

## INDUSTRIAL & AUTOMOTIVE DC/DC Converters

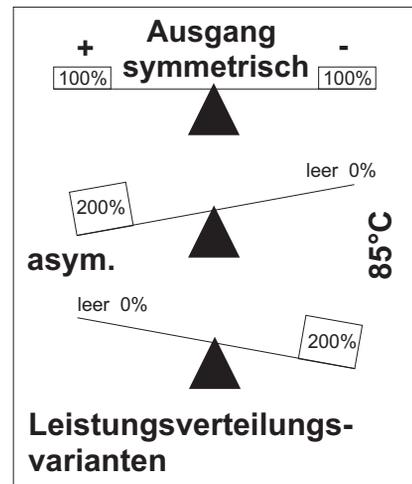
### HIFLEX - POWER SERIE 3Watt

Specials made to fit up to 100°C ambient temperature

Dual - In - Line Gehäuse DIP 24  
ca. 31 x 20 x 10mm

- a) Standard im Kunststoffgehäuse ( Polycarbonat ) Serie CSK  
b) Metallgehäuse schwarz Serie CMK ( CMKA )

1. Die Serien CSK und CMK ( CMKA ) können "asymmetrisch" belastet werden, siehe Bild.
2. Standard Leistung 3W erlaubt Umgebungstemperaturen bis 71°C ohne Leistungsabschlag ( ohne Derating ). Dabei können unsere Wandler eine Arbeitstemperatur von bis zu +105°C erreichen.
3. Wandler für Umgebungstemperaturen bis +85°C
4. PI - Filter in den Ausgängen dämpfen Rauschen und Restwelligkeit auf 30mVss.
5. PI - Filter im Eingang mindern die Rückschlagimpulse auf die Eingangsspannung auf angemessene Werte, so daß Ihre vorgelagerten Schaltkreise keine negative Beeinflussung erfahren.
6. Ausgangsspannungstoleranz beträgt Standard +/-3%, linear geregelt, 2% oder 1% auch möglich.
7. Die Eingangsspannungstoleranz beträgt +/-10% bei 5V eingeschränkt -5% / +10%. Zur Optimierung der Leistung und des Wirkungsgrades können alle Parameter gemäß den Anforderungen verschoben werden.
8. Thermischer Überlastschutz ist gegeben.
9. Elektronische Kurzschlußsicherung, schaltet im Kurzschlußfall den Lastkreis voll ab und schützt somit Ihre Schaltkreise. Reset durch AUS - EIN der Eingangsspannung.



### TRANSFORMATION - ISOLIERUNG - KURZSCHLUßSCHUTZ

Umgebungstemp. = Ambient Temp.  
CSK/CMK: -40°C bis +71°C  
CMKA: -55°C bis +85°C

- a) Standard polycarbonate package, molded acc. UL 94V - 0 series CSK  
b) Black anodized metal case series CMK ( CMKA )

1. Both CSK and CMK ( CMKA ) can be charged asymmetricly up to 200%
2. Standard 3W can be operated at 71°C ambient temperature without any derating while operating temperature may reach 103°C
3. -55°C to +85°C for automotive applications.
4. Both outputs are pi-filtered, ripple & noise average 30mV
5. Input pi-filter applied to reduce reflected ripple & noise to none-harming values acc. to input voltage size.
6. Standard output tolerance 3% linear regulated, 2% and 1% tol. on request.
7. Input voltage tolerance +/-10% -5 / +10% at 5V input only.  
All parameters can be shifted to your specific demands.
8. Thermal protection is given.
9. Electronic fuse integrated to give 100% short circuit protection.  
Reset by switching input voltage OFF / ON

**CSK : High power, high ambient temperature, industrial use**  
**CMK: High or low power, high ambient temperature, low EMI**  
as required for A/D and D/A converter applications

Specification may be changed without notice  
please contact office for verification

We can offer EMC - Filter  
according to EN55011/22 Class B.

