

# ZUS1R5

ZU S 1R5 12 05

① ② ③ ④ ⑤



- ① Series name
- ② Single output
- ③ Output wattage
- ④ Input voltage
- ⑤ Output voltage



| MODEL                 | ZUS1R50505 | ZUS1R50512 | ZUS1R50515 | ZUS1R51205 | ZUS1R51212 | ZUS1R51215 | ZUS1R52405 | ZUS1R52412 | ZUS1R52415 | ZUS1R54805 | ZUS1R54812 | ZUS1R54815 |
|-----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| MAX OUTPUT WATTAGE[W] | 1.50       | 1.56       | 1.50       | 1.50       | 1.56       | 1.50       | 1.50       | 1.56       | 1.50       | 1.50       | 1.56       | 1.50       |
| DC OUTPUT             | VOLTAGE[V] | 5          | 12         | 15         | 5          | 12         | 15         | 5          | 12         | 15         | 5          | 12         |
|                       | CURRENT[A] | 0.30       | 0.13       | 0.10       | 0.30       | 0.13       | 0.10       | 0.30       | 0.13       | 0.10       | 0.30       | 0.13       |

## SPECIFICATIONS

|                           | MODEL                                | ZUS1R50505   | ZUS1R50512    | ZUS1R50515  | ZUS1R51205    | ZUS1R51212    | ZUS1R51215  | ZUS1R52405    | ZUS1R52412    | ZUS1R52415  | ZUS1R54805    | ZUS1R54812    | ZUS1R54815 |        |
|---------------------------|--------------------------------------|--|---------------|-------------|---------------|---------------|-------------|---------------|---------------|-------------|---------------|---------------|------------|--------|
| INPUT                     | VOLTAGE[V]                           | DC4.5 - 9  |               |             | DC9 - 18      |               |             | DC18 - 36     |               |             | DC36 - 72     |               |            |        |
|                           | CURRENT[A]                           | *1 0.441typ  | 0.459typ      | 0.441typ    | 0.176typ      | 0.183typ      | 0.176typ    | 0.088typ      | 0.092typ      | 0.088typ    | 0.043typ      | 0.045typ      | 0.043typ   |        |
|                           | EFFICIENCY[%]                        | *1 68typ   | 68typ         | 68typ       | 71typ         | 71typ         | 71typ       | 71typ         | 71typ         | 71typ       | 73typ         | 73typ         | 73typ      |        |
| OUTPUT                    | VOLTAGE[V]                           | 5  | 12            | 15          | 5             | 12            | 15          | 5             | 12            | 15          | 5             | 12            | 15         |        |
|                           | CURRENT[A]                           | 0.30   | 0.13          | 0.10        | 0.30          | 0.13          | 0.10        | 0.30          | 0.13          | 0.10        | 0.30          | 0.13          | 0.10       |        |
|                           | LINE REGULATION[mV]                  | 20max  | 48max         | 60max       | 20max         | 48max         | 60max       | 20max         | 48max         | 60max       | 20max         | 48max         | 60max      |        |
|                           | LOAD REGULATION[mV]                  | 40max  | 100max        | 120max      | 40max         | 100max        | 120max      | 40max         | 100max        | 120max      | 40max         | 100max        | 120max     |        |
|                           | RIPPLE[mVp-p]                        | *2 80max   | 120max        | 120max      | 80max         | 120max        | 120max      | 80max         | 120max        | 120max      | 80max         | 120max        | 120max     |        |
|                           | RIPPLE NOISE[mVp-p]                  | *2 120max  | 150max        | 150max      | 120max        | 150max        | 150max      | 120max        | 150max        | 150max      | 120max        | 150max        | 150max     |        |
|                           | TEMPERATURE REGULATION[mV]           | -20 to +55°C   | 50max         | 150max      | 180max        | 50max         | 150max      | 180max        | 50max         | 150max      | 180max        | 50max         | 150max     | 180max |
|                           | DRIFT[mV]                            | *3 20max   | 48max         | 60max       | 20max         | 48max         | 60max       | 20max         | 48max         | 60max       | 20max         | 48max         | 60max      |        |
|                           | START-UP TIME[ms]                    | 20max (Minimum input, Io=100%)   |               |             |               |               |             |               |               |             |               |               |            |        |
|                           | OUTPUT VOLTAGE ADJUSTMENT RANGE[V]   | Fixed  |               |             |               |               |             |               |               |             |               |               |            |        |
| OUTPUT VOLTAGE SETTING[V] | 4.85 - 5.25                          | 11.40 - 12.60  | 14.25 - 15.75 | 4.85 - 5.25 | 11.40 - 12.60 | 14.25 - 15.75 | 4.85 - 5.25 | 11.40 - 12.60 | 14.25 - 15.75 | 4.85 - 5.25 | 11.40 - 12.60 | 14.25 - 15.75 |            |        |
| PROTECTION CIRCUIT        | OVERCURRENT PROTECTION               | Works over 105% of rating and recovers automatically   |               |             |               |               |             |               |               |             |               |               |            |        |
| ISOLATION                 | INPUT-OUTPUT                         | AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)                             |               |             |               |               |             |               |               |             |               |               |            |        |
|                           | INPUT-CASE                           | AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)                             |               |             |               |               |             |               |               |             |               |               |            |        |
|                           | OUTPUT-CASE                          | AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)                             |               |             |               |               |             |               |               |             |               |               |            |        |
| ENVIRONMENT               | OPERATING TEMP., HUMID. AND ALTITUDE | -20 to +71°C, 20 - 95%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet) max |               |             |               |               |             |               |               |             |               |               |            |        |
|                           | STORAGE TEMP., HUMID. AND ALTITUDE   | -40 to +85°C, 20 - 95%RH (Non condensing), 9,000m (30,000feet) max                           |               |             |               |               |             |               |               |             |               |               |            |        |
|                           | VIBRATION                            | 10 - 55Hz, 98.0m/s <sup>2</sup> (10G), 3minutes period, 60minutes each along X, Y and Z axis |               |             |               |               |             |               |               |             |               |               |            |        |
|                           | IMPACT                               | 490.3m/s <sup>2</sup> (50G), 11ms, once each X, Y and Z axis                                 |               |             |               |               |             |               |               |             |               |               |            |        |
| SAFETY                    | AGENCY APPROVALS                     | UL60950-1, EN60950-1, EN50178, CSA C22.2 No.60950-1 Complies with IEC60950-1                 |               |             |               |               |             |               |               |             |               |               |            |        |
| OTHERS                    | CASE SIZE/WEIGHT                     | 27.5×7×18mm (W×H×D) / 10g max  |               |             |               |               |             |               |               |             |               |               |            |        |
|                           | COOLING METHOD                       | Convection   |               |             |               |               |             |               |               |             |               |               |            |        |

\*1 Rated input 5V, 12V, 24V or 48V DC Io=100%.

