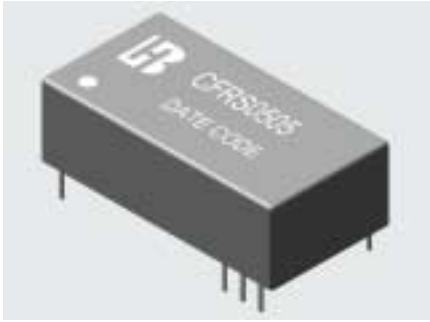


1. Features :

| | |
|--|--|
| <ul style="list-style-type: none"> ■ 24 Pin DIL Package |  |
| <ul style="list-style-type: none"> ■ Low Ripple and Noise | |
| <ul style="list-style-type: none"> ■ Input / Output Isolation 500 Vdc | |
| <ul style="list-style-type: none"> ■ 100 % Burn-In | |
| <ul style="list-style-type: none"> ■ Input Filter with Internal Capacitor | |
| <ul style="list-style-type: none"> ■ Custom Design Available | |

2. Absolute maximum ratings :

(Exceeding these values may damage the module. These are not continuous operating ratings)

| Parameter | Condition | Min. | Typ. | Max. | Unit |
|-------------------------------|------------------|------|------|------|--------|
| Input Absolute Voltage Range | 5V Input Model | -0.7 | 5 | 7.5 | Vdc |
| | 12V Input Model | -0.7 | 12 | 15 | |
| Max. Output power | | --- | --- | 5 | W |
| Output Short circuit duration | | --- | --- | 1.0 | Second |
| Operating temperature | Output Full Load | -40 | --- | +85 | °C |
| Storage temperature | | -55 | --- | +105 | |

3. Nominal Input / Output Electrical Specifications :

(Specifications typical at Ta = +25°C , nominal input voltage, rated output current unless otherwise noted)

| Parameter | Condition | Min. | Typ. | Max. | Unit |
|---|----------------------|------|--------|--------|--------|
| Input Voltage Range | 5V Input Model | 4.5 | 5 | 5.5 | Vdc |
| | 12V Input Model | 10.8 | 12 | 13.2 | |
| Output Voltage Accuracy | Nominal Input | --- | --- | ± 5.0 | % |
| Voltage Balance (Dual Outputs) | | --- | --- | ± 1.0 | |
| Switching Frequency | | --- | 85 | --- | KHz |
| Temperature Coefficient | | --- | ± 0.01 | ± 0.02 | % / °C |
| Isolation Voltage | 60 Seconds / 0.5mA | 500 | --- | --- | Vdc |
| Isolation Resistance | 500 Vdc | 1000 | --- | --- | MΩ |
| Isolation Capacitance | 1 KHz / 250 mV rms | --- | 50 | --- | pF |
| Max. Line Regulation (Per 1.0 % change in input change) | | --- | --- | 1.3 | % |
| Hi-Enable Signal Logic level | Output Voltage => Hi | 3.0 | 5 | 5.5 | Vdc |

4. Single Output Selection Guide :

4.1. Non-Regulated – 500 Vdc Isolation – Single Output

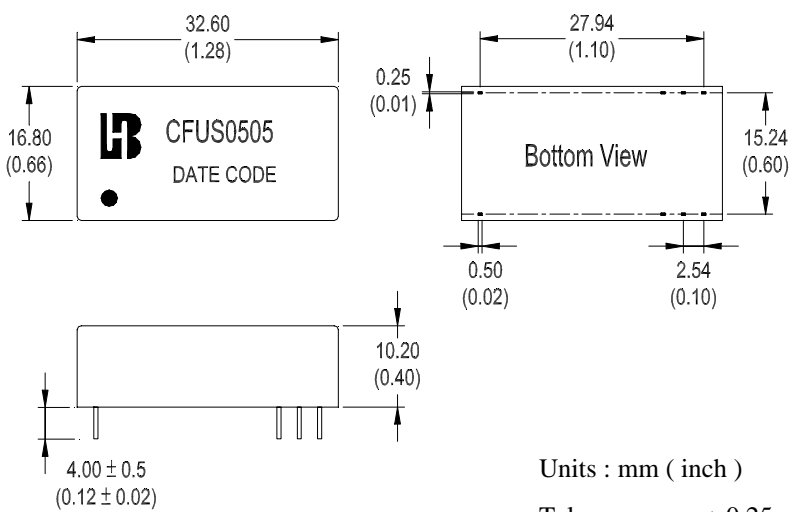
(Specifications typical at Ta = +25 °C, Nominal input voltage, Rated output current unless otherwise noted)