# INDUSTRIAL & AUTOMOTIVE

Stand: 48/12

Regulated  
Case style: DIP24

## DC/DC Converters

3 Watt  
Series:  
**CSK / CMK / CMKA**  
1CSK / 1CMK / 1CMKA

### Electrical specifications:

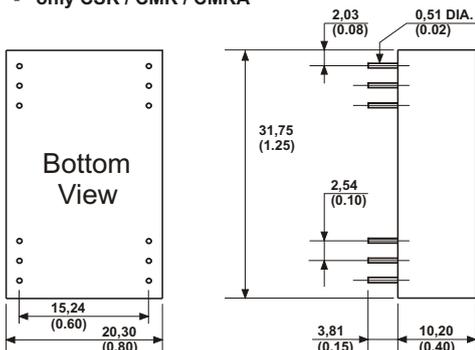
Output voltage accuracy: +/- 3%  
Line regulation: +/- 0,3%  
Load regulation: +/- 0,5%  
Operating temperature: max. +105°C  
Ambient temperature:  
CSK / CMK -40°C to +71°C  
CMKA -55°C to +85°C  
Efficiency: min. 55%  
Ripple & Noise: typ. 50mVp-p

Short circuit switch-off  
Short circuit proof & auto-restart (1CSK/1CMK/1CMKA-series)  
Over load protection Thermal shut down  
rel. humidity: 93% / 40°C  
Shock proof acc.: IEC 68-2-34  
Flameability: UL - 94V -0  
Insulation test voltage: 1000V DC  
Part-Nr. /3 Insulation optional 3000V AC rms ( only CSK )  
Case material:  
(1)CSK polycarbonat  
(1)CMK / (1)CMKA metal

**CAUTION: NO INPUT POLARITY CHANGE ALLOWED!**

| Part - No.<br>Single and Dual | Input voltage | Input Voltage | Output Voltage | Output Current | Overcurrent<br>Short circuit cut off <sup>2</sup> |
|-------------------------------|---------------|---------------|----------------|----------------|---|
| CSK/CMK/CMKA05-3-0505D-3      | -5% / +10%    | 5V            | +/- 5V*        | +/-300mA       | 120 %   |
| CSK/CMK/CMKA05-3-0512D-3      | -5% / +10%    |               | +/-12V         | +/-125mA       | 120 %   |
| CSK/CMK/CMKA05-3-0515D-3      | -5% / +10%    |               | +/-15V         | +/-100mA       | 120 %   |
| CSK/CMK/CMKA10-3-1205D-3      | +/-10%        | 12V           | +/- 5V*        | +/-300mA       | 120 %   |
| CSK/CMK/CMKA10-3-1212D-3      | +/-10%        |               | +/-12V         | +/-125mA       | 120 %   |
| CSK/CMK/CMKA10-3-1215D-3      | +/-10%        |               | +/-15V         | +/-100mA       | 120 %   |
| CSK/CMK/CMKA10-3-1505D-3      | +/-10%        | 15V           | +/- 5V*        | +/-300mA       | 120 %   |
| CSK/CMK/CMKA10-3-1512D-3      | +/-10%        |               | +/-12V         | +/-125mA       | 120 %   |
| CSK/CMK/CMKA10-3-1515D-3      | +/-10%        |               | +/-15V         | +/-100mA       | 120 %   |
| CSK/CMK/CMKA10-3-2405D-3      | +/-10%        | 24V           | +/- 5V*        | +/-300mA       | 120 %   |
| CSK/CMK/CMKA10-3-2412D-3      | +/-10%        |               | +/-12V         | +/-125mA       | 120 %   |
| CSK/CMK/CMKA10-3-2415D-3      | +/-10%        |               | +/-15V         | +/-100mA       | 120 %   |

Attention:  
- don't change input polarity!  
- \* at unbalanced load of 5V -  
output types  
max. 2,4 Watt output power  
<sup>2</sup> only CSK / CMK / CMKA

