Low Profile | Isolated | Safety Approvals | OCP | OVP | Remote ON/OFF | Wide 4 :1 input | Ultra wide 10 : 1 input

# MG-series

## Feature

Industry Standard SIP6 (MG1R5/MG3), SIP8 (MG6/MG10), 1"×1" (MG15/MG40), 1"×2" (MG30/MG80)
Wide input range DC4.5-13V/DC9-36V/DC18-76V (MGFS/MGFW)
Ultra wide input range DC6-60V (MGXS/MGXW)
High efficiency by synchronized rectification circuit (MGS10/MGFS10/MGS15/MGFS15/MGS30/MGFS30/MGFS40/MGFW40/MGFS80/MGFW80)
6 sided shield (MG15/MG30/MG40/MG80)
I/O isolation voltage DC1,500V (1 minute)
Built-in overcurrent protection circuits (recovers automatically)
Built-in overvoltage protection circuits (MG30/MG40/MG80)
Built-in remote ON/OFF (MG6/MG10/MG15/MG30/MG40/MG80)
Output voltage adjustability by external variable resistor (MGS15/MGFS15/MGS30/MGFS30/MGFS40/MGFS80)
High reliability : not built-in aluminum and tantalum electrolytic capacitor

## CE marking

Low Voltage Directive
RoHS Directive

## UKCA marking

Electrical Equipment Safety Regulations
RoHS Regulations

## Safety agency approvals

UL60950-1, C-UL, EN62368-1 (MG1R5/MG3/MG6/MG10/MG15/MG30)
UL62368-1, C-UL, EN62368-1 (MG40/MG80)

## 10-year warranty

Refer to the instruction manual

COSEL DC-DC Converters PCB Mount Type

# MGS15

## Ordering information

| MG | S | 15 | 24 | 05 | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ |

①Series name
②Single output
③Output wattage
④Input voltage
⑤Output voltage
⑥Optional
G: Capacitor between Input and Output is removed.
R: with Remote ON/OFF (Positive logic control)

RoHS

| MODEL | | MGS15123R3 | MGS151205 | MGS151212 | MGS151215 | MGS15243R3 | MGS152405 | MGS152412 | MGS152415 |
|---|---|---|---|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | | 13.2 | 15 | 15.6 | 15 | 13.2 | 15 | 15.6 | 15 |
| DC OUTPUT | VOLTAGE[V] *1 | 3.3 | 5 | 12 | 15 | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | 4 | 3 | 1.3 | 1 | 4 | 3 | 1.3 | 1 |

## SPECIFICATIONS

| | MODEL | | MGS15123R3 | MGS151205 | MGS151212 | MGS151215 | MGS15243R3 | MGS152405 | MGS152412 | MGS152415 |
|---|---|---|---|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | DC9 - 18 | | | | DC18 - 36 | | | |
| | CURRENT[A] | *2 | 1.28typ | 1.44typ | 1.49typ | 1.42typ | 0.63typ | 0.70typ | 0.73typ | 0.70typ |
| | EFFICIENCY[%] | *2 | 86typ | 87typ | 87typ | 88typ | 87typ | 89typ | 89typ | 89typ |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | | 4 | 3 | 1.3 | 1 | 4 | 3 | 1.3 | 1 |
| | LINE REGULATION[mV] | | 13.2max | 20max | 48max | 60max | 13.2max | 20max | 48max | 60max |
| | LOAD REGULATION[mV] | | 13.2max | 20max | 48max | 60max | 13.2max | 20max | 48max | 60max |
| | RIPPLE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 100max | 100max | 120max | 120max | 100max | 100max | 120max | 120max |
| | RIPPLE NOISE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 150max | 150max | 150max | 150max | 150max | 150max | 150max | 150max |
| | TEMPERATURE REGULATION[mV] | -20 to +60℃ | 50max | 50max | 150max | 180max | 50max | 50max | 150max | 180max |
| | | -40 to +60℃ | 80max | 80max | 240max | 290max | 80max | 80max | 240max | 290max |
| | DRIFT[mV] | *4 | 20max | 20max | 48max | 60max | 20max | 20max | 48max | 60max |
| | START-UP TIME[ms] | | 30max (Minimum input, Io=100%) | | | | | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE | | Fixed (TRM pin open) Available to adjust ±10% by external variable resister | | | | | | | |
| | OUTPUT VOLTAGE SETTING[V] *5 | | 3.296 - 3.404 | 4.975 - 5.137 | 11.857 - 12.243 | 14.839 - 15.321 | 3.296 - 3.404 | 4.975 - 5.137 | 11.857 - 12.243 | 14.839 - 15.321 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | | | | | |
| | REMOTE ON/OFF | | Provided (Negative logic L:ON, H:OFF) | | | | | | | |

| MODEL | | MGS15483R3 | MGS154805 | MGS154812 | MGS154815 |
|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | | 13.2 | 15 | 15.6 | 15 |
| DC OUTPUT | VOLTAGE[V] *1 | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | 4 | 3 | 1.3 | 1 |

## SPECIFICATIONS

| | MODEL | | MGS15483R3 | MGS154805 | MGS154812 | MGS154815 |
|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | DC36 - 76 | | | |
| | CURRENT[A] | *2 | 0.32typ | 0.35typ | 0.36typ | 0.35typ |
| | EFFICIENCY[%] | *2 | 87typ | 89typ | 90typ | 90typ |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | | 4 | 3 | 1.3 | 1 |
| | LINE REGULATION[mV] | | 13.2max | 20max | 48max | 60max |
| | LOAD REGULATION[mV] | | 13.2max | 20max | 48max | 60max |
| | RIPPLE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 100max | 100max | 120max | 120max |
| | RIPPLE NOISE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 150max | 150max | 150max | 150max |
| | TEMPERATURE REGULATION[mV] | -20 to +60℃ | 50max | 50max | 150max | 180max |
| | | -40 to +60℃ | 80max | 80max | 240max | 290max |
| | DRIFT[mV] | *4 | 20max | 20max | 48max | 60max |
| | START-UP TIME[ms] | | 30max (Minimum input, Io=100%) | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE | | Fixed (TRM pin open) ±10% adjustable by external VR | | | |
| | OUTPUT VOLTAGE SETTING[V] *5 | | 3.296 - 3.404 | 4.975 - 5.137 | 11.857 - 12.243 | 14.839 - 15.321 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | |
| | REMOTE ON/OFF | | Provided (Negative logic L:ON, H:OFF) | | | |

## GENERAL SPECIFICATIONS

| | | |
|---|---|---|
| ISOLATION | INPUT-OUTPUT | DC1,500V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) |
| | INPUT-CASE | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) |
| | OUTPUT-CASE | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | -40 to +85℃, 20 to 95%RH (Non condensing) (Refer to “Derating”), 3,000m (10,000feet) max |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | -40 to +100℃, 20 to 95%RH (Non condensing), 9,000m (30,000feet) max |
| | VIBRATION | 10 - 55Hz, 98.0m/s² (10G), 3minutes period, 60minutes each along X, Y and Z axis |
| | IMPACT | 490.3m/s² (50G), 11ms, once each along X, Y and Z axis |
| SAFETY | AGENCY APPROVALS | UL60950-1, C-UL, EN62368-1 |
| OTHERS | CASE SIZE/WEIGHT | 25.4×9.9×25.4mm [1×0.39×1 inches] (W×H×D) / 20g max |
| | COOLING METHOD | Convection/Forced air |

*1 MGW15xx05/MGW15xx12/MGW15xx15 is available as single output, +10V/+24V/+30V
*2 Rated input 12V, 24V or 48V DC Io=100%
*3 Ripple and Ripple Noise is measured by using test board with ceramic capacitor 22μF at 50mm from output pins. (20MHz Osilloscope)
*4 Drift is the DC output accuracy for eight hours period after a half-hour warm-up at 25℃.
*5 Rated input voltage (DC12V, DC24V, DC48V), rated output wattage, ambient temperature at 25℃.
* Parallel operation with other model is not possible.

## External view

※ Tolerance ±0.5 [±0.02]
※ Dimensions in mm, [ ]=inches
※ Pin terminal material : Copper
※ Plating treatment of terminal : Lead free plating
※ Case material : Brass
※ Plating treatment of case : Nickel plating
※ Bottom Cover : FR4 (t=0.6) [t=0.024]
※ Please keep enough creepage distance with the pattern on PCB and other components.
※ Weight 20g max

COSEL DC-DC Converters PCB Mount Type

# MGW15

## Ordering information

| MG | W | 15 | 24 | 05 | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ |

①Series name
②Dual output
③Output wattage
④Input voltage
⑤Output voltage
⑥Optional
G: Capacitor between Input and Output is removed.
R: with Remote ON/OFF (Positive logic control)

RoHS

| MODEL | | MGW151205 | MGW151212 | MGW151215 | MGW152405 | MGW152412 | MGW152415 | MGW154805 | MGW154812 | MGW154815 |
|---|---|---|---|---|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | | 15 | 15.6 | 15 | 15 | 15.6 | 15 | 15 | 15.6 | 15 |
| DC OUTPUT | VOLTAGE[V] *1 | ±5 or +10 | ±12 or +24 | ±15 or +30 | ±5 or +10 | ±12 or +24 | ±15 or +30 | ±5 or +10 | ±12 or +24 | ±15 or +30 |
| | CURRENT[A] | 1.5 | 0.65 | 0.5 | 1.5 | 0.65 | 0.5 | 1.5 | 0.65 | 0.5 |