| Bothhand Model No. | Input Voltage (Vdc) | Output Voltage (Vdc) | Output Current (mA) Max | Input Current @ No Load (mA) Typ. | Input Current @ Max. Load (mA) Typ. | Output Ripple (mV) Max. | Load Regulation (%) Max. | Efficiency (%) Typ. |
|--------------------|---------------------|----------------------|-------------------------|-----------------------------------|-------------------------------------|-------------------------|--------------------------|---------------------|
| CFUS0505 | 5 | 5.0 | 360 | 30 | 456 | 60 | ± 8 | 79 |
| CFUS0509 | | 9.0 | 200 | 30 | 456 | 90 | ± 8 | 79 |
| CFUS0509-C | | 9.0 | 200 | 30 | 462 | 90 | ± 8 | 78 |
| CFUS0512 | | 12.0 | 150 | 28 | 450 | 100 | ± 8 | 80 |
| CFUS0515 | | 15.0 | 120 | 28 | 444 | 120 | ± 8 | 81 |
| CFUS1205 | 12 | 5.0 | 360 | 18 | 190 | 75 | ± 8 | 79 |
| CFUS1209 | | 9.0 | 200 | 18 | 190 | 75 | ± 8 | 79 |
| CFUS1212 | | 12.0 | 150 | 18 | 188 | 75 | ± 8 | 80 |
| CFUSxxxx | | | | | | | | |

Notes :

1. CFUSxxxx is for Customer Design.
2. “ - C ” is Short circuit protections.
3. Load regulation is for output current change from 20 % to 100 % Max. Load.

Mechanical Dimension :



Units : mm (inch)
Tolerance : .xx ± 0.25
(± 0.01)

| Pin | 500Vdc - Single | | Pin |
|-----|-----------------|--------|-----|
| 1 | +Vin | +Vin | 24 |
| 2 | | | 23 |
| 3 | | | 22 |
| 4 | | | 21 |
| 5 | | | 20 |
| 6 | --- | --- | 19 |
| 7 | | | 18 |
| 8 | | | 17 |
| 9 | | | 16 |
| 10 | Vo (-) | Vo (-) | 15 |
| 11 | Vo (+) | Vo (+) | 14 |
| 12 | -Vin | -Vin | 13 |

Note : " --- " means Omitted

4.2. Hi- Enable - 500Vdc Isolation – Single Output

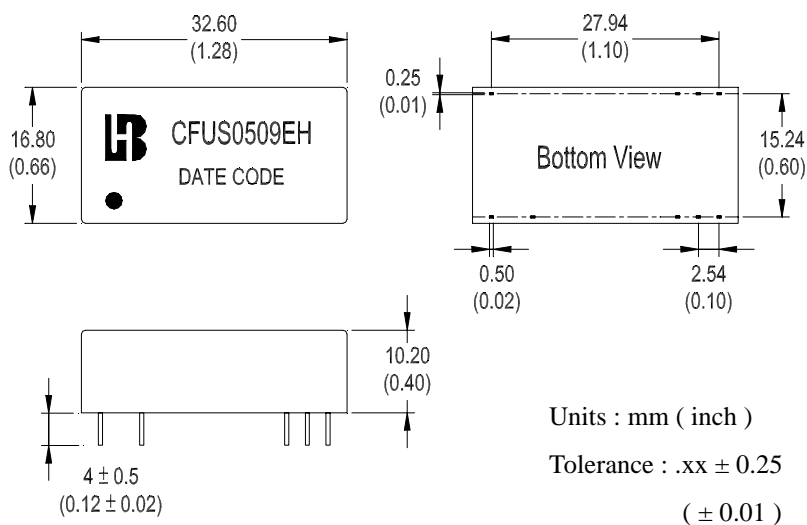
(Specifications typical at Ta = +25 °C, Nominal input voltage, Rated output current unless otherwise noted)

