

DZH05-25 Series

5-25W AC/DC Converter



Features

- Universal input range:85~264VAC, 50/60Hz
- Regulated output, low ripple and noise
- Efficiency up to 85%
- Over-current, short circuit and over-voltage protection
- Plastic case, meets UL94V-0
- Meet UL60950,EN60950 standards
- PCB mounting, Chassis mounting, DIN-Rail mounting

DZH series a compact size power converter offered by ZimTec Electronics. It features universal input voltage, taking both DC and AC input voltage, low power consumption, high efficiency, high reliability, safer isolation. It offers good EMC performance, which meet IEC/EN61000-4, CISPR22/EN55022, UI60950 and En60950 standards, and it's widely used in industrial, office and civil applications. For harsh EMC environment, the application circuit in the datasheet is strongly recommended.

SELECTION GUIDE

| Certification | Part No.* | Output Power | Nominal Output Voltage and Current | | Efficiency (230VAC, %/Typ.) | Max. Capacitive Load(μF) | |
|---------------|------------------|--------------|------------------------------------|------------|-----------------------------|--------------------------|------|
| | | | (Vo1/Io1) | (Vo2/Io2) | | Vo1 | Vo2 |
| UL/CE | DZH05-10B03 | 4W | 3,3V/1250mA | - | 70 | 8100 | - |
| | DZH05-10B05 | | 5V/1000mA | - | 75 | 6800 | - |
| | DZH05-10B09 | | 9V/550mA | - | 77 | 1200 | - |
| | DZH05-10B12 | | 12V/420mA | - | 79 | 1000 | - |
| | DZH05-10B15 | | 15V/330mA | - | 80 | 680 | - |
| | DZH05-10B24 | | 24V/230mA | - | 82 | 270 | - |
| - | DZH05-10A05 | 5W | +5V/500mA | -5V/500mA | 75 | 1480 | 1480 |
| | DZH05-10A12 | | +12V/210mA | -12V/210mA | 79 | 130 | 130 |
| | DZH05-10A15 | | +15V/160mA | -15V/160mA | 79 | 110 | 110 |
| | DZH05-10A24 | | +24V/100mA | -24V/100mA | 80 | 16 | 16 |
| | DZH05-10C0505-01 | | 5V/800mA | ±5V/100mA | 70 | 2400 | 2400 |
| | DZH05-10C0512-01 | | 5V/600mA | ±12V/100mA | 73 | 1600 | 1600 |
| | DZH05-10C0515-01 | | 5V/600mA | ±15V/80mA | 74 | 1760 | 1760 |
| | DZH05-10C0524-01 | | 5V/600mA | ±24V/50mA | 75 | 1170 | 1170 |
| | DZH05-10D0505-01 | | 5V/900mA | 5V/800mA | 71 | 3360 | 3360 |
| | DZH05-10D0512-01 | | 5V/750mA | 12V/400mA | 73 | 370 | 370 |
| | DZH05-10D0515-01 | | 5V/7000mA | 15V/300mA | 73 | 8800 | 8800 |
| | DZH05-10D0524-01 | | 5V/600mA | 24V/200mA | 75 | 3000 | 3000 |
| UL/CE | DZH05-10B03 | 6,6W | 3,3V/2000mA | - | 70 | 26400 | - |
| | DZH05-10B05 | 10W | 5V/2000mA | - | 76 | 9440 | - |
| | DZH05-10B09 | | 9V/1100mA | - | 78 | 3600 | - |
| | DZH05-10B12 | | 12V/900mA | - | 80 | 2400 | - |
| | DZH05-10B15 | | 15V/700mA | - | 81 | 1170 | - |
| | DZH05-10B24 | | 24V/450mA | - | 82 | 370 | - |
| | DZH05-10A05 | | +5V/1000mA | -5V/1000mA | 76 | 8800 | 8800 |

