

# Circuit protection elements

## ●Circuit protection elements

Rohm's circuit protectors have a very reliable current cut-off capability that protects ICs and their circuits from accidental short circuit loads. Whether operated in AC or DC circuits, these circuit protectors have a very low internal resistance in normal operation, but safely and rapidly break the circuit when the current cutoff level is exceeded.

## ●Features

- 1) Cutoff is sharp and repeatable.
- 2) Low internal resistance and minimal voltage drop.
- 3) Incombustible.
- 4) Compact.
- 5) Rated for continuous use.
- 6) Good temperature characteristics.
- 7) Withstands surges well.
- 8) UL certified (UL certification number E107856).

## ●Application

Current surge protection

## ●Operation notes

Do not use this product on the primary side of commercial power supplies. Arcs that result after cutoff may damage the molding.

# Surface mounting Type

## ●ICP-S series

| Product name | Rated current (A) | Cutoff characteristics | Internal resistance Typ.(Ω) | Rated voltage (V) | Operating temperature (°C) | Storage temperature (°C) |
|--------------|-------------------|------------------------|-----------------------------|-------------------|----------------------------|--------------------------|
| ICP-S0.5     | 0.5               | Fig.1                  | 0.150                       | 50                | -55~+125                   | -55~+125                 |
| ICP-S0.7     | 0.7               | Fig.2                  | 0.084                       |                   |                            |                          |
| ICP-S1.0     | 1.0               | Fig.3                  | 0.061                       |                   |                            |                          |
| ICP-S1.2     | 1.2               | Fig.4                  | 0.048                       |                   |                            |                          |
| ICP-S1.8     | 1.8               | Fig.5                  | 0.032                       |                   |                            |                          |
| ICP-S2.3     | 2.3               | Fig.6                  | 0.026                       |                   |                            |                          |

## Transistors

### ●Cutoff characteristics

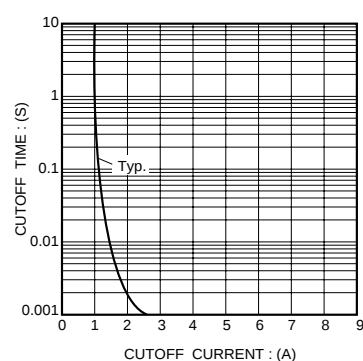


Fig.1 ICP-S0.5

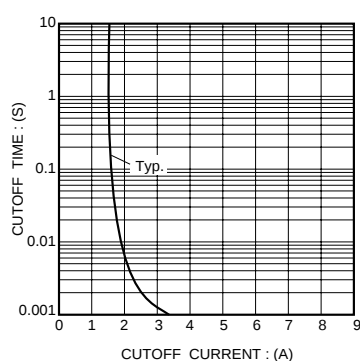


Fig.2 ICP-S0.7

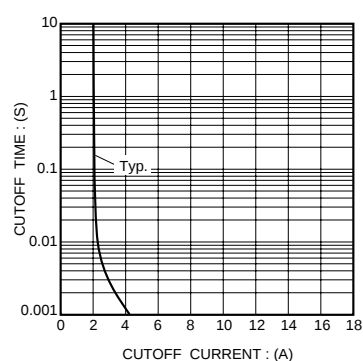


Fig.3 ICP-S1.0

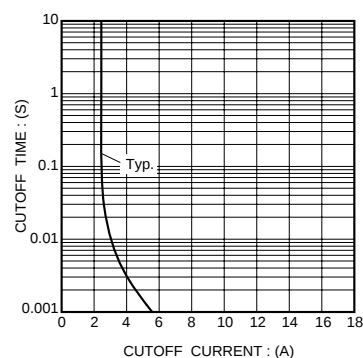


Fig.4 ICP-S1.2

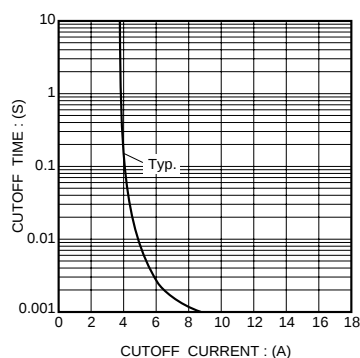


Fig.5 ICP-S1.8

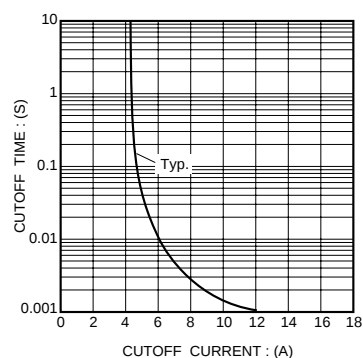
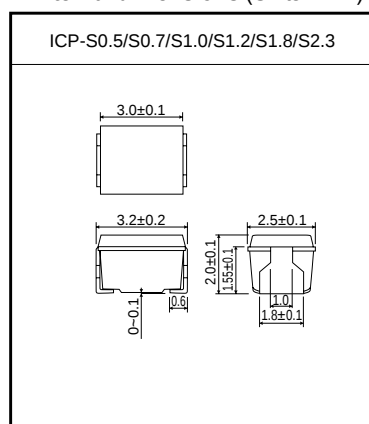


Fig.6 ICP-S2.3

The cutoff characteristics shown are typical. For further details of how to use these protectors, please request the technical documentation from your Rohm representative.

