

Features

- 2:1 Wide Input Voltage Range
- 10 Watts Output Power
- 1.6kVDC Isolation
- Fixed Operating Frequency
- Six-Sided Continuous Shield
- International Safety Standard Approvals
- UL 1950 Component Recognized
- Standard 50.8 x25.4x10.2mm Package
- Efficiency to 86%

POWERLINE
DC/DC-Converter

RP10- S_DE Series

Selection Guide 12V, 24V and 48V Input Types

Part Number	Input Range	Output Voltage	Output Current	Input ⁽⁴⁾ Current	Efficiency ⁽⁵⁾	Capacitive ⁽⁶⁾ Load max.
	VDC	VDC	mA	mA	%	µF
RP10-123.3SE	9-18	3.3	2000	724	80	6800
RP10-1205SE	9-18	5	2000	1082	81	4700
RP10-1212SE	9-18	12	830	1064	82	690
RP10-1215SE	9-18	15	670	1088	81	470
RP10-243.3SE	18-36	3.3	2000	362	80	6800
RP10-2405SE	18-36	5	2000	534	82	4700
RP10-2412SE	18-36	12	830	519	84	690
RP10-2415SE	18-36	15	670	523	84	470
RP10-483.3SE	36-75	3.3	2000	183	79	6800
RP10-4805SE	36-75	5	2000	260	84	4700
RP10-4812SE	36-75	12	830	253	86	690
RP10-4815SE	36-75	15	670	258	85	470
RP10-1205DE	9-18	±5	±1000	1068	82	±680
RP10-1212DE	9-18	±12	±416	1053	83	±330
RP10-1215DE	9-18	±15	±333	1041	84	±110
RP10-2405DE	18-36	±5	±1000	548	80	±680
RP10-2412DE	18-36	±12	±416	520	84	±330
RP10-2415DE	18-36	±15	±333	520	84	±110
RP10-4805DE	36-75	±5	±1000	267	82	±680
RP10-4812DE	36-75	±12	±416	254	86	±330
RP10-4815DE	36-75	±15	±333	260	84	±110