\*2 Measured by 20MHz oscilloscope.

\*3 The drift is a change at 25°C of ambient temperature and 30 minutes - 8 hours after the input voltage applied at rated input/output.

\* Series/Parallel operation with other model is not possible.

External view



Performance data

■ STATIC CHARACTERISTICS (ZUS1R52405)



■ RISE TIME & FALL TIME (ZUS1R52405)



■ OVERCURRENT CHARACTERISTICS (ZUS1R52405)



■ DERATING CURVE



ZU/ZT

# ZUS3

**ZU S 3 12 05**

① ② ③ ④ ⑤



- ① Series name
- ② Single output
- ③ Output wattage
- ④ Input voltage
- ⑤ Output voltage



| MODEL                 | ZUS30505   | ZUS30512 | ZUS30515 | ZUS31205 | ZUS31212 | ZUS31215 | ZUS32405 | ZUS32412 | ZUS32415 | ZUS34805 | ZUS34812 | ZUS34815 |
|-----------------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| MAX OUTPUT WATTAGE[W] | 3          | 3        | 3        | 3        | 3        | 3        | 3        | 3        | 3        | 3        | 3        | 3        |
| DC OUTPUT             | VOLTAGE[V] | 5        | 12       | 15       | 5        | 12       | 15       | 5        | 12       | 15       | 5        | 12       |
|                       | CURRENT[A] | 0.60     | 0.25     | 0.20     | 0.60     | 0.25     | 0.20     | 0.60     | 0.25     | 0.20     | 0.60     | 0.25     |

## SPECIFICATIONS

|                    | MODEL                                | ZUS30505   | ZUS30512 | ZUS30515 | ZUS31205 | ZUS31212 | ZUS31215 | ZUS32405  | ZUS32412 | ZUS32415 | ZUS34805  | ZUS34812 | ZUS34815 |
|--------------------|--------------------------------------|--|----------|----------|----------|----------|----------|-----------|----------|----------|-----------|----------|----------|
| INPUT              | VOLTAGE[V]                           | DC4.5 - 9  |          |          | DC9 - 18 |          |          | DC18 - 36 |          |          | DC36 - 72 |          |          |
|                    | CURRENT[A]                           | *1 0.896typ  | 0.857typ | 0.857typ | 0.357typ | 0.338typ | 0.338typ | 0.176typ  | 0.167typ | 0.167typ | 0.088typ  | 0.082typ | 0.082typ |
|                    | EFFICIENCY[%]                        | *1 67typ   | 70typ    | 70typ    | 70typ    | 74typ    | 74typ    | 71typ     | 75typ    | 75typ    | 71typ     | 76typ    | 76typ    |
| OUTPUT             | VOLTAGE[V]                           | 5  | 12       | 15       | 5        | 12       | 15       | 5         | 12       | 15       | 5         | 12       | 15       |
|                    | CURRENT[A]                           | 0.60   | 0.25     | 0.20     | 0.60     | 0.25     | 0.20     | 0.60      | 0.25     | 0.20     | 0.60      | 0.25     | 0.20     |
|                    | LINE REGULATION[mV]                  | 20max  | 48max    | 60max    | 20max    | 48max    | 60max    | 20max     | 48max    | 60max    | 20max     | 48max    | 60max    |
|                    | LOAD REGULATION[mV]                  | 40max  | 100max   | 120max   | 40max    | 100max   | 120max   | 40max     | 100max   | 120max   | 40max     | 100max   | 120max   |
|                    | RIPPLE[mVp-p]                        | *2 80max   | 120max   | 120max   | 80max    | 120max   | 120max   | 80max     | 120max   | 120max   | 80max     | 120max   | 120max   |
|                    | RIPPLE NOISE[mVp-p]                  | *2 120max  | 150max   | 150max   | 120max   | 150max   | 150max   | 120max    | 150max   | 150max   | 120max    | 150max   | 150max   |
|                    | TEMPERATURE REGULATION[mV]           | -20 to +55°C   | 50max    | 150max   | 180max   | 50max    | 150max   | 180max    | 50max    | 150max   | 180max    | 50max    | 150max   |
|                    | DRIFT[mV]                            | *3 20max   | 48max    | 60max    | 20max    | 48max    | 60max    | 20max     | 48max    | 60max    | 20max     | 48max    | 60max    |
|                    | START-UP TIME[ms]                    | 20max (Minimum input, I <sub>o</sub> =100%)  |          |          |          |          |          |           |          |          |           |          |          |
|                    | OUTPUT VOLTAGE ADJUSTMENT RANGE[V]   | Fixed  |          |          |          |          |          |           |          |          |           |          |          |
| PROTECTION CIRCUIT | OVERCURRENT PROTECTION               | Works over 105% of rating and recovers automatically   |          |          |          |          |          |           |          |          |           |          |          |
| ISOLATION          | INPUT-OUTPUT                         | AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)                             |          |          |          |          |          |           |          |          |           |          |          |
|                    | INPUT-CASE                           | AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)                             |          |          |          |          |          |           |          |          |           |          |          |
|                    | OUTPUT-CASE                          | AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)                             |          |          |          |          |          |           |          |          |           |          |          |
| ENVIRONMENT        | OPERATING TEMP., HUMID. AND ALTITUDE | -20 to +71°C, 20 - 95%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet) max |          |          |          |          |          |           |          |          |           |          |          |
|                    | STORAGE TEMP., HUMID. AND ALTITUDE   | -40 to +85°C, 20 - 95%RH (Non condensing), 9,000m (30,000feet) max                           |          |          |          |          |          |           |          |          |           |          |          |
|                    | VIBRATION                            | 10 - 55Hz, 98.0m/s <sup>2</sup> (10G), 3minutes period, 60minutes each along X, Y and Z axis |          |          |          |          |          |           |          |          |           |          |          |
|                    | IMPACT                               | 490.3m/s <sup>2</sup> (50G), 11ms, once each X, Y and Z axis                                 |          |          |          |          |          |           |          |          |           |          |          |
| SAFETY             | AGENCY APPROVALS                     | UL60950-1, EN60950-1, CSA C22.2 No.60950-1 Complies with IEC60950-1                          |          |          |          |          |          |           |          |          |           |          |          |
| OTHERS             | CASE SIZE/WEIGHT                     | 35×7×23mm (W×H×D) / 16g max  |          |          |          |          |          |           |          |          |           |          |          |
|                    | COOLING METHOD                       | Convection   |          |          |          |          |          |           |          |          |           |          |          |

\*1 Rated input. 5V, 12V, 24V or 48V DC, I<sub>o</sub>=100%

\*2 Measured by 20MHz oscilloscope.

