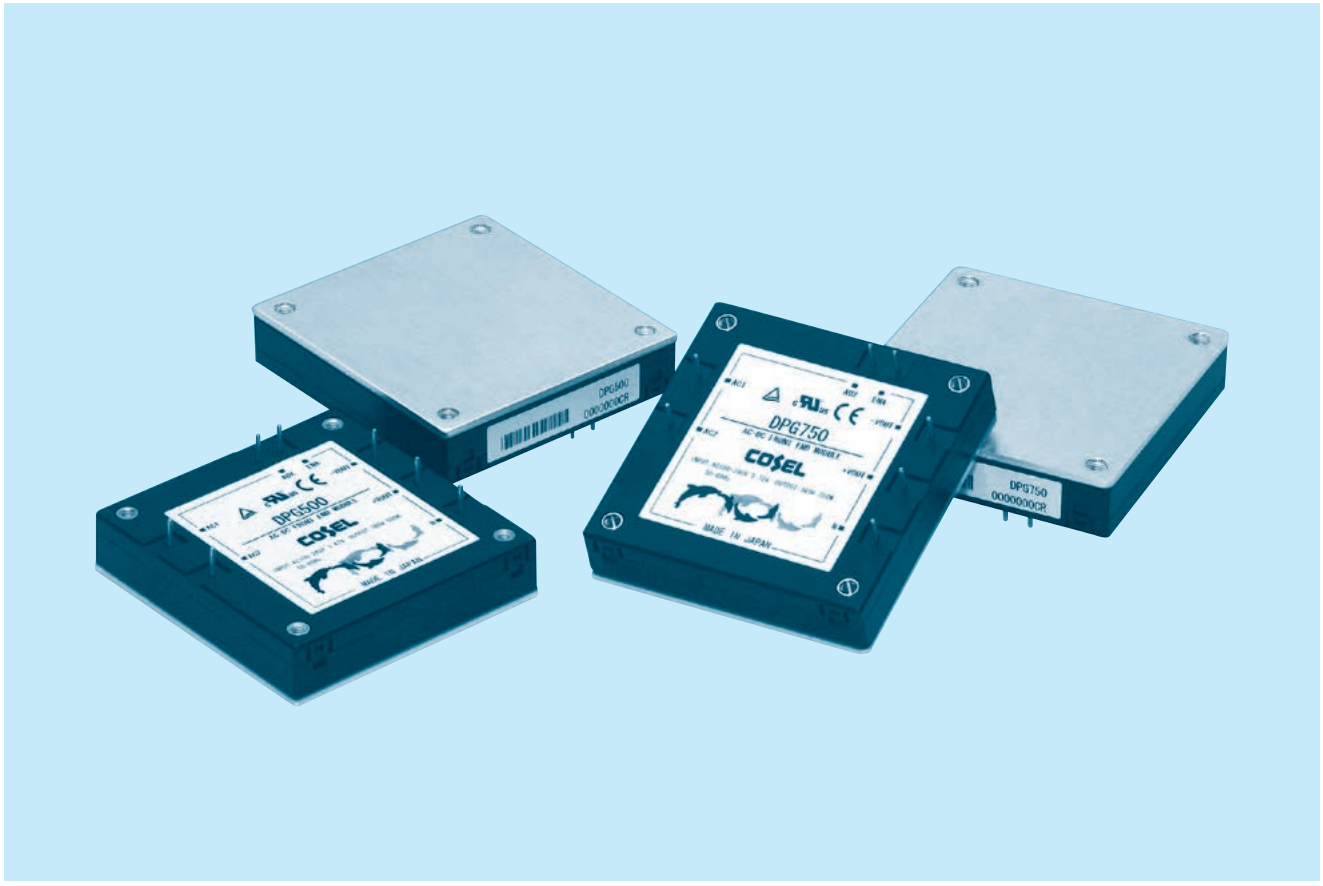
AC-DC Power Supplies Bus Converter·Power Module Type

Power Factor Correction | World wide | Low Profile | Safety Approvals | Inrush current limiting | OVP