## SPECIFICATIONS

| | MODEL | | MGW151205 | MGW151212 | MGW151215 | MGW152405 | MGW152412 | MGW152415 | MGW154805 | MGW154812 | MGW154815 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | DC9 - 18 | | | DC18 - 36 | | | DC36 - 76 | | |
| | CURRENT[A] | *2 | 1.48typ | 1.49typ | 1.42typ | 0.74typ | 0.74typ | 0.70typ | 0.37typ | 0.37typ | 0.35typ |
| | EFFICIENCY[%] | *2 | 84typ | 87typ | 88typ | 84typ | 88typ | 89typ | 84typ | 89typ | 89typ |
| OUTPUT | VOLTAGE[V] | | ±5(+10) | ±12(+24) | ±15(+30) | ±5(+10) | ±12(+24) | ±15(+30) | ±5(+10) | ±12(+24) | ±15(+30) |
| | CURRENT[A] | | 1.5 | 0.65 | 0.5 | 1.5 | 0.65 | 0.5 | 1.5 | 0.65 | 0.5 |
| | LINE REGULATION[mV] | | 40max | 60max | 75max | 40max | 60max | 75max | 40max | 60max | 75max |
| | LOAD REGULATION[mV] | *3 | 500max *5 | 600max | 750max | 500max *5 | 600max | 750max | 500max *5 | 600max | 750max |
| | | *4 | 250max | 480max | 600max | 250max | 480max | 600max | 250max | 480max | 600max |
| | RIPPLE[mVp-p] *6 | -20 to +60℃ | 100max | 100max | 100max | 100max | 100max | 100max | 100max | 100max | 100max |
| | | -40 to -20℃ | 120max | 120max | 120max | 120max | 120max | 120max | 120max | 120max | 120max |
| | RIPPLE NOISE[mVp-p] *6 | -20 to +60℃ | 100max | 100max | 100max | 100max | 100max | 100max | 100max | 100max | 100max |
| | | -40 to -20℃ | 150max | 150max | 150max | 150max | 150max | 150max | 150max | 150max | 150max |
| | TEMPERATURE REGULATION[mV] | -20 to +60℃ | 50max | 150max | 180max | 50max | 150max | 180max | 50max | 150max | 180max |
| | | -40 to +60℃ | 80max | 240max | 290max | 80max | 240max | 290max | 80max | 240max | 290max |
| | DRIFT[mV] | *7 | 50max | 50max | 60max | 50max | 50max | 60max | 50max | 50max | 60max |
| | START-UP TIME[ms] | | 30max (Minimum input, Io=100%) | | | | | | | | |
| | OUTPUT VOLTAGE SETTING[V] *8 | | 4.935 - 5.240 | 11.765 - 12.492 | 14.602 - 15.505 | 4.935 - 5.240 | 11.765 - 12.492 | 14.602 - 15.505 | 4.935 - 5.240 | 11.765 - 12.492 | 14.602 - 15.505 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | | | | | | |
| | REMOTE ON/OFF | | Provided (Negative logic L:ON, H:OFF) | | | | | | | | |
| ISOLATION | INPUT-OUTPUT | | DC1,500V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) | | | | | | | | |
| | INPUT-CASE | | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) | | | | | | | | |
| | OUTPUT-CASE | | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) | | | | | | | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | | -40 to +85℃, 20 to 95%RH (Non condensing) (Refer to "Derating"), 3,000m (10,000feet) max | | | | | | | | |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | | -40 to +100℃, 20 to 95%RH (Non condensing), 9,000m (30,000feet) max | | | | | | | | |
| | VIBRATION | | 10 - 55Hz, 98.0m/s² (10G), 3minutes period, 60minutes each along X, Y and Z axis | | | | | | | | |
| | IMPACT | | 490.3m/s² (50G), 11ms, once each along X, Y and Z axis | | | | | | | | |
| SAFETY | AGENCY APPROVALS | | UL60950-1, C-UL, EN62368-1 | | | | | | | | |
| OTHERS | CASE SIZE/WEIGHT | | 25.4×9.9×25.4mm [1×0.39×1 inches] (W×H×D) / 20g max | | | | | | | | |
| | COOLING METHOD | | Convection/Forced air | | | | | | | | |

*1 Single output +10V, +24V, +30V with no use of COM.
*2 Rated input 12V, 24V or 48V Io=100%
*3 An output load is 100%, the other load is 5% to 100%.
*4 An output load is 100%, the other load is 20% to 100%.
*5 Refer to the instruction manual 11.
*6 Ripple and Ripple Noise is measured by using test board with ceramic capacitor 22μF at 50mm from output pins. (20MHz Osilloscope)
*7 Drift is the DC output accuracy for eight hours period after a half-hour warm-up at 25℃.
*8 Rated input voltage (DC12V, DC24V, DC48V), rated output wattage, ambient temperature at 25℃.
* Parallel operation with other model is not possible.

## External view

※ Tolerance ±0.5 [±0.02]
※ Dimensions in mm, [ ]=inches
※ Pin terminal material : Copper
※ Plating treatment of terminal : Lead free plating
※ Case material : Brass
※ Plating treatment of case : Nickel plating
※ Bottom Cover : FR4 (t=0.6) [t=0.024]
※ Please keep enough creepage distance with the pattern on PCB and other components.
※ Weight 20g max

COSEL DC-DC Converters PCB Mount Type

# MGS30

## Ordering information

| MG | S | 30 | 24 | 05 | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ |

①Series name
②Single output
③Output wattage
④Input voltage
⑤Output voltage
⑥Optional
G: Capacitor between Input and Output is removed.
R: with Remote ON/OFF (Positive logic control)

RoHS

| MODEL | | MGS30123R3 | MGS301205 | MGS301212 | MGS301215 | MGS30243R3 | MGS302405 | MGS302412 | MGS302415 |
|---|---|---|---|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | | 26.4 | 30 | 30 | 30 | 26.4 | 30 | 30 | 30 |
| DC OUTPUT | VOLTAGE[V] *1 | 3.3 | 5 | 12 | 15 | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | 8 | 6 | 2.5 | 2 | 8 | 6 | 2.5 | 2 |

## SPECIFICATIONS

| | MODEL | | MGS30123R3 | MGS301205 | MGS301212 | MGS301215 | MGS30243R3 | MGS302405 | MGS302412 | MGS302415 |
|---|---|---|---|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | DC9 - 18 | | | | DC18 - 36 | | | |
| | CURRENT[A] | *2 | 2.45typ | 2.75typ | 2.78typ | 2.78typ | 1.21typ | 1.36typ | 1.36typ | 1.36typ |
| | EFFICIENCY[%] | *2 | 90typ | 91typ | 90typ | 90typ | 91typ | 92typ | 92typ | 92typ |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | | 8 | 6 | 2.5 | 2 | 8 | 6 | 2.5 | 2 |
| | LINE REGULATION[mV] | | 13.2max | 20max | 48max | 60max | 13.2max | 20max | 48max | 60max |
| | LOAD REGULATION[mV] | | 13.2max | 20max | 48max | 60max | 13.2max | 20max | 48max | 60max |
| | RIPPLE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 100max | 100max | 120max | 120max | 100max | 100max | 120max | 120max |
| | RIPPLE NOISE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 150max | 150max | 150max | 150max | 150max | 150max | 150max | 150max |
| | TEMPERATURE REGULATION[mV] | -20 to +60℃ | 50max | 50max | 150max | 180max | 50max | 50max | 150max | 180max |
| | | -40 to +60℃ | 80max | 80max | 240max | 290max | 80max | 80max | 240max | 290max |
| | DRIFT[mV] | *4 | 20max | 20max | 48max | 60max | 20max | 20max | 48max | 60max |
| | START-UP TIME[ms] | | 30max (Minimum input, Io=100%) | | | | | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE | | Fixed (TRM pin open) ±10% adjustable by external VR | | | | | | | |
| | OUTPUT VOLTAGE SETTING[V] *5 | | 3.296 - 3.404 | 4.975 - 5.137 | 11.857 - 12.243 | 14.839 - 15.321 | 3.296 - 3.404 | 4.975 - 5.137 | 11.857 - 12.243 | 14.839 - 15.321 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | | | | | |
| | OVERVOLTAGE PROTECTION | | Works over 120 to 160% of rating | | | | | | | |
| | REMOTE ON/OFF | | Provided (Negative logic L:ON, H:OFF) | | | | | | | |

| MODEL | | MGS30483R3 | MGS304805 | MGS304812 | MGS304815 |
|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | | 26.4 | 30 | 30 | 30 |
| DC OUTPUT | VOLTAGE[V] *1 | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | 8 | 6 | 2.5 | 2 |

## SPECIFICATIONS

| | MODEL | | MGS30483R3 | MGS304805 | MGS304812 | MGS304815 |
|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | DC36 - 76 | | | |
| | CURRENT[A] | *2 | 0.61typ | 0.68typ | 0.68typ | 0.68typ |
| | EFFICIENCY[%] | *2 | 91typ | 92typ | 92typ | 92typ |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | | 8 | 6 | 2.5 | 2 |
| | LINE REGULATION[mV] | | 13.2max | 20max | 48max | 60max |
| | LOAD REGULATION[mV] | | 13.2max | 20max | 48max | 60max |
| | RIPPLE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 100max | 100max | 120max | 120max |
| | RIPPLE NOISE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 150max | 150max | 150max | 150max |
| | TEMPERATURE REGULATION[mV] | -20 to +60℃ | 50max | 50max | 150max | 180max |
| | | -40 to +60℃ | 80max | 80max | 240max | 290max |
| | DRIFT[mV] | *4 | 20max | 20max | 48max | 60max |
| | START-UP TIME[ms] | | 30max (Minimum input, Io=100%) | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE | | Fixed (TRM pin open) ±10% adjustable by external VR | | | |
| | OUTPUT VOLTAGE SETTING[V] *5 | | 3.296 - 3.404 | 4.975 - 5.137 | 11.857 - 12.243 | 14.839 - 15.321 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | |
| | OVERVOLTAGE PROTECTION | | Works over 120 to 160% of rating | | | |
| | REMOTE ON/OFF | | Provided (Negative logic L:ON, H:OFF) | | | |

## GENERAL SPECIFICATIONS

| | | |
|---|---|---|
| ISOLATION | INPUT-OUTPUT | DC1,500V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) |
| | INPUT-CASE | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) |
| | OUTPUT-CASE | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | -40 to +85℃, 20 to 95%RH (Non condensing) (Refer to "Derating"), 3,000m (10,000feet) max |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | -40 to +100℃, 20 to 95%RH (Non condensing), 9,000m (30,000feet) max |
| | VIBRATION | 10 - 55Hz, 98.0m/s² (10G), 3minutes period, 60minutes each along X, Y and Z axis |
| | IMPACT | 490.3m/s² (50G), 11ms, once each along X, Y and Z axis |
| SAFETY | AGENCY APPROVALS | UL60950-1, C-UL, EN62368-1 |
| OTHERS | CASE SIZE/WEIGHT | 25.4×9.9×50.8mm [1×0.39×2 inches] (W×H×D) / 40g max |
| | COOLING METHOD | Convection/Forced air |

*1 MGW30xx05/MGW30xx12/MGW30xx15 is available as single output, +10V/+24V/+30V
*2 Rated input 12V, 24V or 48V DC Io=100%
*3 Ripple and Ripple Noise is measured by using test board with ceramic capacitor 22μF at 50mm from output pins. (20MHz Osilloscope)
*4 Drift is the DC output accuracy for eight hours period after a half-hour warm-up at 25℃.
*5 Rated input voltage (DC12V, DC24V, DC48V), rated output wattage, ambient temperature at 25℃.
* Parallel operation with other model is not possible.

