

EE2 Series



The NEC EE2 series relays are low power consumption, low magnetic interference surface mount relays that meet 2500V surge requirements (between coil and contacts). Their compact lightweight design makes them ideal for use in telecommunication equipment. This series complies with FCC Part 68 2500V surge voltage requirements.

The EE2 series is available in 2 form C (DPDT) contact arrangements for all latch types. The EE2 series also offers a minimum foot print design as well as a tape and reel packaging system.

FEATURES

- Compact and lightweight
- 2 form C contact arrangement
- Low power consumption
- Reduced mounting space: 15 mm x 9.5 mm
- High-breakdown voltage of coil to contacts: 1500 Vac, 2500 V (2 x 10 μ s*)
- Capable of high-power switching: 700 Vac, 4.2 A, 4 times in case of accident
- UL recognized (E73266), CSA certified (LR46266)
- Certified to EN 60950

SPECIFICATIONS

| | | |
|---------------------------------|---------------------------|--|
| Contact Form | | 2 form C |
| Contact Material | | Silver alloy with gold alloy overlay |
| Contact Ratings | Maximum switching power | 60 W, 125 VA |
| | Maximum switching voltage | 220 Vdc, 250 Vac |
| | Maximum switching current | 2 A |
| | Maximum carrying current | 2 A |
| Minimum Contact Ratings | | 100 mVdc, 100 μ A |
| Initial Contact Resistance | | 50 mOhm typical |
| Nominal Operating Power | Nonlatch type | 140 mW (3 to 12 V), 200 mW (24 V) |
| | Single coil latch type | 100 mW |
| | Double coil latch type | 140 mW |
| Operate Time (Excluding bounce) | | Approximately 2 ms without diode |
| Release Time (Excluding bounce) | | Approximately 1 ms without diode |
| Insulation Resistance | | 1000 MOhm at 500 Vdc |
| Breakdown Voltage | Between open contacts | 1000 Vac (for one minute) |
| | Between adjacent contacts | 1500 V surge (10 x 160 μ s*) |
| | Between coil to contacts | 1000 Vac (for one minute) 2500 V surge (2 x 10 μ s**) |
| Shock Resistance | | 735 m/s ² (75 G) (misoperating) 980 m/s ² (100G) (destructive failure) |
| Vibration Resistance | | 10 to 55 Hz, double amplitude 3 mm (20 G) (misoperating) 10 to 55 Hz, double amplitude 5 mm (30 G) (destructive failure) |
| Ambient Temperature | | -40 to +85°C |
| Coil Temperature Rise | | 18 degrees at nominal coil voltage (140mW) |
| Running Specifications | Nonload | 1 x 10 ⁷ operations |
| | Load | 50 Vdc, 0.1 A (resistive) 1 x 10 ⁶ operations at 85°C 10 Vdc, 10 mA (resistive) 1 x 10 ⁶ operations at 85°C |
| Weight | | Approximately 1.9 g |

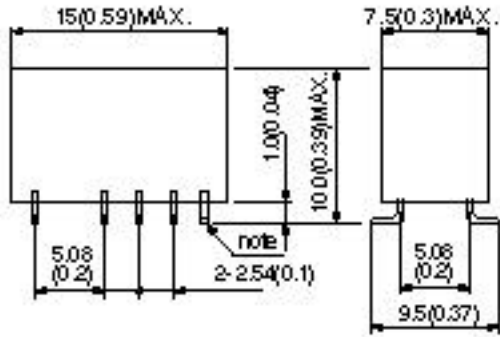
* rise time: 10 μ s,
fall time: 160 μ s

** rise time: 2 μ s,
fall time: 10 μ s

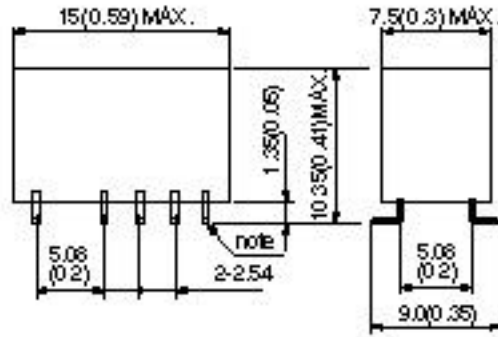
EE2 DIMENSIONS

mm (inch)

