



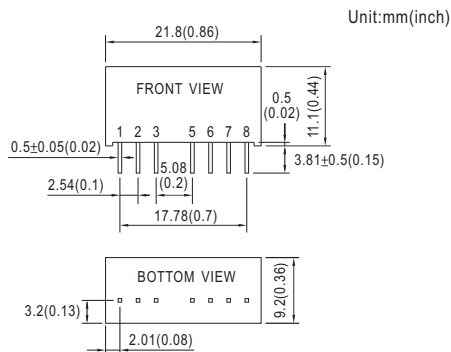
- Features :
 - 2:1 wide input range
 - 4:1 wide input range (Option)
 - 1000VDC I/O isolation
 - 3000VDC I/O isolation (Option)
 - Built-in remote ON/OFF control
 - Built-in EMI filter
 - Protections: Short circuit / Overload
 - Cooling by free air convection
 - Single in line package
 - 100% full load burn-in test
 - Low cost / High reliability
 - Modified models available: output 3.3V/9V
 - 2 years warranty



SPECIFICATION

| ORDER NO. | SPA02E-05 | SPA02A-05 | SPA02B-05 | SPA02C-05 | SPA02E-12 | SPA02A-12 | SPA02B-12 | SPA02C-12 | SPA02E-15 | SPA02A-15 | SPA02B-15 | SPA02C-15 | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|---|-----------|-----------|------------------|---|-----------|-----------|-----------|--|-----------|------------|-----------|------------|--|------------|--|-----|--|-----|--|-----|--|-----|--|-----|--|-----|--|-----|--|-----|--|
| OUTPUT | DC VOLTAGE | | | | 5V | | | | 12V | | | | 15V | | | | | | | | | | | | | | | | | | | |
| | CURRENT RANGE | | | | 40 ~ 400mA | | | | 15 ~ 150mA | | 17 ~ 167mA | | 12 ~ 120mA | | 13 ~ 133mA | | | | | | | | | | | | | | | | | |
| | RATED POWER | | | | 2W | | | | 1.8W | | 2W | | 1.8W | | 2W | | | | | | | | | | | | | | | | | |
| | RIPPLE & NOISE (max.) Note.2 | | | | 60mVp-p | | | | 60mVp-p | | | | 60mVp-p | | | | | | | | | | | | | | | | | | | |
| | LINE REGULATION Note.3 | | | | ±0.5% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | LOAD REGULATION Note.4 | | | | ±0.5% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | VOLTAGE ACCURACY | | | | ±2.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SWITCHING FREQUENCY | | | | 100KHz min. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| INPUT | VOLTAGE RANGE | | | | E: 4.5 ~ 9VDC A: 9 ~ 18VDC B: 18 ~ 36VDC C: 36 ~ 72VDC | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | EFFICIENCY (Typ.) | | | | 71% | | | | 76% | | 76% | | 74% | | 74% | | 80% | | 80% | | 82% | | 76% | | 80% | | 80% | | 80% | | 78% | |
| | DC CURRENT | | | | Full load | | | | E: 600mA | | A: 225mA | | B: 115mA | | C: 60mA | | | | | | | | | | | | | | | | | |
| | DC CURRENT | | | | No load | | | | E: 50mA | | A: 25mA | | B: 15mA | | C: 8mA | | | | | | | | | | | | | | | | | |
| | FILTER | | | | Pi network | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PROTECTION | | | | Fuse recommended | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PROTECTION (Note. 5) | OVERLOAD | | | | 150 ~ 250% rated output power | | | | Protection type : Hiccup mode, recovers automatically after fault condition is removed | | | | | | | | | | | | | | | | | | | | | | | |
| | SHORT CIRCUIT | | | | All output equipped with short circuit | | | | Protection type : Hiccup mode, recovers automatically after fault condition is removed | | | | | | | | | | | | | | | | | | | | | | | |
| ENVIRONMENT | WORKING TEMP. | | | | -40 ~ +85°C (Refer to output load derating curve) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | WORKING HUMIDITY | | | | 20% ~ 90% RH non-condensing | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | STORAGE TEMP., HUMIDITY | | | | -40 ~ +105°C, 10 ~ 95% RH | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | TEMP. COEFFICIENT | | | | ±0.05% / °C (0 ~ 50°C) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | VIBRATION | | | | 10 ~ 500Hz, 2G 10min./1 cycle, period for 60min. each along X, Y, Z axes | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SAFETY | WITHSTAND VOLTAGE | | | | I/P-O/P:1KVDC | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ISOLATION RESISTANCE | | | | I/P-O/P: 100M Ohms / 500VDC / 25°C / 70% RH | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ISOLATION CAPACITANCE | | | | 80pF max. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | EMC EMISSION | | | | Compliance to EN55022 Class B, FCC part 15 Class B | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | EMC IMMUNITY | | | | Compliance to EN61000-4-2,3,4,5,6,8 light industry level, criteria A | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OTHERS | REMOTE CONTROL | | | | Power ON : R.C. ~ +Vin < 1VDC or open ; Power OFF : R.C. ~ +Vin > 4VDC or short | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MTBF | | | | 600Khrs min. MIL-HDBK-217F(25°C) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | DIMENSION | | | | 21.8*9.2*11.1mm or 0.86**0.36**0.44" inch (L*W*H) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | WEIGHT | | | | 4.8g | | | | | | | | | | | | | | | | | | | | | | | | | | | |

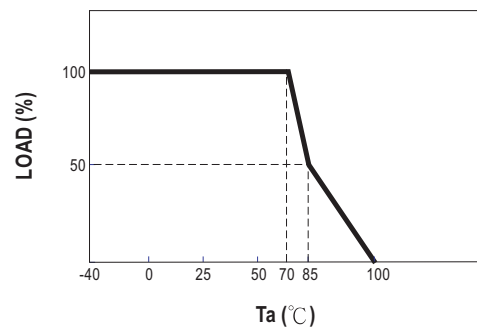
■ Mechanical Specification



■ Pin Configuration

| Pin No. | Output |
|---------|--------|
| 1 | -Vin |
| 2 | +Vin |
| 3 | R.C. |
| 5 | N.C. |
| 6 | +Vout |
| 7 | -Vout |
| 8 | N.C. |

■ Derating Curve



NOTE

- 1.All parameters are specified at normal input, rated load, 25°C 70% RH ambient.
- 2.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1uf & 47uf capacitor.
- 3.Line regulation is measured from low line to high line at rated load.
- 4.Load regulation is measured from 10% to 100% rated load.
- 5.Please prevent the converter from operating in overload or short circuit condition for more than 30 seconds.