DPG-series



Power factor correction module

Feature

Harmonic attenuator (Complies with IEC61000-3-2)
High efficiency 93% (AC100V), 96% (AC200V)
Universal input voltage (AC85 - 264V)
Built-in inrush current protection
Built-in overvoltage and thermal protection circuits
Enable signal (ENA)
Auxiliary power supply for external signal (AUX)
Ideal for distributed power systems

5-year warranty

CE marking

Low Voltage Directive
RoHS Directive

UKCA marking

Electrical Equipment Safety Regulations
RoHS Regulations

Safety agency approvals

UL, C-UL recognized, TÜV approved

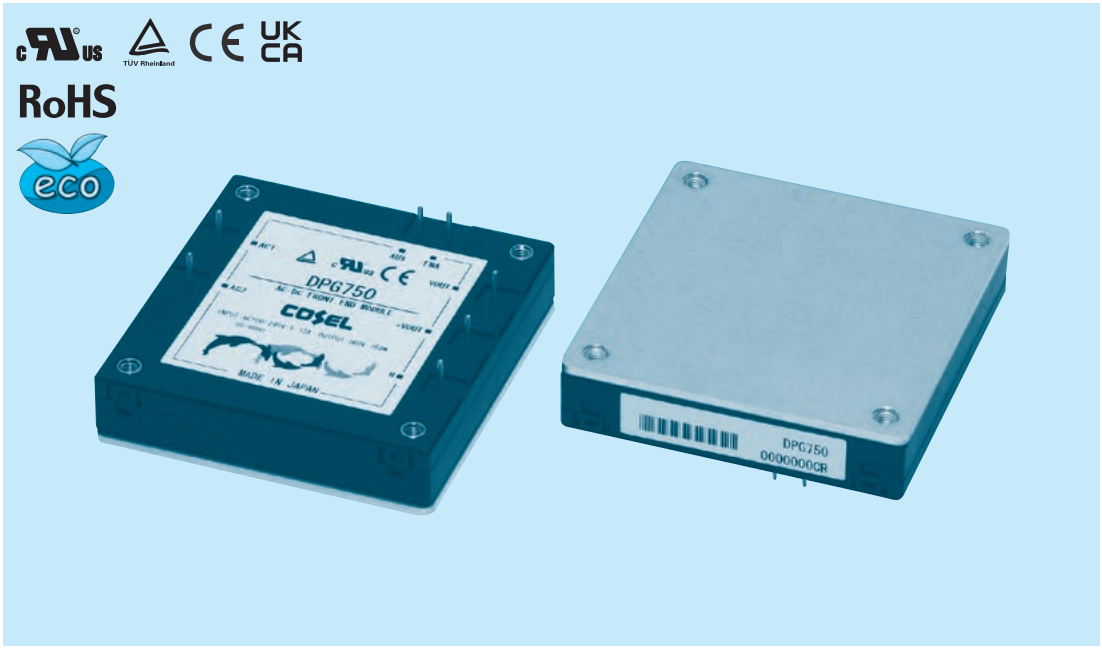
COSEL AC-DC Power Supplies Bus Converter·Power Module Type

DPG

Ordering information

DPG 750 -□

① ② ③



①Series name
②Output power
500 : 500W (ACIN 200V)
750 : 750W (ACIN 200V)
③Optional
T : with Mounting hole
(φ3.4 thru)