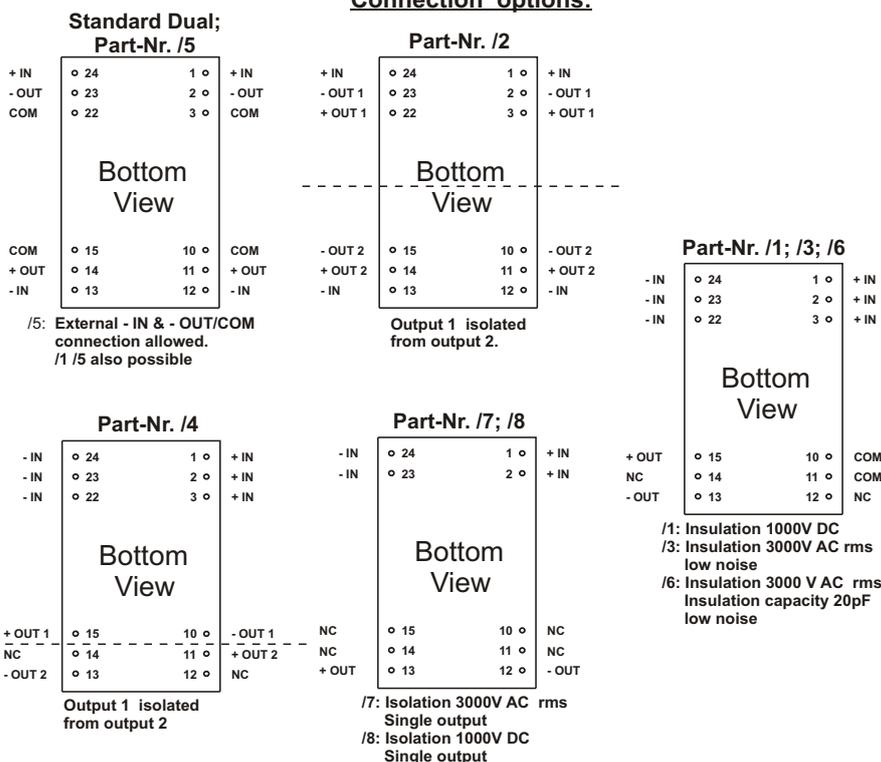


ALL DIMENSIONS IN MM (INCHES)  
MILLIMETERS +/- 0,50mm  
(INCHES +/- 0,02")

All pins on a 2,54mm pitch  
Note: NC = No connection; NP = No pin  
Dot denote pin 1

Special request: 1 CSK / 1CMK / 1CMKA  
short circuit proof & auto-restart available.

### Connection options:



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# INDUSTRIAL & AUTOMOTIVE

3 Watt

Regulated

## DC/DC Converters

Series:

Case style: DIP24

triple output

CSK / CMK / CMKA

Application: A/D conversion

1CSK / 1CMK / 1CMKA

### Electrical specifications:

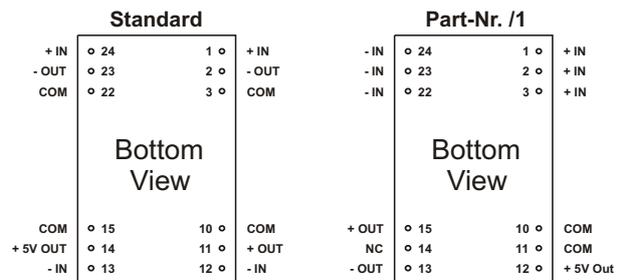
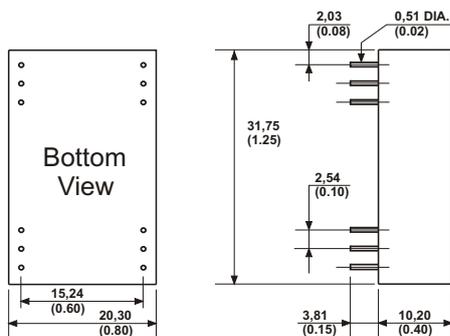
|                          |                   |                |
|--------------------------|-------------------|----------------|
| Input voltage range:     | 5V                | -5%+10%        |
|                          | 12V, 15V, 24V     | +/- 10%        |
| Output voltage accuracy: | +/- 3% @ Uout 1&2 |                |
| Line regulation:         | +/- 0,3%          |                |
| Load regulation:         | +/- 0,5%          |                |
| Operating temperature:   | max. +105°C       |                |
| Ambient temperature:     |                   |                |
|                          | CSK / CMK         | -40°C to +71°C |
|                          | CMKA              | -55°C to +85°C |
| Efficiency:              | min. 68%          |                |
| Ripple & Noise:          | typ. 50mVp-p      |                |

