

RJ45C5 R1V 3.2N4G/Y TY

Weidmüller Interface GmbH & Co. KG

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Germany

www.weidmueller.com



The product range encompasses the following designs:

- 90°, lying (horizontal) and 180°, standing (vertical)
- latch up / latch down
- THT, THR or SMD soldering processes
- Wide range of different design types, also with integrated LEDs and shield contact tabs
- Performance category Cat. 3 to Cat. 6
- Packed either in a tray (TY) or on a roll (tape-on-reel, RL)
- Compatible with modular RJ45 connector according to ANSI / TIA-1096-A and IEC 60603
- Dielectric strength ≥ 1500 V AC RMS (2250 V AC peak value) according to IEEE 802.3
- Dielectric strength ≥ 1500 V AC (peak value) or ≥ 1500 V DC according to IEC 60603

Properties and advantages:

- Extended temperature range of -40°C to $+85^{\circ}\text{C}$ for maximum performance
- Reinforced gold layer ($30\mu\text{m}$) for improved corrosion protection
- At least 0.3mm stand-off ensures a perfect soldering result

General ordering data

| | |
|------------|---|
| Version | PCB plug-in connector, RJ45 jacks, Cat. 5 , THT/THR solder connection, 180°, Shield tabs: none, 30...80 μm Ni / ≥ 30 μm Au , LED: Yes, green, yellow, Number of poles: 8, Tray |
| Order No. | 2516380000 |
| Type | RJ45C5 R1V 3.2N4G/Y TY |
| GTIN (EAN) | 4050118529944 |
| Qty. | 120 pc(s). |
| Packaging | Tray |

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Technical data

Dimensions and weights

| | | | |
|--------------------------|-----------|-----------------|------------|
| Depth | 16.7 mm | Depth (inches) | 0.657 inch |
| Height | 20 mm | Height (inches) | 0.787 inch |
| Height of lowest version | 16.5 mm | Width | 16 mm |
| Width (inches) | 0.63 inch | Net weight | 3.417 g |

System specifications

| | | |
|---|--|------|
| Category | Cat. 5 | |
| Colour of left LED | green | |
| Colour of right LED | yellow | |
| LED | Yes | |
| Mounting onto the PCB | THT/THR solder connection | |
| Number of poles | 8 | |
| Number of solder pins per pole | 1 | |
| Outgoing elbow | 180° | |
| Performance-Category | Cat. 5 | |
| Pitch in inches (P) | 0.05 inch | |
| Pitch in mm (P) | 1.27 mm | |
| Plugging cycles | 750 | |
| Product family | OMNIMATE Data - RJ45 modular jack | |
| Protection degree | IP20 | |
| Shield surface | nickel-plated | |
| Shield tabs | none | |
| Shielding | Yes | |
| Shielding material | Brass | |
| Solder eyelet hole diameter (D) | 0.9 mm | |
| Solder eyelet hole diameter tolerance (D) | ± 0.1 mm | |
| Solder pin length (l) | 3.2 mm | |
| Solder pin length tolerance | +0.5 / -0.5 mm | |
| Solder pin length tolerance | Lower tolerance with prefix (reveals minimum) | -0.5 |
| | Upper tolerance with prefix (reveals maximum) | +0.5 |
| | Tolerance, unit | mm |
| Soldering process | Reflow soldering, Manual soldering, Wave soldering | |
| Tolerance of solder pin position | ± 0.1 mm | |
| Type of connection | Solder connection | |
| Wiring | 8-core | |

Electrical properties

| | | | |
|--|-----------|---------------------------------------|-----------|
| Dielectric strength, contact / contact | 1000 V DC | Dielectric strength, contact / shield | 1500 V DC |
| Insulation strength | ≥ 500 MΩ | Rated current | 1.5 A |
| Rated voltage | 125 V | | |

Standards

| | |
|--------------------|----------------|
| Connector standard | IEC 60603-7-51 |
|--------------------|----------------|