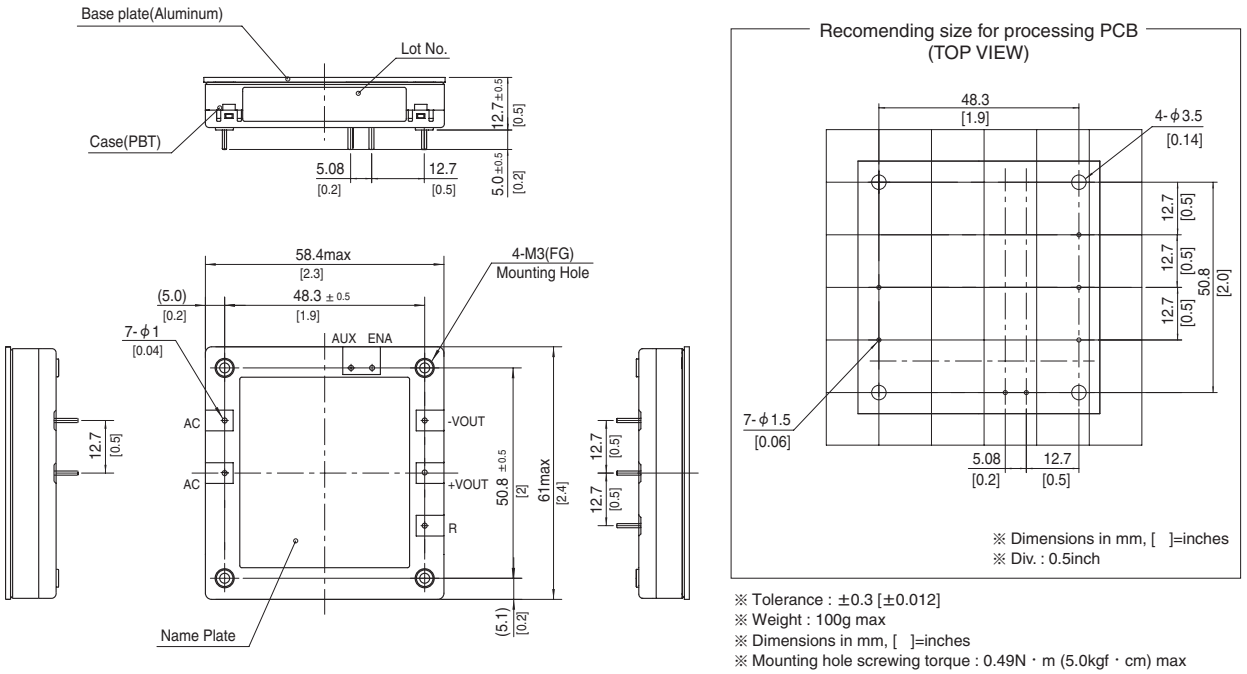
MODEL		DPG500		DPG750	
AC INPUT[V]		AC85 - 264	AC170 - 264	AC85 - 264	AC170 - 264
MAX OUTPUT WATTAGE[W]	✻1	300	500	500	750
DC OUTPUT VOLTAGE[V]	✻2	360			

SPECIFICATIONS

	MODEL		DPG500		DPG750	
INPUT	VOLTAGE[V]		AC85 - 264 1φ	AC170 - 264 1φ	AC85 - 264 1φ	AC170 - 264 1φ
	POWER FACTOR CORRECTION RANGE[V]		AC85 - 264 1φ			
	CURRENT[A]		3.47typ (ACIN 100V)	2.86typ (ACIN 200V)	5.72typ (ACIN 100V)	4.24typ (ACIN 200V)
	FREQUENCY[Hz]		50/60 (47 - 63) Hz			
	INRUSH CURRENT[A]		Limited by external resistance			
	EFFICIENCY[%]		92typ (ACIN 100V)	95typ (ACIN 200V)	93typ (ACIN 100V)	96typ (ACIN 200V)
	POWER FACTOR		0.96typ (ACIN 100V)	0.93typ (ACIN 200V)	0.96typ (ACIN 100V)	0.93typ (ACIN 200V)
	LEAKAGE CURRENT[mA]		0.75 max (60Hz, According to IEC62368-1 and DEN-AN)			
OUTPUT	WATTAGE[W]	✻1	300	500	500	750
	VOLTAGE[V]	✻2	360			
	VOLTAGE ACCURACY	✻3	±2%			
PROTECTION CIRCUIT AND OTHERS	OVERVOLTAGE PROTECTION[V]		DC400 - 450V The power factor corrector function stops			
	ENA	✻4	Enable signal, Open-drain output, Maximum sink current 10mA, Maximum allowance voltage 35V			
	OTHERS	✻5	Parallel operation impossible , Thermal protection			
ISOLATION	INPUT-OUTPUT		Non isolated			
	INPUT, OUTPUT-FG		AC2,800V 1minute Cutoff current = 10mA, DC500V, 50MΩ min (20±15℃)			
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE		-40 to +100℃ (On aluminum base plate), 20 - 95%RH (Non condensing) (Refer to "Derating") 3,000m (10,000feet) max			
	STORAGE TEMP.,HUMID.AND ALTITUDE		-40 to +100℃, 20 - 95%RH (Non condensing), 9,000m (30,000feet) max			
	VIBRATION		10 - 55Hz, 49.0m/s² (5G), 3minutes period, 60minutes each along X, Y and Z axis			
	IMPACT		196.1m/s² (20G), 11ms, once each along X, Y and Z axis			
SAFETY	AGENCY APPROVALS		UL60950-1, C-UL, EN62368-1 Complies with DEN-AN and IEC62368-1			
	HARMONIC ATTENUATOR		Complies with IEC61000-3-2 ✻6			
OTHERS	CASE SIZE/WEIGHT		58.4×12.7×61mm [2.3×0.5×2.4 inches] (W×H×D) / 100g max			
	COOLING METHOD		Conduction cooling (e.g. heat radiation from the aluminum base plate to the attached heat sink)			