| Bothhand Model No. | Input Voltage (Vdc) | Output Voltage (Vdc) | Output Current (mA) Max | Input Current @ No Load (mA) Typ. | Input Current @ Max. Load (mA) Typ. | Output Ripple (mV) Max. | Load Regulation (%) Max. | Efficiency (%) Typ. |
|--------------------|---------------------|----------------------|-------------------------|-----------------------------------|-------------------------------------|-------------------------|--------------------------|---------------------|
| CFUS0509EH | 5 | 9.0 | 200 | 38 | 486 | 75 | ± 8 | 74 |
| CFUSxxxxEH | | | | | | | | |

Notes :

1. CFUSxxxxEH is for Customer Design
2. Enable signal : Logic Hi => Active
3. Load regulation is for output current change from 20 % to 100 % Max. Load.

Mechanical Dimension :



| Pin | 500Vdc - Single | | Pin |
|-----|-----------------|-----------|-----|
| 1 | +Vin | +Vin | 24 |
| 2 | | --- | 23 |
| 3 | | Hi-enable | 22 |
| 4 | | | 21 |
| 5 | | | 20 |
| 6 | --- | | 19 |
| 7 | | --- | 18 |
| 8 | | | 17 |
| 9 | | | 16 |
| 10 | Vo (-) | Vo (-) | 15 |
| 11 | Vo (+) | Vo (+) | 14 |
| 12 | -Vin | -Vin | 13 |

Note : " --- " means Omitted

4.3. Regulated – 500Vdc Isolation – Single Output

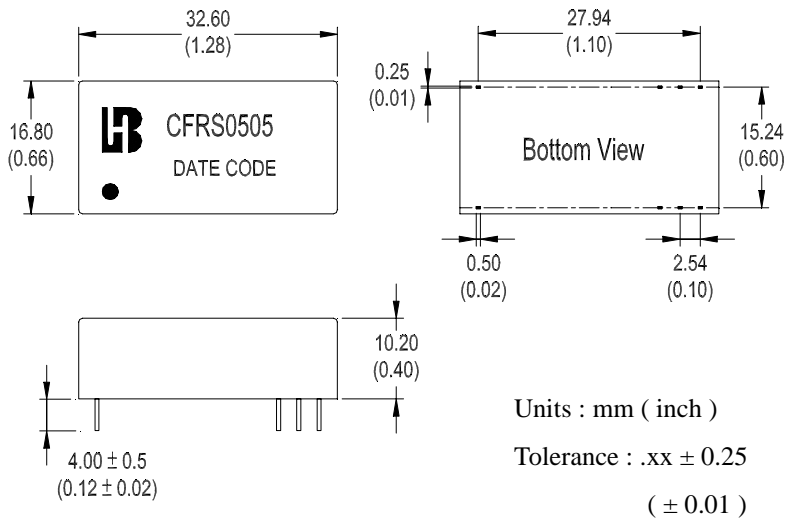
(Specifications typical at Ta = +25 °C, Nominal input voltage, Rated output current unless otherwise noted)