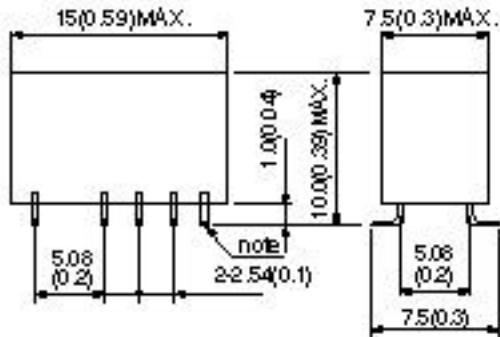
EE2-..NU



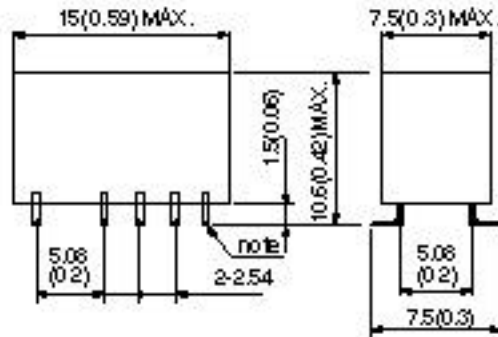
EE2-..NUX



EE2-..NUH



EE2-..NUN

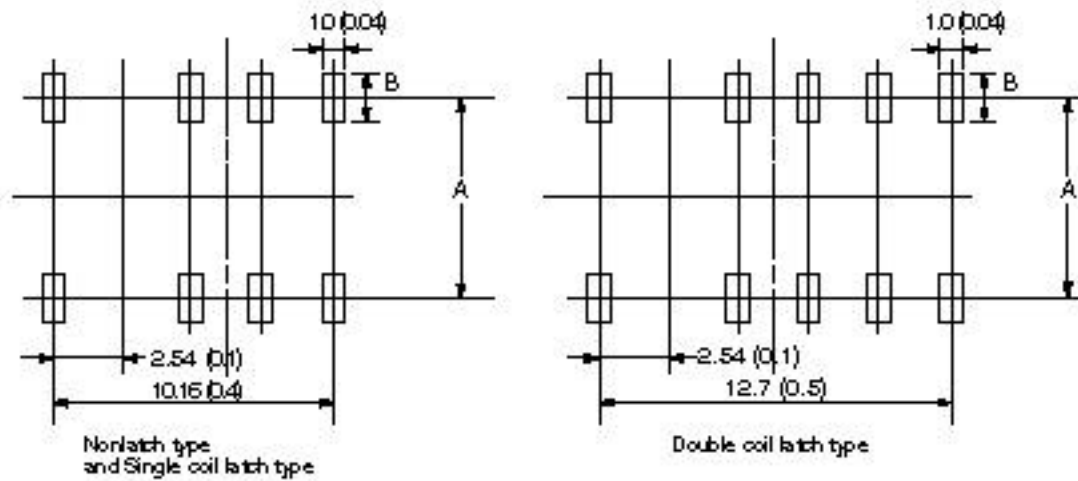


Tolerance ± 0.2 mm (0.008) unless otherwise specified.

note: This pair of pins at the right end applies to double coil latch type only.

EE2 PAD LAYOUT

(bottom view) mm (inch)

