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ELECTRONICS

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Jameco Part Number 217075



### ■ Features :

- 2:1 wide input range
- 4:1 wide input range(option)
- 1000VDC I/O isolation
- 3000VDC I/O isolation(option)
- Built-in EMI filter
- Protections: Short circuit / Overload
- Cooling by free air convection
- Six-sided shield metal case
- 100% burn-in test
- Low cost / High reliability
- Approvals: FCC / CE
- 2 years warranty

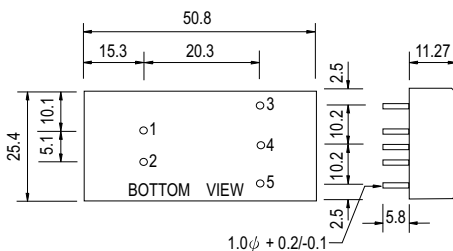


### SPECIFICATION

| ORDER NO.                              |                                             | DKE10A-05                                                                                                                        | DKE10B-05                       | DKE10C-05 | DKE10A-12    | DKE10B-12 | DKE10C-12 | DKE10A-15      | DKE10B-15 | DKE10C-15 | DKE10A-24    | DKE10B-24 | DKE10C-24 |
|----------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------|--------------|-----------|-----------|----------------|-----------|-----------|--------------|-----------|-----------|
| OUTPUT                                 | DC VOLTAGE                                  | ±5V                                                                                                                              |                                 |           | ±12V         |           |           | ±15V           |           |           | ±24V         |           |           |
|                                        | CURRENT RANGE                               | ±100 ~ ±1000mA                                                                                                                   |                                 |           | ±42 ~ ±420mA |           |           | ±33.3 ~ ±333mA |           |           | ±21 ~ ±210mA |           |           |
|                                        | RATED POWER                                 | 10W                                                                                                                              |                                 |           |              |           |           |                |           |           |              |           |           |
|                                        | RIPPLE & NOISE (max.) <small>Note.2</small> | 50mVp-p                                                                                                                          |                                 |           | 60mVp-p      |           |           | 60mVp-p        |           |           | 80mVp-p      |           |           |
|                                        | LINE REGULATION <small>Note.3</small>       | ±0.3%                                                                                                                            |                                 |           |              |           |           |                |           |           |              |           |           |
|                                        | LOAD REGULATION <small>Note.4</small>       | ±0.5%                                                                                                                            |                                 |           |              |           |           |                |           |           |              |           |           |
|                                        | VOLTAGE ACCURACY                            | ±2.0%                                                                                                                            |                                 |           |              |           |           |                |           |           |              |           |           |
|                                        | SWITCHING FREQUENCY                         | 250KHz min.                                                                                                                      |                                 |           |              |           |           |                |           |           |              |           |           |
| INPUT                                  | VOLTAGE RANGE                               | A: 9 ~ 18VDC   B: 18 ~ 36VDC   C: 36 ~ 72VDC                                                                                     |                                 |           |              |           |           |                |           |           |              |           |           |
|                                        | EFFICIENCY (Typ.)                           | 78%                                                                                                                              | 81%                             | 82%       | 80%          | 80%       | 83%       | 80%            | 80%       | 82%       | 82%          | 81%       | 85%       |
|                                        | DC CURRENT                                  | Full load                                                                                                                        | A: 1100mA   B: 530mA   C: 270mA |           |              |           |           |                |           |           |              |           |           |
|                                        |                                             | No load                                                                                                                          | A: 30mA   B: 16mA   C: 8mA      |           |              |           |           |                |           |           |              |           |           |
|                                        | FILTER                                      | Pi network                                                                                                                       |                                 |           |              |           |           |                |           |           |              |           |           |
|                                        | PROTECTION                                  | Fuse recommended                                                                                                                 |                                 |           |              |           |           |                |           |           |              |           |           |
| PROTECTION<br><small>(Note. 5)</small> | OVER CURRENT                                | 160% ~ 250% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed         |                                 |           |              |           |           |                |           |           |              |           |           |
|                                        | SHORT CIRCUIT                               | All output equipped with short circuit<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed |                                 |           |              |           |           |                |           |           |              |           |           |
|                                        |                                             |                                                                                                                                  |                                 |           |              |           |           |                |           |           |              |           |           |
| ENVIRONMENT                            | WORKING TEMP.                               | -25 ~ +71℃ (Refer to output load derating curve)                                                                                 |                                 |           |              |           |           |                |           |           |              |           |           |
|                                        | WORKING HUMIDITY                            | 20% ~ 90% RH non-condensing                                                                                                      |                                 |           |              |           |           |                |           |           |              |           |           |
|                                        | STORAGE TEMP., HUMIDITY                     | -25 ~ +105℃, 10 ~ 95% RH                                                                                                         |                                 |           |              |           |           |                |           |           |              |           |           |
|                                        | TEMP. COEFFICIENT                           | ±0.03% / °C (0 ~ 50℃)                                                                                                            |                                 |           |              |           |           |                |           |           |              |           |           |
|                                        | VIBRATION                                   | 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes                                                          |                                 |           |              |           |           |                |           |           |              |           |           |
| SAFETY & EMC                           | WITHSTAND VOLTAGE                           | I/P-O/P: 1KVDC                                                                                                                   |                                 |           |              |           |           |                |           |           |              |           |           |
|                                        | ISOLATION RESISTANCE                        | I/P-O/P: 100M Ohms / 500VDC / 25℃ / 70% RH                                                                                       |                                 |           |              |           |           |                |           |           |              |           |           |
|                                        | EMI CONDUCTION & RADIATION                  | Compliance to EN55022 Class B, FCC part 15 Class B                                                                               |                                 |           |              |           |           |                |           |           |              |           |           |
|                                        | EMS IMMUNITY                                | Compliance to EN61000-4-2,3,4,5,6,8, light industry level, criteria A                                                            |                                 |           |              |           |           |                |           |           |              |           |           |
| OTHERS                                 | MTBF                                        | 500Khrs min. MIL-HDBK-217F(25℃)                                                                                                  |                                 |           |              |           |           |                |           |           |              |           |           |
|                                        | DIMENSION                                   | 50.8*25.4*11.2mm or 2"*1"*0.44" inch (L*W*H)                                                                                     |                                 |           |              |           |           |                |           |           |              |           |           |
|                                        | WEIGHT                                      | 32g                                                                                                                              |                                 |           |              |           |           |                |           |           |              |           |           |

