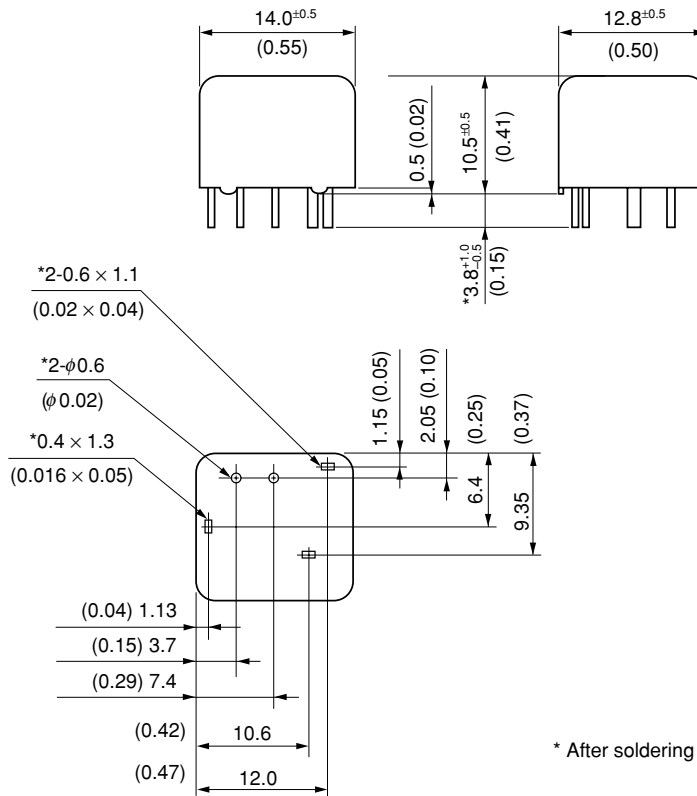
At 20°C (68°F)

| Part Number | Nominal Voltage (Vdc) | Coil Resistance ( $\Omega \pm 10\%$ ) | Nominal Current (mA) | Must Operate Voltage (Vdc) | Must Release Voltage (Vdc) | Nominal Operate Power (W) |
|-------------|-----------------------|---------------------------------------|----------------------|----------------------------|----------------------------|---------------------------|
| ET1-B3M1S   | 12                    | 225                                   | 53.3                 | 6.5                        | 0.9                        | 0.64                      |

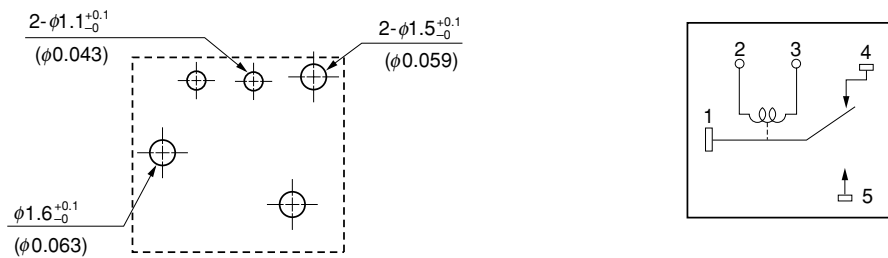
**PART NUMBER SYSTEM**



**DIMENSIONS** mm (inch)



**PCB PAD LAYOUT and SCHEMATICS** (bottom view) mm (inch)



**SPECIFICATIONS**

At 20°C (68°F)

| Items                     | Specification  |   |
|---------------------------|--|---|
|                           | ET1  | ET1F  |
| Contact Form              | 1 form c   |   |
| Contact Material          | Silver oxide complex alloy   |   |
| Contact Resistance        | 4 mΩ typical (measured at 7 A) initial                                       |   |
| Contact Switching Voltage | 16 Vdc max. 5 Vdc min.   |   |
| Contact Switching Current | 25 A max. (at 16 Vdc)  |   |
| Contact Carrying Current  | 35 A (2 minutes max. 12 Vdc at 20°C)<br>30 A (2 minutes max. 12 Vdc at 85°C) | 40 A (2 minutes max. 12 Vdc at 20°C)<br>35 A (2 minutes max. 12 Vdc at 85°C)<br>30 A (2 minutes max. 12 Vdc at 125°C) |
| Operate Time              | 2.5 ms typical (at nominal voltage) initial                                  |   |
| Release Time              | 3.0 ms typical (at nominal voltage. with diode) initial                      |   |
| Nominal Operate Power     | 640 mW   |   |
| Insulation Resistance     | 100 MΩ min. at 500 Vdc   |   |
| Breakdown Voltage         | 500 Vac min. for 1 minute  |   |
| Shock Resistance          | 98 m/s <sup>2</sup> min. [misoperating]                                      |   |
| Vibration Resistance      | 10 to 300 Hz, 43 m/s <sup>2</sup> min. [misoperating]                        |   |
| Ambient Temperature       | -40°C to +85°C (-40°F to +185°F)   | -40°C to +125°C (-40°F to +257°F)   |
| Coil Temperature Rise     | 70°C/W (contact carrying current 0 A)  |   |
| Life Expectancy           | Mechanical   | 1 × 10 <sup>6</sup> operations  |
|                           | Electrical   | 1 × 10 <sup>5</sup> operations (at 14 Vdc, Motor Load 20 A/3 A)   |
| Weight                    | Approx. 7.5 g  |   |

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"Standard," "Special," and "Specific". The Specific quality grade applies only to devices developed based on a customer designated "quality assurance program" for a specific application. The recommended applications of a device depend on its quality grade, as indicated below. Customers must check the quality grade of each device before using it in a particular application.

Standard: Computers, office equipment, communications equipment, test and measurement equipment, audio and visual equipment, home electronic appliances, machine tools, personal electronic equipment and industrial robots

Special: Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support)

Specific: Aircrafts, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems or medical equipment for life support, etc.

The quality grade of NEC/TOKIN devices is "Standard" unless otherwise specified in NEC/TOKIN's Data Sheets or Data Books. If customers intend to use NEC/TOKIN devices for applications other than those specified for Standard quality grade, they should contact an NEC/TOKIN sales representative in advance.

(Note)

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