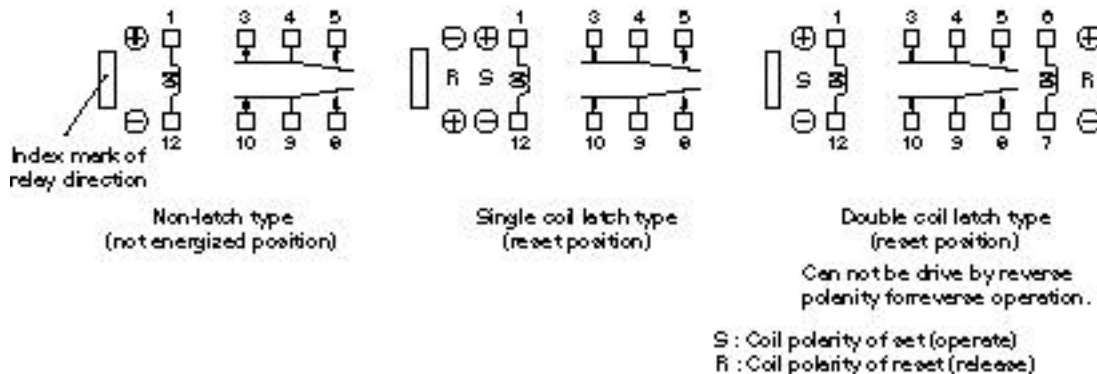


| TYPE | A | B |
|-----------|--------------|--------------|
| EE2-..NU | 7.3 (0.287) | 3.0 (0.118) |
| EE2-..NUX | 7.02 (0.276) | 2.73 (0.107) |
| EE2-..NUH | 6.29 (0.248) | 2.0 (0.079) |
| EE2-..NUN | 6.29 (0.248) | 2.0 (0.079) |

Tolerance ± 0.1 mm (0.004) unless specified.

SCHEMATICS

(bottom view)



PART NUMBER SYSTEM

EE2 - 5 T NU - L
 ① ② ③ ④ ⑤

- ① Relay Series
- ② Nominal Coil Voltage (See part numbers)
- ③ Latch type
 - Blank: Nonlatch Type (standard)
 - S: Single Coil Latch Type
 - T: Double Coil Latch Type
- ④ Identifier
 - NU: Standard Type UL recognized CSA certified Type
 - NUH: Minimum Footprint Type (UL recognized CSA certified Type)
 - NUX: High solder joint reliability (UL recognized CSA certified Type)
 - NUN: High solder joint reliability with Minimum Footprint Type (UL recognized CSA certified Type)
- ⑤ Packaging Code
 - Blank: Tube
 - L: Embossed carrying tape standard (L Type)
 - R: Embossed carrying tape (R Type)

PART NUMBERS

Nonlatch Type at 25° C

| Part Number (Standard) | Nominal Coil Voltage (Vdc) | Coil Resistance (Ohm) ±10% | Must Operate Voltage (Vdc) | Must Release Voltage (Vdc) |
|---------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| EE2-3NU | 3 | 64.3 | 2.25 | 0.3 |
| EE2-4.5NU | 4.5 | 145 | 3.38 | 0.45 |
| EE2-5NU | 5 | 178 | 3.75 | 0.5 |
| EE2-6NU | 6 | 257 | 4.5 | 0.6 |
| EE2-9NU | 9 | 579 | 6.75 | 0.9 |
| EE2-12NU | 12 | 1028 | 9.0 | 1.2 |
| EE2-24NU | 24 | 2880 | 18.0 | 2.4 |

Single Coil Latch Type at 25 °C

| Part Number (Standard) | Nominal Coil Voltage (Vdc) | Coil Resistance (Ohm) $\pm 10\%$ | Must Operate Voltage (Vdc) | Must Release Voltage (Vdc) |
|------------------------|----------------------------|----------------------------------|----------------------------|----------------------------|
| EE2-3SNU | 3 | 90 | 2.25 | 2.25 |
| EE2-4.5SNU | 4.5 | 202.5 | 3.38 | 3.38 |
| EE2-5SNU | 5 | 250 | 3.75 | 3.75 |
| EE2-6SNU | 6 | 360 | 4.5 | 4.5 |
| EE2-9SNU | 9 | 810 | 6.75 | 6.75 |
| EE2-12SNU | 12 | 1440 | 9.0 | 9.0 |
| EE2-24SNU | 24 | 5760 | 18.0 | 18.0 |