## External view

※ Tolerance ±0.5 [±0.02]
※ Dimensions in mm, [ ]=inches
※ Pin terminal material : Copper
※ Plating treatment of terminal : Lead free plating
※ Case material : Brass
※ Plating treatment of case : Nickel plating
※ Bottom Cover : FR4 (t=0.6) [t=0.024]
※ Please keep enough creepage distance with the pattern on PCB and other components.
※ Weight 40g max

COSEL DC-DC Converters PCB Mount Type

# MGW30

## Ordering information

| MG | W | 30 | 24 | 05 | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ |

①Series name
②Dual output
③Output wattage
④Input voltage
⑤Output voltage
⑥Optional
G: Capacitor between Input and Output is removed.
R: with Remote ON/OFF (Positive logic control)

RoHS

| MODEL | | MGW301205 | MGW301212 | MGW301215 | MGW302405 | MGW302412 | MGW302415 | MGW304805 | MGW304812 | MGW304815 |
|---|---|---|---|---|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | | 25 | 30 | 30 | 25 | 30 | 30 | 25 | 30 | 30 |
| DC OUTPUT | VOLTAGE[V] *1 | ±5 or +10 | ±12 or +24 | ±15 or +30 | ±5 or +10 | ±12 or +24 | ±15 or +30 | ±5 or +10 | ±12 or +24 | ±15 or +30 |
| | CURRENT[A] | 2.5 | 1.25 | 1 | 2.5 | 1.25 | 1 | 2.5 | 1.25 | 1 |

## SPECIFICATIONS

| | MODEL | | MGW301205 | MGW301212 | MGW301215 | MGW302405 | MGW302412 | MGW302415 | MGW304805 | MGW304812 | MGW304815 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | DC9 - 18 | | | DC18 - 36 | | | DC36 - 76 | | |
| | CURRENT[A] | *2 | 2.42typ | 2.78typ | 2.78typ | 1.20typ | 1.38typ | 1.38typ | 0.60typ | 0.70typ | 0.70typ |
| | EFFICIENCY[%] | *2 | 86typ | 90typ | 90typ | 87typ | 91typ | 91typ | 87typ | 90typ | 90typ |
| OUTPUT | VOLTAGE[V] | | ±5(+10) | ±12(+24) | ±15(+30) | ±5(+10) | ±12(+24) | ±15(+30) | ±5(+10) | ±12(+24) | ±15(+30) |
| | CURRENT[A] | | 2.5 | 1.25 | 1 | 2.5 | 1.25 | 1 | 2.5 | 1.25 | 1 |
| | LINE REGULATION[mV] | | 40max | 60max | 75max | 40max | 60max | 75max | 40max | 60max | 75max |
| | LOAD REGULATION[mV] | *3 | 500max *5 | 600max | 750max | 500max *5 | 600max | 750max | 500max *5 | 600max | 750max |
| | | *4 | 250max | 480max | 600max | 250max | 480max | 600max | 250max | 480max | 600max |
| | RIPPLE[mVp-p] *6 | -20 to +60℃ | 100max | 100max | 100max | 100max | 100max | 100max | 100max | 100max | 100max |
| | | -40 to -20℃ | 120max | 120max | 120max | 120max | 120max | 120max | 120max | 120max | 120max |
| | RIPPLE NOISE[mVp-p] *6 | -20 to +60℃ | 100max | 100max | 100max | 100max | 100max | 100max | 100max | 100max | 100max |
| | | -40 to -20℃ | 150max | 150max | 150max | 150max | 150max | 150max | 150max | 150max | 150max |
| | TEMPERATURE REGULATION[mV] | -20 to +60℃ | 50max | 150max | 180max | 50max | 150max | 180max | 50max | 150max | 180max |
| | | -40 to +60℃ | 80max | 240max | 290max | 80max | 240max | 290max | 80max | 240max | 290max |
| | DRIFT[mV] | *7 | 50max | 50max | 60max | 50max | 50max | 60max | 50max | 50max | 60max |
| | START-UP TIME[ms] | | 30max (Minimum input, Io=100%) | | | | | | | | |
| | OUTPUT VOLTAGE SETTING[V] *8 | | 4.935 - 5.240 | 11.765 - 12.492 | 14.602 - 15.505 | 4.935 - 5.240 | 11.765 - 12.492 | 14.602 - 15.505 | 4.935 - 5.240 | 11.765 - 12.492 | 14.602 - 15.505 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | | | | | | |
| | OVERVOLTAGE PROTECTION | | Works over 120 to 160% of rating (Total of +V and -V) | | | | | | | | |
| | REMOTE ON/OFF | | Provided (Negative logic L:ON, H:OFF) | | | | | | | | |
| ISOLATION | INPUT-OUTPUT | | DC1,500V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) | | | | | | | | |
| | INPUT-CASE | | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) | | | | | | | | |
| | OUTPUT-CASE | | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) | | | | | | | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | | -40 to +85℃, 20 to 95%RH (Non condensing) (Refer to "Derating"), 3,000m (10,000feet) max | | | | | | | | |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | | -40 to +100℃, 20 to 95%RH (Non condensing), 9,000m (30,000feet) max | | | | | | | | |
| | VIBRATION | | 10 - 55Hz, 98.0m/s² (10G), 3minutes period, 60minutes each along X, Y and Z axis | | | | | | | | |
| | IMPACT | | 490.3m/s² (50G), 11ms, once each along X, Y and Z axis | | | | | | | | |
| SAFETY | AGENCY APPROVALS | | UL60950-1, C-UL, EN62368-1 | | | | | | | | |
| OTHERS | CASE SIZE/WEIGHT | | 25.4×9.9×50.8mm [1×0.39×2 inches] (W×H×D) / 40g max | | | | | | | | |
| | COOLING METHOD | | Convection/Forced air | | | | | | | | |

*1 Single output +10V, +24V, +30V with no use of COM.
*2 Rated input 12V, 24V or 48V DC Io=100%
*3 Symmetrical loading from 5% to 100%.
*4 Symmetrical loading from 20% to 100%.
*5 Refer to the instruction manual 11.
*6 Ripple and Ripple Noise is measured by using test board with ceramic capacitor 22μF at 50mm from output pins. (20MHz Osilloscope)
*7 Drift is the DC output accuracy for eight hours period after a half-hour warm-up at 25℃.
*8 Rated input voltage (DC12V, DC24V, DC48V), rated output wattage, ambient temperature at 25℃.
* Parallel operation with other model is not possible.

## External view

※ Tolerance ±0.5 [±0.02]
※ Dimensions in mm, [ ]=inches
※ Pin terminal material : Copper
※ Plating treatment of terminal : Lead free plating
※ Case material : Brass
※ Plating treatment of case : Nickel plating
※ Bottom Cover : FR4 (t=0.6) [t=0.024]
※ Please keep enough creepage distance with the pattern on PCB and other components.
※ Weight 40g max

COSEL DC-DC Converters PCB Mount Type

# MGFS15

## Ordering information

| MGF | S | 15 | 24 | 05 | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ |

①Series name
②Single output
③Output wattage
④Input voltage
⑤Output voltage
⑥Optional
G: Capacitor between Input and Output is removed.
R: with Remote ON/OFF (Positive logic control)

RoHS

| MODEL | | MGFS15243R3 | MGFS152405 | MGFS152412 | MGFS152415 |
|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | | 13.2 | 15 | 15.6 | 15 |
| DC OUTPUT | VOLTAGE[V] *1 | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | 4 | 3 | 1.3 | 1 |

## SPECIFICATIONS

| | MODEL | | MGFS15243R3 | MGFS152405 | MGFS152412 | MGFS152415 |
|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | DC9 - 36 | | | |
| | CURRENT[A] *2 | | 0.63typ | 0.71typ | 0.73typ | 0.70typ |
| | EFFICIENCY[%] *2 | | 87typ | 88typ | 89typ | 89typ |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | | 4 | 3 | 1.3 | 1 |
| | LINE REGULATION[mV] | | 13.2max | 20max | 48max | 60max |
| | LOAD REGULATION[mV] | | 13.2max | 20max | 48max | 60max |
| | RIPPLE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 100max | 100max | 120max | 120max |
| | RIPPLE NOISE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 150max | 150max | 150max | 150max |
| | TEMPERATURE REGULATION[mV] | -20 to +60℃ | 50max | 50max | 150max | 180max |
| | | -40 to +60℃ | 80max | 80max | 240max | 290max |
| | DRIFT[mV] *4 | | 20max | 20max | 48max | 60max |
| | START-UP TIME[ms] | | 30max (Minimum input, Io=100%) | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE | | Fixed (TRM pin open) ±10% adjustable by external VR | | | |
| | OUTPUT VOLTAGE SETTING[V] *5 | | 3.296 - 3.404 | 4.975 - 5.137 | 11.857 - 12.243 | 14.839 - 15.321 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | |
| | REMOTE ON/OFF | | Provided (Negative logic L:ON, H:OFF) | | | |

| MODEL | | MGFS15483R3 | MGFS154805 | MGFS154812 | MGFS154815 |
|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | | 13.2 | 15 | 15.6 | 15 |
| DC OUTPUT | VOLTAGE[V] *1 | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | 4 | 3 | 1.3 | 1 |