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Material data

| | | | |
|----------------------------------|----------------------------|-----------------------------|------------------|
| Insulating material | PA 9T | Colour | black |
| Colour chart (similar) | RAL 9011 | Insulating material group | II |
| Comparative Tracking Index (CTI) | ≥ 500 | Insulation strength | ≥ 500 MΩ |
| Moisture Level (MSL) | 1 | UL 94 flammability rating | V-0 |
| Contact base material | Phosphorus bronze | Contact surface | Gold over nickel |
| Layer structure of plug contact | 30...80 μ" Ni / ≥ 30 μ" Au | Storage temperature, min. | -40 °C |
| Storage temperature, max. | 85 °C | Operating temperature, min. | -40 °C |
| Operating temperature, max. | 85 °C | | |

Packing

| | | | |
|-----------|--------|------------|--------|
| Packaging | Tray | VPE length | 292 mm |
| VPE width | 173 mm | VPE height | 24 mm |

Classifications

| | | | |
|-------------|-------------|-------------|-------------|
| ETIM 6.0 | EC002637 | ETIM 7.0 | EC002637 |
| ETIM 8.0 | EC002637 | ECLASS 9.0 | 27-44-04-02 |
| ECLASS 9.1 | 27-44-04-02 | ECLASS 10.0 | 27-44-04-02 |
| ECLASS 11.0 | 27-46-02-01 | ECLASS 12.0 | 27-46-02-01 |

Approvals

Approvals



| | |
|-------------------------|---------|
| ROHS | Conform |
| Certificate No. (UL) | E471884 |
| Certificate No. (cURus) | E471884 |

Downloads

| | |
|---|---|
| Approval/Certificate/Document of Conformity | Certificate of Compliance |
| Engineering Data | CAD data – STEP |
| Catalogues | Catalogues in PDF-format |

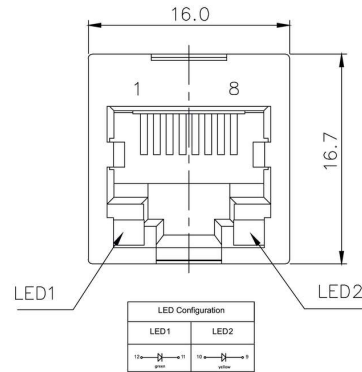
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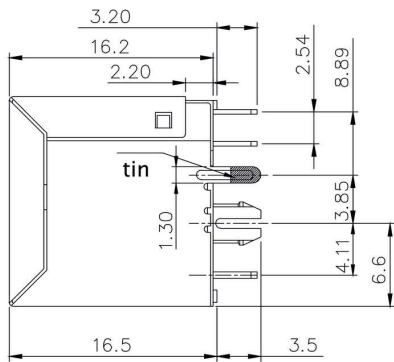
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Drawings