Double Coil Latch Type at 25 °C

| Part Number (Standard) | Nominal Coil Voltage (Vdc) | Coil Resistance (Ohm) $\pm 10\%$ | Must Operate Voltage (Vdc) | Must Release Voltage (Vdc) |
|------------------------|----------------------------|----------------------------------|----------------------------|----------------------------|
| EE2-3TNU | 3 | S 64.3 | 2.25 | - |
| | | R 64.3 | - | 2.25 |
| EE2-4.5TNU | 4.5 | S 145 | 3.38 | - |
| | | R 145 | - | 3.38 |
| EE2-5TNU | 5 | S 178 | 3.75 | - |
| | | R 178 | - | 3.75 |
| EE2-6TNU | 6 | S 257 | 4.5 | - |
| | | R 257 | - | 4.5 |
| EE2-9TNU | 9 | S 579 | 6.75 | - |
| | | R 579 | - | 6.75 |
| EE2-12TNU | 12 | S 1028 | 9.0 | - |
| | | R 1028 | - | 9.0 |
| EE2-24TNU | 24 | S 4114 | 18.0 | - |
| | | R 4114 | - | 18.0 |

Note S: Set Coil (pin No. 1 and 12)

R: Reset Coil (pin No. 6 and 7)

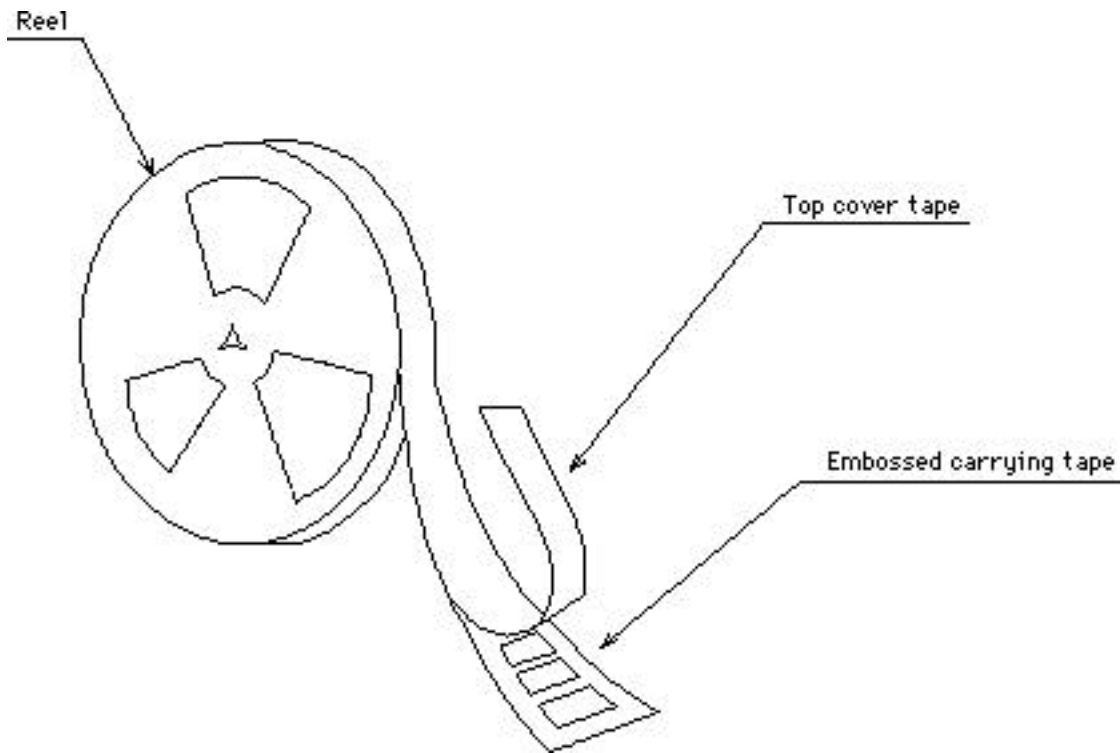
SAFETY STANDARD AND RATING

| | |
|---|---|
| UL Recognized (UL508)* File No. E73266 | CSA Certified (CSA C22.2 No. 14) File No. LR46266 |
| 30 Vdc, 2 A (Resistive) 110 Vdc, 0.3 A (Resistive) 125 Vac, 0.5 A (Resistive) | |

