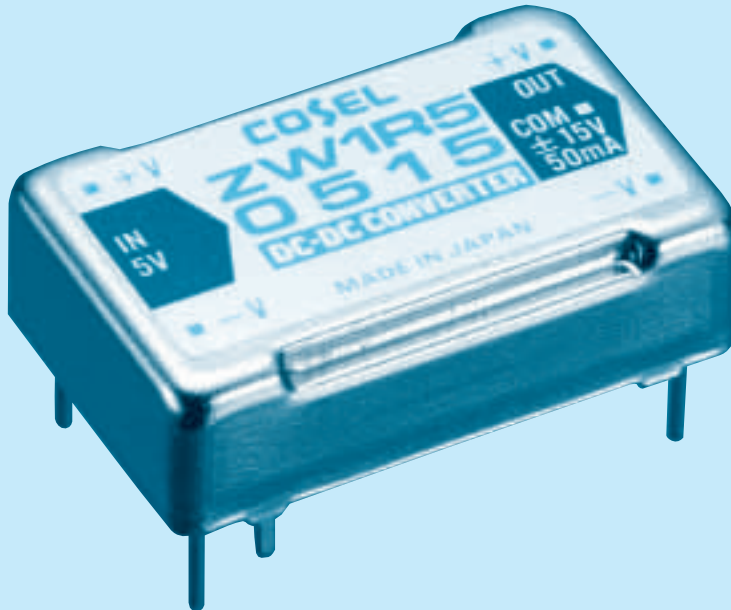


- ① Series name
- ② Dual output
- ③ Output wattage
- ④ Input voltage
- ⑤ Output voltage

RoHS



MODEL	ZW1R50512	ZW1R50515	ZW1R51212	ZW1R51215	ZW1R52412	ZW1R52415	ZW1R54812	ZW1R54815
MAX OUTPUT WATTAGE[W]	1.44	1.5	1.44	1.5	1.44	1.5	1.44	1.5
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]	0.06	0.05	0.06	0.05	0.06	0.05	0.06

## SPECIFICATIONS

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

	MODEL	ZW1R50512	ZW1R50515	ZW1R51212	ZW1R51215	ZW1R52412	ZW1R52415	ZW1R54812	ZW1R54815
<b>Z</b> INPUT	VOLTAGE[V]	5 (4.5 - 6.0)		12 (10 - 15)		24 (20 - 30)		48 (35 - 63)	
	CURRENT[A]	*1 0.480typ	0.500typ	0.183typ	0.192typ	0.092typ	0.096typ	0.046typ	0.048typ
	EFFICIENCY[%]	60typ	60typ	65typ	65typ	65typ	65typ	65typ	65typ
	OUTPUT	VOLTAGE[V]	±12 (+24)	±15 (+30)	±12 (+24)	±15 (+30)	±12 (+24)	±15 (+30)	±12 (+24)
	CURRENT[A]	0.06	0.05	0.06	0.05	0.06	0.05	0.06	0.05
	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 120max	120max	120max	120max	120max	120max	120max	120max
	TEMPERATURE REGULATION[mV] 0 to +50°C	120max	150max	120max	150max	120max	150max	120max	150max
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	Fixed							
	OUTPUT VOLTAGE SETTING[%]	±5max (Rated input/output, Ta=25°C)							
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	-10 to +60°C, 20 - 90%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet) max							
	STORAGE TEMP., HUMID. AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max							
	VIBRATION	10 - 55Hz, 19.6m/s <sup>2</sup> (2G), 3minutes period, 30minutes each along X, Y and Z axis							
	IMPACT	490.3m/s <sup>2</sup> (50G), 11ms, once each X, Y and Z axis							

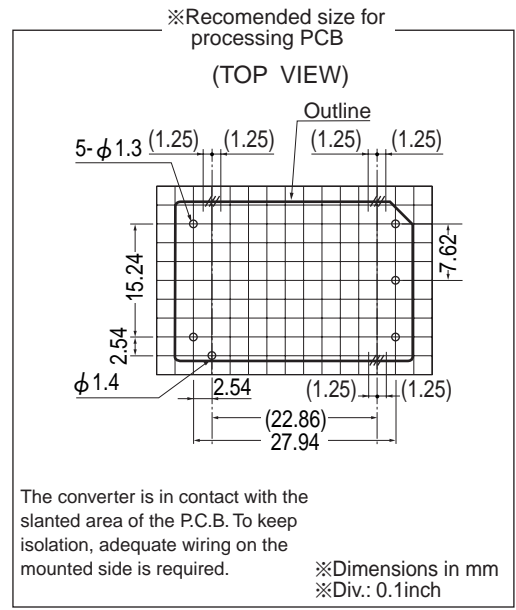
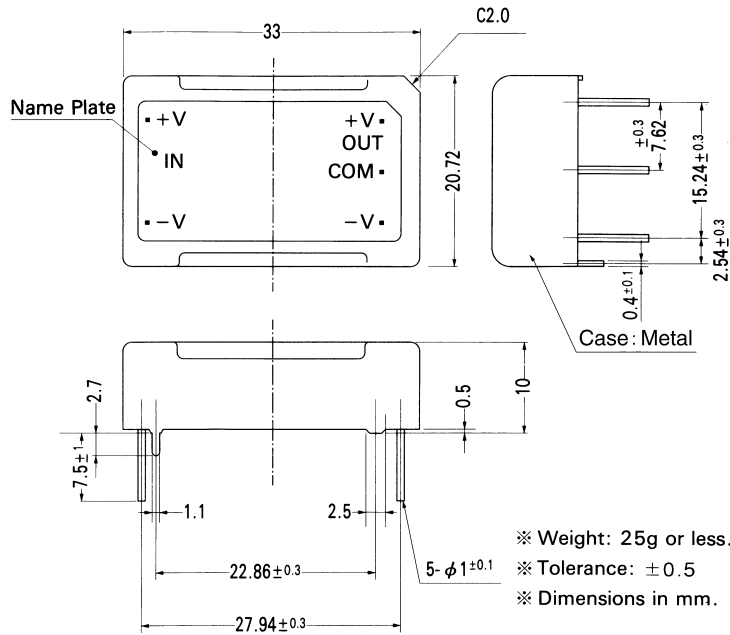
\*1 Rated input 5V, 12V, 24V or 48V DC, Io=100%