## SPECIFICATIONS

| | MODEL | | MGFS15483R3 | MGFS154805 | MGFS154812 | MGFS154815 |
|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | DC18 - 76 | | | |
| | CURRENT[A] *2 | | 0.32typ | 0.36typ | 0.37typ | 0.35typ |
| | EFFICIENCY[%] *2 | | 87typ | 88typ | 88typ | 89typ |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | | 4 | 3 | 1.3 | 1 |
| | LINE REGULATION[mV] | | 13.2max | 20max | 48max | 60max |
| | LOAD REGULATION[mV] | | 13.2max | 20max | 48max | 60max |
| | RIPPLE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 100max | 100max | 120max | 120max |
| | RIPPLE NOISE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 150max | 150max | 150max | 150max |
| | TEMPERATURE REGULATION[mV] | -20 to +60℃ | 50max | 50max | 150max | 180max |
| | | -40 to +60℃ | 80max | 80max | 240max | 290max |
| | DRIFT[mV] *4 | | 20max | 20max | 48max | 60max |
| | START-UP TIME[ms] | | 30max (Minimum input, Io=100%) | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE | | Fixed (TRM pin open) ±10% adjustable by external VR | | | |
| | OUTPUT VOLTAGE SETTING[V] *5 | | 3.296 - 3.404 | 4.975 - 5.137 | 11.857 - 12.243 | 14.839 - 15.321 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | |
| | REMOTE ON/OFF | | Provided (Negative logic L:ON, H:OFF) | | | |

## GENERAL SPECIFICATIONS

| | | |
|---|---|---|
| ISOLATION | INPUT-OUTPUT | DC1,500V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) |
| | INPUT-CASE | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) |
| | OUTPUT-CASE | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | -40 to +85℃, 20 to 95%RH (Non condensing) (Refer to "Derating"), 3,000m (10,000feet) max |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | -40 to +100℃, 20 to 95%RH (Non condensing), 9,000m (30,000feet) max |
| | VIBRATION | 10 - 55Hz, 98.0m/s² (10G), 3minutes period, 60minutes each along X, Y and Z axis |
| | IMPACT | 490.3m/s² (50G), 11ms, once each along X, Y and Z axis |
| SAFETY | AGENCY APPROVALS | UL60950-1, C-UL, EN62368-1 |
| OTHERS | CASE SIZE/WEIGHT | 25.4×9.9×25.4mm [1×0.39×1 inches] (W×H×D) / 20g max |
| | COOLING METHOD | Convection/Forced air |

*1 MGFW15xx05/MGFW15xx12/MGFW15xx15 is available as single output, +10V/+24V/+30V
*2 Rated input 12V, 24V or 48V DC Io=100%
*3 Ripple and Ripple Noise is measured by using test board with ceramic capacitor 22μF at 50mm from output pins. (20MHz Osilloscope)
*4 Drift is the DC output accuracy for eight hours period after a half-hour warm-up at 25℃.
*5 Rated input voltage (DC24V, DC48V), rated output wattage, ambient temperature at 25℃.
* Parallel operation with other model is not possible.

## External view

※ Tolerance ±0.5 [±0.02]
※ Dimensions in mm, [ ]=inches
※ Pin terminal material : Copper
※ Plating treatment of terminal : Lead free plating
※ Case material : Brass
※ Plating treatment of case : Nickel plating
※ Bottom Cover : FR4 (t=0.6) [t=0.024]
※ Please keep enough creepage distance with the pattern on PCB and other components.
※ Weight 20g max

COSEL DC-DC Converters PCB Mount Type

# MGFW15

## Ordering information

| MGF | W | 15 | 24 | 05 | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ |

①Series name
②Dual output
③Output wattage
④Input voltage
⑤Output voltage
⑥Optional
G: Capacitor between Input and Output is removed.
R: with Remote ON/OFF (Positive logic control)

RoHS

| MODEL | | MGFW152405 | MGFW152412 | MGFW152415 | MGFW154805 | MGFW154812 | MGFW154815 |
|---|---|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | | 15 | 15.6 | 15 | 15 | 15.6 | 15 |
| DC OUTPUT | VOLTAGE[V] *1 | ±5 or +10 | ±12 or +24 | ±15 or +30 | ±5 or +10 | ±12 or +24 | ±15 or +30 |
| | CURRENT[A] | 1.5 | 0.65 | 0.5 | 1.5 | 0.65 | 0.5 |

## SPECIFICATIONS

| | MODEL | | MGFW152405 | MGFW152412 | MGFW152415 | MGFW154805 | MGFW154812 | MGFW154815 |
|---|---|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | DC9 - 36 | | | DC18 - 76 | | |
| | CURRENT[A] | *2 | 0.74typ | 0.74typ | 0.70typ | 0.37typ | 0.37typ | 0.36typ |
| | EFFICIENCY[%] | *2 | 84typ | 88typ | 89typ | 84typ | 87typ | 88typ |
| OUTPUT | VOLTAGE[V] | | ±5(+10) | ±12(+24) | ±15(+30) | ±5(+10) | ±12(+24) | ±15(+30) |
| | CURRENT[A] | | 1.5 | 0.65 | 0.5 | 1.5 | 0.65 | 0.5 |
| | LINE REGULATION[mV] | | 40max | 60max | 75max | 40max | 60max | 75max |
| | LOAD REGULATION[mV] | *3 | 500max *5 | 600max | 750max | 500max *5 | 600max | 750max |
| | | *4 | 250max | 480max | 600max | 250max | 480max | 600max |
| | RIPPLE[mVp-p] *6 | -20 to +60℃ | 100max | 100max | 100max | 100max | 100max | 100max |
| | | -40 to -20℃ | 120max | 120max | 120max | 120max | 120max | 120max |
| | RIPPLE NOISE[mVp-p] *6 | -20 to +60℃ | 100max | 100max | 100max | 100max | 100max | 100max |
| | | -40 to -20℃ | 150max | 150max | 150max | 150max | 150max | 150max |
| | TEMPERATURE REGULATION[mV] | -20 to +60℃ | 50max | 150max | 180max | 50max | 150max | 180max |
| | | -40 to +60℃ | 80max | 240max | 290max | 80max | 240max | 290max |
| | DRIFT[mV] | *7 | 50max | 50max | 60max | 50max | 50max | 60max |
| | START-UP TIME[ms] | | 30max (Minimum input, Io=100%) | | | | | |
| | OUTPUT VOLTAGE SETTING[V] *8 | | 4.935 - 5.240 | 11.765 - 12.492 | 14.602 - 15.505 | 4.935 - 5.240 | 11.765 - 12.492 | 14.602 - 15.505 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | | | |
| | REMOTE ON/OFF | | Provided (Negative logic L:ON, H:OFF) | | | | | |
| ISOLATION | INPUT-OUTPUT | | DC1,500V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) | | | | | |
| | INPUT-CASE | | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) | | | | | |
| | OUTPUT-CASE | | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) | | | | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | | -40 to +85℃, 20 to 95%RH (Non condensing) (Refer to "Derating"), 3,000m (10,000feet) max | | | | | |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | | -40 to +100℃, 20 to 95%RH (Non condensing), 9,000m (30,000feet) max | | | | | |
| | VIBRATION | | 10 - 55Hz, 98.0m/s² (10G), 3minutes period, 60minutes each along X, Y and Z axis | | | | | |
| | IMPACT | | 490.3m/s² (50G), 11ms, once each along X, Y and Z axis | | | | | |
| SAFETY | AGENCY APPROVALS | | UL60950-1, C-UL, EN62368-1 | | | | | |
| OTHERS | CASE SIZE/WEIGHT | | 25.4×9.9×25.4mm [1×0.39×1 inches] (W×H×D) / 20g max | | | | | |
| | COOLING METHOD | | Convection/Forced air | | | | | |

*1 Single output +10V, +24V, +30V with no use of COM.
*2 Rated input 12V, 24V or 48V DC Io=100%
*3 Symmetrical loading from 5% to 100%.
*4 Symmetrical loading from 20% to 100%.
*5 Refer to the instruction manual 11.
*6 Ripple and Ripple Noise is measured by using test board with ceramic capacitor 22μF at 50mm from output pins. (20MHz Osilloscope)
*7 Drift is the DC output accuracy for eight hours period after a half-hour warm-up at 25℃.
*8 Rated input voltage (DC24V, DC48V), rated output wattage, ambient temperature at 25℃.
* Parallel operation with other model is not possible.

## External view

※ Tolerance ±0.5 [±0.02]
※ Dimensions in mm, [ ]=inches
※ Pin terminal material : Copper
※ Plating treatment of terminal : Lead free plating
※ Case material : Brass
※ Plating treatment of case : Nickel plating
※ Bottom Cover : FR4 (t=0.6) [t=0.024]
※ Please keep enough creepage distance with the pattern on PCB and other components.
※ Weight 20g max

COSEL DC-DC Converters PCB Mount Type

# MGFS30

## Ordering information

| MGF | S | 30 | 24 | 05 | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ |

RoHS

①Series name
②Single output
③Output wattage
④Input voltage
⑤Output voltage
⑥Optional
G: Capacitor between Input and Output is removed.
R: with Remote ON/OFF (Positive logic control)

| MODEL | | MGFS30243R3 | MGFS302405 | MGFS302412 | MGFS302415 |
|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | | 24.75 | 30 | 30 | 30 |
| DC OUTPUT | VOLTAGE[V] *1 | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | 7.5 | 6 | 2.5 | 2 |