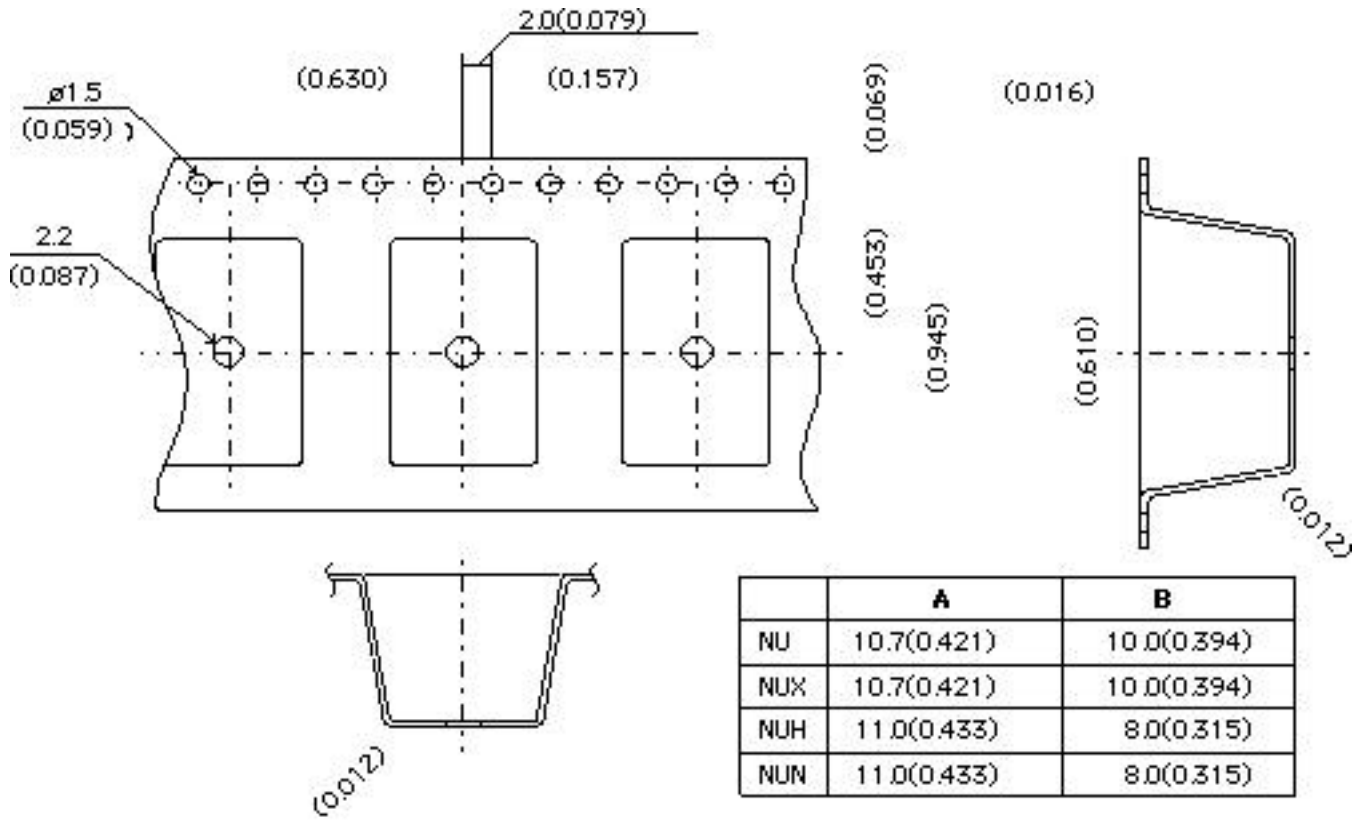
* Spacing: UL114, UL478, UL1950
EN60950

TAPE PACKAGE (OPTION)