\*2 Measured by 20MHz oscilloscope.

\* Parallel operation with other model is not possible.

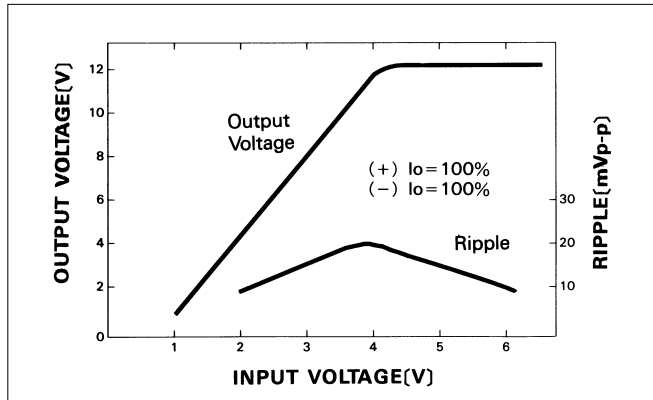
\* The output specification is at ±12V and ±5V.

External view

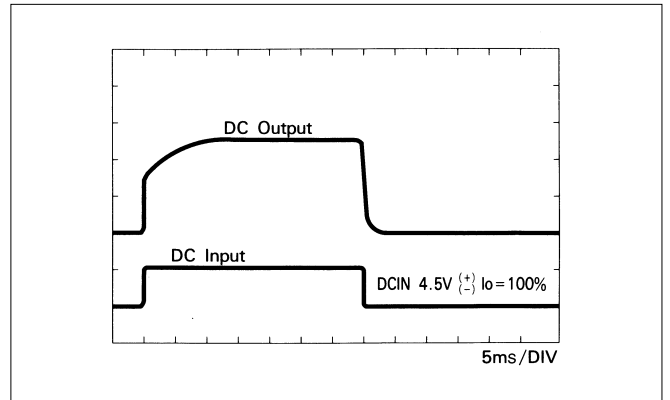


Performance data

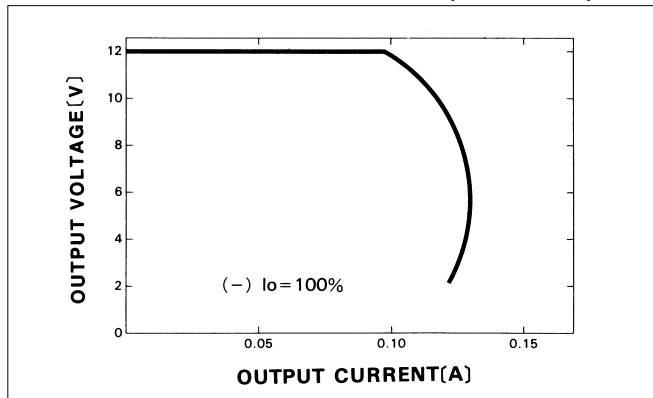
■STATIC CHARACTERISTICS (ZW1R50512)



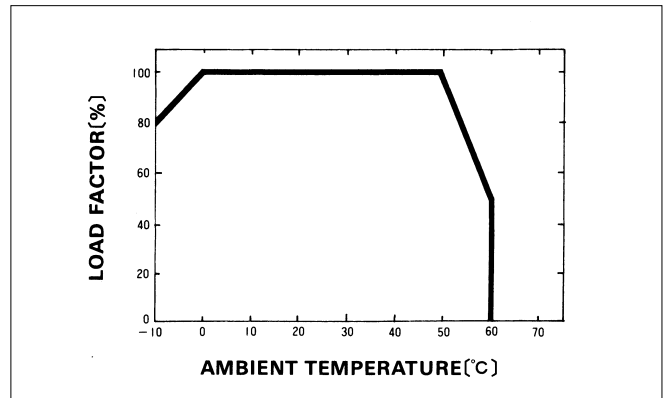
■RISE TIME & FALL TIME (ZW1R50512)



■OVERCURRENT CHARACTERISTICS (ZW1R50512)