### ●External dimensions (Units : mm)

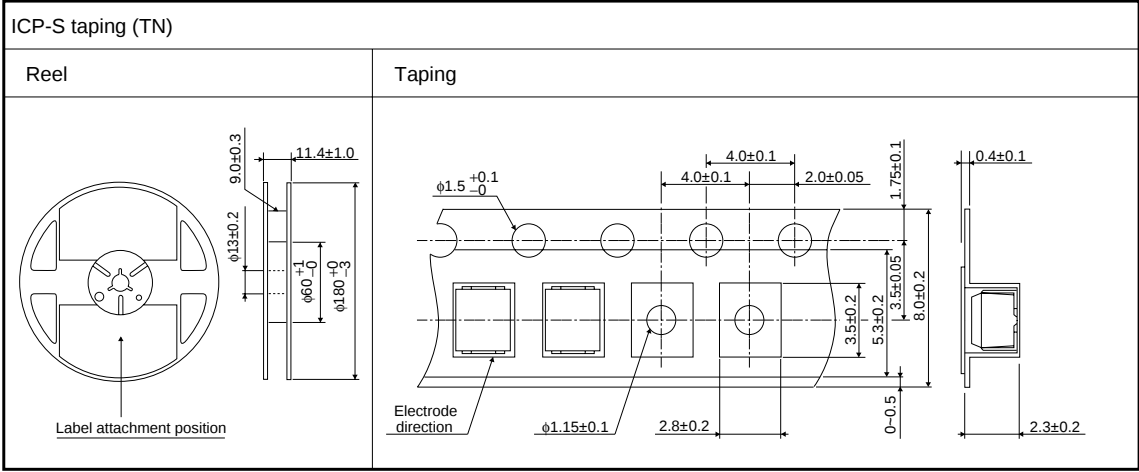


Transistors

●Packaging specifications

|          |                              |        |
|----------|------------------------------|--------|
| ICP-S    | Package type                 | Taping |
|          | Symbol                       | TN     |
|          | Basic ordering unit (pieces) | 2000   |
| Type     |                              |        |
| ICP-S0.5 |                              | ○      |
| ICP-S0.7 |                              | ○      |
| ICP-S1.0 |                              | ○      |
| ICP-S1.2 |                              | ○      |
| ICP-S1.8 |                              | ○      |
| ICP-S2.3 |                              | ○      |

●Taping specifications (Units : mm)



## Leaded type

ICP-N series

| Product name | Rated current (A) | Cutoff characteristics | Internal resistance<br>Typ.( $\Omega$ ) | Rated voltage (V) | Operating temperature ( $^{\circ}\text{C}$ ) | Storage temperature( $^{\circ}\text{C}$ ) |
|--------------|-------------------|------------------------|-----------------------------------------|-------------------|----------------------------------------------|-------------------------------------------|
| ICP-N10      | 0.4               | Fig.1                  | 0.220                                   | 50                | -55~+125                                     | -55~+125                                  |
| ICP-N15      | 0.6               | Fig.2                  | 0.135                                   |                   |                                              |                                           |
| ICP-N20      | 0.8               | Fig.3                  | 0.100                                   |                   |                                              |                                           |
| ICP-N25      | 1.0               | Fig.4                  | 0.070                                   |                   |                                              |                                           |
| ICP-N38      | 1.5               | Fig.5                  | 0.042                                   |                   |                                              |                                           |
| ICP-N50      | 2.0               | Fig.6                  | 0.035                                   |                   |                                              |                                           |
| ICP-N70      | 2.5               | Fig.7                  | 0.023                                   |                   |                                              |                                           |

