

Features

Unregulated Converters

- 1kVDC Isolation
- Internal SMD Construction
- UL94V-0 Package Material
- Optional Continuous Short Circuit Protected
- Efficiency to 80%

ECONOLINE

DC/DC-Converter

RQS & RQD Series

0.25 Watt

SMD

Single & Dual Output



Selection Guide

| Part Number | Input Voltage (VDC) | Output Voltage (VDC) | Output Current (mA) | Efficiency (%) |
|-------------|----------------------------|----------------------|---------------------|----------------|
| RQS-xx1.8 | 1.8, 3.3, 5, 9, 12, 15, 24 | 1.8 | 139 | 70 |
| RQS-xx3.3 | 1.8, 3.3, 5, 9, 12, 15, 24 | 3.3 | 76 | 65-70 |
| RQS-xx05 | 1.8, 3.3, 5, 9, 12, 15, 24 | 5 | 50 | 66-72 |
| RQS-xx09 | 1.8, 3.3, 5, 9, 12, 15, 24 | 9 | 28 | 70-72 |
| RQS-xx12 | 1.8, 3.3, 5, 9, 12, 15, 24 | 12 | 21 | 70-72 |
| RQS-xx15 | 1.8, 3.3, 5, 9, 12, 15, 24 | 15 | 17 | 70-76 |
| RQS-xx24 | 1.8, 3.3, 5, 9, 12, 15, 24 | 24 | 10 | 70-80 |
| RQD-xx1.8 | 1.8, 3.3, 5, 9, 12, 15, 24 | ±1.8 | ±70 | 70 |
| RQD-xx3.3 | 1.8, 3.3, 5, 9, 12, 15, 24 | ±3.3 | ±38 | 65-70 |
| RQD-xx05 | 1.8, 3.3, 5, 9, 12, 15, 24 | ±5 | ±25 | 66-72 |
| RQD-xx09 | 1.8, 3.3, 5, 9, 12, 15, 24 | ±9 | ±14 | 70-72 |
| RQD-xx12 | 1.8, 3.3, 5, 9, 12, 15, 24 | ±12 | ±11 | 70-72 |
| RQD-xx15 | 1.8, 3.3, 5, 9, 12, 15, 24 | ±15 | ±9 | 70-76 |
| RQD-xx24 | 1.8, 3.3, 5, 9, 12, 15, 24 | ±24 | ±5 | 70-80 |

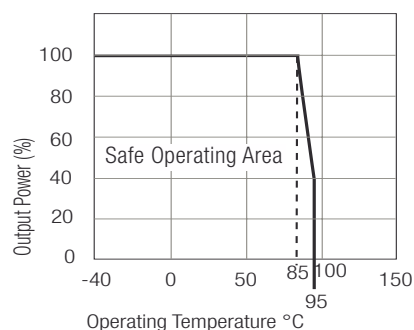
xx = Input Voltage

* add Suffix "P" for Continuous Short Circuit Protection, e.g. RQS-051.8/P, RQD-051.8/P

Specifications (Core Operating Area)

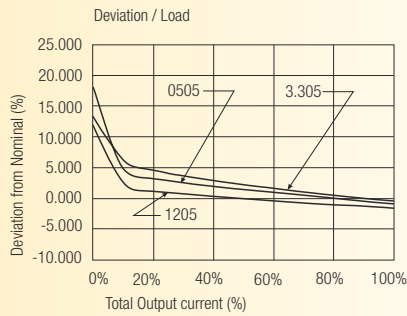
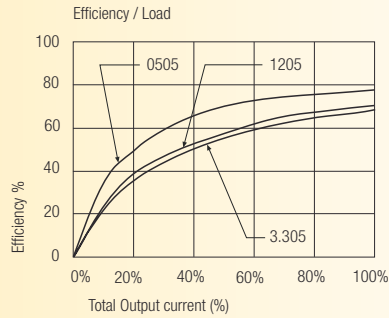
| | | | |
|---|---|---|------------------------------|
| Input Voltage Range | | ±10% | |
| Output Voltage Accuracy | | ±5% | |
| Line Voltage Regulation | | 1.2%/1% of Vin typ. | |
| Load Voltage Regulation (10% to 100% full load) | 1.8V, 3.3V output types 5V output type 9V, 12V, 15V, 24V output types | 20% max. 15% max. 10% max. | |
| Output Ripple and Noise (20MHz limited) | | 100mVp-p max. | |
| Operating Frequency | | 50kHz min. / 100kHz typ. / 105kHz max. | |
| Efficiency at Full Load | | 65% min. / 75% typ. | |
| No Load Power Consumption | | 45mW min. / 75mW typ. / 105mW max. | |
| Isolation Voltage | (tested for 1 second) | 1000VDC min. | |
| Rated Working Voltage | (long term isolation) | see Application Notes | |
| Isolation Capacitance | | 25pF min. / 82pF max. | |
| Isolation Resistance | | 10 GΩ min. | |
| Short Circuit Protection | | 1 Second | |
| P-Suffix | | Continuous | |
| Operating Temperature Range (free air convection) | | -40°C to +85°C (see Graph) | |
| Storage Temperature Range | | -55°C to +125°C | |
| Reflow Temperature | ROHS compliant | 245°C (30 sec) max. (for more details see Application Notes) | |
| Relative Humidity | | 95% RH | |
| Package Weight | RQS types RQD types | 1.5g 2.2g | |
| MTBF (+25°C) | } Detailed Information see Application Notes chapter "MTBF" | using MIL-HDBK 217F | 1345 x 10 ³ hours |
| (+85°C) | | using MIL-HDBK 217F | 310 x 10 ³ hours |

