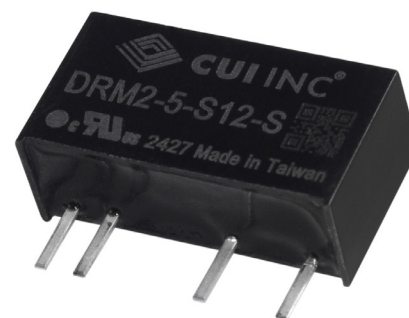


SERIES: DRM2-S | **DESCRIPTION:** DC-DC CONVERTER**FEATURES**

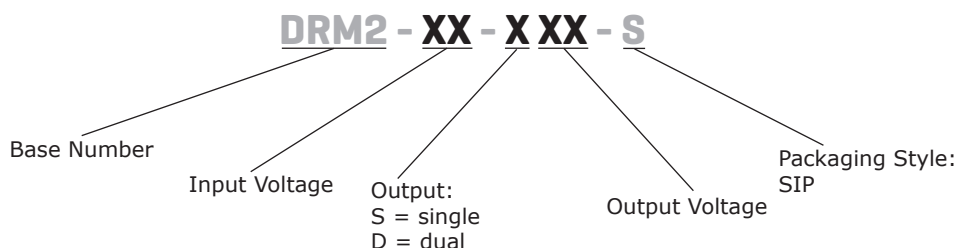
- 2 W isolated output
- industry standard SIP package
- single and dual unregulated output
- short circuit protection
- 3,000 Vdc isolation voltage
- certified to UL 62368-1
- -40 to 95 °C with derating



| MODEL | input voltage | | output voltage | output current | output power | ripple & noise ¹ | efficiency |
|---------------|---------------|-------------|----------------|----------------|--------------|-----------------------------|------------|
| | typ (Vdc) | range (Vdc) | (Vdc) | max (mA) | max (W) | max (mVp-p) | typ (%) |
| DRM2-5-S3-S | 5 | 4.5~5.5 | 3.3 | 606 | 2 | 150 | 75 |
| DRM2-5-S5-S | 5 | 4.5~5.5 | 5 | 400 | 2 | 120 | 79 |
| DRM2-5-S9-S | 5 | 4.5~5.5 | 9 | 223 | 2 | 120 | 83 |
| DRM2-5-S12-S | 5 | 4.5~5.5 | 12 | 167 | 2 | 120 | 83 |
| DRM2-5-S15-S | 5 | 4.5~5.5 | 15 | 134 | 2 | 120 | 82 |
| DRM2-5-D3-S | 5 | 4.5~5.5 | ±3.3 | ±303 | 2 | 150 | 78 |
| DRM2-5-D5-S | 5 | 4.5~5.5 | ±5 | ±200 | 2 | 120 | 81 |
| DRM2-5-D12-S | 5 | 4.5~5.5 | ±12 | ±84 | 2 | 120 | 84 |
| DRM2-5-D15-S | 5 | 4.5~5.5 | ±15 | ±67 | 2 | 120 | 83 |
| DRM2-12-S3-S | 12 | 10.8~13.2 | 3.3 | 606 | 2 | 150 | 78 |
| DRM2-12-S5-S | 12 | 10.8~13.2 | 5 | 400 | 2 | 120 | 79 |
| DRM2-12-S9-S | 12 | 10.8~13.2 | 9 | 223 | 2 | 120 | 85 |
| DRM2-12-S12-S | 12 | 10.8~13.2 | 12 | 167 | 2 | 120 | 85 |
| DRM2-12-S15-S | 12 | 10.8~13.2 | 15 | 134 | 2 | 120 | 82 |
| DRM2-12-D3-S | 12 | 10.8~13.2 | ±3.3 | ±303 | 2 | 150 | 82 |
| DRM2-12-D5-S | 12 | 10.8~13.2 | ±5 | ±200 | 2 | 120 | 81 |
| DRM2-12-D12-S | 12 | 10.8~13.2 | ±12 | ±84 | 2 | 120 | 80 |
| DRM2-12-D15-S | 12 | 10.8~13.2 | ±15 | ±67 | 2 | 120 | 82 |
| DRM2-24-S3-S | 24 | 21.6~26.4 | 3.3 | 606 | 2 | 150 | 80 |
| DRM2-24-S5-S | 24 | 21.6~26.4 | 5 | 400 | 2 | 120 | 84 |
| DRM2-24-S9-S | 24 | 21.6~26.4 | 9 | 223 | 2 | 120 | 86 |
| DRM2-24-S12-S | 24 | 21.6~26.4 | 12 | 167 | 2 | 120 | 86 |
| DRM2-24-S15-S | 24 | 21.6~26.4 | 15 | 134 | 2 | 120 | 85 |
| DRM2-24-D3-S | 24 | 21.6~26.4 | ±3.3 | ±303 | 2 | 150 | 82 |
| DRM2-24-D5-S | 24 | 21.6~26.4 | ±5 | ±200 | 2 | 120 | 83 |
| DRM2-24-D12-S | 24 | 21.6~26.4 | ±12 | ±84 | 2 | 120 | 83 |
| DRM2-24-D15-S | 24 | 21.6~26.4 | ±15 | ±67 | 2 | 120 | 84 |