## SPECIFICATIONS

| | MODEL | | MGFS30243R3 | MGFS302405 | MGFS302412 | MGFS302415 |
|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | DC9 - 36 | | | |
| | CURRENT[A] *2 | | 1.16typ | 1.39typ | 1.40typ | 1.40typ |
| | EFFICIENCY[%] *2 | | 89typ | 90typ | 89typ | 89typ |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | | 7.5 | 6 | 2.5 | 2 |
| | LINE REGULATION[mV] | | 13.2max | 20max | 48max | 60max |
| | LOAD REGULATION[mV] | | 13.2max | 20max | 48max | 60max |
| | RIPPLE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 100max | 100max | 120max | 120max |
| | RIPPLE NOISE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 150max | 150max | 150max | 150max |
| | TEMPERATURE REGULATION[mV] | -20 to +60℃ | 50max | 50max | 150max | 180max |
| | | -40 to +60℃ | 80max | 80max | 240max | 290max |
| | DRIFT[mV] *4 | | 20max | 20max | 48max | 60max |
| | START-UP TIME[ms] | | 30max (Minimum input, Io=100%) | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE | | Fixed (TRM pin open) ±10% adjustable by external VR | | | |
| | OUTPUT VOLTAGE SETTING[V] *5 | | 3.296 - 3.404 | 4.975 - 5.137 | 11.857 - 12.243 | 14.839 - 15.321 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | |
| | OVERVOLTAGE PROTECTION | | Works over 120 to 160% of rating | | | |
| | REMOTE ON/OFF | | Provided (Negative logic L:ON, H:OFF) | | | |

| MODEL | | MGFS30483R3 | MGFS304805 | MGFS304812 | MGFS304815 |
|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | | 24.75 | 30 | 30 | 30 |
| DC OUTPUT | VOLTAGE[V] *1 | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | 7.5 | 6 | 2.5 | 2 |

## SPECIFICATIONS

| | MODEL | | MGFS30483R3 | MGFS304805 | MGFS304812 | MGFS304815 |
|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | DC18 - 76 | | | |
| | CURRENT[A] *2 | | 0.58typ | 0.70typ | 0.70typ | 0.70typ |
| | EFFICIENCY[%] *2 | | 89typ | 90typ | 89typ | 89typ |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | | 7.5 | 6 | 2.5 | 2 |
| | LINE REGULATION[mV] | | 13.2max | 20max | 48max | 60max |
| | LOAD REGULATION[mV] | | 13.2max | 20max | 48max | 60max |
| | RIPPLE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 100max | 100max | 120max | 120max |
| | RIPPLE NOISE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 150max | 150max | 150max | 150max |
| | TEMPERATURE REGULATION[mV] | -20 to +60℃ | 50max | 50max | 150max | 180max |
| | | -40 to +60℃ | 80max | 80max | 240max | 290max |
| | DRIFT[mV] *4 | | 20max | 20max | 48max | 60max |
| | START-UP TIME[ms] | | 30max (Minimum input, Io=100%) | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE | | Fixed (TRM pin open) ±10% adjustable by external VR | | | |
| | OUTPUT VOLTAGE SETTING[V] *5 | | 3.296 - 3.404 | 4.975 - 5.137 | 11.857 - 12.243 | 14.839 - 15.321 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | |
| | OVERVOLTAGE PROTECTION | | Works over 120 to 160% of rating | | | |
| | REMOTE ON/OFF | | Provided (Negative logic L:ON, H:OFF) | | | |

## GENERAL SPECIFICATIONS

| | | |
|---|---|---|
| ISOLATION | INPUT-OUTPUT | DC1,500V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) |
| | INPUT-CASE | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) |
| | OUTPUT-CASE | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | -40 to +85℃, 20 to 95%RH (Non condensing) (Refer to “Derating”), 3,000m (10,000feet) max |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | -40 to +100℃, 20 to 95%RH (Non condensing), 9,000m (30,000feet) max |
| | VIBRATION | 10 - 55Hz, 98.0m/s² (10G), 3minutes period, 60minutes each along X, Y and Z axis |
| | IMPACT | 490.3m/s² (50G), 11ms, once each along X, Y and Z axis |
| SAFETY | AGENCY APPROVALS | UL60950-1, C-UL, EN62368-1 |
| OTHERS | CASE SIZE/WEIGHT | 25.4×9.9×50.8mm [1×0.39×2 inches] (W×H×D) / 40g max |
| | COOLING METHOD | Convection/Forced air |

*1 MGFW30xx05/MGFW30xx12/MGFW30xx15 is available as single output, +10V/+24V/+30V
*2 Rated input 12V, 24V or 48V DC Io=100%
*3 Ripple and Ripple Noise is measured by using test board with ceramic capacitor 22μF at 50mm from output pins. (20MHz Osilloscope)
*4 Drift is the DC output accuracy for eight hours period after a half-hour warm-up at 25℃.
*5 Rated input voltage (DC24V, DC48V), rated output wattage, ambient temperature at 25℃.
* Parallel operation with other model is not possible.

## External view

※ Tolerance ±0.5 [±0.02]
※ Dimensions in mm, [ ]=inches
※ Pin terminal material : Copper
※ Plating treatment of terminal : Lead free plating
※ Case material : Brass
※ Plating treatment of case : Nickel plating
※ Bottom Cover : FR4 (t=0.6) [t=0.024]
※ Please keep enough creepage distance with the pattern on PCB and other components.
※ Weight 40g max

COSEL DC-DC Converters PCB Mount Type

# MGFW30

## Ordering information

| MGF | W | 30 | 24 | 05 | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ |

①Series name
②Dual output
③Output wattage
④Input voltage
⑤Output voltage
⑥Optional
G: Capacitor between Input and Output is removed.
R: with Remote ON/OFF (Positive logic control)

RoHS

| MODEL | | MGFW302405 | MGFW302412 | MGFW302415 | MGFW304805 | MGFW304812 | MGFW304815 |
|---|---|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | | 20 | 30 | 30 | 20 | 30 | 30 |
| DC OUTPUT | VOLTAGE[V] *1 | ±5 or +10 | ±12 or +24 | ±15 or +30 | ±5 or +10 | ±12 or +24 | ±15 or +30 |
| | CURRENT[A] | 2 | 1.25 | 1 | 2 | 1.25 | 1 |

## SPECIFICATIONS

| | MODEL | | MGFW302405 | MGFW302412 | MGFW302415 | MGFW304805 | MGFW304812 | MGFW304815 |
|---|---|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | DC9 - 36 | | | DC18 - 76 | | |
| | CURRENT[A] | *2 | 0.98typ | 1.42typ | 1.44typ | 0.49typ | 0.71typ | 0.72typ |
| | EFFICIENCY[%] | *2 | 85typ | 88typ | 87typ | 85typ | 88typ | 87typ |
| OUTPUT | VOLTAGE[V] | | ±5(+10) | ±12(+24) | ±15(+30) | ±5(+10) | ±12(+24) | ±15(+30) |
| | CURRENT[A] | | 2 | 1.25 | 1 | 2 | 1.25 | 1 |
| | LINE REGULATION[mV] | | 40max | 60max | 75max | 40max | 60max | 75max |
| | LOAD REGULATION[mV] | *3 | 500max *5 | 600max | 750max | 500max *5 | 600max | 750max |
| | | *4 | 250max | 480max | 600max | 250max | 480max | 600max |
| | RIPPLE[mVp-p] *6 | -20 to +60℃ | 100max | 100max | 100max | 100max | 100max | 100max |
| | | -40 to -20℃ | 120max | 120max | 120max | 120max | 120max | 120max |
| | RIPPLE NOISE[mVp-p] *6 | -20 to +60℃ | 100max | 100max | 100max | 100max | 100max | 100max |
| | | -40 to -20℃ | 150max | 150max | 150max | 150max | 150max | 150max |
| | TEMPERATURE REGULATION[mV] | -20 to +60℃ | 50max | 150max | 180max | 50max | 150max | 180max |
| | | -40 to +60℃ | 80max | 240max | 290max | 80max | 240max | 290max |
| | DRIFT[mV] | *7 | 50max | 50max | 60max | 50max | 50max | 60max |
| | START-UP TIME[ms] | | 30max (Minimum input, Io=100%) | | | | | |
| | OUTPUT VOLTAGE SETTING[V] | *8 | 4.935 - 5.240 | 11.765 - 12.492 | 14.602 - 15.505 | 4.935 - 5.240 | 11.765 - 12.492 | 14.602 - 15.505 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | | | |
| | OVERVOLTAGE PROTECTION | | Works over 120 to 160% of rating (Total of +V and -V) | | | | | |
| | REMOTE ON/OFF | | Provided (Negative logic L:ON, H:OFF) | | | | | |
| ISOLATION | INPUT-OUTPUT | | DC1,500V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) | | | | | |
| | INPUT-CASE | | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) | | | | | |
| | OUTPUT-CASE | | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) | | | | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | | -40 to +85℃, 20 to 95%RH (Non condensing) (Refer to "Derating"), 3,000m (10,000feet) max | | | | | |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | | -40 to +100℃, 20 to 95%RH (Non condensing), 9,000m (30,000feet) max | | | | | |
| | VIBRATION | | 10 - 55Hz, 98.0m/s² (10G), 3minutes period, 60minutes each along X, Y and Z axis | | | | | |
| | IMPACT | | 490.3m/s² (50G), 11ms, once each along X, Y and Z axis | | | | | |
| SAFETY | AGENCY APPROVALS | | UL60950-1, C-UL, EN62368-1 | | | | | |
| OTHERS | CASE SIZE/WEIGHT | | 25.4×9.9×50.8mm [1×0.39×2 inches] (W×H×D) / 40g max | | | | | |
| | COOLING METHOD | | Convection/Forced air | | | | | |

*1 Single output +10V, +24V, +30V with no use of COM.
*2 Rated input 12V, 24V or 48V DC Io=100%
*3 Symmetrical loading from 5% to 100%.
*4 Symmetrical loading from 20% to 100%.
*5 Refer to the instruction manual 11.
*6 Ripple and Ripple Noise is measured by using test board with ceramic capacitor 22μF at 50mm from output pins. (20MHz Osilloscope)
*7 Drift is the DC output accuracy for eight hours period after a half-hour warm-up at 25℃.
*8 Rated input voltage (DC24V, DC48V), rated output wattage, ambient temperature at 25℃.
* Parallel operation with other model is not possible.

