Function generator integrated

Four-quadrant high speed bi-polar power supply

±5 V to ±300 V / 150 W to 2000 W / DC to 30 kHz (max)

DOPF Series

- Waveform generation, sequence operation, various measurements can be performed on a single power supply
- All settings and operations are realized only by operation on the front panel
- Expandable up to 6 kW with master-slave connection

www.matsusada.com
More user-friendly and convenient. DOPF series with function generator is now available.

Our new DOPF series is a four-quadrant, high speed, bi-polar amplifier equipped with a built-in function generator enabling its compact size and fast response. Any waveform can be programmed easily from the front panel and new features including memory setting and protection functions are now available. With its enhanced measurement functions, DOPF is able to measure not only DC and AC values (rms), but also max and min values, eliminating the need for additional measurement devices. Now, many experiments and evaluation tests can be performed using only the DOPF power supply.

Features

- DOP series, which is four-quadrant high speed bi-polar power supply, now available with integrated function generator.
- Waveform with less distortion by DDS method (DC to 30kHz sine wave, square wave, and triangular wave).
- DC and AC output can be programmed individually, making the unit user-friendly with its simple operation.
- External control is available with communication options (USB, Ethernet, RS-232C, and RS-485).
- LCD display uses high contrast white LED backlight for high legibility.

Applications

Driving capacitive loads (capacitors), biasing inductive loads (coils, transformers, etc.), motor testing, power conditioners, solar panels.