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SELECTION GUIDE

| Certification | Part No.* | Output Power | Nominal Output Voltage and Current | | Efficiency (230VAC, %/Typ.) | Max. Capacitive Load(μF) | | |
|---------------|------------------|--------------|------------------------------------|-------------|-----------------------------|--------------------------|-------|------|
| | | | (Vo1/Io1) | (Vo2/Io2) | | Vo1 | Vo2 | |
| UL/CE | DZH10-10A12 | 10W | +12V/450mA | -12V/450mA | 80 | 1970 | 1970 | |
| | DZH10-10A15 | | +15V/350mA | -15V/350mA | 81 | 1970 | 1970 | |
| | DZH10-10A24 | | +24V/200mA | -24V/200mA | 84 | 660 | 660 | |
| - | DZH10-10C0512-02 | | 5V/1000mA | ±12V/200mA | 75 | 3200 | 260 | |
| | DZH10-10C0515-02 | | 5V/900mA | ±15V/200mA | 75 | 2160 | 80 | |
| UL/CE | DZH10-10D0505-02 | | 9.9W | 5V/1800mA | 5V/200mA | 75 | 8000 | 540 |
| | DZH10-10D0512-02 | | | 5V/1500mA | 12V/200mA | 79 | 4400 | 260 |
| | DZH10-10D0515-02 | | | 5V/1400mA | 15V/200mA | 79 | 4400 | 170 |
| | DZH10-10D0524-02 | | | 5V/1000mA | 24V/200mA | 81 | 4000 | 170 |
| | DZH15-10B03 | | | 3,3V/3000mA | - | 73 | 72000 | - |
| | DZH15-10B05 | 5V/2800mA | - | 76 | 44800 | - | | |
| | DZH15-10B09 | 9V/1600mA | - | 78 | 13760 | - | | |
| | DZH15-10B12 | 12V/1250mA | - | 80 | 5200 | - | | |
| | DZH15-10B15 | 15V/1000mA | - | 80 | 5120 | - | | |
| | DZH15-10B24 | 24V/625mA | - | 84 | 880 | - | | |
| - | DZH15-10B48 | 15W | 48V/320mA | - | 85 | 370 | - | |
| | DZH15-10A05 | | ±5V/1500mA | -5V/1500mA | 76 | 12800 | 12800 | |
| | DZH15-10A12 | | ±12V/650mA | -12V/650mA | 81 | 2350 | 2350 | |
| | DZH15-10A15 | | ±15V/500mA | -15V/500mA | 83 | 3120 | 3120 | |
| | DZH15-10A24 | | ±24V/310mA | -24V/310mA | 83 | 400 | 400 | |
| | DZH15-10C0505-05 | | 5V/2000mA | ±5V/500mA | 75 | 10800 | 2160 | |
| | DZH15-10C0512-02 | | 5V/2000mA | ±12V/200mA | 77 | 17280 | 2160 | |
| | DZH15-10C0515-02 | | 5V/1800mA | ±15V/200mA | 78 | 5920 | 370 | |
| | DZH15-10C0524-01 | | 5V/2000mA | ±24V/100mA | 78 | 1600 | 130 | |
| | DZH15-10D0505-08 | | 5V/2200mA | 5V/800mA | 76 | 10800 | 2960 | |
| | DZH15-10D0512-04 | | 5V/2000mA | 12V/400mA | 80 | 8640 | 1200 | |
| | DZH15-10D0515-03 | | 5V/2000mA | 15V/300mA | 80 | 6480 | 800 | |
| | DZH15-10D0524-02 | | 5V/2000mA | 24V/200mA | 81 | 12900 | 800 | |
| UL/CE | DZH20-10B03 | 13.53W | 3.3V/4100mA | - | 73 | 48000 | - | |
| | DZH20-10B05 | 20W | 5V/3500mA | - | 75 | 12240 | - | |
| | DZH20-10B09 | | 9V/2100mA | - | 77 | 7200 | - | |
| | DZH20-10B12 | | 12V/1600mA | - | 81 | 5400 | - | |
| | DZH20-10B15 | | 15V/1300mA | - | 83 | 2720 | - | |
| | DZH20-10B24 | | 24V/850mA | - | 85 | 1840 | - | |
| | DZH20-10B48 | | 48V/420mA | - | 85 | 500 | - | |
| - | DZH20-10A05 | | 20W | +5V/2000mA | -5V/2000mA | 75 | 8000 | 8000 |
| | DZH20-10A12 | +12V/830mA | | -12V/830mA | 82 | 960 | 960 | |
| | DZH20-10A15 | +15V/650mA | | -15V/650mA | 83 | 880 | 880 | |
| | DZH20-10C0505-05 | 5V/2500mA | | ±5V/500mA | 74 | 11200 | 4480 | |
| | DZH20-10C0512-04 | 5V/2000mA | | ±12V/400mA | 75 | 16000 | 1600 | |
| | DZH20-10C0515-03 | 5V/2000mA | | ±15V/300mA | 76 | 13520 | 370 | |
| | DZH20-10C0524-02 | 5V/2000mA | | ±24V/200mA | 77 | 11200 | 370 | |
| | DZH20-10D0512-06 | 5V/2500mA | | 12V/600mA | 75 | 32400 | 3250 | |
| | DZH20-10D0515-05 | 5V/2500mA | | 15V/500mA | 76 | 28000 | 1980 | |
| | DZH20-10D0524-03 | 5V/2500mA | | 24V/300mA | 77 | 28000 | 720 | |
| UL/CE | DZH25-10B03 | 13.53W | 3.3V/2500mA | - | 73 | 48000 | - | |

The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to: info@zimtec-electronics.de

SELECTION GUIDE

| Certification | Part No.* | Output Power | Nominal Output Voltage and Current | | Efficiency (230VAC, %/Typ.) | Max. Capacitive Load(μF) | |
|---------------|-------------|--------------|------------------------------------|-----------|-----------------------------|--------------------------|-----|
| | | | (Vo1/Io1) | (Vo2/Io2) | | Vo1 | Vo2 |
| UL/CE | DZH25-10B05 | 25W | 5V/4100mA | – | 74 | 12240 | – |
| | DZH25-10B09 | | 9V/2500mA | – | 78 | 5600 | – |
| | DZH25-10B12 | | 12V/2100mA | – | 82 | 5400 | – |
| | DZH25-10B15 | | 15V/1600mA | – | 83 | 2400 | – |
| | DZH25-10B24 | | 24V/1100mA | – | 85 | 1440 | – |
| | DZH25-10B48 | | 48V/500mA | – | 87 | 500 | – |

Note: *About DZH05-10AXX, we use Vo2 as sampling feedback; DZH10/15/20-10AXX, use both positive and negative output as sampling feedback; and all others use Vo1 as sampling feedback.

INPUT SPECIFICATIONS

| Item | Operating Conditions | | Min. | Typ. | Max. | Unit |
|--|----------------------|---------------------|----------------------------|------|-------|------|
| Input Voltage Range | AC input | | 87 | – | 264 | VAC |
| | DC input | | 120 | – | 370 | VDC |
| Input frequency | | | 47 | – | 63 | Hz |
| Input current | 115VAC | DZH05 models | – | – | 0.125 | A |
| | | DZH10 models | – | – | 0.26 | |
| | | DZH15 models | – | – | 0.37 | |
| | | DZH20models | – | – | 0.6 | |
| | | DZH25 models | – | – | 0.6 | |
| | 230VAC | DZH05 models | – | – | 0.08 | |
| | | DZH10 models | – | – | 0.16 | |
| | | DZH15 models | – | – | 0.22 | |
| | | DZH20models | – | – | 0.34 | |
| | | DZH25 models | – | – | 0.34 | |
| Inrush current | 115VAC | DZH05 models | – | 10 | – | |
| | | DZH10 models | – | 10 | – | |
| | | DZH20 models | – | 10 | – | |
| | | DZH20/ DZH25 models | – | 16 | – | |
| | 230VAC | DZH05 models | – | 20 | – | |
| | | DZH10 models | – | 20 | – | |
| | | DZH15 models | – | 20 | – | |
| | | DZH20/ DZH25 models | – | 30 | – | |
| Leakage current | | | 0.3mA RMS typ./230VAC/50Hz | | | |
| Recommended External Input Fuse(Special package series include fuse) | DZH05 models | | 1A/250V, slow fusing | | | |
| | DZH10/DZH15 models | | 2A/250V, slow fusing | | | |
| | DZH20/ DZH25 models | | 3.15A/250V, slow fusing | | | |
| Hot Plug | | | Unavailable | | | |