|   |  |
|---|--|
| Short circuit switch-off                                    |  |
| Short circuit proof & auto-restart (1CSK/1CMK/1CMKA-series) |  |
| Over load protection  | Thermal shut down                          |
| Over current /  |  |
| Short circuit cut-off:                                      | 120%                                       |
| rel. humidity:  | 93% / 40°C                                 |
| Shock proof acc.:   | IEC 68-2-34                                |
| Flameability:   | UL - 94V -0                                |
| Insulation test voltage:                                    | 1000V DC                                   |
| Part-Nr. /5   | External -IN & -OUT/COM connection allowed |
| Case material:  |  |
|   | CSK  |
|   | CMK / CMKA                                 |
|   | polycarbonat                               |
|   | metal                                      |

**CAUTION: NO INPUT POLARITY CHANGE ALLOWED!**

| Part - No.<br>Triple                                 | Input<br>Voltage | Output<br>Voltage 1&2 | max. Output<br>Current 1&2 | Output<br>Voltage 3 | max. Output<br>Current 3 |
|--|------------------|-----------------------|----------------------------|---------------------|--------------------------|
| CSK/CMK/CMKA05-3-0512D05<br>CSK/CMK/CMKA05-3-0515D05 | 5V               | +/-12V<br>+/-15V      | +/-125mA<br>+/-100mA       | 5V<br>5V            | 100mA<br>100mA           |
| CSK/CMK/CMKA10-3-1212D05<br>CSK/CMK/CMKA10-3-1215D05 | 12V              | +/-12V<br>+/-15V      | +/-125mA<br>+/-100mA       | 5V<br>5V            | 100mA<br>100mA           |
| CSK/CMK/CMKA10-3-1512D05<br>CSK/CMK/CMKA10-3-1515D05 | 15V              | +/-12V<br>+/-15V      | +/-125mA<br>+/-100mA       | 5V<br>5V            | 100mA<br>100mA           |
| CSK/CMK/CMKA10-3-2412D05<br>CSK/CMK/CMKA10-3-2415D05 | 24V              | +/-12V<br>+/-15V      | +/-125mA<br>+/-100mA       | 5V<br>5V            | 100mA<br>100mA           |

### Connection options:

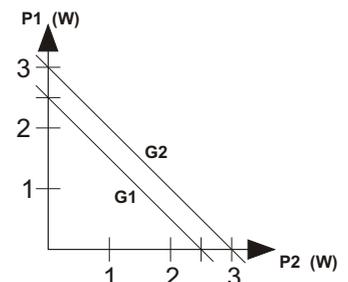


**NOTE:** Output voltage 3 is unregulated, without load  $U_{Out3}$  max. = 6,5V.

ALL DIMENSIONS IN MM (INCHES)  
 MILLIMETERS +/- 0,50mm  
 (INCHES +/- 0,02")  
 All pins on a 2,54mm pitch  
 Note: NC = No connection; NP = No pin  
 Dot denote pin 1

Special request: 1 CSK / 1CMK / 1CMKA  
 short circuit proof & auto-restart available.

Output 1 = P1 0 - 3W  
 Output 2 = P2 0 - 3W } G2  
 Output 3 = P3 0W  
 Output 1 = P1 0 - 2,5W  
 Output 2 = P2 0 - 2,5W } G1  
 Output 3 = P3 0,5W



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