✻1 Refer to "Derating".
✻2 When the input voltage is more than 240V, the output voltage becomes the value proportional to the input voltage.
✻3 The value included the output setting and the line regulation, the load regulation and the temperature regulation. However, the input voltage is less than 240V.
✻4 Refer to the instruction Manual.
✻5 The thermal protection stops the power factor corrector function and the ENA signal.
✻6 Please contact us about class C.

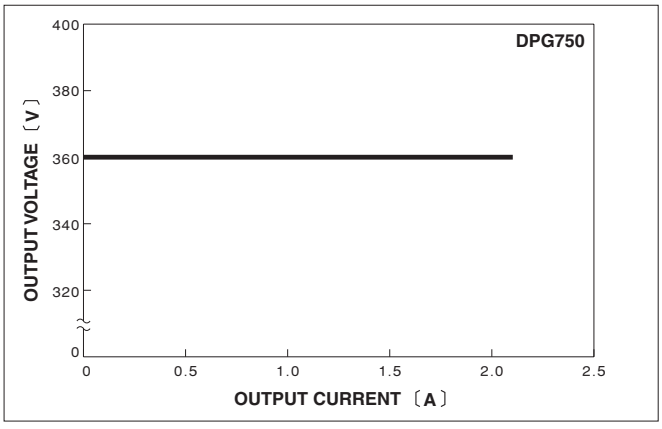
External view



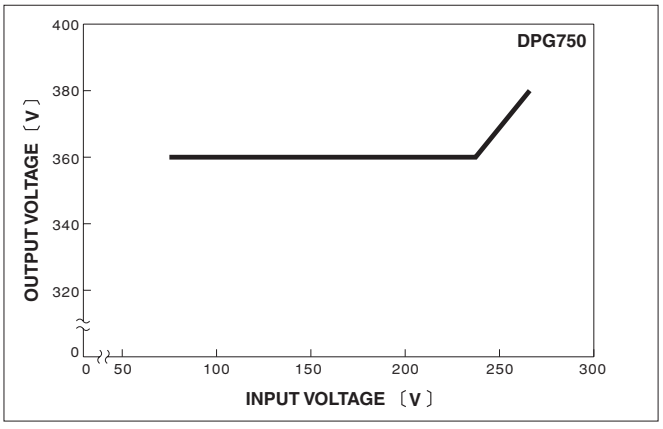
※ Tolerance : ±0.3 [±0.012]
※ Weight : 100g max
※ Dimensions in mm, [ ]=inches
※ Mounting hole screwing torque : 0.49N・m (5.0kgf・cm) max