## External view

※ Tolerance ±0.5 [±0.02]
※ Dimensions in mm, [ ]=inches
※ Pin terminal material : Copper
※ Plating treatment of terminal : Lead free plating
※ Case material : Brass
※ Plating treatment of case : Nickel plating
※ Bottom Cover : FR4 (t=0.6) [t=0.024]
※ Please keep enough creepage distance with the pattern on PCB and other components.
※ Weight 40g max

COSEL DC-DC Converters PCB Mount Type

# MGFS40

## Ordering information

| MGF | S | 40 | 24 | 05 | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ |

RoHS

①Series name
②Single output
③Output wattage
④Input voltage
⑤Output voltage
⑥Optional
G: Capacitor between Input and Output is removed.
R: with Remote ON/OFF (Positive logic control)

| MODEL | | MGFS40053R3 | MGFS400505 | MGFS400512 | MGFS400515 | MGFS40243R3 | MGFS402405 | MGFS402412 | MGFS402415 |
|---|---|---|---|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | | 26.4 | 30 | 30 | 30 | 33 | 40 | 40.8 | 40.5 |
| DC OUTPUT | VOLTAGE[V] *1 | 3.3 | 5 | 12 | 15 | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | 8 | 6 | 2.5 | 2 | 10 | 8 | 3.4 | 2.7 |

## SPECIFICATIONS

| | MODEL | | MGFS40053R3 | MGFS400505 | MGFS400512 | MGFS400515 | MGFS40243R3 | MGFS402405 | MGFS402412 | MGFS402415 |
|---|---|---|---|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | DC4.5 - 13 (Surge Voltage 15V, 100ms max) | | | | DC9 - 36 (Surge Voltage 50V, 100ms max) | | | |
| | CURRENT[A] | *2 | 6.21typ | 6.90typ | 6.90typ | 6.82typ | 1.54typ | 1.83typ | 1.85typ | 1.83typ |
| | EFFICIENCY[%] | *2 | 85typ | 87typ | 87typ | 88typ | 89typ | 91typ | 92typ | 92typ |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | | 8 | 6 | 2.5 | 2 | 10 | 8 | 3.4 | 2.7 |
| | LINE REGULATION[mV] | | 13.2max | 20max | 48max | 60max | 13.2max | 20max | 48max | 60max |
| | LOAD REGULATION[mV] | | 13.2max | 20max | 48max | 60max | 13.2max | 20max | 48max | 60max |
| | RIPPLE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 100max | 100max | 120max | 120max | 100max | 100max | 120max | 120max |
| | RIPPLE NOISE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 150max | 150max | 150max | 150max | 150max | 150max | 150max | 150max |
| | TEMPERATURE REGULATION[mV] | -20 to +60℃ | 50max | 50max | 150max | 180max | 50max | 50max | 150max | 180max |
| | | -40 to +60℃ | 80max | 80max | 240max | 290max | 80max | 80max | 240max | 290max |
| | DRIFT[mV] | *4 | 20max | 20max | 48max | 60max | 20max | 20max | 48max | 60max |
| | START-UP TIME[ms] | | 30max (Minimum input, Rated load) | | | | | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE | | Fixed (TRM pin open) ±10% adjustable by external VR | | | | | | | |
| | OUTPUT VOLTAGE SETTING[V] | *5 | 3.296 - 3.404 | 4.975 - 5.137 | 11.857 - 12.243 | 14.839 - 15.321 | 3.296 - 3.404 | 4.975 - 5.137 | 11.857 - 12.243 | 14.839 - 15.321 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | | | | | |
| | OVERVOLTAGE PROTECTION | | Work over 115 to 140% of rating | | | | | | | |
| | REMOTE ON/OFF | | Provided (Negative logic L:ON, H:OFF) | | | | | | | |

| MODEL | | MGFS40483R3 | MGFS404805 | MGFS404812 | MGFS404815 |
|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | | 33 | 40 | 40.8 | 40.5 |
| DC OUTPUT | VOLTAGE[V] *1 | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | 10 | 8 | 3.4 | 2.7 |

## SPECIFICATIONS

| | MODEL | | MGFS40483R3 | MGFS404805 | MGFS404812 | MGFS404815 |
|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | DC18 - 76 (Surge Voltage 100V, 100ms max) | | | |
| | CURRENT[A] | *2 | 0.77typ | 0.92typ | 0.92typ | 0.92typ |
| | EFFICIENCY[%] | *2 | 89typ | 91typ | 92typ | 92typ |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | | 10 | 8 | 3.4 | 2.7 |
| | LINE REGULATION[mV] | | 13.2max | 20max | 48max | 60max |
| | LOAD REGULATION[mV] | | 13.2max | 20max | 48max | 60max |
| | RIPPLE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 100max | 100max | 120max | 120max |
| | RIPPLE NOISE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 150max | 150max | 150max | 150max |
| | TEMPERATURE REGULATION[mV] | -20 to +60℃ | 50max | 50max | 150max | 180max |
| | | -40 to +60℃ | 80max | 80max | 240max | 290max |
| | DRIFT[mV] | *4 | 20max | 20max | 48max | 60max |
| | START-UP TIME[ms] | | 30max (Minimum input, Rated load) | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE | | Fixed (TRM pin open) ±10% adjustable by external VR | | | |
| | OUTPUT VOLTAGE SETTING[V] | *5 | 3.296 - 3.404 | 4.975 - 5.137 | 11.857 - 12.243 | 14.839 - 15.321 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | |
| | OVERVOLTAGE PROTECTION | | Work over 115 to 140% of rating | | | |
| | REMOTE ON/OFF | | Provided (Negative logic L:ON, H:OFF) | | | |

## GENERAL SPECIFICATIONS

| | | |
|---|---|---|
| ISOLATION | INPUT-OUTPUT | DC1,500V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) |
| | INPUT-CASE | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) |
| | OUTPUT-CASE | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | -40 to +85℃, 20 to 95%RH (Non condensing) (Refer to "Derating"), 5,000m (16,400feet) max |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | -40 to +100℃, 20 to 95%RH (Non condensing), 9,000m (30,000feet) max |
| | VIBRATION | 10 - 55Hz, 98.0m/s² (10G), 3minutes period, 60minutes each along X, Y and Z axis |
| | IMPACT | 490.3m/s² (50G), 11ms, once each along X, Y and Z axis |
| SAFETY | AGENCY APPROVALS | UL62368-1, C-UL(CSA62368-1), EN62368-1 |
| OTHERS | CASE SIZE/WEIGHT | 25.4×9.9×25.4mm (W×H×D) / 30g max |
| | COOLING METHOD | Convection/Forced air |

*1 MGFW40xx12/MGFW40xx15 is available as single output +24V/+30V
*2 Rated input voltage (DC5V, DC24V, DC48V) Io=100%
*3 Riple and Ripple Noise is measured by using test board with ceramic capacitor 22μF and Recommended Capacitance at 50mm from output pins. (20MHz Oscilloscope)
*4 Drift is the DC output accuracy for eight hour period after a half-hour warm-up at 25℃
*5 Rated input voltage (DC5V, DC24V, DC48V), rated output wattage, ambient temperature at 25℃
* Parallel operation with other model is not possible.

## External view

※ Tolerance ±0.5 [±0.02]
※ Dimensions in mm, [ ]=inches
※ Pin terminal material : Copper
※ Plating treatment of terminal : Lead free plating
※ Case material : Brass
※ Plating treatment of case : Nickel plating
※ Bottom Cover : FR4 (t=0.6) [t=0.024]
※ Please keep enough creepage distance with the pattern on PCB and other components.
※ Weight 30g max

COSEL DC-DC Converters PCB Mount Type

# MGFW40

## Ordering information

| MGF | W | 40 | 24 | 12 | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ |

①Series name
②Dual output
③Output wattage
④Input voltage
⑤Output voltage
⑥Optional
G: Capacitor between Input and Output is removed.
R: with Remote ON/OFF (Positive logic control)

RoHS

| MODEL | | MGFW400512 | MGFW400515 | MGFW402412 | MGFW402415 | MGFW404812 | MGFW404815 |
|---|---|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | | 31.2 | 30 | 40.8 | 42 | 40.8 | 42 |
| DC OUTPUT | VOLTAGE[V] *1 | ±12 or +24 | ±15 or +30 | ±12 or +24 | ±15 or +30 | ±12 or +24 | ±15 or +30 |
| | CURRENT[A] | 1.3 | 1 | 1.7 | 1.4 | 1.7 | 1.4 |

## SPECIFICATIONS

| | MODEL | | MGFW400512 | MGFW400515 | MGFW402412 | MGFW402415 | MGFW404812 | MGFW404815 |
|---|---|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | DC4.5 - 13 (Surge Voltage 15V, 100ms max) | | DC9 - 36 (Surge Voltage 50V, 100ms max) | | DC18 - 76 (Surge Voltage 100V, 100ms max) | |
| | CURRENT[A] | *2 | 7.26typ | 6.90typ | 1.87typ | 1.92typ | 0.93typ | 0.96typ |
| | EFFICIENCY[%] | *2 | 86typ | 87typ | 91typ | 91typ | 91typ | 91typ |
| OUTPUT | VOLTAGE[V] | | ±12(+24) | ±15(+30) | ±12(+24) | ±15(+30) | ±12(+24) | ±15(+30) |
| | CURRENT[A] | | 1.3 | 1 | 1.7 | 1.4 | 1.7 | 1.4 |
| | LINE REGULATION[mV] | | 60max | 75max | 60max | 75max | 60max | 75max |
| | LOAD REGULATION[mV] | *3 | 600max | 750max | 600max | 750max | 600max | 750max |
| | | *4 | 480max | 600max | 480max | 600max | 480max | 600max |
| | RIPPLE[mVp-p] *5 | -20 to +60℃ | 100max | 100max | 100max | 100max | 100max | 100max |
| | | -40 to -20℃ | 120max | 120max | 120max | 120max | 120max | 120max |
| | RIPPLE NOISE[mVp-p] *5 | -20 to +60℃ | 100max | 100max | 100max | 100max | 100max | 100max |
| | | -40 to -20℃ | 150max | 150max | 150max | 150max | 150max | 150max |
| | TEMPERATURE REGULATION[mV] | -20 to +60℃ | 150max | 180max | 150max | 180max | 150max | 180max |
| | | -40 to +60℃ | 240max | 290max | 240max | 290max | 240max | 290max |
| | DRIFT[mV] | *6 | 50max | 60max | 50max | 60max | 50max | 60max |
| | START-UP TIME[ms] | | 30max (Minimum input, Rated load) | | | | | |
| | OUTPUT VOLTAGE SETTING[V] | *7 | 11.765 - 12.492 | 14.602 - 15.505 | 11.765 - 12.492 | 14.602 - 15.505 | 11.765 - 12.492 | 14.602 - 15.505 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | | | |
| | OVERVOLTAGE PROTECTION | | Work over 115 to 140% of rating (Total of +Vo and -Vo) | | | | | |
| | REMOTE ON/OFF | | Provided (Negative logic L:ON, H:OFF) | | | | | |
| ISOLATION | INPUT-OUTPUT | | DC1,500V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) | | | | | |
| | INPUT-CASE | | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) | | | | | |
| | OUTPUT-CASE | | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) | | | | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | | -40 to +85℃, 20 to 95%RH (Non condensing) (Refer to "Derating"), 5,000m (16,400feet) max | | | | | |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | | -40 to +100℃, 20 to 95%RH (Non condensing), 9,000m (30,000feet) max | | | | | |
| | VIBRATION | | 10 - 55Hz, 98.0m/s² (10G), 3minutes period, 60minutes each along X, Y and Z axis | | | | | |
| | IMPACT | | 490.3m/s² (50G), 11ms, once each along X, Y and Z axis | | | | | |
| SAFETY | AGENCY APPROVALS | | UL62368-1, C-UL (CSA62368-1), EN62368-1 | | | | | |
| OTHERS | CASE SIZE/WEIGHT | | 25.4×9.9×25.4mm (W×H×D) / 30g max | | | | | |
| | COOLING METHOD | | Convection/Forced air | | | | | |

