



## BP+ RANGE



## FEATURES

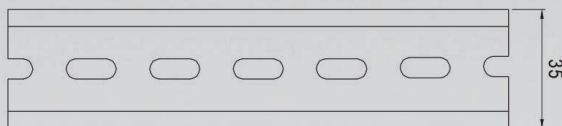
- Economic version
- Protections: Short circuit, overload, overvoltage, over temperature and reverse power (**diode integrated**)
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or TS-35/15
- LED indicator for power on
- 100% full load burn-in test
- 3 years warranty

|              |  | BP+ 0512M   | BP+ 0324M   | BP+ 1012M                           | BP+ 0524M                |
|--------------|--|---|---|-------------------------------------|--------------------------|
| OUTPUT       | DC VOLTAGE   | 12 V  | 24V   | 12V                                 | 24V                      |
|              | RATED CURRENT  | 5A  | 3A  | 10A                                 | 5A                       |
|              | CURRENT RANGE  | 0 ~ 5A  | 0 ~ 3A  | 0 ~ 10A                             | 0 ~ 5A                   |
|              | RATED POWER  | 60 W  | 60 W  | 120 W                               | 120 W                    |
|              | RIPPLE & NOISE (Max.)  | 100mVp-p  | 120mVp-p  | 100mVp-p                            | 120mVp-p                 |
|              | VOLTAGE ADJ. RANGE (by default)  | 12 ~ 14 V (13.2V)   | 24 ~ 28 V (26.4V)                                 | 12 ~ 14 V (13.2V)                   | 24 ~ 28 V (26.4V)        |
|              | LINE REGULATION  | (+/-) 0.5%  |   |                                     |                          |
|              | LOAD REGULATION  | (+/-) 1.0%  |   |                                     |                          |
|              | SETUP, RISE TIME   | 1500ms, 60ms/230V <sub>AC</sub> 3000ms, 60ms/115V <sub>AC</sub> at full load  |   |                                     |                          |
|              | HOLD UP TIME (Typ.)  | 16ms/230V <sub>AC</sub> 12ms/115V <sub>AC</sub> at full load  |   |                                     |                          |
|              | INFORMATION  | Please adjust output voltage required with the potentiometer according to the battery charger                                   |   |                                     |                          |
| INPUT        | VOLTAGE RANGE  | 90 ~ 264V <sub>AC</sub> 127 ~ 370V <sub>DC</sub>  |   |                                     |                          |
|              | FREQUENCY RANGE  | 47 ~ 63Hz   |   |                                     |                          |
|              | EFFICIENCY (Typ.)  | 83%   | 87%   | 84%                                 | 87%                      |
|              | AC CURRENT (Typ.)  | 1.6A/115V <sub>AC</sub> / 0.9A/230V <sub>AC</sub>   | 1.6A/115V <sub>AC</sub> / 0.9A/230V <sub>AC</sub> | 2.65A/115V <sub>AC</sub>            | 1.45A/115V <sub>AC</sub> |
|              | INRUSH CURRENT (Typ.)  | 20A/115V <sub>AC</sub> 35A/230V <sub>AC</sub>   |   |                                     |                          |
|              | LEAKAGE CURRENT  | <1mA / 240V <sub>AC</sub>   |   |                                     |                          |
| PROTECTION   | OVERLOAD   | 105 ~ 130% rated output power<br>Protection type: constant current limiting with auto-recovery after fault condition is removed |   |                                     |                          |
|              | OVER VOLTAGE   | 14 - 17V  | 29 - 33V  | 14 - 17V                            | 29 - 33V                 |
|              | Protection type : shut down o/p voltage, re-power on to recover  |   |   |                                     |                          |
|              | OVER TEMPERATURE   | 110°C (+/- 5°C) Protection type : shut down o/p voltage, re-power on to recover   |   |                                     |                          |
| ENVIRONMENT  | WORKING TEMPERATURE  | (-)20 ~ (+)70°C (Refer to output load derating curve)   |   |                                     |                          |
|              | WORKING HUMIDITY   | 20 ~ 95% RH non condensing  |   |                                     |                          |
|              | STORAGE TEMP, HUMIDITY   | (-)40 ~ (+)85°C, 10 ~ 95% RH  |   |                                     |                          |
|              | TEMP. COEFFICIENT  | (+/-)0.03%/°C (0 ~ 50°C)  |   |                                     |                          |
|              | VIBRATION  | Component: 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes ; Mounting : Compliance with IEC60068-2-6    |   |                                     |                          |
| SAFETY & EMC | WITHSTAND VOLTAGE  | I/P-O/P:3KV <sub>AC</sub> I/P-FG:1.5KV <sub>AC</sub> O/P-FG:0.5KV <sub>AC</sub>   |   |                                     |                          |
|              | ISOLATION RESISTANCE   | I/P-O/P, I/P-FG, O/P-FG:>100M Ohm / 500V <sub>DC</sub> / 25°C / 70% RH  |   |                                     |                          |
|              | EMI CONDUCTION & RADIATION   | Compliance with EN55011, EN55022 (CISPR22), EN61204-3 Class B   |   |                                     |                          |
|              | HARMONIC CURRENT   | Compliance with EN61000-3-2,-3  |   |                                     |                          |
|              | EMI IMMUNITY   | Compliance with EN61000-4-2, 3, 4, 5, 6, 8, 11, ENV50204, EN55024, EN61000-6-2, EN61204-3, heavy industry level, criteria A     |   |                                     |                          |
| OTHERS       | MTBF   | 486Khrs min    MIL-HDBK-217F (25°C)   |   | 456Khrs min    MIL-HDBK-217F (25°C) |                          |
|              | DIMENSION (W x H x D)  | 32 x 125.2 x 102mm  | 32 x 125.2 x 102mm                                | 40 x 125.2 x 113.5mm                | 40 x 125.2 x 113.5mm     |
|              | PACKING  | 0.51kg  | 0.51kg  | 0.57kg                              | 0.57kg                   |
| NOTES        | All parameters NOT specially mentioned are measured at 400V <sub>AC</sub> input, rated load and 25°C of ambient temperature.   |   |   |                                     |                          |
|              | Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair wire terminated with a 0.1 uf & 47 uf parallel capacitor.  |   |   |                                     |                          |
|              | The battery charger is considered a component which will be installed into final equipment. The final equipment must be re-confirmed that it still meets EMC directives  |   |   |                                     |                          |
|              | Installation clearances: 40mm on top, 20mm on bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended. |   |   |                                     |                          |
|              | Derating may be needed under low input voltage and extreme temperature. For 115V, please check the derating curve.   |   |   |                                     |                          |