OUTPUT SPECIFICATIONS

| Item | Operating Conditions | | Min. | Typ. | Max. | Unit | |
|-------------------------|----------------------|--|-------------------|------|------|------|---|
| Output Voltage Accuracy | Main circuit | | – | ±2 | – | % | |
| Line Regulation | Full load | Main circuit | – | ±0,5 | – | | |
| | | Auxiliary circuit | – | ±1,5 | – | | |
| Load Regulation | 10%-100% load | Single output | | – | ±1 | | – |
| | | Dual output(balanced load) | | – | ±2 | | – |
| | | Isolated triple output (balanced load) | Main circuit | – | ±3 | | – |
| | | | Auxiliary circuit | – | ±5 | – | |

The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to: info@zimtec-electronics.de

| | | | | | | | |
|--|--|--|-------------------|----------|-------|-----|------|
| | | Isolated and separated twin output (balanced load) | Main circuit | - | ±3 | - | |
| | | | Auxiliary circuit | - | ±5 | - | |
| Ripple & Noise* | 20MHz bandwidth (peak-peak value) | | | | 50 | 150 | mV |
| Temperature Coefficient | Main circuit | | | | ±0.02 | - | %/°C |
| Short Circuit Protection | Continuous, self-recovery | | | | | | |
| Over-current Protection | ≥110%Io self-recovery | | | | | | |
| Over-voltage Protection | Main circuit | 3.3 / 5VDC Output | | ≤ 7.5VDC | | | |
| | | 9VDC Output | | ≤ 13VDC | | | |
| | | 12 / 15VDC Output | | ≤ 20VDC | | | |
| | | 24VDC Output | | ≤ 30VDC | | | |
| | | 48VDC Output | | ≤ 60VDC | | | |
| Min. Load | Single output models | | 0 | - | - | % | |
| | Dual output models (balanced load) | | 10 | - | - | | |
| | Isolated and separated twin output (balanced load) | | 10 | - | - | | |
| | Isolated triple output (balanced load) | | 10 | - | - | | |
| Hold-up Time | 115VAC input | | - | 15 | - | ms | |
| | 230VAC input | | - | 80 | - | | |
| Note: * Ripple and noise are measured by "parallel cable" method, please see AC-DC Converter Application Notes for specific operation. | | | | | | | |

GENERAL SPECIFICATIONS

| Item | Operating Conditions | | Min. | Typ. | Max. | Unit |
|-----------------------|--------------------------------|-----------------|---------------------|------|------|------|
| Isolation Voltage | Input-output | Test time: 1min | 3000 | - | - | VAC |
| Operating Temperature | | | -25 | - | +70 | °C |
| Storage Temperature | | | -25 | - | +105 | |
| Storage Humidity | | | - | - | 95 | %RH |
| Welding Temperature | Wave-soldering | | 260±5°C; time:5~10s | | | |
| | Manual-welding | | 360±10°C; time:3~5s | | | |
| Switching Frequency | DZH05-10B/D series | | - | - | 140 | kHz |
| | Other series | | - | 65 | - | |
| Power Derating | -25°C~-10°C | | 2.5 | - | - | %/°C |
| | 55°C~+70°C | | 3.75 | - | - | |
| Safety Standard | IEC60950/EN60950/UL60950 | | | | | |
| Safety Certification | EN60950/UL60950 | | | | | |
| Safety Class | DZH15-10BXX | | CLASS II | | | |
| | Other series | | CLASS I | | | |
| MTBF | MIL-HDBK-217F@25°C > 300,000 h | | | | | |

PHYSICAL SPECIFICATIONS

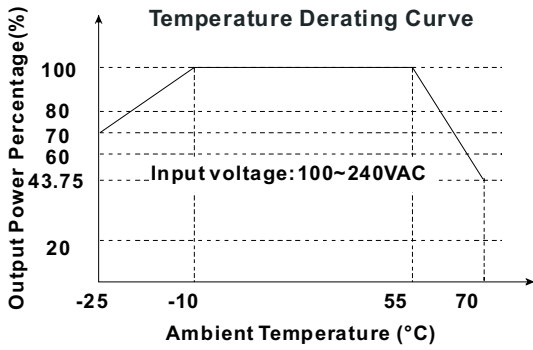
| | |
|-----------------|--|
| Casing Material | Black flame-retardant and heat-resistant plastic (UL94-V0) |
| Dimension | Refer to the Dimensions |
| Weight | Refer to the Dimensions |
| Cooling method | Free air convection |

EMC SPECIFICATIONS

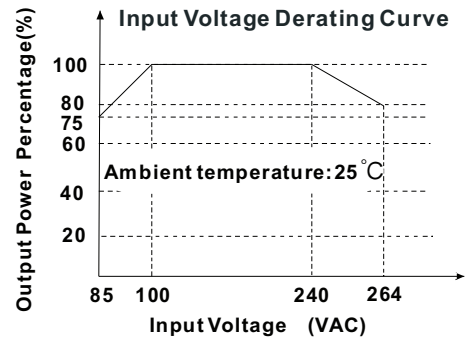
| | | | | | | |
|-----|-----|--|-----------|---|------------------|--|
| EMI | CE | CISPR22/EN55022, CLASS B (Without External Circuit) | | | | |
| | RE | CISPR22/EN55022, CLASS B (Without External Circuit) | | | | |
| EMS | ESD | IEC/EN61000-4-2 | ±6KV/±8KV | perf. Criteria B | | |
| | RS | IEC/EN61000-4-3 | 10V/m | perf. Criteria A | | |
| | EFT | IEC/EN61000-4-4 | | ±2KV (Without External Circuit) | perf. Criteria B | |
| | | IEC/EN61000-4-4 | | ±4KV (See Fig. 5 for recommended circuit) | perf. Criteria B | |

| | | | | |
|-----|--|------------------|--|------------------|
| | Surge | IEC/EN61000-4-5 | $\pm 1KV/\pm 2KV$ (Without External Circuit) | perf. Criteria B |
| | | IEC/EN61000-4-5 | $\pm 2KV/4KV$ (See Fig. 5 for recommended circuit) | perf. Criteria B |
| EMS | CS | IEC/EN61000-4-6 | 10 Vr.m.s | perf. Criteria A |
| | PFM | IEC/EN61000-4-8 | 10A/m | perf. Criteria A |
| | Immunities of voltage dip, drop and short interruption | IEC/EN61000-4-11 | 0%-70% | perf. Criteria B |