Notes: 1. At full load, nominal input, 20 MHz bandwidth oscilloscope.
 2. The efficiency is test by nominal input and max. full load at 25 °C.
 3. All specifications measured at Ta=25°C, nominal input voltage, rated output load, and after warm up unless otherwise specified.

PART NUMBER KEY



INPUT

| parameter | conditions/description | min | typ | max | units |
|---------------------|------------------------|-----|-----|-----|-------|
| input voltage range | | -10 | | +10 | % |
| filter | capacitance filter | | | | |

OUTPUT

| parameter | conditions/description | min | typ | max | units |
|--|---|-----|------|-------|-------|
| maximum capacitive load ^{4,5} | 3.3, 5 Vdc output models | | | 1,500 | μF |
| | ±3.3, ±5, 9 Vdc output models | | | 680 | μF |
| | 12, 15 Vdc output models | | | 470 | μF |
| | ±12, ±15 Vdc output models | | | 220 | μF |
| voltage accuracy | | -5 | | +5 | % |
| line regulation | measured from low to high line, full load | | ±1.2 | | % |
| load regulation | measured from 10~100% load | | | | |
| | 3.3 Vdc output models | | | 20 | % |
| | 5 Vdc output models | | | 15 | % |
| | 9, 12, 15 Vdc output model | | | 10 | % |
| switching frequency | at Vin nominal, full load | 20 | | | kHz |

Note: 4. The capacitive load is tested by minimum input and constant resistive load.
5. For dual output models, maximum capacitance applies to individual outputs.

PROTECTIONS

| parameter | conditions/description | min | typ | max | units |
|--------------------------|------------------------|-----|-----|-----|-------|
| short circuit protection | continuous | | | | |

SAFETY AND COMPLIANCE

| parameter | conditions/description | min | typ | max | units |
|-----------------------|---|------------|-----|-----|-------|
| isolation voltage | input to output for 1 second | 3,000 | | | Vdc |
| isolation capacitance | | | 80 | | pF |
| insulation type | functional | | | | |
| safety approvals | certified to 62368-1: UL | | | | |
| EMC | EN 55032/55024 ⁶ | | | | |
| EMI | EN 55032, Class A/B | | | | |
| ESD | IEC 61000-4-2, air ±8 kV; contact ±6 kV, perf. Criteria A | | | | |
| fast transient | IEC 61000-4-4, ±0.5 kV, perf. Criteria A | | | | |
| surge | IEC 61000-4-5, ±0.5 kV, perf. Criteria A | | | | |
| conducted immunity | IEC 61000-4-6, 3 Vrms, perf. Criteria A | | | | |
| vibration | MIL-STD-202G | | | | |
| MTBF | at 25°C | 18,300,000 | | | hours |
| | at 85°C | 8,070,000 | | | hours |
| RoHS | yes | | | | |

Note: 6. Refer to Figures 2 and 3 for recommended EMC circuit.