Description

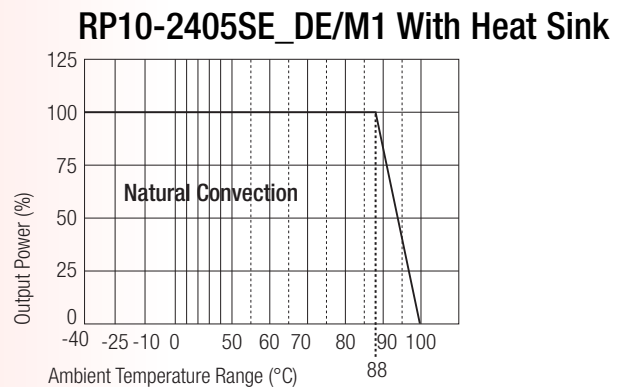
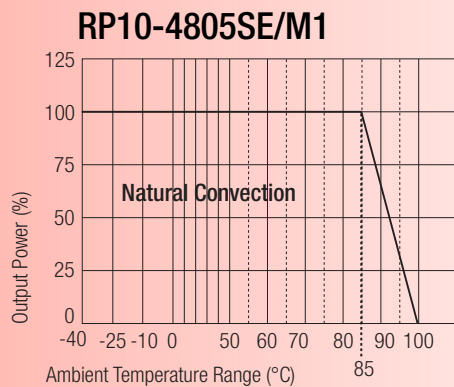
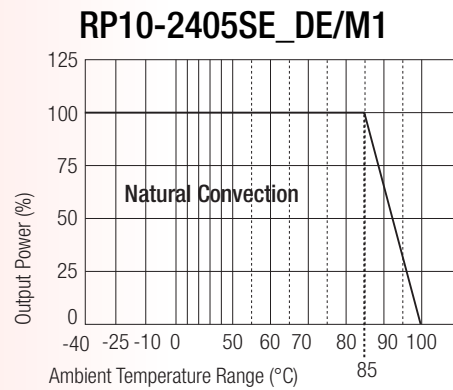
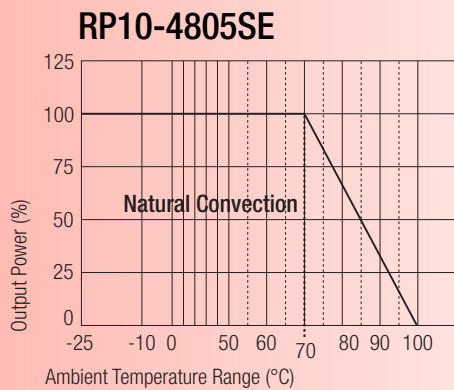
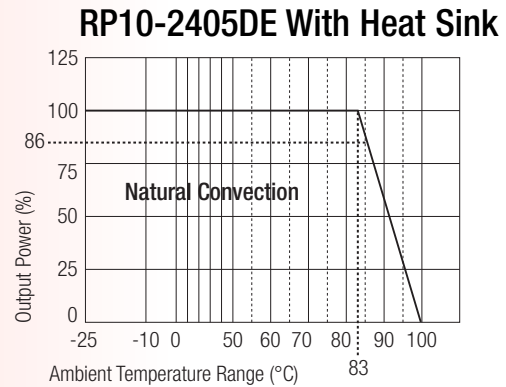
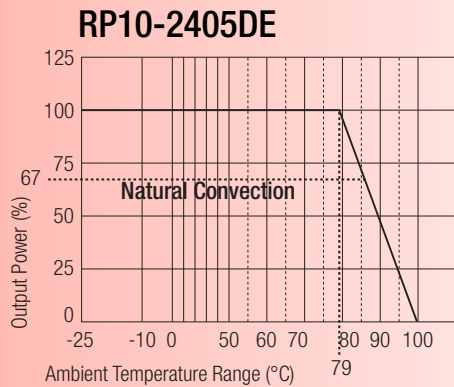
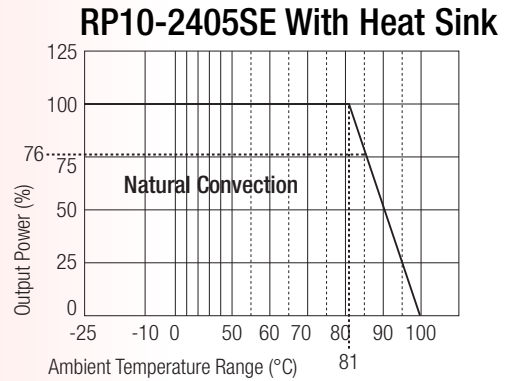
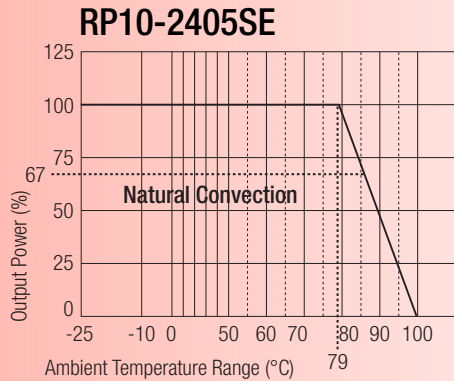
The E-Series of DC/DC Converters are fully certified to EN 60950: 2000. This makes them ideal for all Telecom and safety applications where approved isolation is required. They also meet UL 1950 and CSA 950 standards ⁽⁹⁾.

10 Watt
2" x 1" Package
Single &
Dual Output



RECOM

Derating-Graph (Ambient Temperature)



Derating graphs are valid only for the shown part numbers. If you need detailed derating-information about a part-number not shown here please contact our technical customer service at info@recom-development.at

Specifications (typical at nominal input and 25°C unless otherwise noted)