### ■ Mechanical Specification

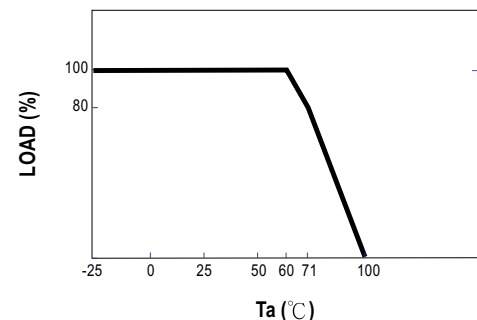
Unit: mm



### ■ Pin Configuration

| Pin No. | Output |
|---------|--------|
| 1       | +Vin   |
| 2       | -Vin   |
| 3       | +Vout  |
| 4       | COM    |
| 5       | -Vout  |

### ■ 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.

# Quality Engineering Test Report

**SERIES: DKE10B**

**10W DC-DC DUAL OUTPUT CONVERTER**

**SAMPLE:**

|                     |                          |
|---------------------|--------------------------|
| <b>A. DKE10B-05</b> | <b>V1: +5V / 1000mA</b>  |
|                     | <b>V2: - 5V / 1000mA</b> |
| <b>B. DKE10B-12</b> | <b>V1: +12V / 420mA</b>  |
|                     | <b>V2: - 12V / 420mA</b> |
| <b>C. DKE10B-15</b> | <b>V1: +15V / 333mA</b>  |
|                     | <b>V2: - 15V / 333mA</b> |

| NO | TEST ITEM                | TEST CONDITION / SPECIFICATION                                   | RESULT                                                                                                                       | VERDICT |
|----|--------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------|
| 1  | DC INPUT VOLTAGE RANGE   | I/P : TESTING SPEC : 18~36VDC<br>O/P : FULL LOAD                 | C:16.5~36VDC                                                                                                                 | P       |
| 2  | LINE REGULATION          | I/P : 18~36VDC SPEC : $\pm 0.3\%$<br>O/P : FULL LOAD             | A: V1: -0.2%~+0%<br>V2: -0.2%~+0.2%<br>B: V1: -0.08%~+0%<br>V2: -0.17%~+0.08%<br>C: V1: -0.01%~ +0.01%<br>V2: -0.01%~ +0.01% | P       |
| 3  | LOAD REGULATION          | I/P : 24VDC SPEC : $\pm 2\%$<br>O/P : MIN. TO FULL LOAD          | A: V1: -0%~+0%<br>V2: -0.2%~+0%<br>B: V1: -0.1%~+0%<br>V2: -0.1%~+0%<br>C: V1: -0.1%~ +0%<br>V2: -0.2%~ +0%                  | P       |
| 4  | OUTPUT VOLTAGE TOLERANCE | I/P : 18~36VDC SPEC : NONE<br>O/P : MIN. TO FULL LOAD            | A: V1: -1.4%~+3.2%<br>V2: -1.8%~+3.0%<br>B: V1: -1.7%~+1.7%<br>V2: -1.8%~+1.4%<br>C: V1: -0.13%~ +0%<br>V2: -0.16%~ +0%      | P       |
| 5  | RIPPLE & NOISE           | I/P : 24VDC SPEC : A:50mV<br>B:60mV<br>C:60mV<br>O/P : FULL LOAD | A: V1:17mV<br>V2:15mV<br>B: V1:23mV<br>V2:20mV<br>C: V1:24mV<br>V2:28mV                                                      | P       |
| 6  | DC INPUT CURRENT         | I/P : 24VDC SPEC : NONE<br>O/P : FULL LOAD                       | C:0.51A                                                                                                                      | P       |
| 7  | MAX. INRUSH CURRENT      | I/P : 24VDC SPEC : NONE<br>O/P : FULL LOAD                       | C:15.97A                                                                                                                     | P       |
| 8  | O/P VOLTAGE ACCURACY     | I/P : 24VDC SPEC : $\pm 2\%$<br>O/P : MIN. LOAD                  | A: V1:+5.02V<br>V2:-5.01V<br>B: V1:+12.1V<br>V2:-12.08V<br>C: V1:+15.38V<br>V2:-15.40V                                       | P       |
| 9  | SET UP TIME              | I/P : 24VDC SPEC : NONE<br>O/P : FULL LOAD                       | C:52.8mS                                                                                                                     | P       |
| 10 | HOLD UP TIME             | I/P : 24VDC SPEC : NONE<br>O/P : FULL LOAD                       | C:1.65mS                                                                                                                     | P       |
| 11 | EFFICIENCY               | I/P : 24VDC SPEC : 76% MIN<br>O/P : FULL LOAD                    | A:83.3%<br>B:86.2%<br>C:79.2%                                                                                                | P       |
| 12 | OVER LOAD PROTECTION     | I/P : 24VDC SPEC : NONE<br>O/P : TESTING                         | CURRENT LIMITING<br>AUTO RECOVERY<br>A:173%<br>B:158%<br>C:188%                                                              | P       |