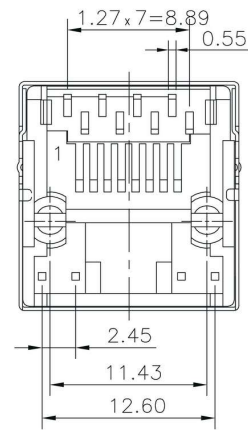
Dimensioned drawing



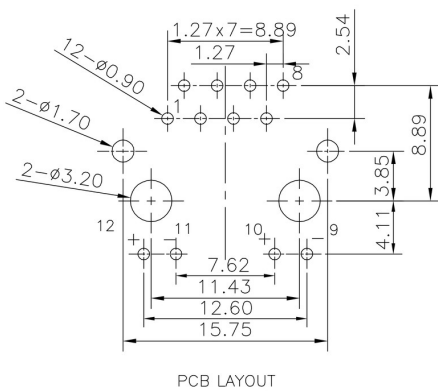
Dimensioned drawing



Dimensioned drawing



PCB design



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Drawings

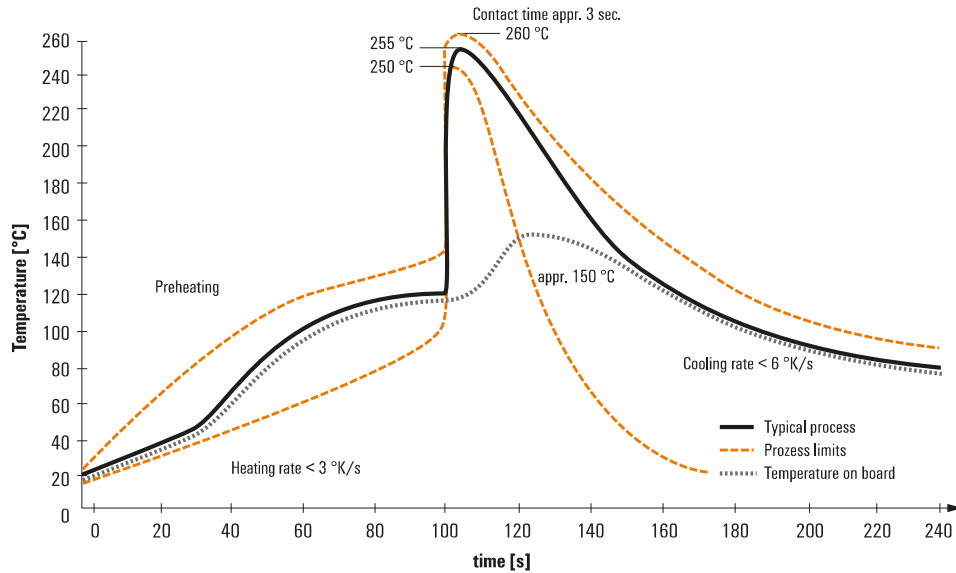
| Code | Meaning | Value | Description |
|-------|---------------------------|-------|--|
| RJ45 | Category | RJ45 | Category RJ45 |
| G1 | Performance Category | G1 | 10/100 Mbit |
| R | Assembly on PCB | R | Through Hole Reflow - THR |
| 1 | Number of Ports | 1 | 1 Port |
| U | Direction, latch style | U | Horizontal (90°, side entry), latch up |
| 3.2 | Solder Pin length | 3.2 | 3.2 mm |
| E | EMI tabs (ground fingers) | E | E = with EMI tabs |
| 4 | Contact surface thickness | 4 | 1 = 3µ", 2 = 6µ", 3 = 15µ", 4 = 30µ", 5 = 50µ" |
| GY/GY | LED | Y/G | Yellow/Green |
| TY | Packaging | TY | Tray in box (manual assembly) |

| Code | Meaning | Value | Description |
|-------------|---------------------------|-------------|--|
| TY | Packaging | TY | Tray in box (manual assembly) |
| RL | Packaging | RL | Tape on Reel (automated assembly) |
| Y/G | LED | Y/G | Yellow/Green |
| G/Y | LED | G/Y | Green/Yellow (standard) |
| GY/GY | LED | GY/GY | Green-Yellow/Green-Yellow |
| O/G | LED | O/G | Orange/Green |
| R/O | LED | R/O | Red/Orange |
| ... | LED | ... | ... (further combinations possible) |
| N | LED | N | without LED |
| 4 | Contact surface thickness | 4 | 1 = 3µ", 2 = 6µ", 3 = 15µ", 4 = 30µ", 5 = 50µ" |
| E | EMI tabs (ground fingers) | E | E = with EMI tabs |
| N | EMI tabs (ground fingers) | N | N = without EMI tabs |
| 3.2 | Solder Pin length | 3.2 | 3.2 mm |
| 1.6 | Solder Pin length | 1.6 | 1.6 mm |
| D | Solder Pin length | D | SMD |
| U | Direction, latch style | U | Horizontal (90°, side entry), latch up |
| D | Direction, latch style | D | Horizontal (90°, side entry), latch down |
| V | Direction, latch style | V | Vertical (90°, top entry) |
| Y | Direction, latch style | Y | Diagonal (45°), latch up |
| 1 | Number of Ports | 1 | 1 Port |
| 12; 14; ... | Number of Ports | 12; 14; ... | multi ports side by side, Multiport |
| 21; 41; ... | Number of Ports | 21; 41; ... | multi ports about each other, Multilevel |
| R | Assembly on PCB | R | Through Hole Reflow - THR |
| S | Assembly on PCB | S | Soldering process: Wave or Reflow soldering |
| T | Assembly on PCB | T | Surface Mount Technology - SMT |
| T | Assembly on PCB | T | Soldering process: Reflow soldering |
| T | Assembly on PCB | T | Through Hole Technology - THT |
| T | Assembly on PCB | T | Soldering process: Wave |
| C5 | Performance Category | C5 | Category 5 |
| C6 | Performance Category | C6 | Category 6 |
| C6A | Performance Category | C6A | Category 6A |
| C5e | Performance Category | C5e | Category 5e |
| M | Performance Category | M | 10/100 Mbit |
| G1 | Performance Category | G1 | 10/100/1000 Mbit |
| G10 | Performance Category | G10 | 10 Gbit |
| U | Performance Category | U | Unshielded |
| MP | Performance Category | MP | 10/100 Mbit with POE+ |
| MP+ | Performance Category | MP+ | 10/100 Mbit with POE+ |