This product is not designed for charge and discharge of battery. Please contact nearby sales if unit is used for charge and discharge application.
<table>
<thead>
<tr>
<th>Model</th>
<th>Output voltage V (rms)</th>
<th>Output current A (rms)</th>
<th>Output power W</th>
<th>Frequency response Hz (-3dB)</th>
<th>Weight kg (upper)</th>
<th>Dimensions (P.6, 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOPF5-30</td>
<td>±5V (3.5V)</td>
<td>±30A (21A)</td>
<td>150</td>
<td>DC ~ 20k</td>
<td>17</td>
<td>A</td>
</tr>
<tr>
<td>DOPF5-60</td>
<td>±6V (4.2V)</td>
<td>±60A (42A)</td>
<td>300</td>
<td>DC ~ 20k</td>
<td>23</td>
<td>B</td>
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<tr>
<td>DOPF6-120</td>
<td>±6V (4.2V)</td>
<td>±120A (84A)</td>
<td>720</td>
<td>DC ~ 20k</td>
<td>47</td>
<td>C (Busbar Type)</td>
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<tr>
<td>DOPF10-15</td>
<td>±15A (10.5A)</td>
<td>±30A (21A)</td>
<td>150</td>
<td>DC ~ 20k</td>
<td>11</td>
<td>A</td>
</tr>
<tr>
<td>DOPF10-30</td>
<td>±10V (7V)</td>
<td>±30A (21A)</td>
<td>300</td>
<td>DC ~ 20k</td>
<td>17</td>
<td>A</td>
</tr>
<tr>
<td>DOPF10-60</td>
<td>±60A (42A)</td>
<td>600</td>
<td>DC ~ 20k</td>
<td>23</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>DOPF20-7.5</td>
<td>±7.5 (5.3)</td>
<td>±15 (10.5)</td>
<td>300</td>
<td>DC ~ 20k</td>
<td>17</td>
<td>A</td>
</tr>
<tr>
<td>DOPF20-15</td>
<td>±15 (10.5)</td>
<td>±30 (21)</td>
<td>600</td>
<td>DC ~ 20k</td>
<td>23</td>
<td>A</td>
</tr>
<tr>
<td>DOPF20-60</td>
<td>±100 (70)</td>
<td>±60 (42)</td>
<td>1200</td>
<td>DC ~ 20k</td>
<td>40</td>
<td>C (Terminal board Type)</td>
</tr>
<tr>
<td>DOPF20-100</td>
<td>±100 (70)</td>
<td>±100 (70)</td>
<td>2000</td>
<td>DC ~ 20k</td>
<td>47</td>
<td>C (Busbar Type)</td>
</tr>
<tr>
<td>DOPF25-6</td>
<td>±6 (4.2)</td>
<td>±6 (4.2)</td>
<td>150</td>
<td>DC ~ 30k</td>
<td>11</td>
<td>A</td>
</tr>
<tr>
<td>DOPF25-12</td>
<td>±12 (8.6)</td>
<td>±24 (17.1)</td>
<td>600</td>
<td>DC ~ 30k</td>
<td>17</td>
<td>A</td>
</tr>
<tr>
<td>DOPF25-24</td>
<td>±12 (8.6)</td>
<td>±48 (34)</td>
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<td>DC ~ 20k</td>
<td>23</td>
<td>A</td>
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<tr>
<td>DOPF25-48</td>
<td>±12 (8.6)</td>
<td>±16 (7.6)</td>
<td>720</td>
<td>DC ~ 20k</td>
<td>23</td>
<td>A</td>
</tr>
<tr>
<td>DOPF25-80</td>
<td>±12 (8.6)</td>
<td>±12 (8.6)</td>
<td>720</td>
<td>DC ~ 20k</td>
<td>23</td>
<td>A</td>
</tr>
<tr>
<td>DOPF25-80</td>
<td>±12 (8.6)</td>
<td>±48 (34)</td>
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<td>23</td>
<td>A</td>
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<tr>
<td>DOPF30-40</td>
<td>±30 (21)</td>
<td>±40 (28.6)</td>
<td>1200</td>
<td>DC ~ 20k</td>
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<td>C (Terminal board Type)</td>
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<tr>
<td>DOPF45-3.3</td>
<td>±45 (3.3)</td>
<td>±33 (2.4)</td>
<td>150</td>
<td>DC ~ 20k</td>
<td>12</td>
<td>A</td>
</tr>
<tr>
<td>DOPF45-6.6</td>
<td>±45 (3.3)</td>
<td>±6.6 (4.7)</td>
<td>300</td>
<td>DC ~ 20k</td>
<td>17</td>
<td>A</td>
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<tr>
<td>DOPF45-13.3</td>
<td>±45 (3.3)</td>
<td>±13.3 (9.5)</td>
<td>600</td>
<td>DC ~ 20k</td>
<td>23</td>
<td>A</td>
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<td>DOPF45-16</td>
<td>±45 (3.3)</td>
<td>±16 (11.3)</td>
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<td>DOPF45-26.7</td>
<td>±45 (3.3)</td>