*1 Single output +24V/+30V with no use of COM
*2 Rated input voltage(DC5V , DC24V, DC48V) Io=100%
*3 Symmetrical loading from 0% to 100%
*4 Symmetrical loading from 20% to 100%
*5 Riple and Ripple Noise is measured by using test board with ceramic capacitor 22μF and Recommended Capacitance at 50mm from output pins. (20MHz Oscilloscope)
*6 Drift is the DC output accuracy for eight hour period after a half-hour warm-up at 25℃
*7 Rated input voltage (DC5V, DC24V, DC48V), rated output wattage, ambient temperature at 25℃
* Parallel operation with other model is not possible.

## External view

※ Tolerance ±0.5 [±0.02]
※ Dimensions in mm, [ ]=inches
※ Pin terminal material : Copper
※ Plating treatment of terminal : Lead free plating
※ Case material : Brass
※ Plating treatment of case : Nickel plating
※ Bottom Cover : FR4 (t=0.6) [t=0.024]
※ Please keep enough creepage distance with the pattern on PCB and other components.
※ Weight 30g max

COSEL DC-DC Converters PCB Mount Type

# MGFS80

## Ordering information

| MGF | S | 80 | 24 | 05 | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ |

①Series name
②Single output
③Output wattage
④Input voltage
⑤Output voltage
⑥Optional
G: Capacitor between Input and Output is removed.
R: with Remote ON/OFF (Positive logic control)

RoHS

| MODEL | | MGFS80243R3 | MGFS802405 | MGFS802412 | MGFS802415 |
|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | | 59.4 | 80 | 80.4 | 81 |
| DC OUTPUT | VOLTAGE[V] *1 | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | 18 | 16 | 6.7 | 5.4 |

## SPECIFICATIONS

| | MODEL | | MGFS80243R3 | MGFS802405 | MGFS802412 | MGFS802415 |
|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | DC9 - 36 (Surge Voltage 50V, 100ms max) | | | |
| | CURRENT[A] *2 | | 2.69typ | 3.60typ | 3.56typ | 3.59typ |
| | EFFICIENCY[%] *2 | | 92typ | 93typ | 94typ | 94typ |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | | 18 | 16 | 6.7 | 5.4 |
| | LINE REGULATION[mV] | | 13.2max | 20max | 48max | 60max |
| | LOAD REGULATION[mV] | | 20max | 20max | 48max | 60max |
| | RIPPLE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 100max | 100max | 120max | 120max |
| | | Io=0 to 10% | 200max | 200max | 240max | 240max |
| | RIPPLE NOISE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 150max | 150max | 150max | 150max |
| | | Io=0 to 10% | 250max | 250max | 270max | 270max |
| | TEMPERATURE REGULATION[mV] | -20 to +60℃ | 50max | 50max | 150max | 180max |
| | | -40 to +60℃ | 80max | 80max | 240max | 290max |
| | DRIFT[mV] *4 | | 20max | 20max | 48max | 60max |
| | START-UP TIME[ms] | | 30max (Minimum input, Rated load) | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE | | Fixed (TRM pin open) ±10% adjustable by external VR | | | |
| | OUTPUT VOLTAGE SETTING[V] *5 | | 3.296 - 3.404 | 4.975 - 5.137 | 11.857 - 12.243 | 14.839 - 15.321 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | |
| | OVERVOLTAGE PROTECTION | | Work over 115 to 140% of rating | | | |
| | REMOTE ON/OFF | | Provided (Negative logic L:ON, H:OFF) | | | |

| MODEL | | MGFS80483R3 | MGFS804805 | MGFS804812 | MGFS804815 |
|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | | 59.4 | 80 | 80.4 | 81 |
| DC OUTPUT | VOLTAGE[V] *1 | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | 18 | 16 | 6.7 | 5.4 |

## SPECIFICATIONS

| | MODEL | | MGFS80483R3 | MGFS804805 | MGFS804812 | MGFS804815 |
|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | DC18 - 76 (Surge Voltage 100V, 100ms max) | | | |
| | CURRENT[A] *2 | | 1.35typ | 1.80typ | 1.78typ | 1.80typ |
| | EFFICIENCY[%] *2 | | 92typ | 93typ | 94typ | 94typ |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 |
| | CURRENT[A] | | 18 | 16 | 6.7 | 5.4 |
| | LINE REGULATION[mV] | | 13.2max | 20max | 48max | 60max |
| | LOAD REGULATION[mV] | | 20max | 20max | 48max | 60max |
| | RIPPLE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 100max | 100max | 120max | 120max |
| | | Io=0 to 10% | 200max | 200max | 240max | 240max |
| | RIPPLE NOISE[mVp-p] *3 | -20 to +60℃ | 75max | 75max | 100max | 100max |
| | | -40 to -20℃ | 150max | 150max | 150max | 150max |
| | | Io=0 to 10% | 250max | 250max | 270max | 270max |
| | TEMPERATURE REGULATION[mV] | -20 to +60℃ | 50max | 50max | 150max | 180max |
| | | -40 to +60℃ | 80max | 80max | 240max | 290max |
| | DRIFT[mV] *4 | | 20max | 20max | 48max | 60max |
| | START-UP TIME[ms] | | 30max (Minimum input, Rated load) | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE | | Fixed (TRM pin open) ±10% adjustable by external VR | | | |
| | OUTPUT VOLTAGE SETTING[V] *5 | | 3.296 - 3.404 | 4.975 - 5.137 | 11.857 - 12.243 | 14.839 - 15.321 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | |
| | OVERVOLTAGE PROTECTION | | Work over 115 to 140% of rating | | | |
| | REMOTE ON/OFF | | Provided (Negative logic L:ON, H:OFF) | | | |

## GENERAL SPECIFICATIONS

| | | |
|---|---|---|
| ISOLATION | INPUT-OUTPUT | DC1,500V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) |
| | INPUT-CASE | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) |
| | OUTPUT-CASE | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | -40 to +85℃, 20 to 95%RH (Non condensing) (Refer to "Derating"), 5,000m (16,400feet) max |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | -40 to +100℃, 20 to 95%RH (Non condensing), 9,000m (30,000feet) max |
| | VIBRATION | 10 - 55Hz, 98.0m/s² (10G), 3minutes period, 60minutes each along X, Y and Z axis |
| | IMPACT | 490.3m/s² (50G), 11ms, once each along X, Y and Z axis |
| SAFETY | AGENCY APPROVALS | UL62368-1, C-UL(CSA62368-1), EN62368-1 |
| OTHERS | CASE SIZE/WEIGHT | 25.4×9.9×50.8mm (W×H×D) / 50g max |
| | COOLING METHOD | Convection/Forced air |

*1 MGFW80xx12/MGFW80xx15 is available as single output +24V/+30V
*2 Rated input voltage (DC24V, DC48V) Io=100%
*3 Riple and Ripple Noise is measured by using test board with ceramic capacitor 22μF and Recommended Capacitance at 50mm from output pins. (20MHz Oscilloscope)
*4 Drift is the DC output accuracy for eight hour period after a half-hour warm-up at 25℃
*5 Rated input voltage (DC24V, DC48V), rated output wattage, ambient temperature at 25℃
* Parallel operation with other model is not possible.