\*3 The drift is a change at 25°C of ambient temperature and 30 minutes - 8 hours after the input voltage applied at rated input/output.

\* Series/Parallel operation with other model is not possible.

External view



Performance data

■STATIC CHARACTERISTICS (ZUS32405)



■RISE TIME & FALL TIME (ZUS32405)



■OVERCURRENT CHARACTERISTICS (ZUS32405)



■DERATING CURVE



ZU/ZT

# ZUS6

**ZU S 6 12 05**

① ② ③ ④ ⑤



- ① Series name
- ② Single output
- ③ Output wattage
- ④ Input voltage
- ⑤ Output voltage



| MODEL                 | ZUS6053R3  | ZUS60505 | ZUS60512 | ZUS60515 | ZUS61205 | ZUS61212 | ZUS61215 | ZUS62405 | ZUS62412 | ZUS62415 | ZUS6483R3 | ZUS64805 | ZUS64812 | ZUS64815 |     |
|-----------------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|----------|----------|-----|
| MAX OUTPUT WATTAGE[W] | 3.3        | 5        | 6        | 6        | 6        | 6        | 6        | 6        | 6        | 6        | 3.96      | 6        | 6        | 6        |     |
| DC OUTPUT             | VOLTAGE[V] | 3.3      | 5        | 12       | 15       | 5        | 12       | 15       | 5        | 12       | 15        | 3.3      | 5        | 12       | 15  |
|                       | CURRENT[A] | 1.0      | 1.0      | 0.5      | 0.4      | 1.2      | 0.5      | 0.4      | 1.2      | 0.5      | 0.4       | 1.2      | 1.2      | 0.5      | 0.4 |

## SPECIFICATIONS

|                           | MODEL                                | ZUS6053R3  | ZUS60505      | ZUS60512      | ZUS60515    | ZUS61205      | ZUS61212      | ZUS61215    | ZUS62405      | ZUS62412      | ZUS62415    | ZUS6483R3   | ZUS64805      | ZUS64812      | ZUS64815 |        |
|---------------------------|--------------------------------------|--|---------------|---------------|-------------|---------------|---------------|-------------|---------------|---------------|-------------|-------------|---------------|---------------|----------|--------|
| INPUT                     | VOLTAGE[V]                           | DC4.5 - 9  |               |               |             | DC9 - 18      |               |             |               | DC18 - 36     |             |             | DC36 - 72     |               |          |        |
|                           | CURRENT[A]                           | *1 0.94typ   | 1.41typ       | 1.63typ       | 1.63typ     | 0.69typ       | 0.65typ       | 0.65typ     | 0.35typ       | 0.33typ       | 0.33typ     | 0.09typ     | 0.18typ       | 0.17typ       | 0.17typ  |        |
|                           | EFFICIENCY[%]                        | *1 70typ   | 71typ         | 74typ         | 74typ       | 73typ         | 78typ         | 78typ       | 73typ         | 78typ         | 78typ       | 73typ       | 73typ         | 78typ         | 78typ    |        |
| OUTPUT                    | VOLTAGE[V]                           | 3.3  | 5             | 12            | 15          | 5             | 12            | 15          | 5             | 12            | 15          | 3.3         | 5             | 12            | 15       |        |
|                           | CURRENT[A]                           | 1.0  | 1.0           | 0.5           | 0.4         | 1.2           | 0.5           | 0.4         | 1.2           | 0.5           | 0.4         | 1.2         | 1.2           | 0.5           | 0.4      |        |
|                           | LINE REGULATION[mV]                  | 20max  | 20max         | 48max         | 60max       | 20max         | 48max         | 60max       | 20max         | 48max         | 60max       | 20max       | 20max         | 48max         | 60max    |        |
|                           | LOAD REGULATION[mV]                  | 40max  | 40max         | 100max        | 120max      | 40max         | 100max        | 120max      | 40max         | 100max        | 120max      | 40max       | 40max         | 100max        | 120max   |        |
|                           | RIPPLE[mVp-p]                        | *2 80max   | 80max         | 120max        | 120max      | 80max         | 120max        | 120max      | 80max         | 120max        | 120max      | 80max       | 80max         | 120max        | 120max   |        |
|                           | RIPPLE NOISE[mVp-p]                  | *2 120max  | 120max        | 150max        | 150max      | 120max        | 150max        | 150max      | 120max        | 150max        | 150max      | 120max      | 120max        | 150max        | 150max   |        |
|                           | TEMPERATURE REGULATION[mV]           | -20 to +55°C   | 50max         | 50max         | 150max      | 180max        | 50max         | 150max      | 180max        | 50max         | 150max      | 180max      | 50max         | 50max         | 150max   | 180max |
|                           | DRIFT[mV]                            | *3 20max   | 20max         | 48max         | 60max       | 20max         | 48max         | 60max       | 20max         | 48max         | 60max       | 20max       | 20max         | 48max         | 60max    |        |
|                           | START-UP TIME[ms]                    | 20max (Minimum input, Io=100%)   |               |               |             |               |               |             |               |               |             |             |               |               |          |        |
|                           | OUTPUT VOLTAGE ADJUSTMENT RANGE[V]   | Fixed  |               |               |             |               |               |             |               |               |             |             |               |               |          |        |
| OUTPUT VOLTAGE SETTING[V] | 3.20 - 3.47                          | 4.85 - 5.25  | 11.40 - 12.60 | 14.25 - 15.75 | 4.85 - 5.25 | 11.40 - 12.60 | 14.25 - 15.75 | 4.85 - 5.25 | 11.40 - 12.60 | 14.25 - 15.75 | 3.20 - 3.47 | 4.85 - 5.25 | 11.40 - 12.60 | 14.25 - 15.75 |          |        |
| PROTECTION CIRCUIT        | OVERCURRENT PROTECTION               | Works over 105% of rating and recovers automatically   |               |               |             |               |               |             |               |               |             |             |               |               |          |        |
| ISOLATION                 | INPUT-OUTPUT                         | AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)                             |               |               |             |               |               |             |               |               |             |             |               |               |          |        |
|                           | INPUT-CASE                           | AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)                             |               |               |             |               |               |             |               |               |             |             |               |               |          |        |
|                           | OUTPUT-CASE                          | AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)                             |               |               |             |               |               |             |               |               |             |             |               |               |          |        |
| ENVIRONMENT               | OPERATING TEMP., HUMID. AND ALTITUDE | -20 to +71°C, 20 - 95%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet) max |               |               |             |               |               |             |               |               |             |             |               |               |          |        |
|                           | STORAGE TEMP., HUMID. AND ALTITUDE   | -40 to +85°C, 20 - 95%RH (Non condensing), 9,000m (30,000feet) max                           |               |               |             |               |               |             |               |               |             |             |               |               |          |        |
|                           | VIBRATION                            | 10 - 55Hz, 98.0m/s <sup>2</sup> (10G), 3minutes period, 60minutes each along X, Y and Z axis |               |               |             |               |               |             |               |               |             |             |               |               |          |        |
|                           | IMPACT                               | 490.3m/s <sup>2</sup> (50G), 11ms, once each X, Y and Z axis                                 |               |               |             |               |               |             |               |               |             |             |               |               |          |        |
| SAFETY                    | AGENCY APPROVALS                     | UL60950-1, EN60950-1, CSA C22.2 No.60950-1 Complies with IEC60950-1                          |               |               |             |               |               |             |               |               |             |             |               |               |          |        |
| OTHERS                    | CASE SIZE/WEIGHT                     | 44.5 × 7 × 28mm (W × H × D) / 25g max  |               |               |             |               |               |             |               |               |             |             |               |               |          |        |
|                           | COOLING METHOD                       | Convection   |               |               |             |               |               |             |               |               |             |             |               |               |          |        |