<td>±26.7 (18.9)</td>
<td>1200</td>
<td>DC ~ 20k</td>
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<td>C (Terminal board Type)</td>
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<tr>
<td>DOPF45-44.4</td>
<td>±45 (3.3)</td>
<td>±44.4 (31.4)</td>
<td>2000</td>
<td>DC ~ 20k</td>
<td>47</td>
<td>C (Terminal board Type)</td>
</tr>
<tr>
<td>DOPF65-2.5</td>
<td>±60 (42)</td>
<td>±2.5 (1.75)</td>
<td>150</td>
<td>DC ~ 20k</td>
<td>12</td>
<td>A</td>
</tr>
<tr>
<td>DOPF65-5</td>
<td>±60 (42)</td>
<td>±5 (3.5)</td>
<td>300</td>
<td>DC ~ 20k</td>
<td>17</td>
<td>A</td>
</tr>
<tr>
<td>DOPF65-10</td>
<td>±60 (42)</td>
<td>±10 (7)</td>
<td>600</td>
<td>DC ~ 20k</td>
<td>23</td>
<td>A</td>
</tr>
<tr>
<td>DOPF65-20</td>
<td>±60 (42)</td>
<td>±20 (14)</td>
<td>1200</td>
<td>DC ~ 20k</td>
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<td>C (Terminal board Type)</td>
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<tr>
<td>DOPF65-30</td>
<td>±60 (42)</td>
<td>±33.3 (23.3)</td>
<td>2000</td>
<td>DC ~ 20k</td>
<td>47</td>
<td>C (Terminal board Type)</td>
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<tr>
<td>DOPF70-17</td>
<td>±70 (49)</td>
<td>±17 (12)</td>
<td>1200</td>
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<td>DOPF80-25</td>
<td>±80 (56)</td>
<td>±25 (18)</td>
<td>2000</td>
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<td>C (Terminal board Type)</td>
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<tr>
<td>DOPF120-2.5</td>
<td>±120 (84)</td>
<td>±2.5 (1.75)</td>
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<td>DC ~ 20k</td>
<td>18</td>
<td>A</td>
</tr>
<tr>
<td>DOPF120-5</td>
<td>±120 (84)</td>
<td>±5 (3.56)</td>
<td>600</td>
<td>DC ~ 20k</td>
<td>30</td>
<td>D</td>
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<tr>
<td>DOPF120-10</td>
<td>±120 (84)</td>
<td>±10 (7)</td>
<td>1200</td>
<td>DC ~ 20k</td>
<td>40</td>
<td>C (Terminal board Type)</td>
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<tr>
<td>DOPF150-2</td>
<td>±150 (105)</td>
<td>±2 (1.4)</td>
<td>300</td>
<td>DC ~ 20k</td>
<td>18</td>
<td>A</td>
</tr>
<tr>
<td>DOPF150-4</td>
<td>±150 (105)</td>
<td>±4 (2.8)</td>
<td>600</td>
<td>DC ~ 20k</td>
<td>30</td>
<td>D</td>
</tr>
<tr>
<td>DOPF150-8</td>
<td>±150 (105)</td>
<td>±8 (5.6)</td>
<td>1200</td>
<td>DC ~ 20k</td>
<td>40</td>
<td>C (Terminal board Type)</td>
</tr>
<tr>
<td>DOPF200-1.5</td>
<td>±1.5 (1.05)</td>
<td>±1.5 (1.05)</td>
<td>300</td>
<td>DC ~ 20k</td>
<td>18</td>
<td>A</td>
</tr>
<tr>
<td>DOPF200-1.75</td>
<td>±1.5 (1.05)</td>
<td>±1.75 (1.23)</td>
<td>350</td>
<td>DC ~ 20k</td>
<td>18</td>
<td>A</td>
</tr>
<tr>
<td>DOPF200-3</td>
<td>±1.5 (1.05)</td>
<td>±3 (2.1)</td>
<td>600</td>
<td>DC ~ 20k</td>
<td>30</td>
<td>D</td>
</tr>
<tr>
<td>DOPF200-6</td>
<td>±1.5 (1.05)</td>
<td>±3.5 (2.47)</td>
<td>700</td>
<td>DC ~ 20k</td>
<td>30</td>
<td>C (Terminal board Type)</td>
</tr>
<tr>
<td>DOPF200-10</td>
<td>±1.5 (1.05)</td>
<td>±6 (4.2)</td>
<td>1200</td>
<td>DC ~ 20k</td>
<td>40</td>
<td>C (Terminal board Type)</td>
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<td>DOPF300-1</td>
<td>±300 (210)</td>
<td>±1 (0.7)</td>
<td>300</td>
<td>DC ~ 20k</td>
<td>18</td>
<td>A</td>
</tr>
<tr>
<td>DOPF300-2</td>
<td>±300 (210)</td>
<td>±2 (1.4)</td>
<td>600</td>
<td>DC ~ 20k</td>
<td>30</td>
<td>D</td>
</tr>
<tr>
<td>DOPF300-4</td>
<td>±300 (210)</td>
<td>±4 (2.8)</td>
<td>1200</td>
<td>DC ~ 20k</td>
<td>40</td>
<td>C (Terminal board Type)</td>
</tr>
</tbody>
</table>
Functions