Performance data

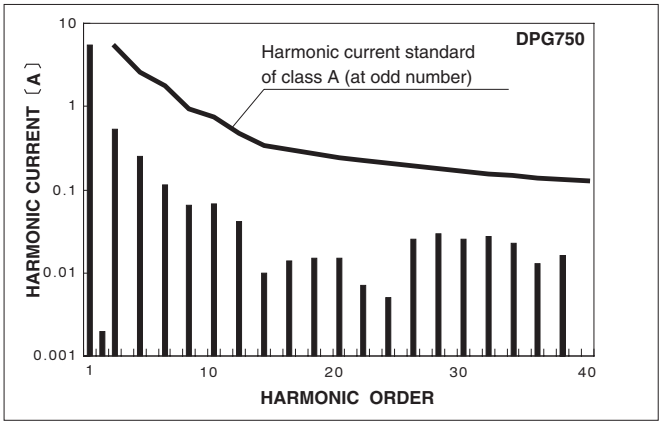
■STATIC CHARACTERISTICS (AC230V)



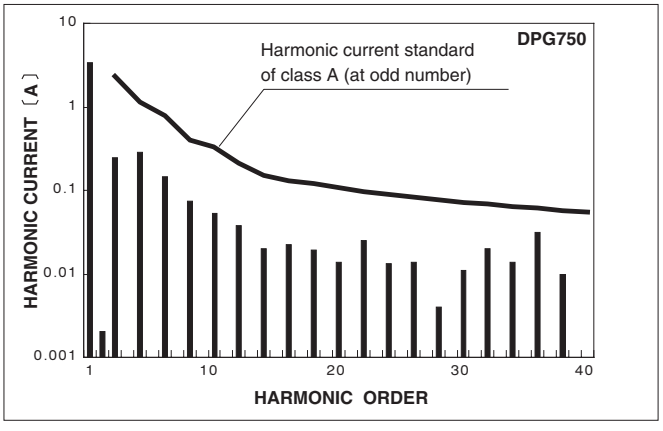
■OUTPUT VOLTAGE FOR INPUT



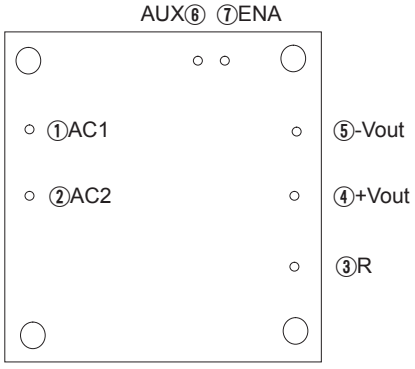
■HARMONIC CURRENT (AC100V)



■HARMONIC CURRENT (AC230V)



Pin Configuration



✻Bottom View

No.	Pin Connection	Function
①	AC1	AC Input
②	AC2	
③	R	External resistor for inrush current protection
④	+VOUT	+DC output
⑤	-VOUT	-DC output
⑥	AUX	Auxiliary power supply for external signal
⑦	ENA	Enable signal

Implementation • Mounting Method

Mounting method

■The unit can be mounted in any direction. When two or more power supplies are used side by side, position them with proper intervals to allow enough air ventilation. Aluminum base plate temperature around each power supply should not exceed the temperature range shown in “Derating”.

■Avoid placing the AC input line pattern lay out underneath the unit, it will increase the line conducted noise. Make sure to leave an ample distance between the line pattern lay out and the unit. Also avoid placing the DC output line pattern of DC-DC converter underneath the unit because it may increase the output noise. Lay out the pattern away from the unit.

■High-frequency noise radiates directly from the unit to the atmo- sphere. Therefore, design the shield pattern on the printed circuit board and connect its one to FG. The shield pattern prevents noise radiation.

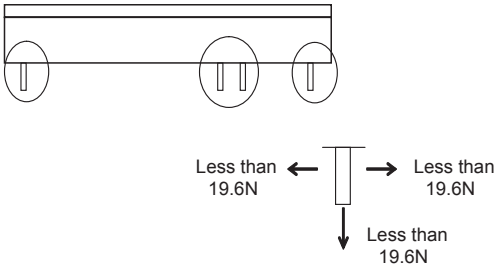
Stress onto the pins

■When too much stress is applied to the pins may damage internal connections. Avoid applying stress in excess of that shown in right figure.