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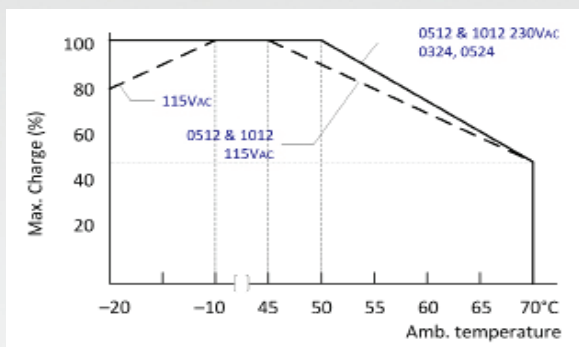
## MECHANICAL SPECIFICATIONS



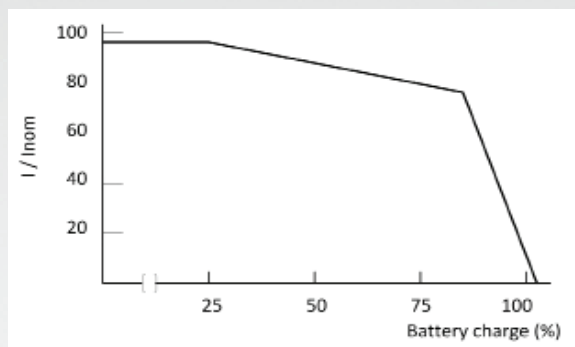
ADMISSIBLE DIN-RAIL: TS35/7.5 OR TS35/15



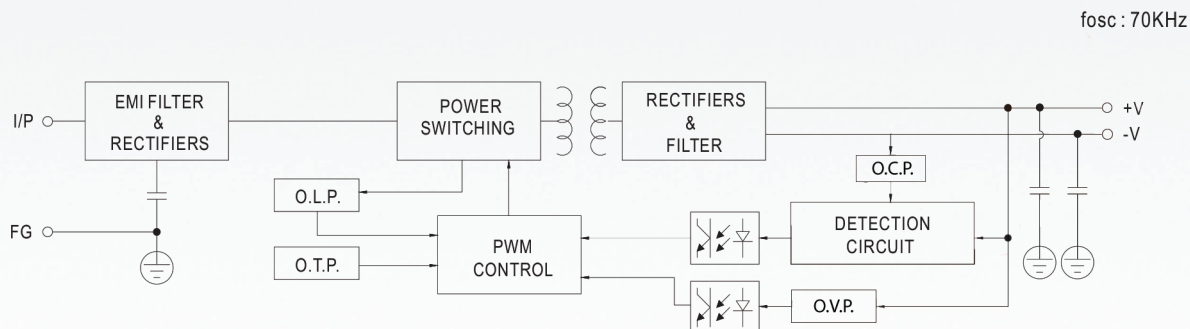
## DERATING CURVE/TEMPERATURE



## BATTERY CHARGE CURVE



## BLOCK DIAGRAM



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