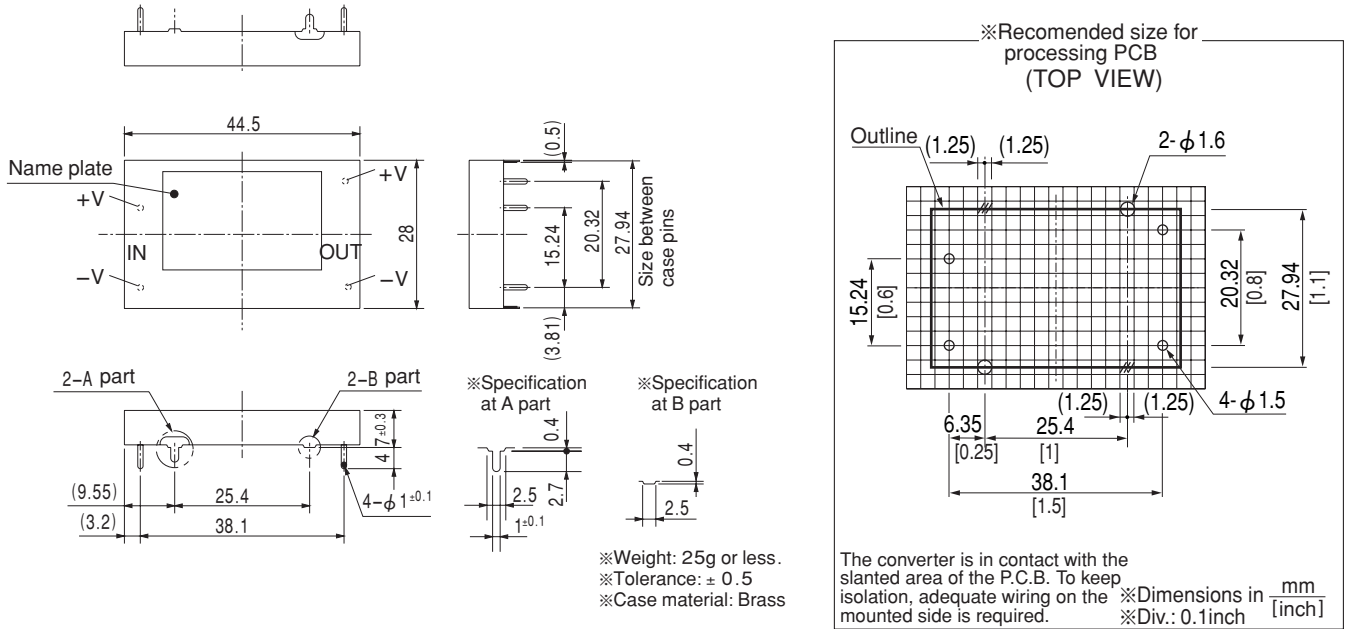
\*1 Rated input. 5V, 12V, 24V or 48V DC, Io=100%

\*2 Measured by 20MHz oscilloscope.

\*3 The drift is a change at 25°C of ambient temperature and 30 minutes - 8 hours after the input voltage applied at rated input/output.

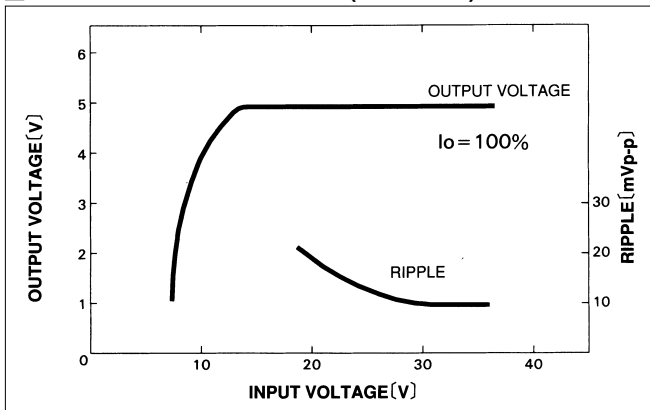
\* Series/Parallel operation with other model is not possible.

