

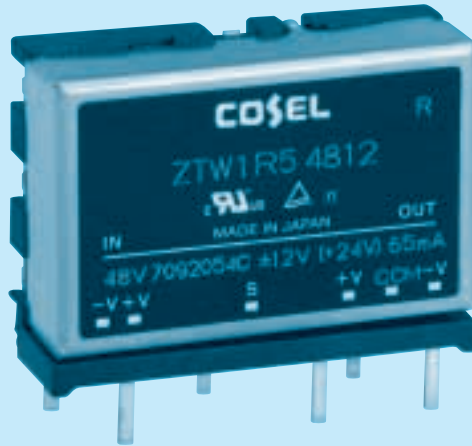
# ZTW1R5

ZT W 1R5 12 12

① ② ③ ④ ⑤



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



| MODEL                 | ZTW1R50512 | ZTW1R50515 | ZTW1R51212 | ZTW1R51215 | ZTW1R52412 | ZTW1R52415 | ZTW1R54812 | ZTW1R54815 |
|-----------------------|------------|------------|------------|------------|------------|------------|------------|------------|
| MAX OUTPUT WATTAGE[W] | 1.56       | 1.50       | 1.56       | 1.50       | 1.56       | 1.50       | 1.56       | 1.50       |
| DC OUTPUT             | VOLTAGE[V] | ±12 or +24 | ±15 or +30 | ±12 or +24 | ±15 or +30 | ±12 or +24 | ±15 or +30 | ±12 or +24 |
|                       | CURRENT[A] | 0.065      | 0.050      | 0.065      | 0.050      | 0.065      | 0.050      | 0.065      |

## SPECIFICATIONS

Output pins can be connected in series to make a 24V/30V output.

|                           | MODEL                                | ZTW1R50512   | ZTW1R50515    | ZTW1R51212    | ZTW1R51215    | ZTW1R52412    | ZTW1R52415    | ZTW1R54812    | ZTW1R54815 |  |
|---------------------------|--------------------------------------|--|---------------|---------------|---------------|---------------|---------------|---------------|------------|--|
| INPUT                     | VOLTAGE[V]                           | DC4.5 - 9  |               | DC9 - 18      |               | DC18 - 36     |               | DC36 - 72     |            |  |
|                           | CURRENT[A]                           | *1 0.466typ  | 0.448typ      | 0.183typ      | 0.176typ      | 0.092typ      | 0.088typ      | 0.046typ      | 0.044typ   |  |
|                           | EFFICIENCY[%]                        | *1 67typ   | 67typ         | 71typ         | 71typ         | 71typ         | 71typ         | 71typ         | 71typ      |  |
| OUTPUT                    | VOLTAGE[V]                           | ±12 (+24)  | ±15 (+30)     | ±12 (+24)     | ±15 (+30)     | ±12 (+24)     | ±15 (+30)     | ±12 (+24)     | ±15 (+30)  |  |
|                           | CURRENT[A]                           | 0.065  | 0.050         | 0.065         | 0.050         | 0.065         | 0.050         | 0.065         | 0.050      |  |
|                           | LINE REGULATION[mV]                  | 60max  | 75max         | 60max         | 75max         | 60max         | 75max         | 60max         | 75max      |  |
|                           | LOAD REGULATION[mV]                  | 600max   | 750max        | 600max        | 750max        | 600max        | 750max        | 600max        | 750max     |  |
|                           | RIPPLE[mVp-p]                        | *2 120max  | 120max        | 120max        | 120max        | 120max        | 120max        | 120max        | 120max     |  |
|                           | RIPPLE NOISE[mVp-p]                  | *2 150max  | 150max        | 150max        | 150max        | 150max        | 150max        | 150max        | 150max     |  |
|                           | TEMPERATURE REGULATION[mV]           | -20 to +55°C   | 150max        | 180max        | 150max        | 180max        | 150max        | 180max        | 150max     |  |
|                           | DRIFT[mV]                            | *3 50max   | 60max         | 50max         | 60max         | 50max         | 60max         | 50max         | 60max      |  |
|                           | START-UP TIME[ms]                    | 20max (Minimum input, I <sub>o</sub> =100%)  |               |               |               |               |               |               |            |  |
|                           | OUTPUT VOLTAGE ADJUSTMENT RANGE[V]   | Fixed  |               |               |               |               |               |               |            |  |
| OUTPUT VOLTAGE SETTING[V] | 11.40 - 12.60                        | 14.25 - 15.75  | 11.40 - 12.60 | 14.25 - 15.75 | 11.40 - 12.60 | 14.25 - 15.75 | 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, C-UL, EN60950-1 Complies with IEC60950-1  |               |               |               |               |               |               |            |  |
| OTHERS                    | CASE SIZE/WEIGHT                     | 28 × 21 × 10mm (W × H × D) / 15g 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.