ENVIRONMENTAL

| parameter | conditions/description | min | typ | max | units |
|--------------------------|------------------------|-----|-----|-----|-------|
| operating temperature | see derating curve | -40 | | 95 | °C |
| storage temperature | | -55 | | 125 | °C |
| maximum case temperature | | | | 105 | °C |
| operating humidity | non-condensing | 5 | | 95 | % |

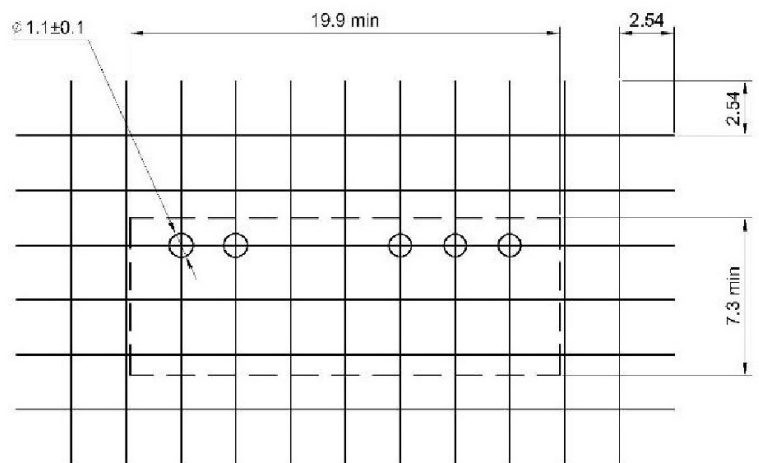
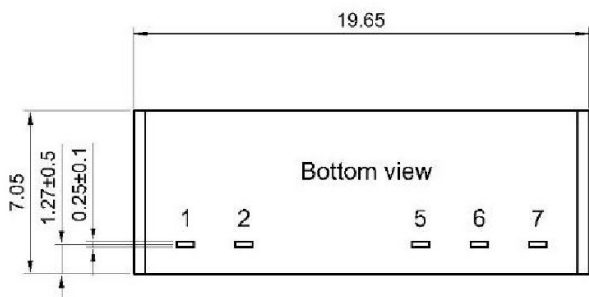
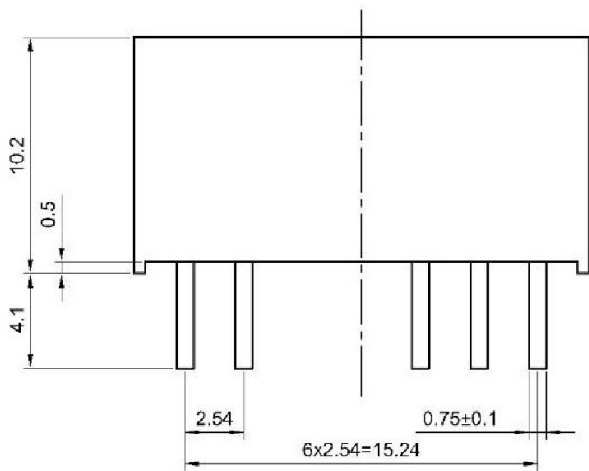
MECHANICAL

| parameter | conditions/description | min | typ | max | units |
|------------------|------------------------|-----|-----|-----|-------|
| dimensions | 19.65 x 7.05 x 10.20 | | | | mm |
| case material | UL94V-0 black plastic | | | | |
| potting material | epoxy (UL94V-0) | | | | |
| weight | | | 2.8 | | g |

MECHANICAL DRAWING

units: mm
tolerance: ±0.25 mm

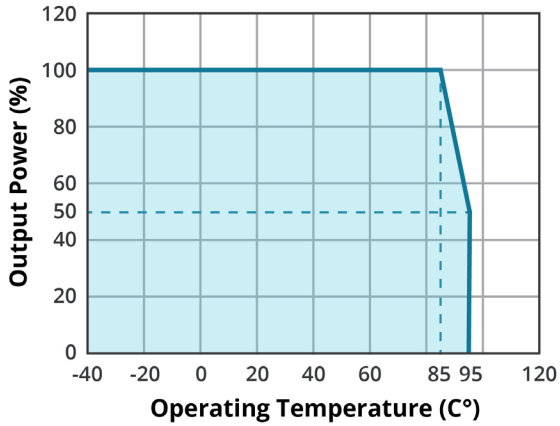
| PIN CONNECTIONS | | |
|-----------------|--------|-------|
| PIN | Single | Dual |
| 1 | +Vin | +Vin |
| 2 | -Vin | -Vin |
| 5 | -Vout | -Vout |
| 6 | no pin | Com |
| 7 | +Vout | +Vout |