External view

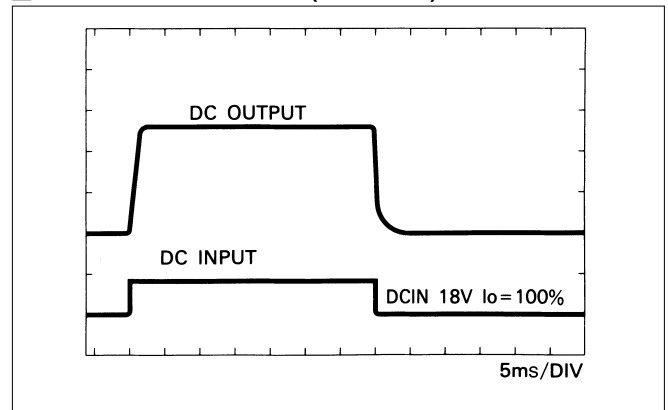


Performance data

■ STATIC CHARACTERISTICS (ZUS62405)



■ RISE TIME & FALL TIME (ZUS62405)



■ OVERCURRENT CHARACTERISTICS (ZUS62405)



■ DERATING CURVE



# ZUS10

ZU S 10 12 05

① ② ③ ④ ⑤



- ① Series name
- ② Single output
- ③ Output wattage
- ④ Input voltage
- ⑤ Output voltage



| MODEL                 | ZUS10053R3 | ZUS100505 | ZUS100512 | ZUS100515 | ZUS101205 | ZUS101212 | ZUS101215 | ZUS102405 | ZUS102412 | ZUS102415 | ZUS10483R3 | ZUS104805 | ZUS104812 | ZUS104815 |     |
|-----------------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|-----------|-----------|-----------|-----|
| MAX OUTPUT WATTAGE[W] | 5.28       | 8.0       | 8.4       | 9.0       | 10.0      | 10.8      | 10.5      | 10.0      | 10.8      | 10.5      | 6.6        | 10.0      | 10.8      | 10.5      |     |
| DC OUTPUT             | VOLTAGE[V] | 3.3       | 5         | 12        | 15        | 5         | 12        | 15        | 5         | 12        | 15         | 3.3       | 5         | 12        | 15  |
|                       | CURRENT[A] | 1.6       | 1.6       | 0.7       | 0.6       | 2.0       | 0.9       | 0.7       | 2.0       | 0.9       | 0.7        | 2.0       | 2.0       | 0.9       | 0.7 |

## SPECIFICATIONS

|                           | MODEL                                | ZUS10053R3   | ZUS100505     | ZUS100512     | ZUS100515   | ZUS101205     | ZUS101212     | ZUS101215   | ZUS102405     | ZUS102412     | ZUS102415   | ZUS10483R3  | ZUS104805     | ZUS104812     | ZUS104815 |        |
|---------------------------|--------------------------------------|--|---------------|---------------|-------------|---------------|---------------|-------------|---------------|---------------|-------------|-------------|---------------|---------------|-----------|--------|
| INPUT                     | VOLTAGE[V]                           | DC4.5 - 9  |               |               |             | DC9 - 18      |               |             | DC18 - 36     |               |             | DC36 - 72   |               |               |           |        |
|                           | CURRENT[A]                           | *1 1.48typ   | 2.14typ       | 2.24typ       | 2.40typ     | 1.05typ       | 1.10typ       | 1.07typ     | 0.53typ       | 0.55typ       | 0.54typ     | 0.18typ     | 0.27typ       | 0.28typ       | 0.27typ   |        |
|                           | EFFICIENCY[%]                        | *1 72typ   | 75typ         | 75typ         | 75typ       | 80typ         | 82typ         | 82typ       | 80typ         | 82typ         | 82typ       | 75typ       | 80typ         | 82typ         | 82typ     |        |
| OUTPUT                    | VOLTAGE[V]                           | 3.3  | 5             | 12            | 15          | 5             | 12            | 15          | 5             | 12            | 15          | 3.3         | 5             | 12            | 15        |        |
|                           | CURRENT[A]                           | 1.6  | 1.6           | 0.7           | 0.6         | 2.0           | 0.9           | 0.7         | 2.0           | 0.9           | 0.7         | 2.0         | 2.0           | 0.9           | 0.7       |        |
|                           | LINE REGULATION[mV]                  | 20max  | 20max         | 48max         | 60max       | 20max         | 48max         | 60max       | 20max         | 48max         | 60max       | 20max       | 20max         | 48max         | 60max     |        |
|                           | LOAD REGULATION[mV]                  | 40max  | 40max         | 100max        | 120max      | 40max         | 100max        | 120max      | 40max         | 100max        | 120max      | 40max       | 40max         | 100max        | 120max    |        |
|                           | RIPPLE[mVp-p]                        | *2 80max   | 80max         | 120max        | 120max      | 80max         | 120max        | 120max      | 80max         | 120max        | 120max      | 80max       | 80max         | 120max        | 120max    |        |
|                           | RIPPLE NOISE[mVp-p]                  | *2 120max  | 120max        | 150max        | 150max      | 120max        | 150max        | 150max      | 120max        | 150max        | 150max      | 120max      | 120max        | 150max        | 150max    |        |
|                           | TEMPERATURE REGULATION[mV]           | -20 to +55°C   | 50max         | 50max         | 150max      | 180max        | 50max         | 150max      | 180max        | 50max         | 150max      | 180max      | 50max         | 50max         | 150max    | 180max |
|                           | DRIFT[mV]                            | *3 20max   | 20max         | 48max         | 60max       | 20max         | 48max         | 60max       | 20max         | 48max         | 60max       | 20max       | 20max         | 48max         | 60max     |        |
|                           | START-UP TIME[ms]                    | 20max (Minimum input, I <sub>o</sub> =100%)  |               |               |             |               |               |             |               |               |             |             |               |               |           |        |
|                           | OUTPUT VOLTAGE ADJUSTMENT RANGE[V]   | Fixed  |               |               |             |               |               |             |               |               |             |             |               |               |           |        |
| OUTPUT VOLTAGE SETTING[V] | 3.20 - 3.47                          | 4.85 - 5.25  | 11.40 - 12.60 | 14.25 - 15.75 | 4.85 - 5.25 | 11.40 - 12.60 | 14.25 - 15.75 | 4.85 - 5.25 | 11.40 - 12.60 | 14.25 - 15.75 | 3.20 - 3.47 | 4.85 - 5.25 | 11.40 - 12.60 | 14.25 - 15.75 |           |        |
| PROTECTION CIRCUIT        | OVERCURRENT PROTECTION               | Works over 105% of rating and recovers automatically   |               |               |             |               |               |             |               |               |             |             |               |               |           |        |
| ISOLATION                 | INPUT-OUTPUT                         | AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)                             |               |               |             |               |               |             |               |               |             |             |               |               |           |        |
|                           | INPUT-CASE                           | AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)                             |               |               |             |               |               |             |               |               |             |             |               |               |           |        |
|                           | OUTPUT-CASE                          | AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)                             |               |               |             |               |               |             |               |               |             |             |               |               |           |        |
| ENVIRONMENT               | OPERATING TEMP., HUMID. AND ALTITUDE | -20 to +71°C, 20 - 95%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet) max |               |               |             |               |               |             |               |               |             |             |               |               |           |        |
|                           | STORAGE TEMP., HUMID. AND ALTITUDE   | -40 to +85°C, 20 - 95%RH (Non condensing), 9,000m (30,000feet) max                           |               |               |             |               |               |             |               |               |             |             |               |               |           |        |
|                           | VIBRATION                            | 10 - 55Hz, 98.0m/s <sup>2</sup> (10G), 3minutes period, 60minutes each along X, Y and Z axis |               |               |             |               |               |             |               |               |             |             |               |               |           |        |
|                           | IMPACT                               | 490.3m/s <sup>2</sup> (50G), 11ms, once each X, Y and Z axis                                 |               |               |             |               |               |             |               |               |             |             |               |               |           |        |
| SAFETY                    | AGENCY APPROVALS                     | UL60950-1, EN60950-1, CSA C22.2 No.60950-1 Complies with IEC60950-1                          |               |               |             |               |               |             |               |               |             |             |               |               |           |        |
| OTHERS                    | CASE SIZE/WEIGHT                     | 45 × 7 × 35mm (W × H × D) / 40g max  |               |               |             |               |               |             |               |               |             |             |               |               |           |        |
|                           | COOLING METHOD                       | Convection   |               |               |             |               |               |             |               |               |             |             |               |               |           |        |