### ●Cutoff characteristics

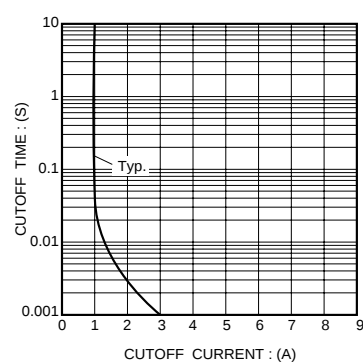


Fig.1 ICP-N10

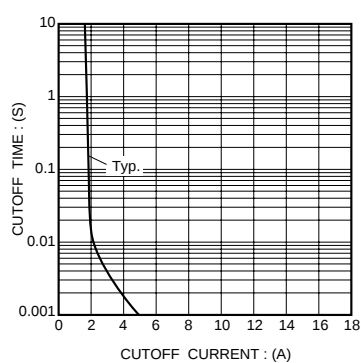


Fig.2 ICP-N15

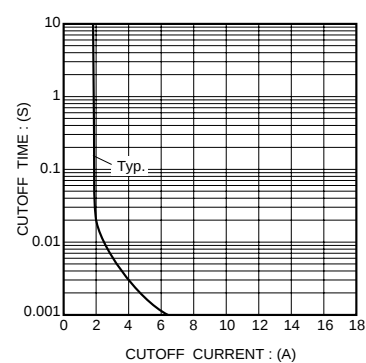


Fig.3 ICP-N20

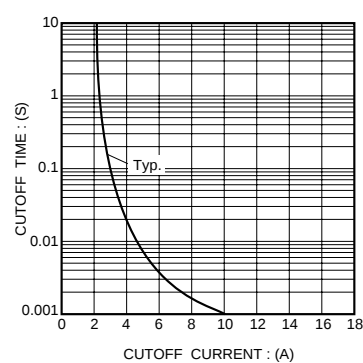


Fig.4 ICP-N25

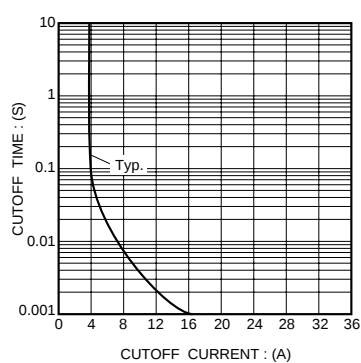


Fig.5 ICP-N38

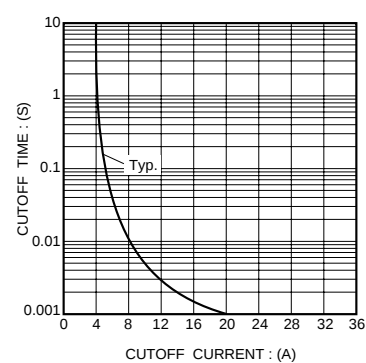
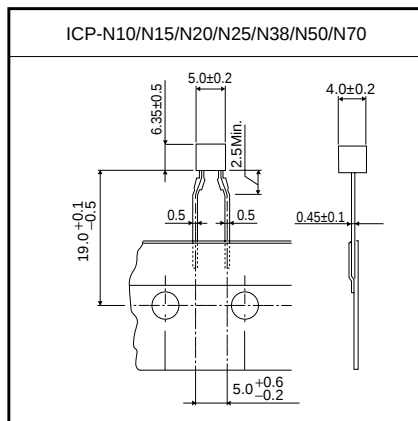


Fig.6 ICP-N50



●External dimensions (Units : mm)



|                                 |                              |        |
|---------------------------------|------------------------------|--------|
| ICP-N<br>Type                   | Packaging type               | Taping |
|                                 | Symbol                       | T104   |
|                                 | Basic ordering unit (pieces) | 3000   |
| ICP-N10/N15/N20/N25/N38/N50/N70 |                              | ○      |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <p>ICP-N taping (T104)</p> <p>Top view dimensions:<br/> <math>19.0^{+0.1}_{-0}</math>, <math>16.0 \pm 0.5</math>, <math>11.0 \text{Max.}</math>, <math>5.2 \text{Max.}</math>, <math>3.85 \pm 0.5</math>, <math>6.35 \pm 0.5</math>, <math>12.7 \pm 0.5</math>, <math>2.5 \text{Min.}</math>, <math>0.5 \pm 0.1</math>, <math>6.0 \pm 0.5</math>, <math>9.0 \pm 0.5</math>, <math>18.0^{+0}_{-0.3}</math>, <math>0.4^{+0.2}_{-0.1}</math>, <math>0.7 \pm 0.2</math>, <math>5.0^{+0.6}_{-0.2}</math>, <math>\phi 4.0 \pm 0.2</math>.</p> <p>Side view dimensions:<br/> <math>0 \pm 0.5</math>, <math>5.2 \text{Max.}</math>, <math>0 \pm 1.0</math>, <math>4.2 \text{Max.}</math>.</p> <p>End view dimensions:<br/> <math>2.5 \text{Min.}</math>, <math>6.0 \pm 0.5</math>.</p> | <p>ICP-N zigzag fold taping</p> <p>Isometric view dimensions:<br/>         Length: 330<br/>         Width: 275<br/>         Height: 40</p> |
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