Derating-Graph (Ambient Temperature)

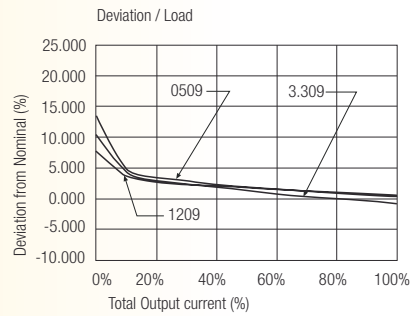
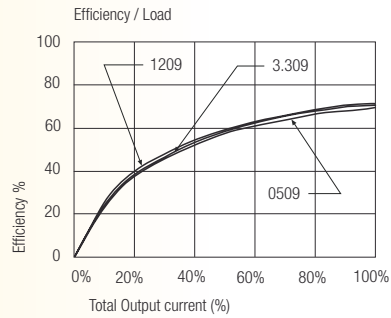


Typical Characteristics

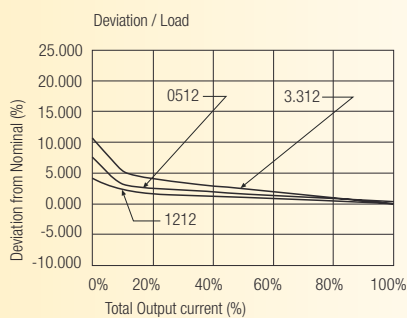
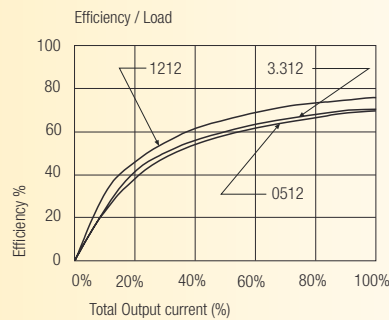
RQS/RQD-xx05



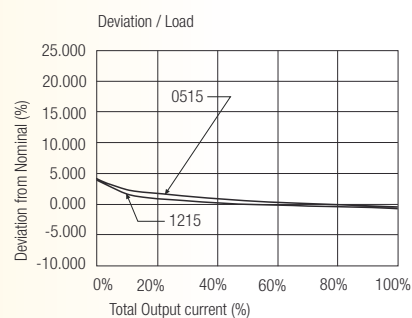
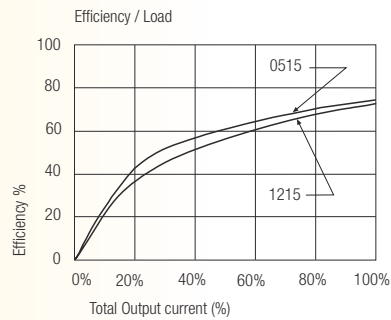
RQS/RQD-xx09



RQS/RQD-xx12



RQS/RQD-xx15

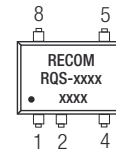
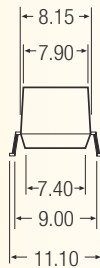
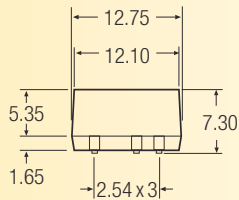


RQS & RQD Series

Package Style and Pinning (mm)

3rd angle projection 

8 PIN SMD Package

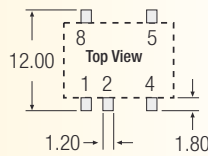
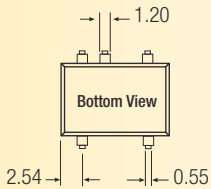


Pin Connections

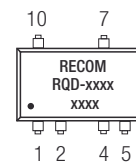
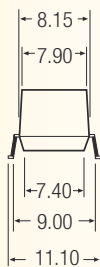
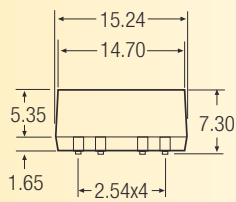
| Pin # | Single |
|-------|--------|
| 1 | -Vin |
| 2 | +Vin |
| 4 | -Vout |
| 5 | +Vout |
| 8 | NC |

NC = No Connection
 XX.X ± 0.5 mm
 XX.XX ± 0.25 mm

Recommended Footprint Details



10 PIN SMD Package



Pin Connections

| Pin # | Dual |
|-------|-------|
| 1 { | -Vin |
| 2 | +Vin |
| 4 | Com |
| 5 | -Vout |
| 7 | +Vout |
| 10 | NC |

NC = No Connection
 XX.X ± 0.5 mm
 XX.XX ± 0.25 mm

Recommended Footprint Details