Input Voltage Range	12V nominal input	9-18VDC
	24V nominal input	18-36VDC
	48V nominal input	36-75VDC
Input Filter		Pi Type
Input Surge Voltage (100 ms max.)	12V Input	36VDC
	24V Input	50VDC
	48V Input	100VDC
Input Reflected Ripple (nominal Vin and full load)		30mA _{p-p}
Start Up Time (nominal Vin and constant resistor load)		20ms typ.
Remote ON/OFF (see note 8)		
(Positive logic)	DC-DC ON	Open or 3.5V < Vr < 12V
	DC-DC OFF	Short or 0V < Vr < 1.2V
(Negative logic)	DC-DC ON	Short or 0V < Vr < 1.2V
	DC-DC OFF	Open or 3.5V < Vr < 12V
Remote OFF input current	Nominal input	2.5mA
Output Power		10W max.
Output Voltage Accuracy (full Load and nominal Vin)		±2%
Minimum Load (see Note 1)		10% of FL
Line Regulation (LL-HL at full load)		±1%
Load Regulation (25% to 100% FL)	Single	±1%
	Dual	±2%
Cross Regulation (asymmetrical load 25%/100% FL)		±5%
Ripple and Noise (20MHz bandwidth)	Single	50mV _{p-p}
	Dual	75mV _{p-p}
Temperature Coefficient		±0.02%/°C, max.
Transient Response (25% load step change)		500µS
Over Voltage Protection	3.3V output	3.9V
Zener diode clamp	5V output	6.2V
	12V output	15V
	15V output	18V
Over Load Protection (% of full load at nominal Vin)		150% typ
Short Circuit Protection		Hiccup, automatic recovery
Efficiency		see „Selection Guide“ table
Isolation Voltage		1.600VDC min.
Isolation Resistance		10 ⁹ Ω min.
Isolation Capacitance		300pF max.
Operating Frequency		300kHz typ.
Approved to Safety Standards		UL 1950, EN60950
Operating Temperature Range (Reference Derating Curve)	Standard	-25°C to +85°C(with derating)
	M1	-40°C to +85°C(non derating)
Maximum Case Temperature		+100°C
Storage Temperature Range		-55°C to +105°C

continued on next page

Specifications (typical at nominal input and 25°C unless otherwise noted)

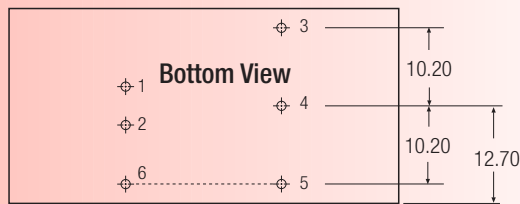
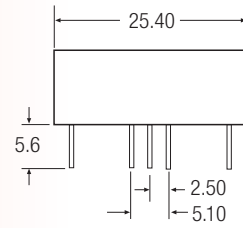
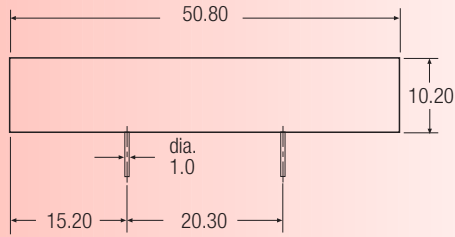
Thermal Impedance	Natural convection	12°C/Watt
	Natural convection with Heat Sink	10°C/Watt
Thermal Shock		MIL-STD-810D
Vibration		10-55Hz, 2G, 30 Min. along X, Y and Z
Relative Humidity		5% to 95% RH
Case Material		Nickel-Coated copper
Base Material		Non-conductive black plastic
Potting Material		Epoxy (UL94-V0)
Conducted Emissions	EN55022	Level A
Radiated Emissions	EN55022	Level A
ESD	EN61000-4-2	Perf. Criteria 2
Radiated Immunity	EN61000-4-3	Perf. Criteria 2
Fast Transient	EN61000-4-4	Perf. Criteria 2
Surge	EN61000-4-5	Perf. Criteria 2
Conducted Immunity	EN61000-4-6	Perf. Criteria 2
Weight		27g
Dimensions		50.8 x 25.4 x 10.2mm
MTBF (see note 2)		1.976 x 10 ⁶ Hours

Notes :

- The RP10 (W) series required a minimum 10% loading on the output to maintain specified regulation.
Operation under no-load condition will not damage these devices, however they may not meet all listed specification.
- BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C. (Ground fixed and controlled environment).
- Simulated source impedance of 12uH. 12uH inductor in series with +Vin.
- Maximum value at nominal input voltage and full load of standard type.
- Typical value at nominal input voltage and full load.
- Test by minimum Vin and constant resistor load.
- The ON/OFF control function can be positive or negative logic. The pin voltage is referenced to negative input.
Positive logic ON/OFF is standard, no suffix (Ex. RP10-2405SE)
Negative logic ON/OFF is marked with suffix-N (Ex. RP10-2405SE/N).
- Heat sink is optional and P/N: 7G-0020A.
- The M1 version (RP10-xxxSE/M1, RP10-xxxDE/M1) does not carry the UL certification.
- M1 version is more efficient, therefore, it can be operated in a more extensive temperature range than standard version.
- See application notes for EMI-filtering.

Package Style and Pinning (mm)

3rd angle projection 



Pin Connections

Pin #	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	No Pin	Com
5	-Vout	-Vout
6	CTRL	CTRL

Pin Pitch Tolerance ± 0.35 mm