\*1 Rated input. 5V, 12V, 24V or 48V DC, I<sub>o</sub>=100%

\*2 Measured by 20MHz oscilloscope.

\*3 The drift is a change at 25°C of ambient temperature and 30 minutes - 8 hours after the input voltage applied at rated input/output.

\* Series/Parallel operation with other model is not possible.



External view



Performance data

■ STATIC CHARACTERISTICS (ZUS102405)



■ RISE TIME & FALL TIME (ZUS102405)



■ OVERCURRENT CHARACTERISTICS (ZUS102405)



■ DERATING CURVE



ZU/ZT



# ZUS15

ZU S 15 12 05

① ② ③ ④ ⑤



- ① Series name
- ② Single output
- ③ Output wattage
- ④ Input voltage
- ⑤ Output voltage

| MODEL                 | ZUS15053R3 | ZUS150505 | ZUS150512 | ZUS151205 | ZUS151212 | ZUS152405 | ZUS152412 | ZUS15483R3 | ZUS154805 | ZUS154812 |     |
|-----------------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|------------|-----------|-----------|-----|
| MAX OUTPUT WATTAGE[W] | 6.6        | 10.0      | 12.0      | 12.0      | 15.6      | 12.0      | 15.6      | 7.92       | 12.0      | 15.6      |     |
| DC OUTPUT             | VOLTAGE[V] | 3.3       | 5         | 12        | 5         | 12        | 5         | 12         | 3.3       | 5         | 12  |
|                       | CURRENT[A] | 2.0       | 2.0       | 1.0       | 2.4       | 1.3       | 2.4       | 1.3        | 2.4       | 2.4       | 1.3 |

## SPECIFICATIONS

| MODEL                     | ZUS15053R3   | ZUS150505  | ZUS150512 | ZUS151205 | ZUS151212 | ZUS152405 | ZUS152412 | ZUS15483R3  | ZUS154805                     | ZUS154812 |         |
|---------------------------|--|--|-----------|-----------|-----------|-----------|-----------|-------------|-------------------------------|-----------|---------|
| INPUT                     | VOLTAGE[V]   | DC4.5 - 9  |           |           | DC9 - 18  |           | DC18 - 36 |             | DC36 - 75                     |           |         |
|                           | CURRENT[A]   | *1 1.83typ   | 2.50typ   | 2.96typ   | 1.25typ   | 1.57typ   | 0.63typ   | 0.78typ     | 0.21typ                       | 0.31typ   | 0.39typ |
|                           | EFFICIENCY[%]  | *1 72typ   | 80typ     | 81typ     | 80typ     | 83typ     | 80typ     | 83typ       | 78typ                         | 80typ     | 83typ   |
| OUTPUT                    | VOLTAGE[V]   | 3.3  | 5         | 12        | 5         | 12        | 5         | 12          | 3.3                           | 5         | 12      |
|                           | CURRENT[A]   | 2.0  | 2.0       | 1.0       | 2.4       | 1.3       | 2.4       | 1.3         | 2.4                           | 2.4       | 1.3     |
|                           | LINE REGULATION[mV]  | 20max  | 20max     | 48max     | 20max     | 48max     | 20max     | 48max       | 20max                         | 20max     | 48max   |
|                           | LOAD REGULATION[mV]  | 40max  | 40max     | 100max    | 40max     | 100max    | 40max     | 100max      | 40max                         | 40max     | 100max  |
|                           | RIPPLE[mVp-p]  | *2 80max   | 80max     | 120max    | 80max     | 120max    | 80max     | 120max      | 80max                         | 80max     | 120max  |
|                           | RIPPLE NOISE[mVp-p]  | *2 120max  | 120max    | 150max    | 120max    | 150max    | 120max    | 150max      | 120max                        | 120max    | 150max  |
|                           | TEMPERATURE REGULATION[mV] 0 to +55°C  | 50max  | 50max     | 150max    | 50max     | 150max    | 50max     | 150max      | 50max                         | 50max     | 150max  |
|                           | DRIFT[mV]  | *3 20max   | 20max     | 48max     | 20max     | 48max     | 20max     | 48max       | 20max                         | 20max     | 48max   |
|                           | START-UP TIME[ms]  | 100max (Minimum input, Io=100%)  |           |           |           |           |           |             |                               |           |         |
|                           | OUTPUT VOLTAGE ADJUSTMENT RANGE[V]   | Internally fixed (TRM pin open), adjustable by external VR                                   |           |           |           |           |           |             |                               |           |         |
| OUTPUT VOLTAGE SETTING[V] | 3.20 - 3.47  | ±5%  |           |           |           |           |           | 3.20 - 3.47 | ±5%                           |           |         |
| OVERCURRENT PROTECTION    | Works over 105% of rating and recovers automatically   |  |           |           |           |           |           |             |                               |           |         |
| OVERVOLTAGE PROTECTION    | 4.0 - 5.25V  | Works at 115 - 140% of rating  |           |           |           |           |           | 4.0 - 5.25V | Works at 115 - 140% of rating |           |         |
| REMOTE ON/OFF             | Between RC and -side of input:short - 1.2V · · · output ON, 2.4V - 5.5V(or open) · · · output OFF, Compatible to TTL |  |           |           |           |           |           |             |                               |           |         |
| INPUT-OUTPUT ISOLATION    | AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)   |  |           |           |           |           |           |             |                               |           |         |
| INPUT-CASE                | AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)   |  |           |           |           |           |           |             |                               |           |         |
| OUTPUT-CASE               | AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)   |  |           |           |           |           |           |             |                               |           |         |
| ENVIRONMENT               | OPERATING TEMP.,HUMID.AND ALTITUDE   | -20 to +71°C, 20 - 95%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet) max |           |           |           |           |           |             |                               |           |         |
|                           | STORAGE TEMP.,HUMID.AND ALTITUDE   | -40 to +85°C, 20 - 95%RH (Non condensing), 9,000m (30,000feet) max                           |           |           |           |           |           |             |                               |           |         |
|                           | VIBRATION  | 10 - 55Hz, 98.0m/s <sup>2</sup> (10G), 3minutes period, 60minutes each along X, Y and Z axis |           |           |           |           |           |             |                               |           |         |
|                           | IMPACT   | 490.3m/s <sup>2</sup> (50G), 11ms, once each X, Y and Z axis                                 |           |           |           |           |           |             |                               |           |         |
| SAFETY                    | AGENCY APPROVALS   | UL60950-1, EN60950-1, CSA C22.2 No.60950-1 Complies with IEC60950-1                          |           |           |           |           |           |             |                               |           |         |
| OTHERS                    | CASE SIZE/WEIGHT   | 45 × 8.5 × 50mm (W × H × D) / 55g max  |           |           |           |           |           |             |                               |           |         |
|                           | COOLING METHOD   | Convection   |           |           |           |           |           |             |                               |           |         |