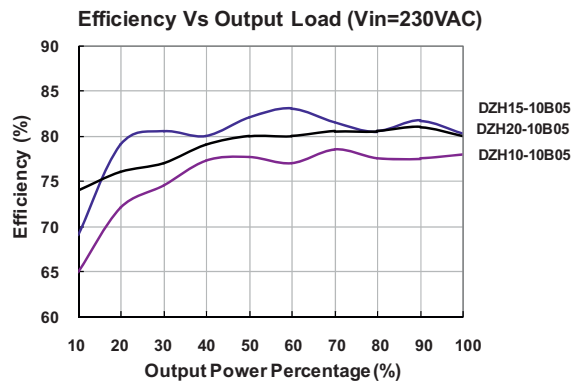
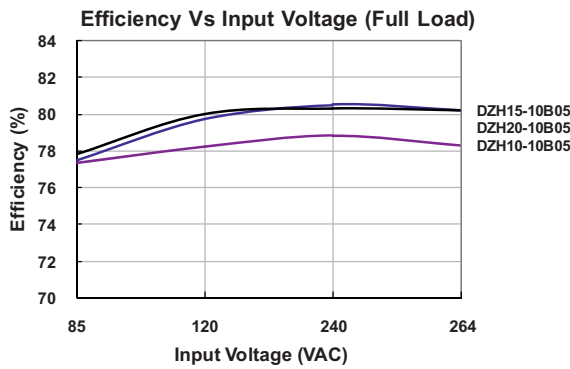
PRODUCT CHARACTERISTIC CURVE



Note: Input voltage should be derated based on temperature derating when it is 85~100VAC/240~264VAC.



Note: When input DC, $VDC = 1.414 * VAC - 20$.