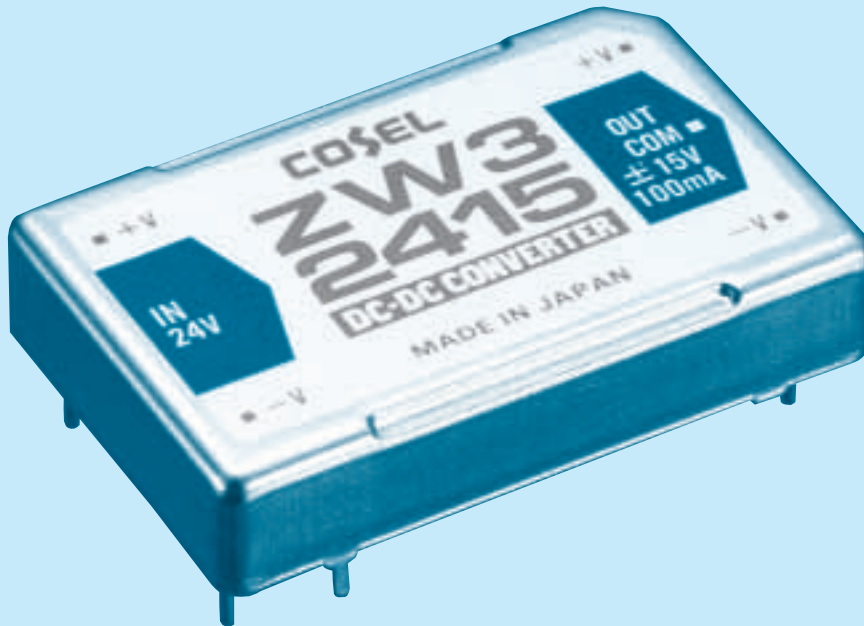
■DERATING CURVE



Z

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

RoHS



MODEL	ZW30512	ZW30515	ZW31212	ZW31215	ZW32412	ZW32415	ZW34812	ZW34815	
MAX OUTPUT WATTAGE[W]	2.88	3.0	2.88	3.0	2.88	3.0	2.88	3.0	
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]	0.12	0.1	0.12	0.1	0.12	0.1	0.12	0.1

SPECIFICATIONS

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

	MODEL	ZW30512	ZW30515	ZW31212	ZW31215	ZW32412	ZW32415	ZW34812	ZW34815
INPUT	VOLTAGE[V]	5 (4.5 - 6.0)		12 (10 - 15)		24 (20 - 30)		48 (35 - 63)	
	CURRENT[A]	*1 0.880typ	0.920typ	0.342typ	0.358typ	0.163typ	0.171typ	0.085typ	0.090typ
	EFFICIENCY[%]	65typ	65typ	70typ	70typ	74typ	74typ	70typ	70typ
OUTPUT	VOLTAGE[V]	±12 (+24)	±15 (+30)	±12 (+24)	±15 (+30)	±12 (+24)	±15 (+30)	±12 (+24)	±15 (+30)
	CURRENT[A]	0.12	0.1	0.12	0.1	0.12	0.1	0.12	0.1
	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 120max	120max	120max	120max	120max	120max	120max	120max
	TEMPERATURE REGULATION[mV] 0 to +50°C	120max	150max	120max	150max	120max	150max	120max	150max
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	Fixed							
OUTPUT VOLTAGE SETTING[%]	±5max (Rated input/output, Ta=25°C)								
ISOLATION	OVERCURRENT PROTECTION	Works over 105% of rating and recovers automatically							
	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)							
ENVIRONMENT	OUTPUT-CASE	AC500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)							
	OPERATING TEMP., HUMID. AND ALTITUDE	-10 to +60°C, 20 - 90%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet) max							
	STORAGE TEMP., HUMID. AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max							
	VIBRATION	10 - 55Hz, 19.6m/s <sup>2</sup> (2G), 3minutes period, 30minutes each along X, Y and Z axis							
	IMPACT	490.3m/s <sup>2</sup> (50G), 11ms, once each X, Y and Z axis							