\* The output specification is at ±12V and ±15V.

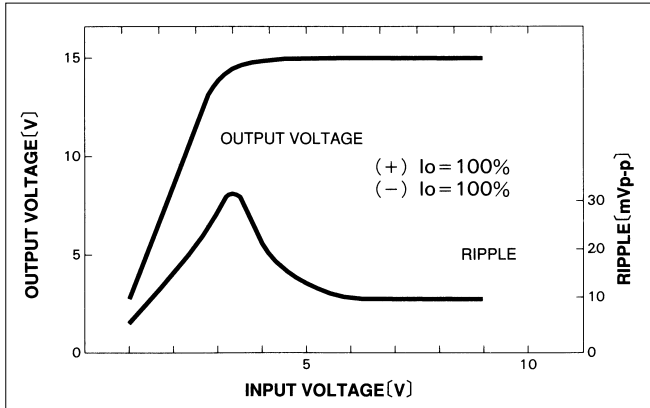
\* Series/Parallel operation with other model is not possible.

External view

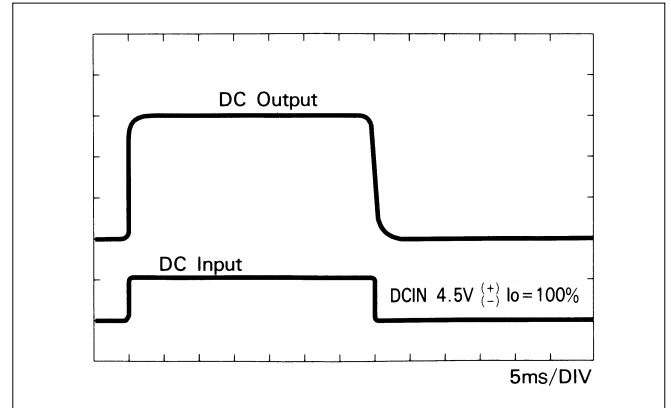


Performance data

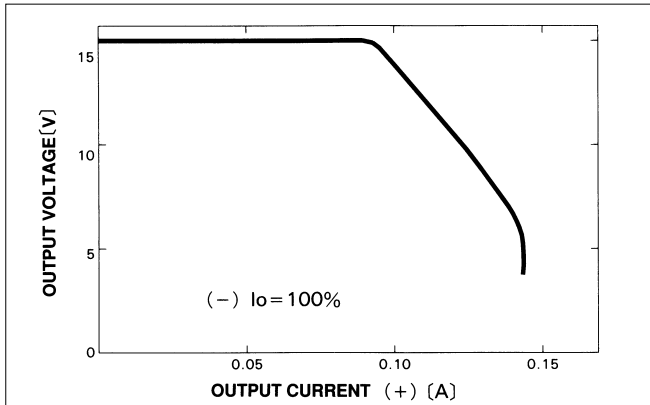
■ STATIC CHARACTERISTICS (ZTW1R50515)



■ RISE TIME & FALL TIME (ZTW1R50515:+15V)