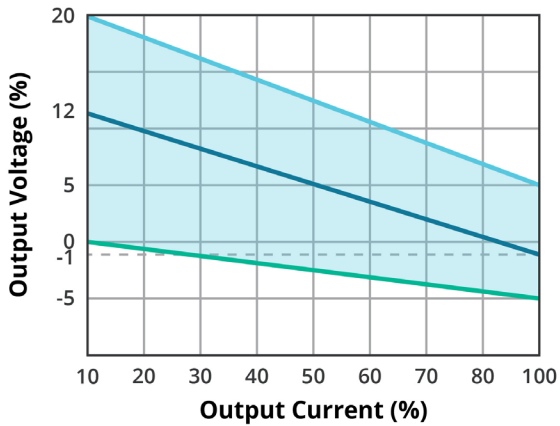
Footprint (Top view)

DERATING CURVE

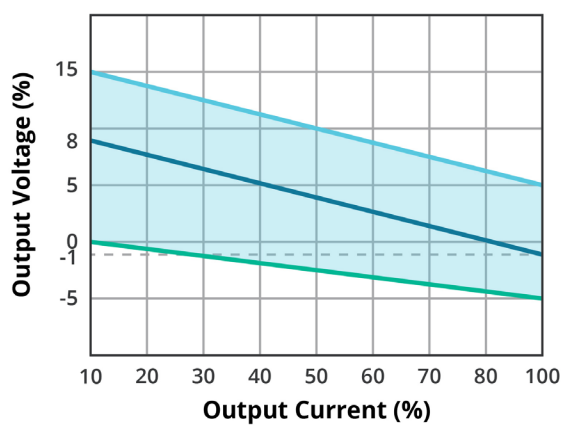
TEMPERATURE DERATING CURVE
(natural convection)



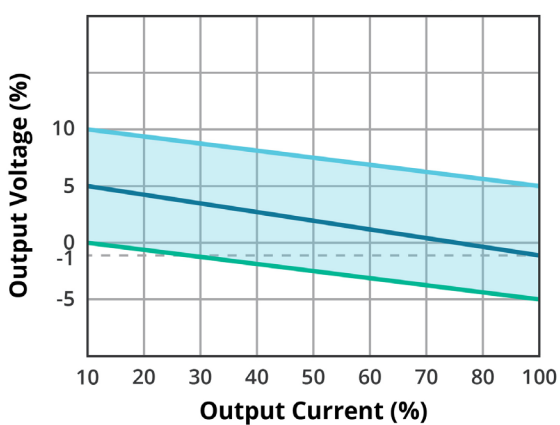
OUTPUT REGULATION CURVE
(3.3 Vdc output models)



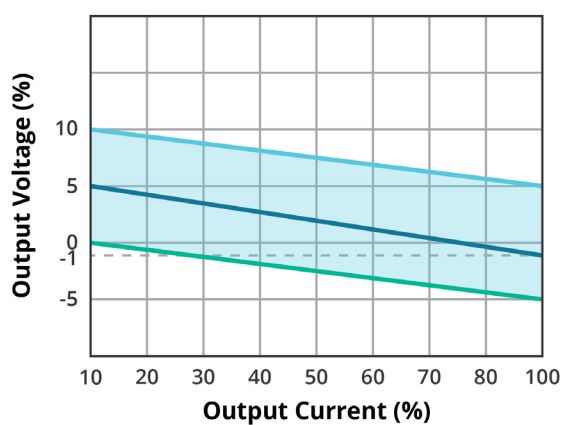
OUTPUT REGULATION CURVE
(5 Vdc output models)



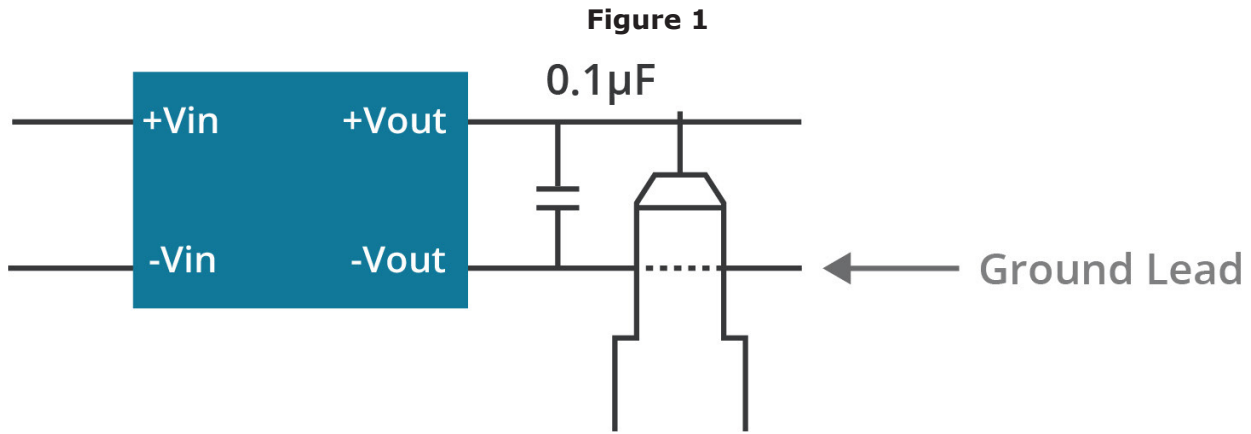
OUTPUT REGULATION CURVE
(9 Vdc output models)