\*1 Rated input. 5V, 12V, 24V or 48V DC, Io=100%

\*2 Measured by 20MHz oscilloscope.

\*3 The drift is a change at 25°C of ambient temperature and 30 minutes - 8 hours after the input voltage applied at rated input/output.

\* Series/Parallel operation with other model is not possible.

External view



note) Internal parts  
 ※Weight: 55g or less.  
 ※Tolerance: ± 0.5  
 ※Case material: Aluminum



Performance data

■ STATIC CHARACTERISTICS (ZUS151205)



■ RISE TIME & FALL TIME (ZUS151205)



■ OVERCURRENT CHARACTERISTICS (ZUS151205)



■ DERATING CURVE



ZU/ZT

# ZUS25

**ZU S 25 12 05**

① ② ③ ④ ⑤



- ① Series name
- ② Single output
- ③ Output wattage
- ④ Input voltage
- ⑤ Output voltage

| MODEL                        | ZUS25053R3 | ZUS250505 | ZUS250512 | ZUS251205 | ZUS251212 | ZUS252405 | ZUS252412 | ZUS25483R3 | ZUS254805 | ZUS254812 |     |
|------------------------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|------------|-----------|-----------|-----|
| <b>MAX OUTPUT WATTAGE[W]</b> | 13.2       | 16.0      | 20.4      | 20.0      | 25.2      | 20.0      | 25.2      | 13.2       | 20.0      | 25.2      |     |
| <b>DC OUTPUT</b>             | VOLTAGE[V] | 3.3       | 5         | 12        | 5         | 12        | 5         | 12         | 3.3       | 5         | 12  |
|                              | CURRENT[A] | 4.0       | 3.2       | 1.7       | 4.0       | 2.1       | 4.0       | 2.1        | 4.0       | 4.0       | 2.1 |