| Bothhand Model No. | Input Voltage (Vdc) | Output Voltage (Vdc) | Output Current (mA) Max | Input Current @ No Load (mA) Typ. | Input Current @ Max. Load (mA) Typ. | Output Ripple (mV) Max. | Load Regulation (%) Max. | Efficiency (%) Typ. |
|--------------------|---------------------|----------------------|-------------------------|-----------------------------------|-------------------------------------|-------------------------|--------------------------|---------------------|
| CFRS0505 | 5 | 5.0 | 360 | 45 | 571 | 50 | ± 0.5 | 63 |
| CFRS0509 | | 9.0 | 200 | 40 | 563 | 70 | ± 0.5 | 64 |
| CFRS0512 | | 12.0 | 150 | 40 | 554 | 80 | ± 0.5 | 65 |
| CFRS0515 | | 15.0 | 50 | 38 | 545 | 90 | ± 0.5 | 66 |
| CFRS1205 | 12 | 5.0 | 360 | 20 | 231 | 50 | ± 0.5 | 65 |
| CFRS1212 | | 12.0 | 150 | 20 | 227 | 80 | ± 0.5 | 66 |
| CFRSxxxx | | | | | | | | |

Notes :

1. CFRSxxxx is for Customer Design.
2. Load regulation is for output current change from 0 % to 100 % Max. Load.

Mechanical Dimension :



| Pin | 500Vdc - Single | | Pin |
|-----|-----------------|--------|-----|
| 1 | +Vin | +Vin | 24 |
| 2 | | | 23 |
| 3 | | | 22 |
| 4 | | | 21 |
| 5 | | | 20 |
| 6 | --- | --- | 19 |
| 7 | | | 18 |
| 8 | | | 17 |
| 9 | | | 16 |
| 10 | Vo (-) | Vo (-) | 15 |
| 11 | Vo (+) | Vo (+) | 14 |
| 12 | -Vin | -Vin | 13 |

Note : " --- " means Omitted

5. Dual Output Selection Guide :

5.1. Non-Regulated - 500Vdc Isolation – Dual Output

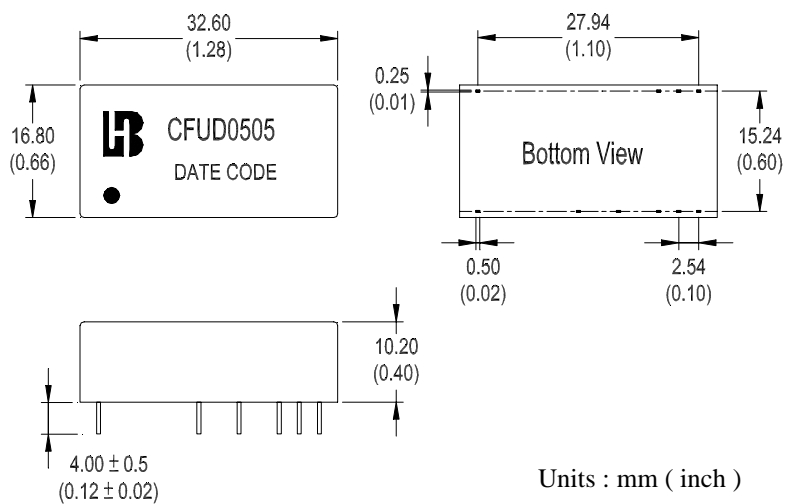
(Specifications typical at Ta = +25 °C, Nominal input voltage, Rated output current unless otherwise noted)

| Bothhand Model No. | Input Voltage (Vdc) | Output Voltage (Vdc) | Output Current (mA) Max | Input Current @ No Load (mA) Typ. | Input Current @ Max. Load (mA) Typ. | Output Ripple (mV) Max. | Load Regulation (%) Max. | Efficiency (%) Typ. |
|--------------------|---------------------|----------------------|-------------------------|-----------------------------------|-------------------------------------|-------------------------|--------------------------|---------------------|
| CFUD0505 | 5 | ± 5.0 | ± 182 | 30 | 467 | 70 | ± 8 | 78 |
| CFUD0512 | | ± 12.0 | ± 75 | 29 | 456 | 100 | ± 8 | 79 |
| CFUD0515 | | ± 15.0 | ± 60 | 28 | 450 | 120 | ± 8 | 80 |
| CFUD1212 | 12 | ± 12.0 | ± 75 | 18 | 189 | 100 | ± 8 | 79 |
| CFUD1215 | | ± 15.0 | ± 60 | 18 | 185 | 120 | ± 8 | 81 |
| CFUDxxxx | | | | | | | | |