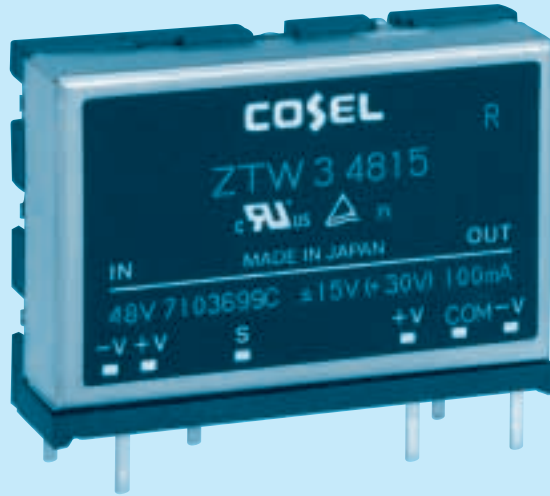
■ OVERCURRENT CHARACTERISTICS (ZTW1R50515)



# ZTW3

ZT W 3 12 12

① ② ③ ④ ⑤



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

| MODEL                 | ZTW30512   | ZTW30515   | ZTW31212   | ZTW31215   | ZTW32412   | ZTW32415   | ZTW34812   | ZTW34815   |            |
|-----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| MAX OUTPUT WATTAGE[W] | 3.12       | 3.00       | 3.12       | 3.00       | 3.12       | 3.00       | 3.12       | 3.00       |            |
| DC OUTPUT             | VOLTAGE[V] | ±12 or +24 | ±15 or +30 | ±12 or +24 | ±15 or +30 | ±12 or +24 | ±15 or +30 | ±12 or +24 | ±15 or +30 |
|                       | CURRENT[A] | 0.13       | 0.10       | 0.13       | 0.10       | 0.13       | 0.10       | 0.13       | 0.10       |

## SPECIFICATIONS

Output pins can be connected in series to make a 24V/30V output.

|                           | MODEL                                | ZTW30512   | ZTW30515      | ZTW31212      | ZTW31215      | ZTW32412      | ZTW32415      | ZTW34812      | ZTW34815  |        |
|---------------------------|--------------------------------------|--|---------------|---------------|---------------|---------------|---------------|---------------|-----------|--------|
| INPUT                     | VOLTAGE[V]                           | DC4.5 - 9  |               | DC9 - 18      |               | DC18 - 36     |               | DC36 - 72     |           |        |
|                           | CURRENT[A]                           | *1 0.891typ  | 0.857typ      | 0.351typ      | 0.338typ      | 0.176typ      | 0.169typ      | 0.087typ      | 0.083typ  |        |
|                           | EFFICIENCY[%]                        | *1 70typ   | 70typ         | 74typ         | 74typ         | 74typ         | 74typ         | 75typ         | 75typ     |        |
| OUTPUT                    | VOLTAGE[V]                           | ±12 (+24)  | ±15 (+30)     | ±12 (+24)     | ±15 (+30)     | ±12 (+24)     | ±15 (+30)     | ±12 (+24)     | ±15 (+30) |        |
|                           | CURRENT[A]                           | 0.13   | 0.10          | 0.13          | 0.10          | 0.13          | 0.10          | 0.13          | 0.10      |        |
|                           | LINE REGULATION[mV]                  | 60max  | 75max         | 60max         | 75max         | 60max         | 75max         | 60max         | 75max     |        |
|                           | LOAD REGULATION[mV]                  | 600max   | 750max        | 600max        | 750max        | 600max        | 750max        | 600max        | 750max    |        |
|                           | RIPPLE[mVp-p]                        | *2 120max  | 120max        | 120max        | 120max        | 120max        | 120max        | 120max        | 120max    |        |
|                           | RIPPLE NOISE[mVp-p]                  | *2 150max  | 150max        | 150max        | 150max        | 150max        | 150max        | 150max        | 150max    |        |
|                           | TEMPERATURE REGULATION[mV]           | -20 to +55°C   | 150max        | 180max        | 150max        | 180max        | 150max        | 180max        | 150max    | 180max |
|                           | DRIFT[mV]                            | *3 50max   | 60max         | 50max         | 60max         | 50max         | 60max         | 50max         | 60max     |        |
|                           | START-UP TIME[ms]                    | 20max (Minimum input, I <sub>o</sub> =100%)  |               |               |               |               |               |               |           |        |
|                           | OUTPUT VOLTAGE ADJUSTMENT RANGE[V]   | Fixed  |               |               |               |               |               |               |           |        |
| OUTPUT VOLTAGE SETTING[V] | 11.40 - 12.60                        | 14.25 - 15.75  | 11.40 - 12.60 | 14.25 - 15.75 | 11.40 - 12.60 | 14.25 - 15.75 | 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, C-UL, EN60950-1 Complies with IEC60950-1  |               |               |               |               |               |               |           |        |
| OTHERS                    | CASE SIZE/WEIGHT                     | 35.5×26×10mm (W×H×D) / 25g max   |               |               |               |               |               |               |           |        |
|                           | COOLING METHOD                       | Convection   |               |               |               |               |               |               |           |        |