## SPECIFICATIONS

|                                  | MODEL  | ZUS25053R3   | ZUS250505                     | ZUS250512 | ZUS251205 | ZUS251212 | ZUS252405 | ZUS252412   | ZUS25483R3                    | ZUS254805 | ZUS254812 |  |
|----------------------------------|--|--|-------------------------------|-----------|-----------|-----------|-----------|-------------|-------------------------------|-----------|-----------|--|
| <b>INPUT</b>                     | <b>VOLTAGE[V]</b>                                    | DC4.5 - 9  |                               |           | DC9 - 18  |           | DC18 - 36 |             | DC36 - 75                     |           |           |  |
|                                  | <b>CURRENT[A]</b> *1                                 | 3.66typ  | 4.00typ                       | 4.98typ   | 2.03typ   | 2.47typ   | 1.02typ   | 1.23typ     | 0.35typ                       | 0.51typ   | 0.62typ   |  |
|                                  | <b>EFFICIENCY[%]</b> *1                              | 72typ  | 80typ                         | 82typ     | 82typ     | 85typ     | 82typ     | 85typ       | 78typ                         | 82typ     | 85typ     |  |
| <b>OUTPUT</b>                    | <b>VOLTAGE[V]</b>                                    | 3.3  | 5                             | 12        | 5         | 12        | 5         | 12          | 3.3                           | 5         | 12        |  |
|                                  | <b>CURRENT[A]</b>                                    | 4.0  | 3.2                           | 1.7       | 4.0       | 2.1       | 4.0       | 2.1         | 4.0                           | 4.0       | 2.1       |  |
|                                  | <b>LINE REGULATION[mV]</b>                           | 20max  | 20max                         | 48max     | 20max     | 48max     | 20max     | 48max       | 20max                         | 20max     | 48max     |  |
|                                  | <b>LOAD REGULATION[mV]</b>                           | 40max  | 40max                         | 100max    | 40max     | 100max    | 40max     | 100max      | 40max                         | 40max     | 100max    |  |
|                                  | <b>RIPPLE[mVp-p]</b> *2                              | 80max  | 80max                         | 120max    | 80max     | 120max    | 80max     | 120max      | 80max                         | 80max     | 120max    |  |
|                                  | <b>RIPPLE NOISE[mVp-p]</b> *2                        | 120max   | 120max                        | 150max    | 120max    | 150max    | 120max    | 150max      | 120max                        | 120max    | 150max    |  |
|                                  | <b>TEMPERATURE REGULATION[mV] 0 to +55°C</b>         | 50max  | 50max                         | 150max    | 50max     | 150max    | 50max     | 150max      | 50max                         | 50max     | 150max    |  |
|                                  | <b>DRIFT[mV]</b> *3                                  | 20max  | 20max                         | 48max     | 20max     | 48max     | 20max     | 48max       | 20max                         | 20max     | 48max     |  |
|                                  | <b>START-UP TIME[ms]</b>                             | 100max (Minimum input, Io=100%)  |                               |           |           |           |           |             |                               |           |           |  |
|                                  | <b>OUTPUT VOLTAGE ADJUSTMENT RANGE[V]</b>            | Internally fixed (TRM pin open), adjustable by external VR   |                               |           |           |           |           |             |                               |           |           |  |
| <b>OUTPUT VOLTAGE SETTING[V]</b> | 3.20 - 3.47  | ±5%  |                               |           |           |           |           | 3.20 - 3.47 | ±5%                           |           |           |  |
| <b>OVERCURRENT PROTECTION</b>    | Works over 105% of rating and recovers automatically |  |                               |           |           |           |           |             |                               |           |           |  |
| <b>PROTECTION CIRCUIT</b>        | <b>OVERVOLTAGE PROTECTION</b>                        | 4.0 - 5.25V  | Works at 115 - 140% of rating |           |           |           |           | 4.0 - 5.25V | Works at 115 - 140% of rating |           |           |  |
|                                  | <b>REMOTE ON/OFF</b>                                 | Between RC and -side of input:short - 1.2V · · · output ON, 2.4V - 5.5V(or open) · · · output OFF, Compatible to TTL |                               |           |           |           |           |             |                               |           |           |  |
| <b>ISOLATION</b>                 | <b>INPUT-OUTPUT</b>                                  | AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)   |                               |           |           |           |           |             |                               |           |           |  |
|                                  | <b>INPUT-CASE</b>                                    | AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)   |                               |           |           |           |           |             |                               |           |           |  |
|                                  | <b>OUTPUT-CASE</b>                                   | AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)   |                               |           |           |           |           |             |                               |           |           |  |
| <b>ENVIRONMENT</b>               | <b>OPERATING TEMP.,HUMID.AND ALTITUDE</b>            | -20 to +71°C, 20 - 95%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet) max                         |                               |           |           |           |           |             |                               |           |           |  |
|                                  | <b>STORAGE TEMP.,HUMID.AND ALTITUDE</b>              | -40 to +85°C, 20 - 95%RH (Non condensing), 9,000m (30,000feet) max   |                               |           |           |           |           |             |                               |           |           |  |
|                                  | <b>VIBRATION</b>                                     | 10 - 55Hz, 98.0m/s <sup>2</sup> (10G), 3minutes period, 60minutes each along X, Y and Z axis                         |                               |           |           |           |           |             |                               |           |           |  |
|                                  | <b>IMPACT</b>  | 490.3m/s <sup>2</sup> (50G), 11ms, once each X, Y and Z axis   |                               |           |           |           |           |             |                               |           |           |  |
| <b>SAFETY</b>                    | <b>AGENCY APPROVALS</b>                              | UL60950-1, EN60950-1, CSA C22.2 No.60950-1 Complies with IEC60950-1  |                               |           |           |           |           |             |                               |           |           |  |
| <b>OTHERS</b>                    | <b>CASE SIZE/WEIGHT</b>                              | 65×8.5×50mm (W×H×D) / 65g max  |                               |           |           |           |           |             |                               |           |           |  |
|                                  | <b>COOLING METHOD</b>                                | Convection   |                               |           |           |           |           |             |                               |           |           |  |

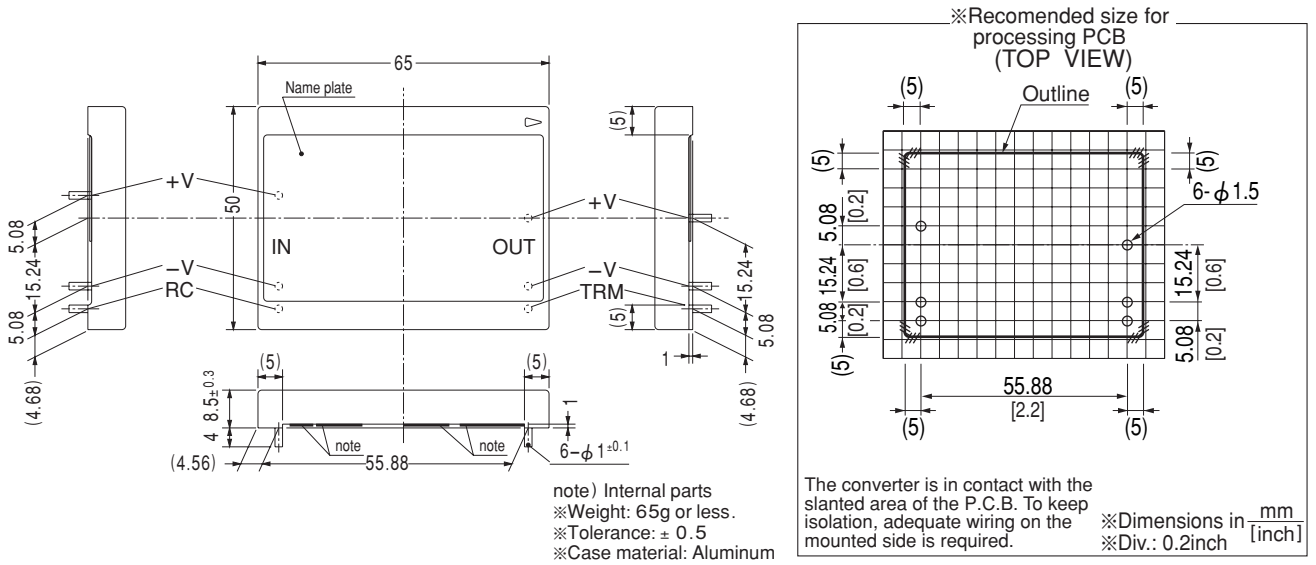
\*1 Rated input. 5V, 12V, 24V or 48V DC, Io=100%

\*2 Measured by 20MHz oscilloscope.

\*3 The drift is a change at 25°C of ambient temperature and 30 minutes - 8 hours after the input voltage applied at rated input/output.

\* Series/Parallel operation with other model is not possible.

External view



Performance data

■ STATIC CHARACTERISTICS (ZUS251205)



■ RISE TIME & FALL TIME (ZUS251205)



■ OVERCURRENT CHARACTERISTICS (ZUS251205)



■ DERATING CURVE



ZU/ZT

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