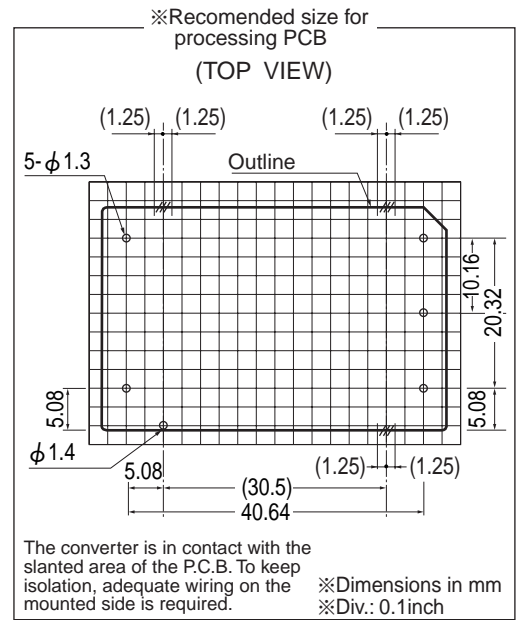
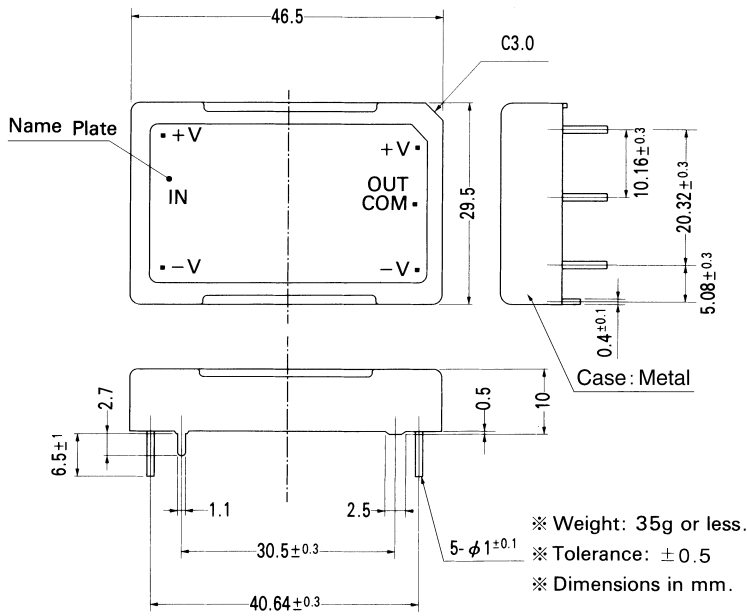
\*1 Rated input 5V, 12V, 24V or 48V DC, Io=100%

\*2 Measured by 20MHz oscilloscope.

\* Parallel operation with other model is not possible.

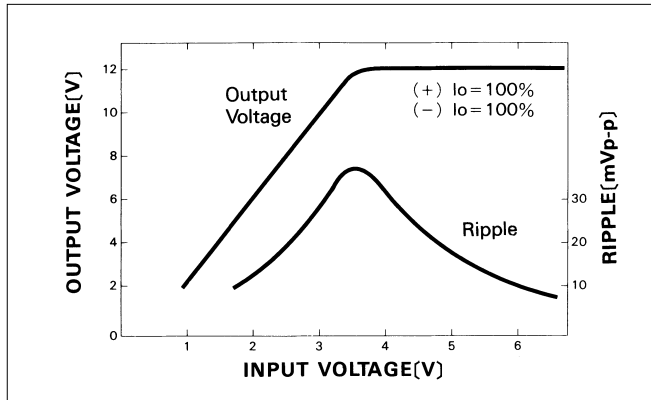
\* The output specification is at ±12V and ±5V.

External view

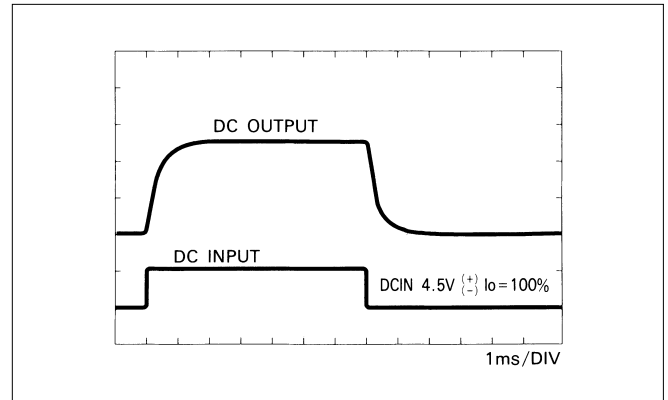


Performance data

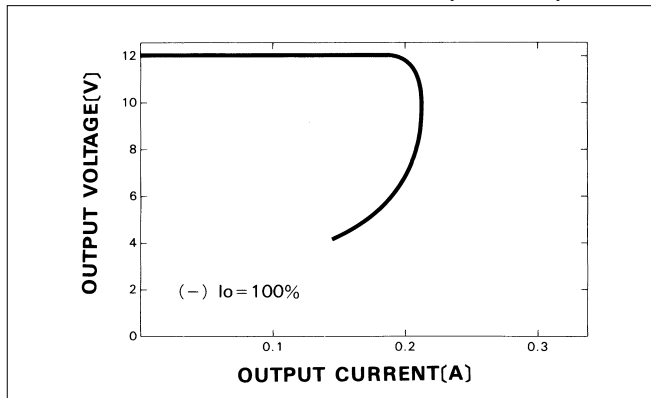
■STATIC CHARACTERISTICS (ZW30512)



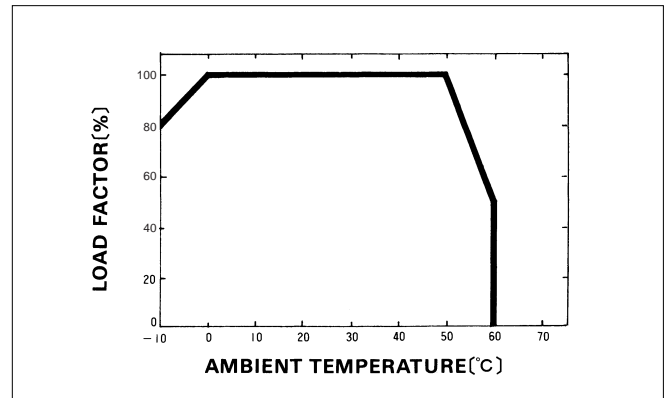
■RISE TIME & FALL TIME (ZW30512)