Notes :

1. CFUDxxxx is for Customer Design.
2. Load regulation is for output current change from 0 % to 100 % Max. Load.

Mechanical Dimension



Units : mm (inch)
Tolerance : .xx ± 0.25
(± 0.01)

| Pin | 500Vdc - Dual | | Pin |
|-----|---------------|---------|-----|
| 1 | +Vin | +Vin | 24 |
| 2 | | | 23 |
| 3 | | | 22 |
| 4 | | --- | 21 |
| 5 | | --- | 20 |
| 6 | | Vo2 (-) | 19 |
| 7 | | --- | 18 |
| 8 | | Vo2 (+) | 17 |
| 9 | | --- | 16 |
| 10 | Vo1 (-) | Vo1 (-) | 15 |
| 11 | Vo1(+) | Vo1(+) | 14 |
| 12 | -Vin | -Vin | 13 |

Note : " --- " means Omitted

5.2. Non-Regulated – 500Vdc Isolation – 5 W Dual Separate Output

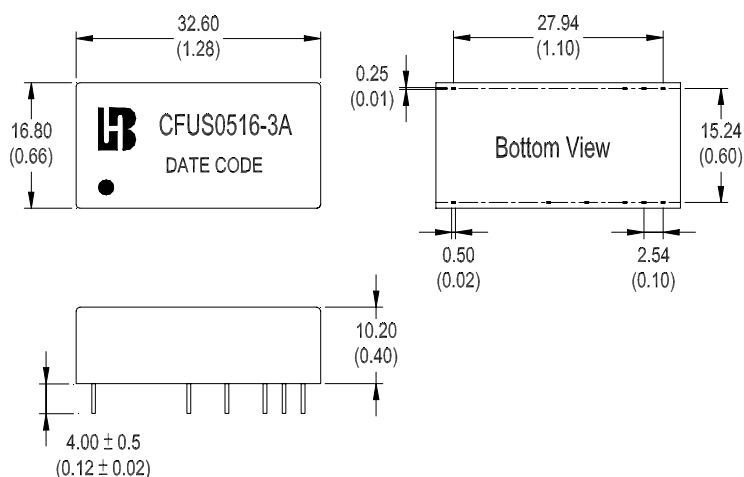
(Specifications typical at Ta = +25 °C, Nominal input voltage, Rated output current unless otherwise noted)

| Bothhand Model No. | Input Voltage (Vdc) | Output Voltage (Vdc) | | Output Current (mA) Max | | Input Current @ No Load (mA) Typ. | Input Current @ Max. Load (mA) Typ. | Output Ripple (mV) Max. | Load Regulation (%) Max. | Efficiency (%) Typ. |
|--------------------|---------------------|----------------------|------|-------------------------|-----|-----------------------------------|-------------------------------------|-------------------------|--------------------------|---------------------|
| | | 18 | 7.85 | 31 | 520 | | | | | |
| CFUS0516-3A | 5 | 18 | 7.85 | 31 | 520 | 40 | 370 | 120 | ± 8 | 70 |
| CFUSxxxx-3A | | | | | | | | | | |

Notes :

1. CFUSxxxx-3A is for Customer Design.
2. Load regulation is for output current change from 20 % to 100 % Max. Load.

Mechanical Dimension :



Units : mm (inch)

Tolerance : .xx ± 0.25

(± 0.01)

| Pin | 500Vdc - Dual Separate | | Pin |
|-----|------------------------|---------|---------|
| 1 | +Vin | +Vin | 24 |
| 2 | --- | --- | 23 |
| 3 | | | 22 |
| 4 | | | 21 |
| 5 | | | 20 |
| 6 | | | Vo2 (-) |
| 7 | --- | --- | 18 |
| 8 | Vo2 (+) | --- | 17 |
| 9 | --- | --- | 16 |
| 10 | Vo1 (-) | Vo1 (-) | 15 |
| 11 | Vo1 (+) | Vo1 (+) | 14 |
| 12 | -Vin | -Vin | 13 |

Note : " --- " means Omitted