Fundamental wave generated function

The DOPF is equipped with a built-in function generator that produces sine, rectangular, and triangle waves. Frequency range can be set between 0.01 Hz and 20 kHz (30 kHz is available for some models), and easy adjustments of amplitude, initial phase (sine wave), switching / cutoff phase setting (sine wave), and duty cycle (rectangular wave, triangular wave) are possible, making it very convenient for a variety of evaluation tests and applications.

- Initial phase
- Switching phase
- Cutoff phase

Applications
Rush current source for rush current measurement, wave fluctuation test, etc.

Sequence functions *

DOPF is equipped with a sequence function that can program step length, step amplitude, ramp, CV / CC mode, sequence-ending setting, AC superposition, step jump, number of jump, etc. Any desired wave form can be generated making it useful for various experiment, evaluation, and validation applications.

- Setting length: 10 ms to 1999 ms (resolution: 1 ms), Ramp and AC wave form is 50 ms
- Up to 16 steps can be set and saved plus three programs per program
- Can be set CV / CC mode per program
- Frequency: Infinite, 1 to 999

Program image

Complicated wave forms such as below can be easily generated just by using the sequence function.

- Pulse current variation
- Ripple current superposition
- AC voltage / frequency variation
- DC voltage interruption

Applications
Motor testing, pulse power supplies, or various evaluation equipment, etc

* If amplifier’s output cuts off while it is running a sequence program half-way-through, the leftover sequence will not run but it is re-activated from the beginning of the original sequence.
Measurement functions

DOPF is equipped with measurement functions that measure DC value, AC RMS value, Max value, and Min. value. thus Wide frequency ranges, DC to 20 kHz, can be measured automatically, and it is easy to change the setting depending on application.

![Example measurement waveforms]

Memory function

DOPF is equipped with both preset and set-up memory. During fundamental wave operation, output voltage (at CV mode), Output current (at CC mode), CV / CC setting, and waveform setting can be saved to 10 set-up memories. Also, sequence programs can be saved in up to 3 programs. Data changes can be saved and data called out very easily.

DOPF is equipped with a [protection function], [key-lock function], and [CV / CC crossover], as standard options.

Operability

DOPF series has numerous functions, it is user-friendly, and will contribute to minimizing tact time as well as improving efficiency of operation.

1. Power switch
2. Amplitude setting switch
3. Amplitude adjustment rotary encoder
4. Output switch
5. Display
6. Memory switch
7. Wave switch
8. OVP setting switch
9. CV / CC changeover switch
10. Key-lock switch
11. Display switch
12. Frequency setting switch
13. Frequency adjustment rotary encoder
14. External control voltage effective switch

- This has priority over all operations for safety reason.
- DC and AC amplitude changeover (voltage or current)
- It is used as amplitude setting, each setting change, sequence editing
- Turn output ON / OFF
- Display each setting, monitor value
- Call up and save set-up memory
- Fundamental wave changeover
- Set OVP, OCP protection function setting and measurement setting
- CV / CC changeover
- Set key-lock
- Change display
- Change waveform setting (frequency, phase, duty cycle, etc)
- Set wave setting value
- Integrated function generator and external voltage operation changeover
Functions / Dimensions inch (mm)

**Front**

1. Power ON / OFF switch
2. Amp. / Bias setting encoder
3. Amp. / Bias change switch
4. OUTPUT indication LED
5. OUTPUT ON / OFF switch
6. Display
7. Memory setting switch
8. OVP setting switch
9. Key lock indicate LED
10. Key lock switch
11. Waveform change switch
12. CV / CC change switch
13. Display change switch
14. Frequency / Duty change switch
15. Frequency / Duty setting encoder
16. External control voltage indicate LED
17. External control voltage switch
18. External control voltage input terminal
19. Interlock(option)
20. Remote switch ON / OFF (option)
21. Connector for Master-slave (option)
22. Output terminal
23. Output voltage monitor terminal
24. Output current monitor terminal
25. AC Input terminal