■OVERCURRENT CHARACTERISTICS (ZW30512)



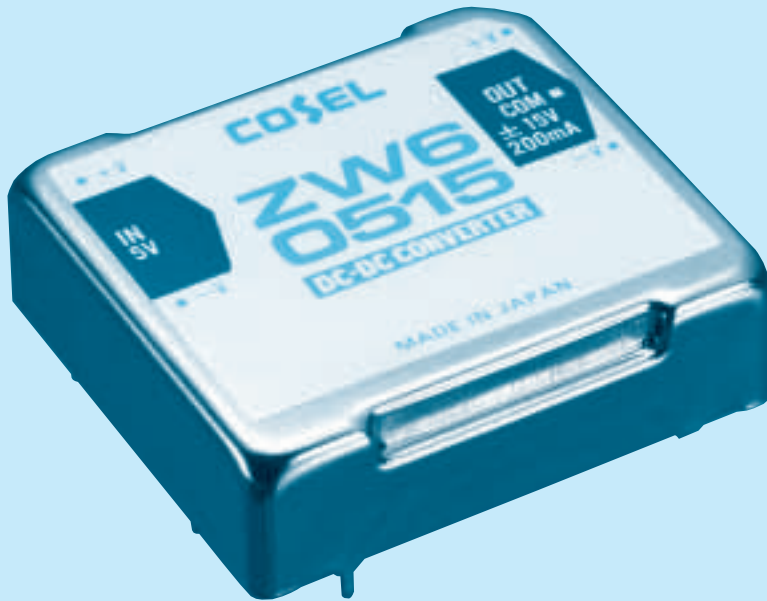
■DERATING CURVE



Z

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

RoHS



MODEL	ZW60512	ZW60515	ZW61212	ZW61215	ZW62412	ZW62415	ZW64812	ZW64815	
MAX OUTPUT WATTAGE[W]	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
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]	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2

## SPECIFICATIONS

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

	MODEL	ZW60512	ZW60515	ZW61212	ZW61215	ZW62412	ZW62415	ZW64812	ZW64815
<b>Z</b> INPUT	VOLTAGE[V]	5 (4.5 - 6.0)		12 (10 - 15)		24 (20 - 30)		48 (35 - 63)	
	CURRENT[A]	*1 1.840typ	1.840typ	0.717typ	0.717typ	0.338typ	0.338typ	0.179typ	0.179typ
	EFFICIENCY[%]	65typ	65typ	70typ	70typ	74typ	74typ	70typ	70typ
OUTPUT	VOLTAGE[V]	±12 (+24)	±15 (+30)	±12 (+24)	±15 (+30)	±12 (+24)	±15 (+30)	±12 (+24)	±15 (+30)
	CURRENT[A]	0.25	0.2	0.25	0.2	0.25	0.2	0.25	0.2
	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 120max	120max	120max	120max	120max	120max	120max	120max
	TEMPERATURE REGULATION[mV] 0 to +50°C	120max	150max	120max	150max	120max	150max	120max	150max
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	Fixed							
OUTPUT VOLTAGE SETTING[%]	±5max (Rated input/output, Ta=25°C)								
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	-10 to +60°C, 20 - 90%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet) max							
	STORAGE TEMP., HUMID. AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max							
	VIBRATION	10 - 55Hz, 19.6m/s <sup>2</sup> (2G), 3minutes period, 30minutes each along X, Y and Z axis							
	IMPACT	490.3m/s <sup>2</sup> (50G), 11ms, once each X, Y and Z axis							

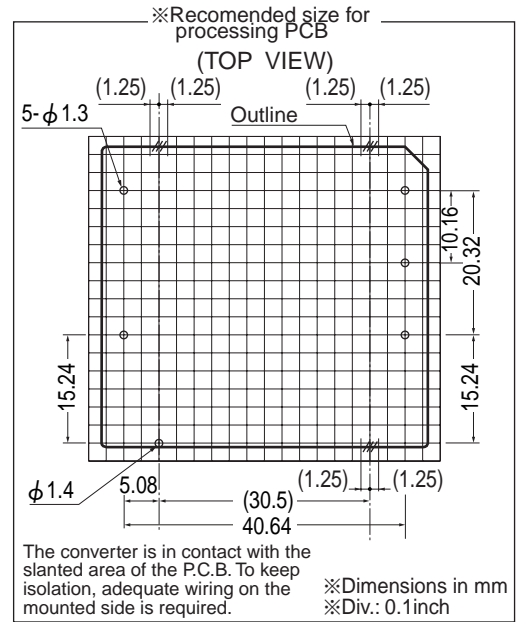
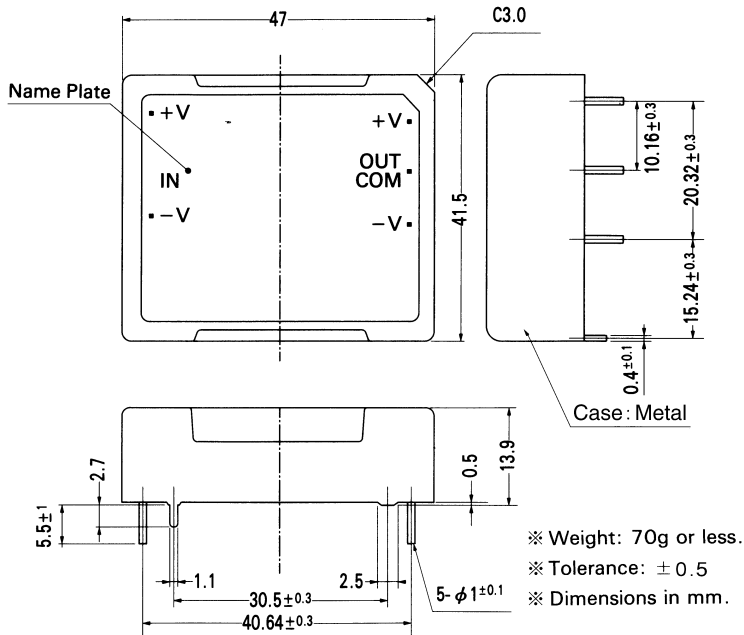
\*1 Rated input 5V, 12V, 24V or 48V DC, Io=100%