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

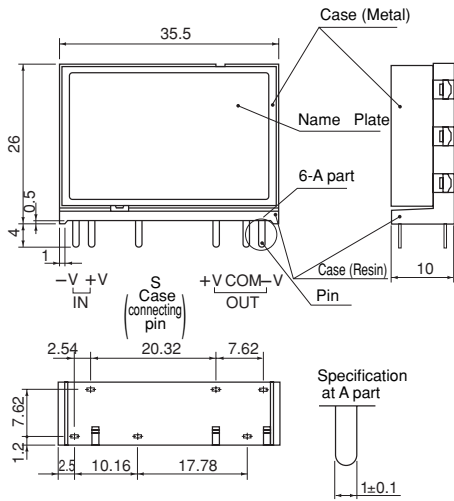
\*2 Measured by 20MHz oscilloscope.

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\* The output specification is at ±12V and ±15V.

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

External view

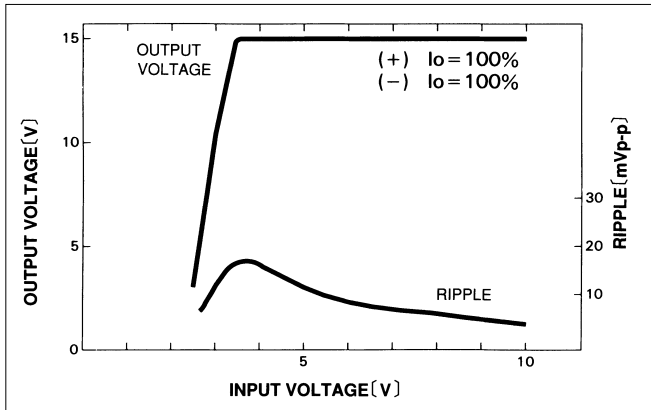


Weight: 25g or less  
 Tolerance: ±0.5  
 Case Material (Metal): Brass  
 Case Material (Resin): PPS  
 Pin Material: Phosphor Bronze (t=0.3)  
 (Solder Plate)

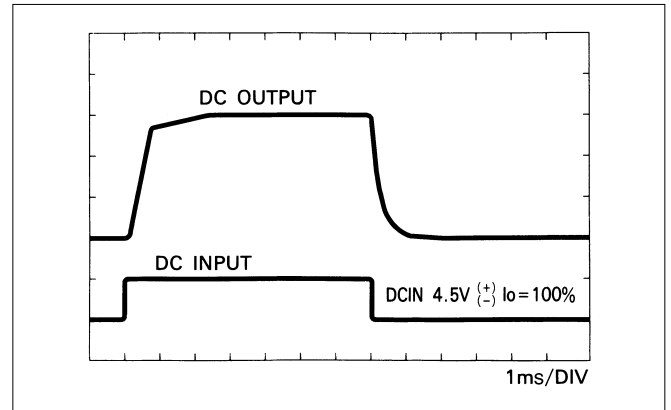
Dimensions : mm  
 [inch]  
 Div. : 0.1inch

Performance data

■ STATIC CHARACTERISTICS (ZTW30515)



■ RISE TIME & FALL TIME (ZTW30515:+15V)



ZU/ZT

■ OVERCURRENT CHARACTERISTICS (ZTW30515)