**Rear**

**Side**

**Model**

<table>
<thead>
<tr>
<th>Model</th>
<th>H</th>
<th>P1</th>
<th>P2</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 W (except DOPF5-30)</td>
<td>5.24</td>
<td>2.25</td>
<td>3.94</td>
<td>18.98</td>
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<tr>
<td></td>
<td>(133)</td>
<td>(57.15)</td>
<td>(100)</td>
<td>(482)</td>
</tr>
<tr>
<td>DOPF5-30, 300 W</td>
<td>5.24</td>
<td>2.25</td>
<td>3.94</td>
<td>21.85</td>
</tr>
<tr>
<td></td>
<td>(133)</td>
<td>(57.15)</td>
<td>(100)</td>
<td>(550)</td>
</tr>
<tr>
<td>more than 600 W</td>
<td>6.97</td>
<td>4</td>
<td>5.91</td>
<td>24.02</td>
</tr>
<tr>
<td></td>
<td>(177)</td>
<td>(101.6)</td>
<td>(150)</td>
<td>(610)</td>
</tr>
</tbody>
</table>
1. Power ON / OFF switch
2. Amp. / Bias setting encoder
3. Amp. / Bias change switch
4. OUTPUT indication LED
5. OUTPUT ON / OFF switch
6. Display
7. Memory setting switch
8. OVP setting switch
9. Key lock indicate LED
10. Key lock switch
11. Waveform change switch
12. CV / CC change switch
13. Display change switch
14. Frequency / Duty change switch
15. Frequency / Duty setting encoder
16. External control voltage indicate LED
17. External control voltage switch
18. External control voltage input terminal
19. Output terminal
20. Output voltage monitor terminal
21. Output current monitor terminal
22. Remote switch ON / OFF (option)
23. Interlock (option)
24. Connector for Master-slave (option)
25. AC Input terminal
Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Input voltage (±10% AC50/60Hz)</th>
<th>Input current</th>
<th>Recommended breaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 W</td>
<td>AC100 V to 120 V single phase</td>
<td>4 A</td>
<td>115 VAC / 15A</td>
</tr>
<tr>
<td>300 W</td>
<td></td>
<td>7 A</td>
<td>230 VAC / 15A</td>
</tr>
<tr>
<td>600 W</td>
<td>AC200 V to 240 V single phase</td>
<td>7 A</td>
<td>230 VAC / 20 A</td>
</tr>
<tr>
<td>1.2 kW</td>
<td></td>
<td>13 A</td>
<td>230 VAC / 30 A</td>
</tr>
<tr>
<td>2 kW</td>
<td></td>
<td>20 A</td>
<td></td>
</tr>
</tbody>
</table>

Waveform generation function
- Sine wave, Rectangular wave, phase setting (sine wave), duty setting (square wave and triangular wave)
- DC, 10 mHz to 20 kHz (30 kHz)
- Input impedance > 10 kΩ, select effectiveness of external control by a switch
- Output setting range
  - DC: ±100% to +100%
  - AC: 0% to +100%
- Ripple
  - 0.02% ±FS
- Stability
  - 0.016% / Hr typ
- Setting accuracy
  - ±0.5% FS
- Distortion factor
  - CV: 0.05%
  - CC: 0.5%
- Voltage regulation
  - Line: 0.05% (for ±10% input change)
  - Load: 0.05% (for 10% to 100% load change)

Rise time
(Stepping time): The response time is sometimes described by the rise time (as shown in the drawing on the right).
The rise time of an amplifier at response speed (≈ frequency bandwidth) Fc (Hz) is generally acquired by "tr ≈ 0.3 / fc."
Fall time tf is the same as tr.
- Frequency bandwidth:
  - at 30 kHz or lower, tr = tf = around 12 μs
  - at 20 kHz or lower, tr = tf = around 18 μs

Response speed
When accurate output waveforms are required, select an amplifier with a frequency bandwidth, which is higher than the required operating frequency. In the case of using sine waves, 3 to 5 times more frequency bandwidth is required, whereas with square waves, around 10 times more frequency bandwidth is needed. Inadequate bandwidth can cause a decrease in output amplitude and a difference between input and output phases. Operating the product (load) while monitoring the actual output waveforms is recommended.

Capacitive load
Capacitive load may cause oscillation.
In such cases, place a resistor in series with the output.
Be careful to not limit the frequency bandwidth by using a resistor in series that is too large.

Inductive load
Some inductance of inductive load may cause resonance in CC mode.
In such cases, connect a C-R series circuit between output terminals to prevent resonance.
Options

-LGob  Optical interface board *
-LGob : Optical interface board + optical cable 2 m
-LGob(Fc5) : Optical interface board + optical cable 5 m
-LGob(Fc10) : Optical interface board + optical cable 10 m
-LGob(Fc20) : Optical interface board + optical cable 20 m
-LGob(Fc40) : Optical interface board + optical cable 40 m

Optical communication offers insulation control. It is to prevent malfunction such as transient phenomenon by surge, lightning induction, and exogenous noise.