| NO       | TEST ITEM                                                       | TEST CONDITION / SPECIFICATION                                                                                                                                                                                            | RESULT                                 | VERDICT  |        |      |    |      |           |       |       |   |
|----------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|----------|--------|------|----|------|-----------|-------|-------|---|
| 13       | INSULATION RESISTANCE                                           | SPEC : I/P – O/P 500VDC/100MΩ MIN.                                                                                                                                                                                        | C:I/P – O/P > 100M Ω                   | P        |        |      |    |      |           |       |       |   |
| 14       | DIELECTRIC / WITHSTAND VOLTAGE                                  | SPEC : I/P – O/P : 500VDC/ 1 min (10mA CUT-OFF)                                                                                                                                                                           | C:NO BREAK<br>I/P – O/P : <0.5mA       | P        |        |      |    |      |           |       |       |   |
| 15       | BURN-IN TEST                                                    | I/P:24VDC<br>TA:25 ℃<br>O/P:FULL LOAD<br>BURN-IN DURATION : 4hrs                                                                                                                                                          | A:NO BREAK<br>B:NO BREAK<br>C:NO BREAK | P        |        |      |    |      |           |       |       |   |
| 16       | TEMPERATURE RISE TEST ΔT OF PARTS                               | C:I/P : 24VDC<br>O/P : FULL LOAD<br>AFTER 4 hrs BURN-IN<br>TA : 25 ℃ <table><tr><td>POSITION</td><td>SAMPLE</td><td>TEMP</td><td>ΔT</td></tr><tr><td>CASE</td><td>DKE10B-15</td><td>51.6℃</td><td>26.6℃</td></tr></table> |                                        | POSITION | SAMPLE | TEMP | ΔT | CASE | DKE10B-15 | 51.6℃ | 26.6℃ | P |
| POSITION | SAMPLE                                                          | TEMP                                                                                                                                                                                                                      | ΔT                                     |          |        |      |    |      |           |       |       |   |
| CASE     | DKE10B-15                                                       | 51.6℃                                                                                                                                                                                                                     | 26.6℃                                  |          |        |      |    |      |           |       |       |   |
| 17       | CONSTRUCTION INSPECTION<br>( FOR QC INSPECTION REFERENCE ONLY ) | 1. PACKING : 以塑膠泡墊保護PIN腳,再以紙盒包裝<br>2. MARKING : MODEL LABELx1<br>3. MECHANICAL : SIX-SIDED SHIELD METAL CASE, PIN OUTPUT:1.0Φx7mm                                                                                         |                                        |          |        |      |    |      |           |       |       |   |
| DATE     | SAMPLE                                                          | TEST RESULT                                                                                                                                                                                                               | TEST                                   | APPROVAL |        |      |    |      |           |       |       |   |
| 980413   | DKE10B-15                                                       | PASS                                                                                                                                                                                                                      | 鄭讚國                                    | MAX LIN  |        |      |    |      |           |       |       |   |
| 980730   | DKE10B-05<br>DKE10B-12                                          | PASS                                                                                                                                                                                                                      | 鄭讚國                                    | MAX LIN  |        |      |    |      |           |       |       |   |