\*2 Measured by 20MHz oscilloscope.

\* Parallel operation with other model is not possible.

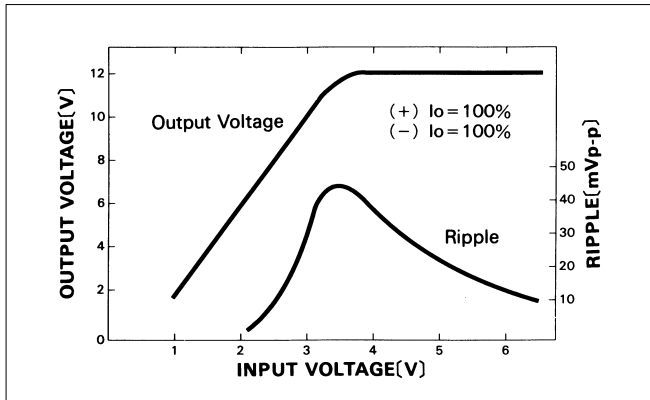
\* The output specification is at ±12V and ±5V.

External view

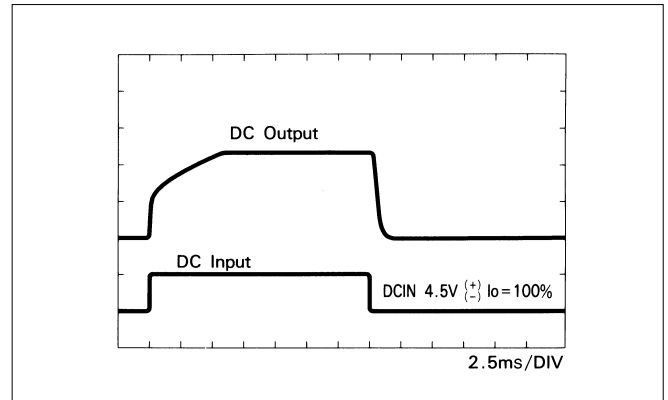


Performance data

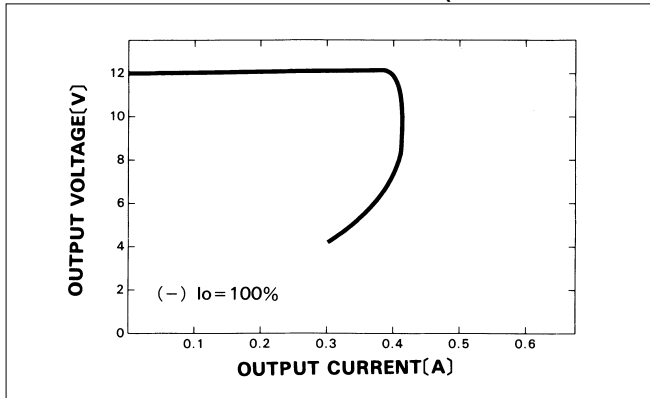
■STATIC CHARACTERISTICS (ZW60512)



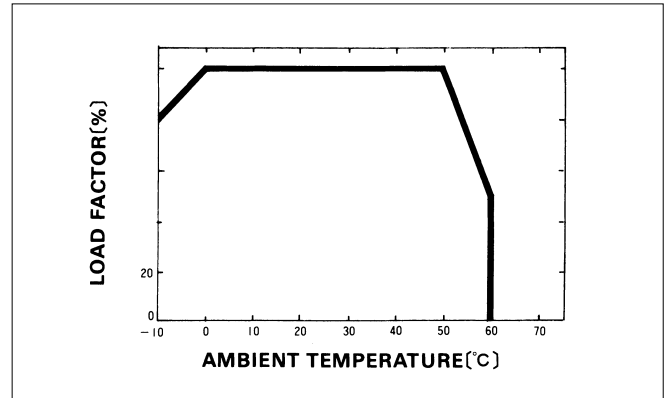
■RISE TIME & FALL TIME (ZW60512)