Design Reference

1. Typical application circuit

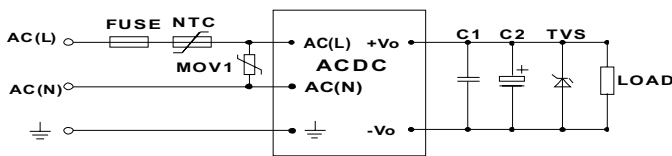


Fig. 1: Typical application circuit

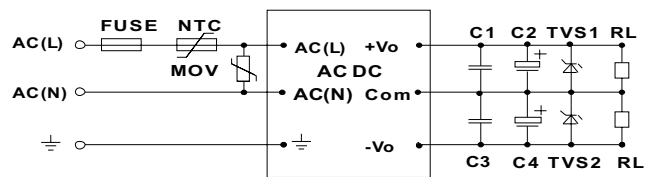


Fig. 2: DZHxx-10Axx (Dual Output) series typical application circuit

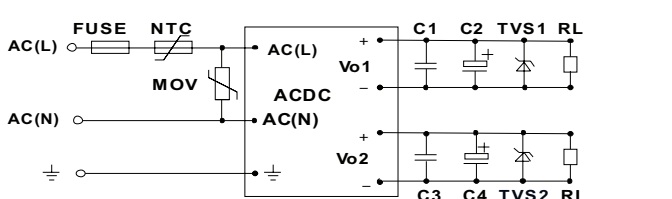


Fig. 3: DZHxx-10Dxx (Isolate Twin Output) series typical application circuit

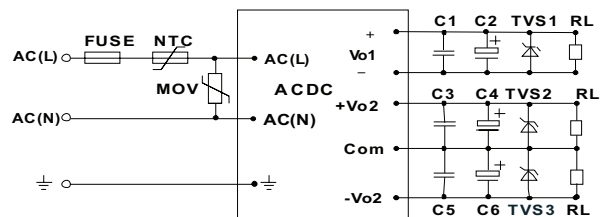


Fig. 4: DZHxx-10Cxx (Triple Output) series typical application circuit

| Model | C2(μF) | C4(μF) | C6(μF) | TVS1 | TVS2 | TVS3 |
|------------------|--------|--------|--------|----------|----------|----------|
| DZH05-10B03 | 330 | | | SMBJ7.0A | | |
| DZH05-10B05 | 330 | | | SMBJ7.0A | | |
| DZH05-10B09 | 120 | | | SMBJ12A | | |
| DZH05-10B12 | 120 | | | SMBJ20A | | |
| DZH05-10B15 | 68 | | | SMBJ20A | | |
| DZH05-10B24 | 68 | | | SMBJ30A | | |
| DZH05-10A05 | 120 | 120 | | SMBJ7.0A | SMBJ7.0A | |
| DZH05-10A12 | 68 | 68 | | SMBJ20A | SMBJ20A | |
| DZH05-10A15 | 47 | 47 | | SMBJ20A | SMBJ20A | |
| DZH05-10A24 | 10 | 10 | | SMBJ30A | SMBJ30A | |
| DZH05-10C0505-01 | 220 | 22 | 22 | SMBJ7.0A | SMBJ7.0A | SMBJ7.0A |
| DZH05-10C0512-01 | 120 | 22 | 22 | SMBJ7.0A | SMBJ20A | SMBJ20A |
| DZH05-10C0515-01 | 120 | 22 | 22 | SMBJ7.0A | SMBJ20A | SMBJ20A |
| DZH05-10C0524-01 | 120 | 22 | 22 | SMBJ7.0A | SMBJ30A | SMBJ30A |
| DZH05-10D0505-01 | 220 | 22 | | SMBJ7.0A | SMBJ7.0A | |
| DZH05-10D0512-01 | 220 | 22 | | SMBJ7.0A | SMBJ20A | |
| DZH05-10D0515-01 | 120 | 22 | | SMBJ7.0A | SMBJ20A | |
| DZH05-10D0524-01 | 120 | 22 | | SMBJ7.0A | SMBJ30A | |
| | | | | | | |
| DZH10-10B03 | 470 | | | SMBJ7.0A | | |
| DZH10-10B05 | 330 | | | SMBJ7.0A | | |
| DZH10-10B09 | 120 | | | SMBJ12A | | |
| DZH10-10B12 | 120 | | | SMBJ20A | | |
| DZH10-10B15 | 120 | | | SMBJ20A | | |
| DZH10-10B24 | 68 | | | SMBJ30A | | |
| DZH10-10A05 | 220 | 220 | | SMBJ7.0A | | |
| DZH10-10A12 | 120 | 120 | | SMBJ20A | SMBJ20A | |
| DZH10-10A15 | 47 | 47 | | SMBJ20A | SMBJ20A | |
| DZH10-10A24 | 33 | 33 | | SMBJ30A | SMBJ30A | |
| DZH10-10C0512-02 | 220 | 68 | 68 | SMBJ7.0A | SMBJ20A | SMBJ20A |
| DZH10-10C0515-02 | 220 | 47 | 47 | SMBJ7.0A | SMBJ20A | SMBJ20A |
| DZH10-10D0505-02 | 220 | 68 | | SMBJ7.0A | SMBJ7.0A | |
| DZH10-10D0512-02 | 220 | 68 | | SMBJ7.0A | SMBJ20A | |
| DZH10-10D0515-02 | 220 | 47 | | SMBJ7.0A | SMBJ20A | |
| DZH10-10D0524-02 | 220 | 47 | | SMBJ7.0A | SMBJ30A | |
| | | | | | | |
| DZH15-10B03 | 680 | | | SMBJ7.0A | | |
| DZH15-10B05 | 680 | | | SMBJ7.0A | | |
| DZH15-10B09 | 470 | | | SMBJ12A | | |
| DZH15-10B12 | 220 | | | SMBJ20A | | |
| DZH15-10B15 | 220 | | | SMBJ20A | | |
| DZH15-10B24 | 68 | | | SMBJ30A | | |
| DZH15-10B48 | 33 | | | SMBJ64A | | |
| DZH15-10A05 | 470 | 470 | | SMBJ7.0A | SMBJ7.0A | |
| DZH15-10A12 | 220 | 220 | | SMBJ20A | SMBJ20A | |
| DZH15-10A15 | 120 | 120 | | SMBJ20A | SMBJ20A | |
| DZH15-10A24 | 68 | 68 | | SMBJ30A | SMBJ30A | |
| DZH15-10C0505-05 | 470 | 220 | 220 | SMBJ7.0A | SMBJ7.0A | SMBJ7.0A |
| DZH15-10C0512-02 | 470 | 120 | 120 | SMBJ7.0A | SMBJ20A | SMBJ20A |
| DZH15-10C0515-02 | 470 | 120 | 120 | SMBJ7.0A | SMBJ20A | SMBJ20A |
| DZH15-10C0524-01 | 470 | 120 | 120 | SMBJ7.0A | SMBJ30A | SMBJ30A |
| DZH15-10D0505-08 | 470 | 470 | | SMBJ7.0A | SMBJ7.0A | |
| DZH15-10D0512-04 | 470 | 220 | | SMBJ7.0A | SMBJ20A | |
| DZH15-10D0515-03 | 470 | 120 | | SMBJ7.0A | SMBJ20A | |
| DZH15-10D0524-02 | 470 | 47 | | SMBJ7.0A | SMBJ30A | |

| Model | C2(μF) | C4(μF) | C6(μF) | TVS1 | TVS2 | TVS3 |
|------------------|--------|--------|--------|----------|----------|----------|
| DZH20-10B03 | 330 | | | SMBJ7.0A | | |
| DZH20-10B05 | 330 | | | SMBJ7.0A | | |
| DZH20-10B09 | 220 | | | SMBJ12A | | |
| DZH20-10B12 | 220 | | | SMBJ20A | | |
| DZH20-10B15 | 220 | | | SMBJ20A | | |
| DZH20-10B24 | 220 | | | SMBJ30A | | |
| DZH20-10A05 | 470 | 470 | | SMBJ7.0A | SMBJ7.0A | |
| DZH20-10A12 | 120 | 120 | | SMBJ20A | SMBJ20A | |
| DZH20-10A15 | 68 | 68 | | SMBJ20A | SMBJ20A | |
| DZH20-10C0505-05 | 330 | 120 | 120 | SMBJ7.0A | SMBJ7.0A | SMBJ7.0A |
| DZH20-10C0512-04 | 330 | 120 | 120 | SMBJ7.0A | SMBJ20A | SMBJ20A |
| DZH20-10C0515-03 | 330 | 120 | 120 | SMBJ7.0A | SMBJ20A | SMBJ20A |
| DZH20-10C0524-02 | 330 | 47 | 47 | SMBJ7.0A | SMBJ30A | SMBJ30A |
| DZH20-10D0512-06 | 330 | 220 | | SMBJ7.0A | SMBJ20A | |
| DZH20-10D0515-05 | 330 | 220 | | SMBJ7.0A | SMBJ20A | |
| DZH20-10D0524-03 | 330 | 120 | | SMBJ7.0A | SMBJ30A | |
| | | | | | | |
| DZH25-10B03 | 330 | | | SMBJ7.0A | | |
| DZH25-10B05 | 330 | | | SMBJ7.0A | | |
| DZH25-10B09 | 330 | | | SMBJ12A | | |
| DZH25-10B12 | 330 | | | SMBJ20A | | |
| DZH25-10B15 | 330 | | | SMBJ20A | | |
| DZH25-10B24 | 120 | | | SMBJ30A | | |
| DZH25-10B48 | 68 | | | SMBJ64A | | |

Note: Qoutput filtering capacitors C2, C4, C6 are electrolytic, it is recommended to use high frequency and low impedance electrolytic capacitor. For capacitance and current of capacitor please refer to manufacture's datasheet. capacitor with stand voltage derating should be 80% or above. C1,C3,C5 are ceramic capacitors, which is used to filter high-frequency noise. TVS is a recommended component to protect post-circuits if converter fails. External input NTC is recommended to use 5D-9.