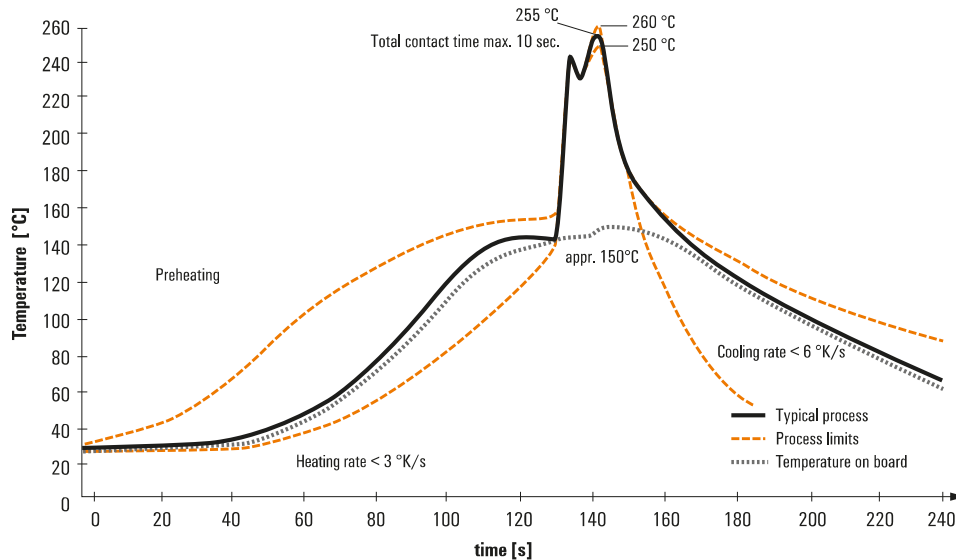
Recommended wave soldering profiles

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Single Wave:



Double Wave:



Wave soldering profiles

Wired connection elements should be processed in accordance with the DIN EN 61760-1 standard. We have included two recommendations for practical wave soldering profiles, with which Weidmüller PCB terminals and connectors are qualified.

When choosing a suitable profile for your application, the following factors also need to be considered:

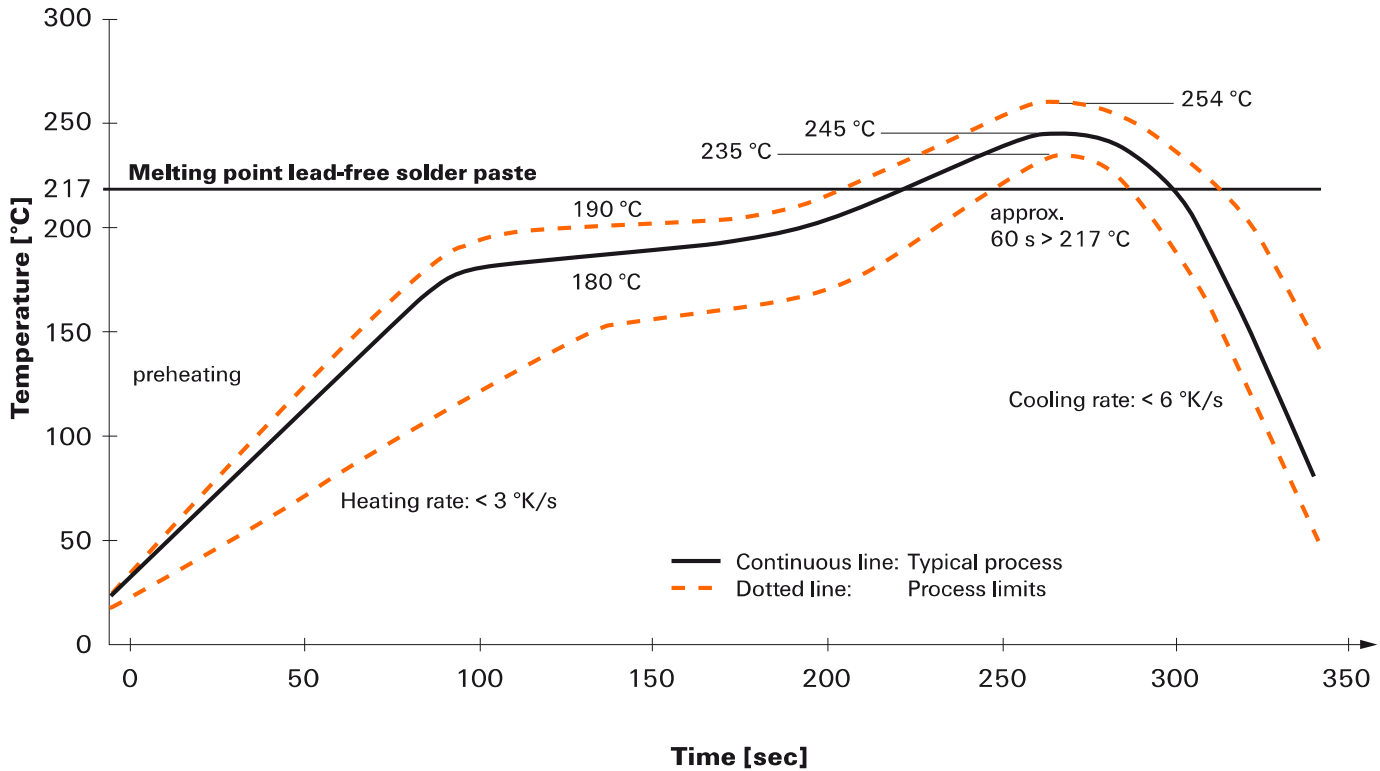
- PCB thickness
- Proportion of Cu in the layers
- Single/double-sided assembly
- Product range
- Heating and cooling rates

The single and double wave profiles each indicate the recommended operating range, including the maximum soldering temperature of 260°C. In practice, the maximum soldering temperature is quite often well below the above maximum profile.

Reflow Solder Profile

Recommended reflow soldering profile

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Reflow soldering profile

The perfect soldering profile for SMT Surface Mount Technology is one the most exiting question in SMT production. But there are more than one correct answer: The diagram of temperature-on-time is related to processing features of solder paste and to maximum load of components.

We have to consider the following parameters:

- Time for pre heating
- Maximum temperature
- Time above melting point
- Time for cooling
- Maximum heating rate
- Maximum cooling rate

We recommend a typical solder profile with associated process limits. With preheating components and board are prepared smoothly for the solder phase. Heating rate is typically $\leq +3\text{K/s}$. In parallel the solder paste is ,activated'. The time above melting point of 217°C the paste gets liquid and components and boards begin to connect. The maximum temperature of 245°C to 254°C should stay between 10 and 40 seconds. In the cooling phase at $\geq -6\text{K/s}$ solder is cured. Board and components cool down while avoiding cold cracks.