■OVERCURRENT CHARACTERISTICS (ZW60512)



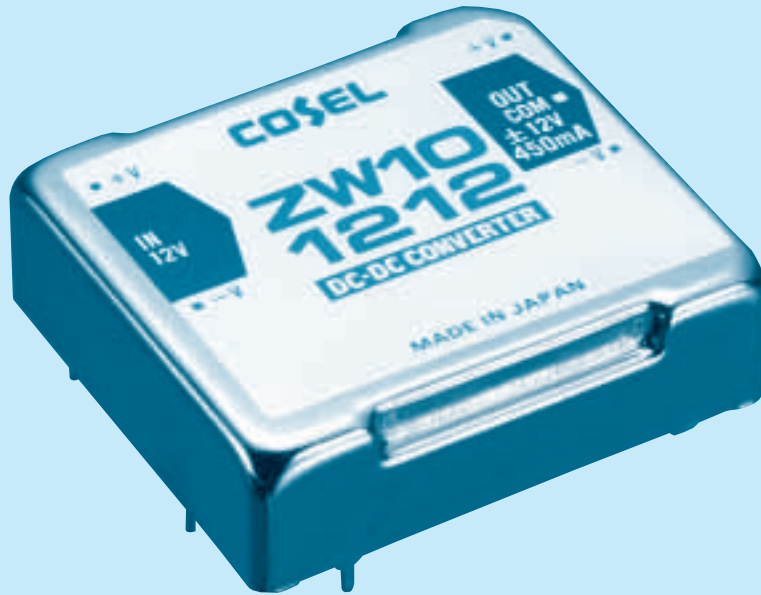
■DERATING CURVE



Z

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

RoHS



MODEL	ZW100512	ZW100515	ZW101212	ZW101215	ZW102412	ZW102415	ZW104812	ZW104815
MAX OUTPUT WATTAGE[W]	8.4	9.0	10.8	10.5	10.8	10.5	10.8	10.5
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]	0.35	0.30	0.45	0.35	0.45	0.35	0.45

## SPECIFICATIONS

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

	MODEL	ZW100512	ZW100515	ZW101212	ZW101215	ZW102412	ZW102415	ZW104812	ZW104815
<b>Z</b> INPUT	VOLTAGE[V]	5 (4.5 - 6.0)		12 (10 - 15)		24 (20 - 30)		48 (35 - 63)	
	CURRENT[A]	*1 2.340typ	2.500typ	1.125typ	1.092typ	0.563typ	0.546typ	0.281typ	0.273typ
	EFFICIENCY[%]	72typ	72typ	80typ	80typ	80typ	80typ	80typ	80typ
OUTPUT	VOLTAGE[V]	±12 (+24)	±15 (+30)	±12 (+24)	±15 (+30)	±12 (+24)	±15 (+30)	±12 (+24)	±15 (+30)
	CURRENT[A]	0.35	0.30	0.45	0.35	0.45	0.35	0.45	0.35
	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 120max	120max	120max	120max	120max	120max	120max	120max
	TEMPERATURE REGULATION[mV]	0 to +55°C	120max	150max	120max	150max	120max	150max	120max
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	Fixed							
OUTPUT VOLTAGE SETTING[%]	±5max (Rated input/output, Ta=25°C)								
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	-10 to +70°C, 20 - 90%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet) max							
	STORAGE TEMP., HUMID. AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max							
	VIBRATION	10 - 55Hz, 98.0m/s <sup>2</sup> (10G), 3minutes period, 30minutes each along X, Y and Z axis							
	IMPACT	490.3m/s <sup>2</sup> (50G), 11ms, once each X, Y and Z axis							

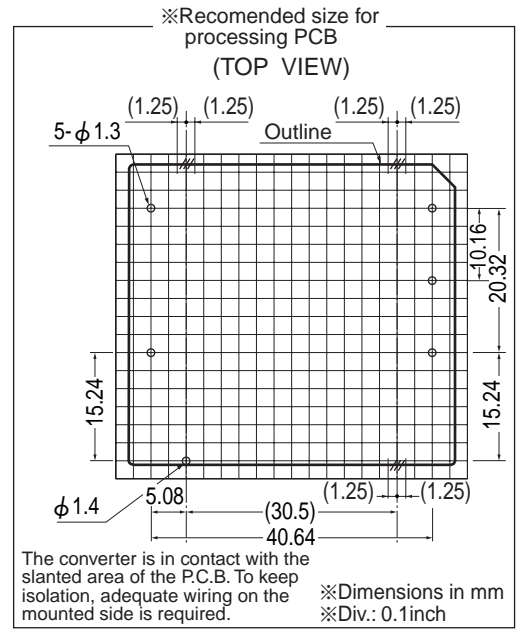
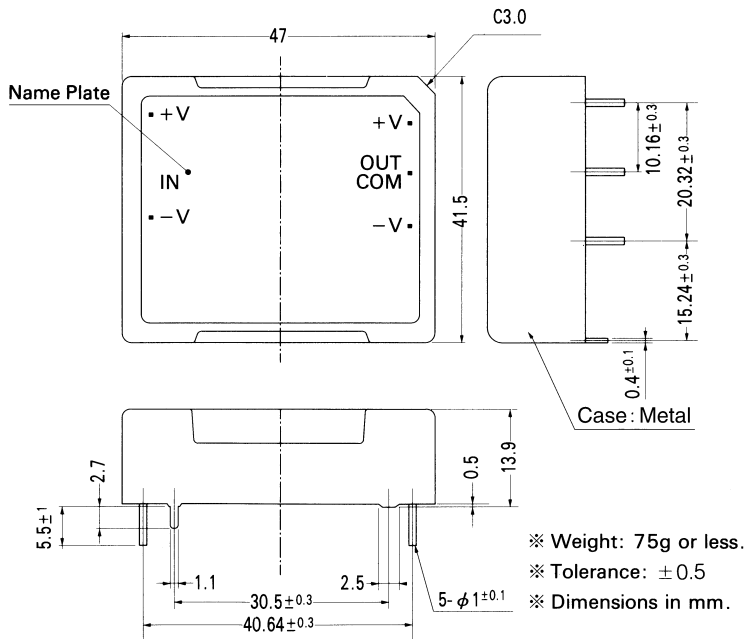
\*1 Rated input 5V, 12V, 24V or 48V DC, Io=100%