APPEARANCE

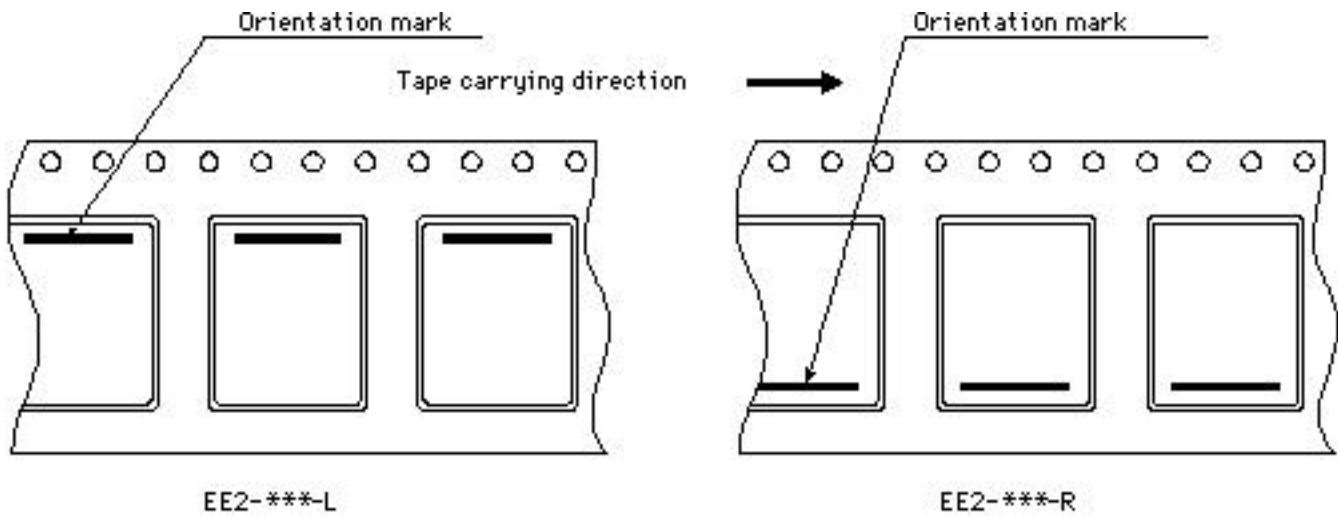


TAPE DIMENSION (inch)