■The pins are soldered onto the internal PCB.
Therefore, Do not bend or pull the leads with excessive force.

■Mounting hole diameter of PCB should be 3.5mm to reduce the stress to the pins.

■Fix the unit on PCB (fixing fittings) by screws to reduce the stress to the pins. Be sure to mount the unit first, then solder the unit.



Soldering

■Flow soldering : 260℃less than 15 seconds.

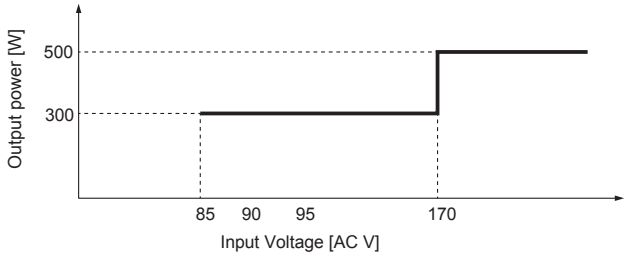
■Soldering iron : 450℃less than 5 seconds.

Derating

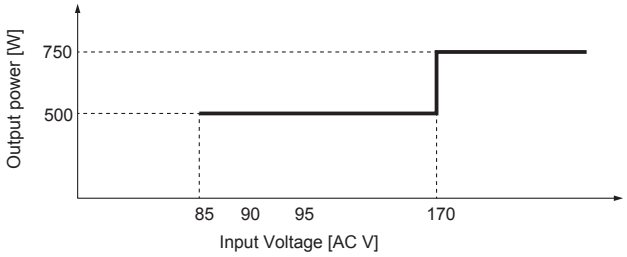
Derating curve for input voltage

■Below shows rated output for each input voltage section. Maximum output should be within this range.

● DPG500



● DPG750

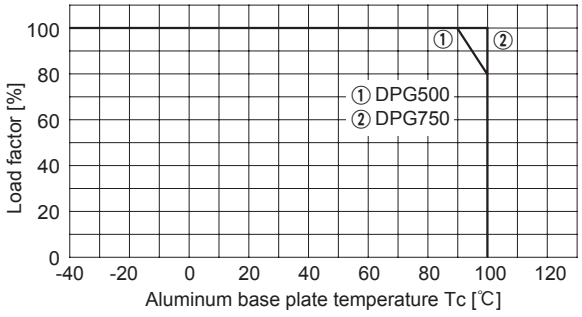


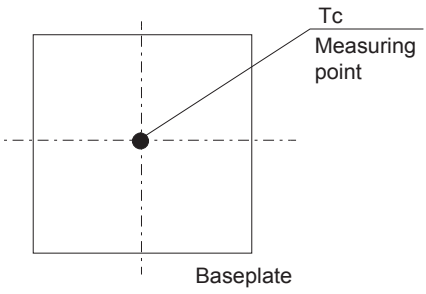
Output voltage derating curve

■Use with the conduction cooling (e.g. heat radiation by conduction from the aluminum base plate to the attached heat sink). Below shows the derating curve based on the aluminum base plate temperature. In the hatched area, the specification of Ripple and Ripple Noise is different from other areas.

■Please measure the temperature on the aluminum base plate edge side when you cannot measure the temperature of the center part of the aluminum base plate. In this case, please take 5deg temperature margin from the derating characteristic of Below.

■It is necessary to note the thermal fatigue life by power cycle. Please reduce the temperature fluctuation range as much as possible when the up and down of the temperature are frequently generated. Contact us for more information on cooling methods.





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/DPG/
Before using our product	https://en.cosel.co.jp/technical/caution/index.html

DPG

NOTICE

Basic Characteristics Data

Model	Circuit method	Switching frequency [kHz]	Inrush current protection	PCB/Pattern			Series/Parallel operation availability	
				Material	Single sided	Double sided	Series operation	Parallel operation
DPG500	Active filter	130	SCR	Aluminum	Yes		No	No
DPG750	Active filter	130	SCR	Aluminum	Yes		No	No