2. EMC solution-recommended circuit

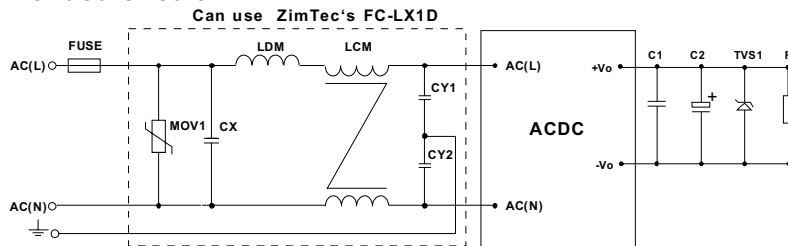


Fig 5: EMC Recommended circuit with higher requirements

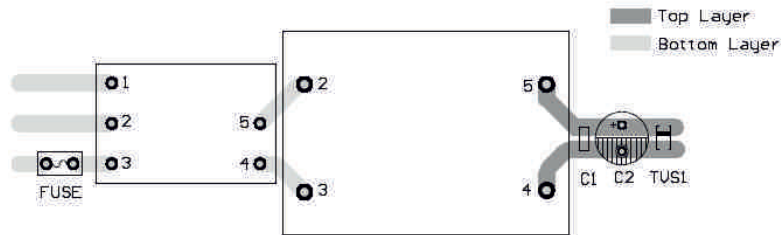
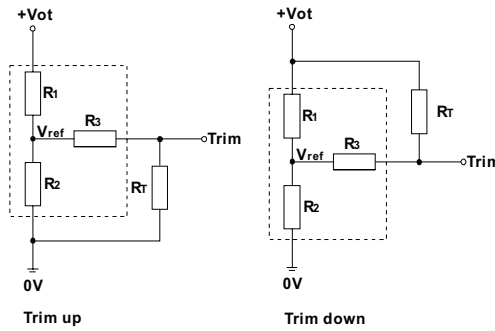


Fig 6: Recommended EMC circuit-PCB layout

Suggestions for safely regulation and wiring width: wire $\geq 3\text{mm}$, distance between wires $\geq 6\text{mm}$, and distance between wire and ground $\geq 6\text{mm}$

| Element model | Recommended value | Element model | Recommended value | |
|---------------|---|---------------|--------------------|-----------------------------------|
| MOV1 | S14K350 | FC-LX1D | 2KV/4KV EMC filter | |
| CY1, CY2 | 1000pF/400VAC | FUSE | DZH05 | 1A/250V slow fusing, necessary |
| CX μ | 0.1 F/275VAC | | DZH10/15 | 2A/250V slow fusing, necessary |
| LCM | 10mH, recommended to use ZimTec's FL2D-Z5-103 | | DZH20/25 | 3.15A/250V slow fusing, necessary |
| LDM | 4.7μH/2A | -- | -- | |

3. Application of Trim and calculation of Trim resistance



Applied circuits of Trim (Part in broken line is the interior of models):

Calculation formula of Trim resistance:

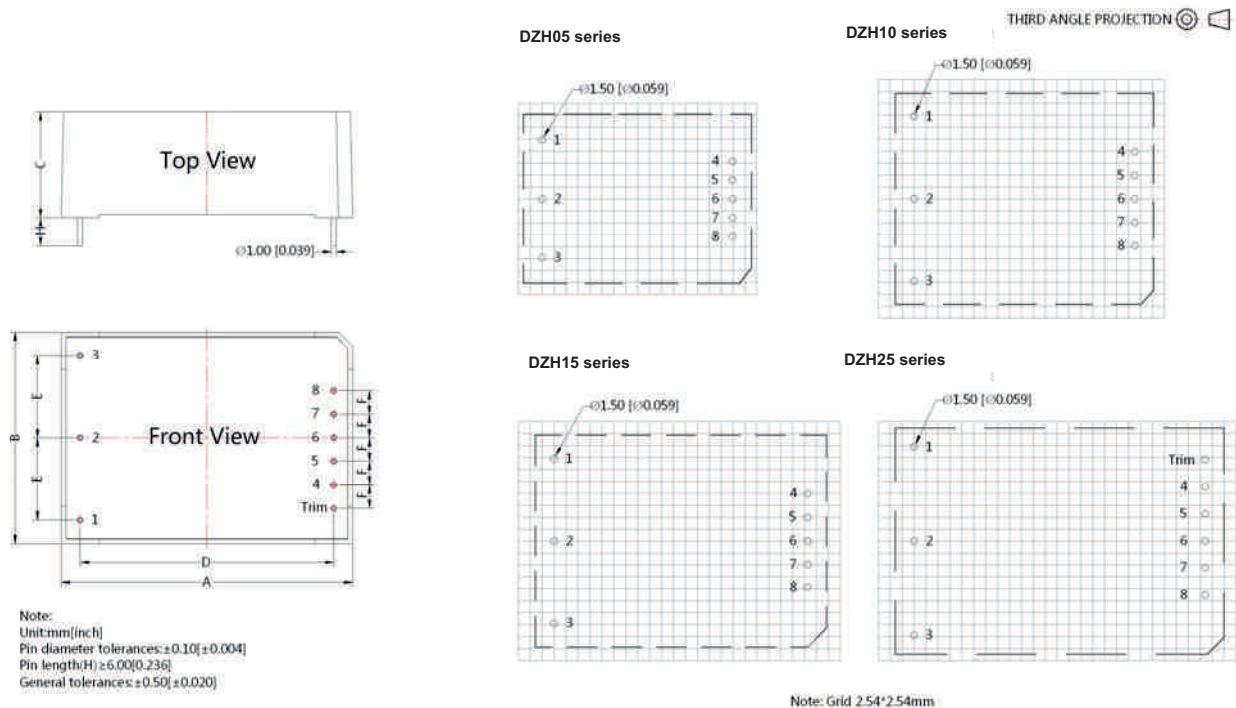
$$\begin{aligned} \text{up: } R_T &= \frac{aR_2}{R_2 - a} - R_3 & a &= \frac{V_{ref}}{V_{ot} - V_{ref}} \cdot R_1 \\ \text{down: } R_T &= \frac{aR_1}{R_1 - a} - R_3 & a &= \frac{V_{ot} - V_{ref}}{V_{ref}} \cdot R_2 \end{aligned}$$

R_T is Trim resistance
 a is a self-defined parameter, with no real meaning.

| Vout | R1(KΩ) | R2(KΩ) | R3(KΩ) | Vref(V) | Vot(V) |
|------|--------|--------|--------|---------|--|
| 3.3V | 3.3 | 1.98 | 1 | 1.24 | Output voltage after regulation, variation $\leq \pm 10\%$ |
| 5V | 3.3 | 3.3 | 1 | 2.5 | |
| 9V | 7.5 | 2.87 | 1 | 2.5 | |
| 12V | 3.83 | 1 | 1 | 2.5 | |
| 15V | 7.5 | 1.5 | 1 | 2.5 | |
| 24V | 8.66 | 1 | 1 | 2.5 | |
| 48V | 68 | 3.73 | 1 | 2.5 | |

4. For more informaton about ZimTec Electronics EMC Filter products, please visit www.zimtec-electronics.de to download the Selection Guide of EMC Filter.