\*2 Measured by 20MHz oscilloscope.

\* Parallel operation with other model is not possible.

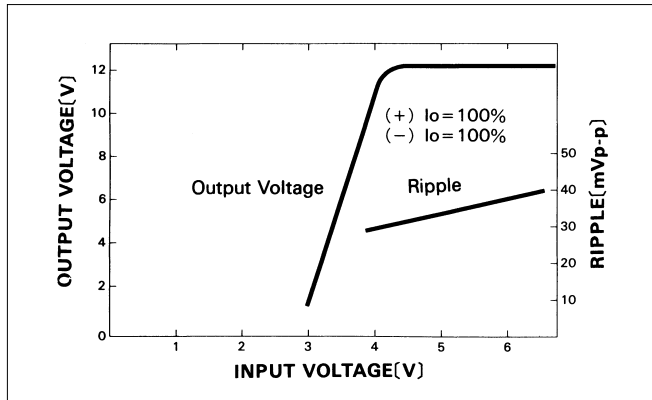
\* The output specification is at ±12V and ±5V.

External view

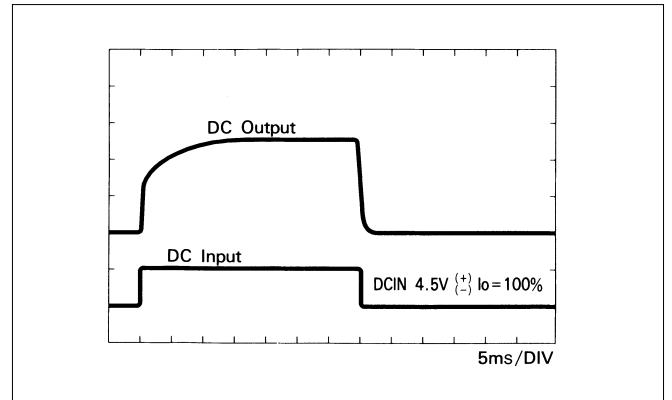


Performance data

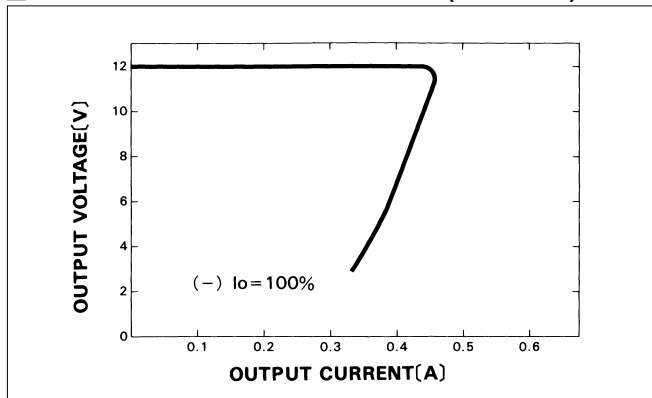
■STATIC CHARACTERISTICS (ZW100512)



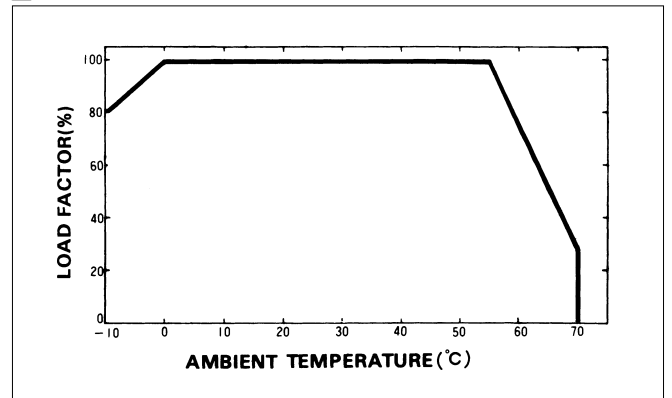
■RISE TIME & FALL TIME (ZW100512)



■OVERCURRENT CHARACTERISTICS (ZW100512)



■DERATING CURVE



Z