OUTPUT REGULATION CURVE
(12, 15 Vdc output models)



RIPPLE AND NOISE MEASURE METHOD



Note: Measured with 20MHz bandwidth and 0.1µF ceramic capacitor.

EMI RECOMMENDED CIRCUIT FOR EN 55032 CLASS A/B

Figure 2
Single output

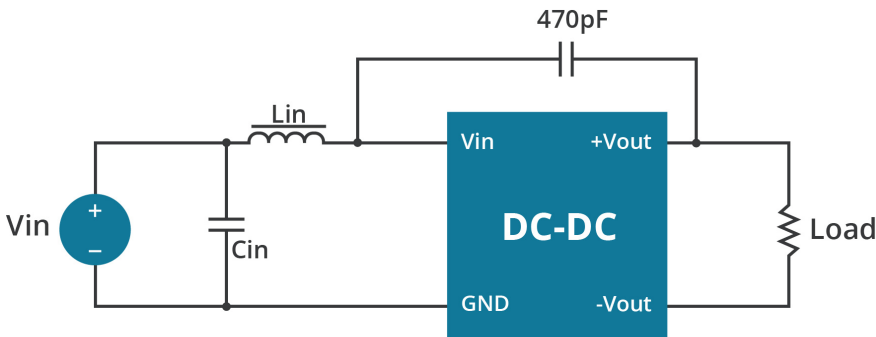


Table 1
Single output

| Recommended EMI Filter Values | | | | |
|-------------------------------|---------|------|---------|------|
| Vin | Class A | | Class B | |
| | Lin | Cin | Lin | Cin |
| 5 | - µH | - µF | - µH | - µF |
| 12 | - µH | - µF | - µH | - µF |
| 24 | - µH | - µF | - µH | - µF |

Figure 3
Dual output

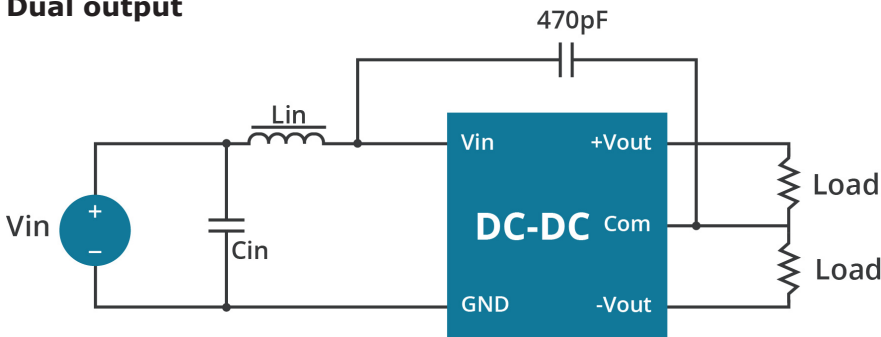


Table 2
Dual output

| Recommended EMI Filter Values | | | | |
|-------------------------------|---------|------|---------|------|
| Vin | Class A | | Class B | |
| | Lin | Cin | Lin | Cin |
| 5 | - µH | - µF | - µH | - µF |
| 12 | - µH | - µF | - µH | - µF |
| 24 | - µH | - µF | - µH | - µF |

REVISION HISTORY

| rev. | description | date |
|------|-------------------------|------------|
| 1.0 | initial release | 10/04/2024 |
| 1.01 | company address updated | 11/05/2024 |

The revision history provided is for informational purposes only and is believed to be accurate.



CUI INC

a bel group

Headquarters

15575 SW Sequoia Pkwy #100
Portland, OR 97224
800.275.4899

Fax 503.612.2383
cuicom
techsupport@cuicom

CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

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