DIMENSIONS AND RECOMMENDED LAYOUT



The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to: info@zimtec-electronics.de

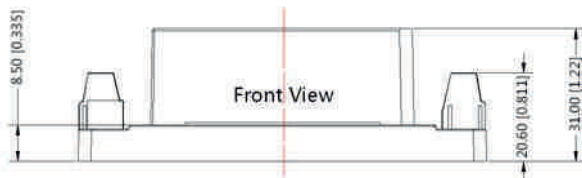
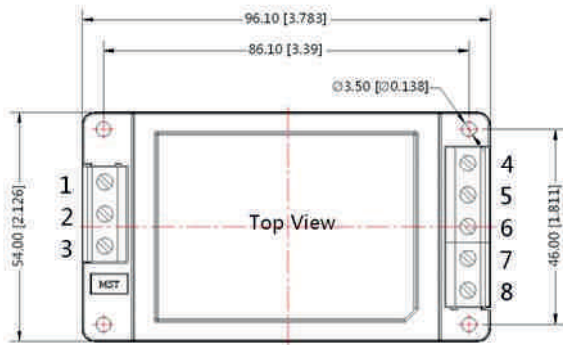
| Dimensions (Unit: mm) | | | | | |
|-----------------------|-------|-------|-------|-------|-------|
| NO. | DZH05 | DZH10 | DZH15 | DZH20 | DZH25 |
| A | 48.50 | 55.00 | 62.00 | 70.00 | 70.00 |
| B | 36.00 | 45.00 | 45.00 | 48.00 | 48.00 |
| C | 20.50 | 21.00 | 22.50 | 23.50 | 23.50 |
| D | 40.50 | 47.00 | 54.00 | 62.00 | 62.00 |
| E | 12.50 | 17.50 | 17.50 | 20.00 | 20.00 |
| F | 4.00 | 5.00 | 5.00 | 5.75 | 5.75 |
| G | 10.00 | 12.50 | 12.50 | 12.50 | 12.50 |

| Models Weight | | | | | |
|---------------|-------|-------|-------|-------|-------|
| Weight | DZH05 | DZH10 | DZH15 | DZH20 | DZH25 |
| (Typ.) | 50g | 80g | 85g | 120g | 120g |

| Pin Connection | | | | |
|----------------|-----------|-----------|-----------|-----------|
| Pin | DZHXX-10B | DZHXX-10A | DZHXX-10C | DZHXX-10D |
| 1 | | | | |
| 2 | AC(N) | AC(N) | AC(N) | AC(N) |
| 3 | AC(L) | AC(L) | AC(L) | AC(L) |
| 4 | -Vo | -Vo | -Vo1 | -Vo1 |
| 5 | No Pin | No Pin | +Vo1 | +Vo1 |
| 6 | No Pin | COM | -Vo2 | No Pin |
| 7 | No Pin | No Pin | COM | -Vo2 |
| 8 | +Vo | +Vo | +Vo2 | +Vo2 |
| Trim | Trim** | No Pin | No Pin | No Pin |

There is no pin "1" on DZH15-10BXX
Trim**: only for DZH20/25-10BXX Series.

DZHXXA2 DIMENSIONS



THIRD ANGLE PROJECTION

| Pin | DZHXX-10B | DZHXX-10A | DZHXX-10C | DZHXX-10D |
|-----|-----------|-----------|-----------|-----------|
| 1 | | | | |
| 2 | AC(N) | AC(N) | AC(N) | AC(N) |
| 3 | AC(L) | AC(L) | AC(L) | AC(L) |
| 4 | -Vo | -Vo | -Vo1 | -Vo1 |
| 5 | NC | NC | +Vo1 | +Vo1 |
| 6 | NC/Trim** | COM | -Vo2 | NC |
| 7 | NC | NC | COM | -Vo2 |
| 8 | +Vo | +Vo | +Vo2 | +Vo2 |

There is no pin „1“ , on DZH15-10BXXA2. NC/Trim**;
The pin ins Trim on DZH20/25-10BXXA2,
The pin is not connected on other single output products.

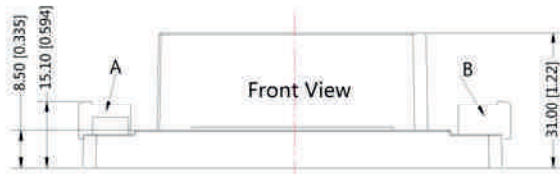
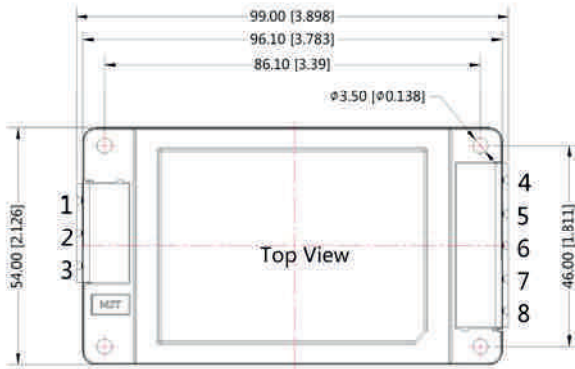
*The figure above is related to DZH15XXA2 series, the height of other series is different