## External view

※ Tolerance ±0.5 [±0.02]
※ Dimensions in mm, [ ]=inches
※ Pin terminal material : Copper
※ Plating treatment of terminal : Lead free plating
※ Case material : Brass
※ Plating treatment of case : Nickel plating
※ Bottom Cover : FR4 (t=0.6) [t=0.024]
※ Please keep enough creepage distance with the pattern on PCB and other components.
※ Weight 50g max

COSEL DC-DC Converters PCB Mount Type

# MGFW80

## Ordering information

| MGF | W | 80 | 24 | 12 | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ |

①Series name
②Dual output
③Output wattage
④Input voltage
⑤Output voltage
⑥Optional
G: Capacitor between Input and Output is removed.
R: with Remote ON/OFF (Positive logic control)

RoHS

| MODEL | | MGFW802412 | MGFW802415 | MGFW804812 | MGFW804815 |
|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | | 81.6 | 81 | 81.6 | 81 |
| DC OUTPUT | VOLTAGE[V] *1 | ±12 or +24 | ±15 or +30 | ±12 or +24 | ±15 or +30 |
| | CURRENT[A] | 3.4 | 2.7 | 3.4 | 2.7 |

## SPECIFICATIONS

| | MODEL | | MGFW802412 | MGFW802415 | MGFW804812 | MGFW804815 |
|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | DC9 - 36 (Surge Voltage 50V, 100ms max) | | DC18 - 76 (Surge Voltage 100V, 100ms max) | |
| | CURRENT[A] | *2 | 3.62typ | 3.59typ | 1.81typ | 1.80typ |
| | EFFICIENCY[%] | *2 | 94typ | 94typ | 94typ | 94typ |
| OUTPUT | VOLTAGE[V] | | ±12 or +24 | ±15 or +30 | ±12 or +24 | ±15 or +30 |
| | CURRENT[A] | | 3.4 | 2.7 | 3.4 | 2.7 |
| | LINE REGULATION[mV] | | 60max | 75max | 60max | 75max |
| | LOAD REGULATION[mV] | *3 | 600max | 750max | 600max | 750max |
| | | *4 | 480max | 600max | 480max | 600max |
| | RIPPLE[mVp-p] *5 | -20 to +60℃ | 100max | 100max | 100max | 100max |
| | | -40 to -20℃ | 120max | 120max | 120max | 120max |
| | | Io=0 to 10% | 240max | 240max | 240max | 240max |
| | RIPPLE NOISE[mVp-p] *5 | -20 to +60℃ | 100max | 100max | 100max | 100max |
| | | -40 to -20℃ | 150max | 150max | 150max | 150max |
| | | Io=0 to 10% | 270max | 270max | 270max | 270max |
| | TEMPERATURE REGULATION[mV] | -20 to +60℃ | 150max | 180max | 150max | 180max |
| | | -40 to +60℃ | 240max | 290max | 240max | 290max |
| | DRIFT[mV] | *6 | 50max | 60max | 50max | 60max |
| | START-UP TIME[ms] | | 30max (Minimum input, Rated load) | | | |
| | OUTPUT VOLTAGE SETTING[V] | *7 | 11.765 - 12.492 | 14.602 - 15.505 | 11.765 - 12.492 | 14.602 - 15.505 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | |
| | OVERVOLTAGE PROTECTION | | Work over 115 to 140% of rating (Total of +Vo and -Vo) | | | |
| | REMOTE ON/OFF | | Provided (Negative logic L:ON, H:OFF) | | | |
| ISOLATION | INPUT-OUTPUT | | DC1,500V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) | | | |
| | INPUT-CASE | | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) | | | |
| | OUTPUT-CASE | | DC1,000V 1minute, Cutoff current = 10mA, DC500V 1,000MΩ min (20±15℃) | | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | | -40 to +85℃, 20 to 95%RH (Non condensing) (Refer to "Derating"), 5,000m (16,400feet) max | | | |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | | -40 to +100℃, 20 to 95%RH (Non condensing), 9,000m (30,000feet) max | | | |
| | VIBRATION | | 10 - 55Hz, 98.0m/s² (10G), 3minutes period, 60minutes each along X, Y and Z axis | | | |
| | IMPACT | | 490.3m/s² (50G), 11ms, once each along X, Y and Z axis | | | |
| SAFETY | AGENCY APPROVALS | | UL62368-1, C-UL (CSA62368-1), EN62368-1 | | | |
| OTHERS | CASE SIZE/WEIGHT | | 25.4×9.9×50.8mm (W×H×D) / 50g max | | | |
| | COOLING METHOD | | Convection/Forced air | | | |

*1 Single output +24V/+30V with no use of COM
*2 Rated input voltage(DC24V, DC48V) Io=100%
*3 Symmetrical loading from 0% to 100%
*4 Symmetrical loading from 20% to 100%
*5 Riple and Ripple Noise is measured by using test board with ceramic capacitor 22μF and Recommended Capacitance at 50mm from output pins. (20MHz Oscilloscope)
*6 Drift is the DC output accuracy for eight hour period after a half-hour warm-up at 25℃
*7 Rated input voltage (DC24V, DC48V), rated output wattage, ambient temperature at 25℃
* Parallel operation with other model is not possible.

## External view

※Recommended Pad and Hole dia.
(TOP VIEW)

※Unit : 0.1inch
※Dimension : mm

※ Tolerance ±0.5 [±0.02]
※ Dimensions in mm, [ ]=inches
※ Pin terminal material : Copper
※ Plating treatment of terminal : Lead free plating
※ Case material : Brass
※ Plating treatment of case : Nickel plating
※ Bottom Cover : FR4 (t=0.6) [t=0.024]
※ Please keep enough creepage distance with the pattern on PCB and other components.
※ Weight 50g max

## Pin configuration

### ●MG15/MG40 Single Output and Dual (±) Output

(a) Single Output

(b) Dual (±) Output

| Pin No. | Pin Name | Function |
|---|---|---|
| ① | +Vin | +DC Input |
| ② | -Vin | -DC Input |
| ③ | RC | Remote ON/OFF |
| ④ | +Vout | +DC Output |
| ⑤ | TRM | Output Voltage Adjustment (Refer to instruction manual 1.5) |
| | COM | GND of Output Voltage (for Dual Output) |
| ⑥ | -Vout | -DC Output |

### ●MG30/MG80 Single Output and Dual (±) Output

(a) Single Output

(b) Dual (±) Output

| Pin No. | Pin Name | Function |
|---|---|---|
| ① | +Vin | +DC Input |
| ② | -Vin | -DC Input |
| ③ | RC | Remote ON/OFF |
| ④ | +Vout | +DC Output |
| ⑤ | -Vout | -DC Output (for Single Output) |
| | COM | GND of Output Voltage (for Dual Output) |
| ⑥ | TRM | Output Voltage Adjustment (Refer to instruction manual 1.5) |
| | -Vout | -DC Output (for Dual Output) |

## Assembling and Installation Method

### Installation

■When two or more power supplies are used side by side, position them with proper intervals to allow enough air ventilation. Ambient temperature around each power supply should not exceed the temperature range shown in “Derating”.

### Soldering Conditions

(1) Flow Soldering : 260℃ 15 seconds or less
(2) Soldering Iron : maximum 360℃ 5 seconds or less

### Stress to Pin

■Applying excessive stress to the input or output pins of the power module may damage internal connections. Avoid applying stress in excess of that shown in right figure.
■Input/output pin are soldered to the PCB internally. Do not pull or bend a lead powerfully.

■If it is expected that stress is applied to the input/output pin due to vibration or impact, reduce the stress to the pin by taking such measures as fixing the unit to the PCB by silicone rubber, etc.
■Due to prevent failure, PS should not be pulled after soldering with PCB.

## Derating

### Derating curve for input voltage

●MGF □4005 □

●MGF□4024□, MGF□4048□, MGF□8024□ and MGF□8048□

### Ambient temperature derating curve

■It is necessary to note thermal fatigue life by power cycle. Please reduce the temperature fluctuation range as much as possible when the up and down of temperature are frequently generated.

■In case of forced air, ventilation must keep the temperature of point below the temperatures shown in Instruction Manual 7.

●MG15/MGF15 (Rated Input Voltage)

(1) In the case of Convection Cooling

(2) In the case of Forced Air Cooling (1.0m/s)
(Excluding MGW15□05/MGFW15□05)

(3) In the case of Forced Air Cooling (1.0m/s, 2.5m/s)
(MGW15□05/MGFW15□05)

●MG30/MGF30 (Rated Input Voltage)

(1) In the case of Convection Cooling

(2) In the case of Forced Air Cooling (1.0m/s)
(Excluding MGW30□05 and MGFW30□12/15)

(3) In the case of Forced Air Cooling (1.0m/s, 1.5m/s)
(MGW30□05 and MGFW30□12/15)

## Derating

### ●MGF40 (Rated Input Voltage)

(1) In the case of Convection Cooling

(2) In the case of Forced Air Cooling (1.0m/s)

| Input Voltage[V] | Output Voltage[V] | | | | | |
|---|---|---|---|---|---|---|
| | 3.3 | 5 | 12 | 15 | ±12 | ±15 |
| 5 | B | A | B | C | B | B |
| 24 | E | D | E | F | E | E |
| 48 | F | D | F | E | E | E |

### ●MGF80 (Rated Input Voltage)

(1) In the case of Convection Cooling

(2) In the case of Forced Air Cooling (1.0m/s)

| Input Voltage[V] | Output Voltage[V] | | | | | |
|---|---|---|---|---|---|---|
| | 3.3 | 5 | 12 | 15 | ±12 | ±15 |
| 24 | B | A | C | C | C | C |
| 48 | C | B | C | D | C | C |

## Instruction Manual

◆ It is neccessary to read the "Instruction Manual" and "Before using our product" before you use our product.

| | |
|---|---|
| Instruction Manual | https://www.cosel.co.jp/redirect/catalog/en/MGS/ |
| Instruction Manual | https://www.cosel.co.jp/redirect/catalog/en/MGW/ |
| Instruction Manual | https://www.cosel.co.jp/redirect/catalog/en/MGFS/ |
| Instruction Manual | https://www.cosel.co.jp/redirect/catalog/en/MGFW/ |
| Before using our product | https://en.cosel.co.jp/technical/caution/index.html |

MGS MGW MGFS MGFW NOTICE

## Basic Characteristics Data

| Model | Circuit method | Switching frequency [kHz] (reference) | Input current [A] | Inrush current protection | PCB/Pattern | | | Series/Parallel operation availability | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Material | Single sided | Double sided | Series operation | Parallel operation |
| MG15 | Flyback converter | 445-495 | ＊1 | - | glass fabric base,epoxy resin | | Yes | Yes | ＊2 |
| MGF15 | Flyback converter | 445-495 | ＊1 | - | glass fabric base,epoxy resin | | Yes | Yes | ＊2 |
| MG30 | Forward converter | 380-460 | ＊1 | - | glass fabric base,epoxy resin | | Yes | Yes | ＊2 |
| MGF30 | Forward converter | 380-460 | ＊1 | - | glass fabric base,epoxy resin | | Yes | Yes | ＊2 |
| MGF40 | Flyback converter | 100-1500 ＊3 | ＊1 | - | glass fabric base,epoxy resin | | Yes | Yes | ＊2 |
| MGF80 | Flyback converter | 100-1500 ＊3 | ＊1 | - | glass fabric base,epoxy resin | | Yes | Yes | ＊2 |

＊1 Refer to Specification.
＊2 Refer to Instruction Manual.
＊3 The value changes depending on input and load.