[Control items]
Output ON/OFF, Voltage / Current setting(AC and DC), Switch of Constant Voltage / Constant Current, Frequency setting, Waveform setting(sine wave, square wave, and triangular wave), phase setting(sine wave), Duty setting(square wave and triangular wave)

-LUs1  USB interface board *

Digital control via USB
[Control items]
Output ON/OFF, Voltage / Current setting(AC and DC), Switch of Constant Voltage / Constant Current, Frequency setting, Waveform setting(sine wave, square wave, and triangular wave), phase setting(sine wave), Duty setting(square wave and triangular wave)

-LET  Ethernet interface board *

Digital control via Ethernet
[Control items]
Output ON/OFF, Voltage / Current setting(AC and DC), Switch of Constant Voltage / Constant Current, Frequency setting, Waveform setting(sine wave, square wave, and triangular wave), phase setting(sine wave), Duty setting(square wave and triangular wave)

-LS  Remote switch / output ON / OFF

-LD  Interlock

-LMs()  Master-slave control

-DF  Floating ground(withstanding voltage of 200 Vdc)

The negative terminal of the output can be floatable up to 200 V. However, please take note that external control signal source (such as function wave generator) and the common for the measuring device that connects to amplifier’s monitor terminal will also become floating potential in this case.

-L(220V)

200 VAC to 240 VAC single phase, 50/60 Hz input. (150 W, 300 W and 350 W models only)

Select the -LGob option when using power supply following environmental condition
Factories which has a lot of noise
(ex.) in case of using power supplies and loads near motors and coils.
In case using power supply with high voltage floating(more than 250 V)
The length between power supply and controller unit(3C or PLC) is more than 2-meter

Select the -LUs1 option when using power supply following environmental condition
Factories which has a lot of noise
(ex.) in case of using power supplies and loads near motors and coils.
In case using power supply with high voltage floating(more than 250 V)
The length between power supply and controller unit(3C or PLC) is more than 2-meter

* : These options cannot be selected together. Only one of each can be selected.
Introduction of other bi-polar amplifier

Low voltage type High-speed bi-polar power supplies

**Function generator built-in type**

**DOSF series**
- Output voltage: ±20V to ±60V
- Output power: 150W to 1.2kW
- Frequency bandwidth: DC to maximum 200kHz
- DOSF series can be used for various applications by ultra-fast response and built-in function generator.

**Wide lineup type**

**DOP series**
- Output voltage: ±5V to ±300V
- Output power: 150W to 2kW
- Frequency bandwidth: DC to maximum 30kHz
- The model which is most suitable for your application can be selected from wide lineup.

**Ultra-fast response type**

**DOS series**
- Output voltage: ±20V to ±60V
- Output power: 150W to 1.2kW
- Frequency bandwidth: DC to maximum 200kHz
- Ultra-fast response is achieved in compact size.

**High voltage type**

**DOC series**
- Output voltage: ±500V, ±1000V
- Output power: 50W, 100W
- Frequency bandwidth: DC to maximum 10kHz
- High voltage output (maximum ±1kV) and fast response.

**Function generator built-in type**

**DJOPF series**
- Output voltage: ±10V to ±60V
- Output power: 50W, 60W
- Frequency bandwidth: DC to maximum 30kHz
- DJOPF series has a built-in function generator in its light and compact size of only 140mm width.

**Compact and high power type**

**DHOP series**
- Output voltage: ±20V, ±45V
- Output power: 240W
- Frequency bandwidth: DC to maximum 100kHz
- High power and fast response are achieved in compact half-rack size.
### High voltage type High-speed Amplifier

#### Ultra-high speed type

**AMP series**

<table>
<thead>
<tr>
<th>Output voltage</th>
<th>±40V to ±30kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output power</td>
<td>100W to 1.2kW</td>
</tr>
<tr>
<td>Slew rate</td>
<td>more than 700V/µs, or more than 300V/µs</td>
</tr>
</tbody>
</table>

- Slew rate with actual load is as high as 700V/µs.
- Peak current output of 3 times of rated output current is available.
- Various protections such as over current/voltage protection and output short circuit are available.
- Suitable for Solar battery panel evaluations, Beam deflection, Corona discharge, and so on.

#### Large current / high speed type

**AMPS series**

<table>
<thead>
<tr>
<th>Output voltage</th>
<th>±400V to ±20kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output power</td>
<td>400W to 1.2kW</td>
</tr>
<tr>
<td>Slew rate</td>
<td>400V/µs to 1200V/µs</td>
</tr>
</tbody>
</table>

- Maximum peak current is 4A.
- Frequency bandwidth with actual load is as high as 100kHz.
- Various protections such as over current protection and output short circuit are available.
- It is also possible to measure short circuit current when the output voltage of solar battery is 0V.