Note:
Unit: mm(inch)
Wire range: 24~12AWG
General tolerances: $\pm 0.50 [\pm 0.020]$

| Dimensions (Unit: mm) | |
|-----------------------|-------------------|
| Model | Dimensions |
| DZH05XXA2 | 96.10*54.00*29.00 |
| DZH10XXA2 | 96.10*54.00*29.50 |
| DZH15XXA2 | 96.10*54.00*31.00 |
| DZH20XXA2 | 96.10*54.00*32.00 |
| DZH25XXA2 | 96.10*54.00*32.00 |

| Models Weight | | | | | |
|---------------|-------|-------|-------|-------|-------|
| Weight | DZH05 | DZH10 | DZH15 | DZH20 | DZH25 |
| Typ. | 100g | 130g | 135g | 170g | 170g |

DZHXXA3 DIMENSIONS



Outline and dimensions (Unit: mm)

| Model | Dimensions |
|-----------|-------------------|
| DZH05XXA3 | 99.00*54.00*29.00 |
| DZH10XXA3 | 99.00*54.00*29.50 |
| DZH15XXA3 | 99.00*54.00*31.00 |
| DZH20XXA3 | 99.00*54.00*32.00 |
| DZH25XXA3 | 99.00*54.00*32.00 |

THIRD ANGLE PROJECTION

| Pin Connection | | | | |
|----------------|-----------|-----------|-----------|-----------|
| Pin | DZHXX-10B | DZHXX-10A | DZHXX-10C | DZHXX-10D |
| 1 | | | | |
| 2 | AC(N) | AC(N) | AC(N) | AC(N) |
| 3 | AC(L) | AC(L) | AC(L) | AC(L) |
| 4 | -Vo | -VO | -Vo1 | -Vo1 |
| 5 | NC | NC | +Vo1 | +Vo1 |
| 6 | NC/Trim** | COM | -Vo2 | NC |
| 7 | NC | NC | COM | -Vo2 |
| 8 | +Vo | +VO | +Vo2 | +Vo2 |

There is no pin „1“, on DZH15-10BXXA3. NC/Trim**;
The pin is Trim on DZH20/25-10BXXA3,
The pin is not connected on other single output products.

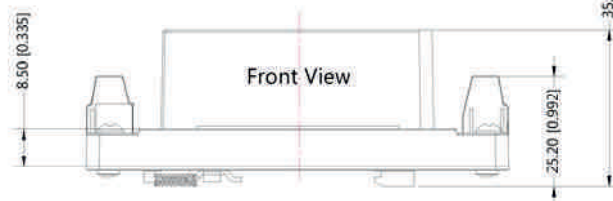
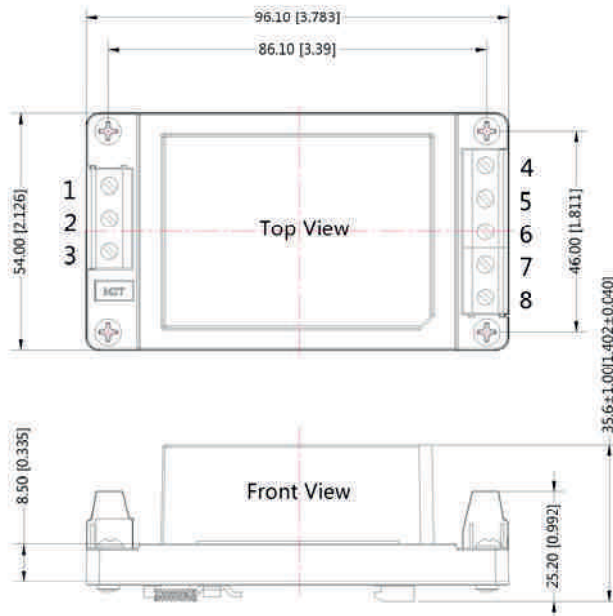
*The figure above is related to DZH15XXA3 series, the height of other series is different

Note:
Unit: mm(inch)
General tolerances: ± 0.50 [± 0.020]
A: DEGSON P/N: 2EDGRC -7.5-03P-14-100A (H)
B: DEGSON P/N: 2EDGRC -7.5-05P-14-100A (H)

Models Weight

| Weight | DZH05 | DZH10 | DZH15 | DZH20 | DZH25 |
|--------|-------|-------|-------|-------|-------|
| Typ. | 100g | 130g | 135g | 170g | 170g |

DZHXXA4 DIMENSIONS



THIRD ANGLE PROJECTION

| Pin Connection | | | | |
|----------------|-----------|-----------|-----------|-----------|
| Pin | DZHXX-10B | DZHXX-10A | DZHXX-10C | DZHXX-10D |
| 1 | | | | |
| 2 | AC(N) | AC(N) | AC(N) | AC(N) |
| 3 | AC(L) | AC(L) | AC(L) | AC(L) |
| 4 | -Vo | -VO | -Vo1 | -Vo1 |
| 5 | NC | NC | +Vo1 | +Vo1 |
| 6 | NC/Trim** | COM | -Vo2 | NC |
| 7 | NC | NC | COM | -Vo2 |
| 8 | +Vo | +VO | +Vo2 | +Vo2 |

There is no pin „1“, on DZH15-10BXXA4. NC/Trim**;
The pin is Trim on DZH20/25-10BXXA4,
The pin is not connected on other single output products.

*The figure above is related to DZH15XXA4 series, the height of other series is different

Note:
Unit: mm(inch)
Wire range: 24~12AWG
General tolerances: ± 0.50 [± 0.020]

The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to: info@zimtec-electronics.de

| Dimensions (Unit: mm) | |
|-----------------------|-------------------|
| Model | Dimensions |
| DZH05XXA4 | 96.10*54.00*33.60 |
| DZH10XXA4 | 96.10*54.00*34.10 |
| DZH15XXA4 | 96.10*54.00*35.60 |
| DZH20XXA4 | 96.10*54.00*36.60 |
| DZH25XXA4 | 96.10*54.00*36.60 |

| Models Weight | | | | | |
|---------------|-------|-------|-------|-------|-------|
| Weight | DZH05 | DZH10 | DZH15 | DZH20 | DZH25 |
| Typ. | 140g | 170g | 175g | 210g | 210g |

Note:

1. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25°C, humidity<75% with nominal input voltage and rated output load;
3. All index testing methods in this datasheet are based on our Company's corporate standards;
4. The performance parameters of the product models listed in this manual are as above, but some parameters of non-standard model products may exceed the requirements mentioned above. Please contact our technicians directly for specific information;
5. We can provide product customization service;
6. Specifications are subject to change without prior notice.