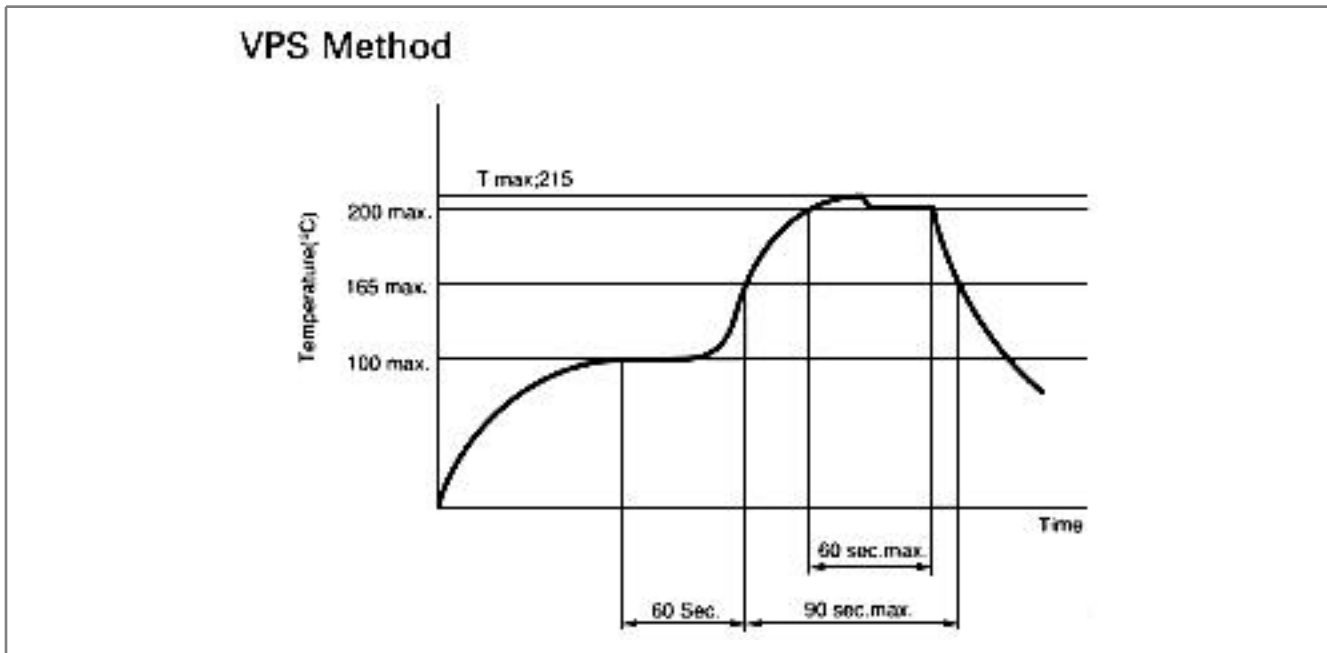
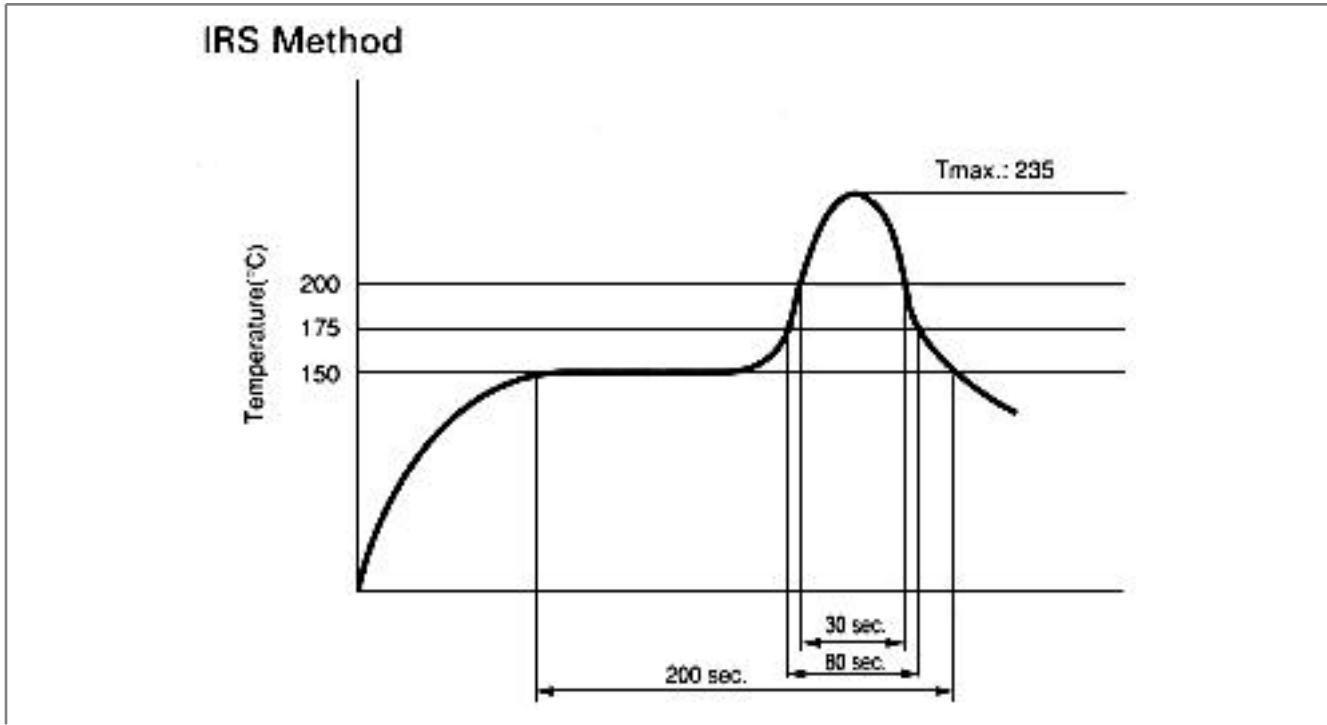


Note: Tolerance $\pm 0.1\text{mm}$ (± 0.004 inch) unless otherwise specified

RELAY ORIENTATION MARK AND TAPE CARRYING DIRECTION



SOLDERING CONDITION



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