#### High speed type

**AMS / AMT series**

<table>
<thead>
<tr>
<th>Output voltage</th>
<th>±600V to ±20kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output power</td>
<td>20W to 100W</td>
</tr>
<tr>
<td>Frequency bandwidth</td>
<td>DC to maximum 100kHz</td>
</tr>
</tbody>
</table>

- Wide lineup of output voltage.
- Quick response as fast as 100kHz enables to output according to input wave forms.
- Various protections such as over current protection, arc and output short circuit are available.
- Suitable for Beam deflection, Corona discharge, Electrophotography process, and so on.

#### Ultra compact type

**AMJ series**

<table>
<thead>
<tr>
<th>Output voltage</th>
<th>±500V to ±4kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output power</td>
<td>20W, 40W</td>
</tr>
<tr>
<td>Frequency bandwidth</td>
<td>DC to maximum 75kHz</td>
</tr>
</tbody>
</table>

- Ultra compact size and fast response.
- Output of any wave forms according to input wave forms is available.
- Various protections such as over current protection, arc and output short circuit are available.
- Suitable for Beam deflection, Corona discharge, Electrophotography process, and so on.

Please contact our sales office for detailed catalog of each models.
Customer Inquiry Sheet (DOPF series)

Please copy this page and above fax number after filling out form below.

I would like

☐ A quotation  ☐ An explanation of product  ☐ A demonstration  ☐ To purchase

☐ Other ( )

Give us your requirement / comment

Please fill in below.

Address:

Company:

Dept.: Title:

Name:

Tel: Fax:

E-mail:

Manufacturer's warranty

We warrant the specifications, unless otherwise specified, at max. rated output after warm up, and scope of application is between 10% and 100% of max. rated output. We warrant that products contained in this catalog (hereinafter, the “Products”) are free from defects in material and workmanship under normal use for a period of one (1) year from the date of shipment thereof. However, the warranty period for X-ray detectors and X-ray source shall be either one (1) year from the date of shipment or 1,000 hours, whichever shorter. The above warranty shall not apply to any Product which, at our sole judgment, has been: i) Repaired or altered by persons unauthorized by us; or ii) Connected, installed, adjusted or used otherwise than in accordance with the instructions furnished by us (including being used in an inappropriate installation environment, such as in corrosive gas, high temperature and humidity). We are not liable for any loss, damage or failure of the Products after the shipment thereof caused by external factors such as disasters. We will not inspect, adjust or repair any of our power supply products in the field or at any customer site. If you suspect that there has been a power supply failure in the field, please inspect your whole unit by yourself in an effort to determine that the problem is, in fact, arising out of our power supply products. If it is found that the problem is arising out of such power supply product after inspection, please contact your local sales office for additional troubleshooting. A “Return Merchandise Authorization” is required in case the power supply must be sent back to the factory in Japan for inspection and repair. We, at our sole discretion repair or replace such defective products at no cost to the purchaser. We assume no liability to the purchaser or any third party for special, incidental, consequential, or other damages resulting from a breach of the foregoing warranty. This warranty excludes any and all other warranties not set forth herein, express or implied, including without limitation the implied warranties of merchantability or fitness for a particular purpose. The Products are not designed and produced for such applications as requiring extremely high reliability and safety, or involving human lives (such as nuclear power, aerospace, social infrastructure facility, medical equipment, etc.). The use under such environment is not covered by this warranty and may require additional design and manufacturing processes. No modification or supplement of this warranty shall be binding unless in writing and signed by a duly authorized officer of Matsusada. Matsusada reserves the right to make any changes in the contents of catalogs or specifications at any time without advance notice. Due to compelling reason such as unavailability of components used, products might be un available or unable to repair. The products specified in catalogs or specifications are designed for use by the person who has enough expertise or under the control of such person, and not for general consumers. Schematics of products shall not be submitted to users. Test result or test data for the products shall be available upon request with charge.

Make sure you read the specification in the latest catalog before you order. Contact nearby sales office for the latest catalog.

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