Features

- 2:1 Wide Input Voltage Range
- 60 Watts Output Power
- 1.6kVDC Isolation
- Fixed Operating Frequency
- Six-Sided Continuous Shield
- Design Meet Safety Standard
- Standard 100.2 x70.0x19.0mm Package
- Efficiency to 90%

POWERLINE
DC/DC-Converter

RP60-S_DE Series

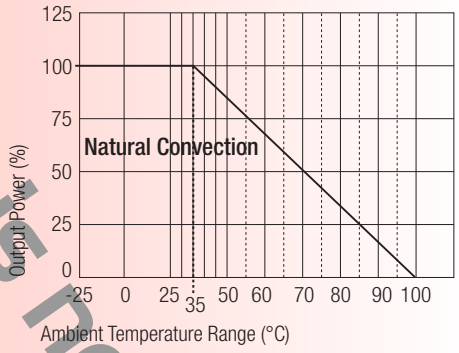
60 Watt Single, Dual & Positive Dual Output

RECOM

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
RP60-123.3SE	9-18	3.3	15000	5430	80	38700
RP60-1205SE	9-18	5	12000	6330	83	20400
RP60-1212SE	9-18	12	5000	6250	84	3550
RP60-1215SE	9-18	15	4000	6250	84	2300
RP60-243.3SE	18-36	3.3	15000	2750	79	38700
RP60-2405SE	18-36	5	12000	3090	85	20400
RP60-2412SE	18-36	12	5000	2980	88	3550
RP60-2415SE	18-36	15	4000	2940	89	2300
RP60-483.3SE	36-75	3.3	15000	1310	83	38700
RP60-4805SE	36-75	5	12000	1520	86	20400
RP60-4812SE	36-75	12	5000	1470	89	3550
RP60-4815SE	36-75	15	4000	1450	90	2300
RP60-1205DE	9-18	±5	+10000 / -2000	6500	81	17000 / 3400
RP60-1212DE	9-18	±12	±2500	6250	84	±900
RP60-1215DE	9-18	±15	±2000	6250	84	±600
RP60-2405DE	18-36	±5	+10000 / -2000	3130	84	12000 / 1700
RP60-2412DE	18-36	±12	±2500	3050	86	±900
RP60-2415DE	18-36	±15	±2000	3010	87	±600
RP60-4805DE	36-75	±5	+10000 / -2000	1540	85	12000 / 1700
RP60-4812DE	36-75	±12	±2500	1450	90	±900
RP60-4815DE	36-75	±15	±2000	1450	90	±600
RP60-123.305DE	9-18	3.3 / 5	6000 / 6000	5770	76	16000 / 10200
RP60-243.305DE	18-36	3.3 / 5	6000 / 6000	2700	81	16000 / 10200
RP60-483.305DE	36-75	3.3 / 5	6000 / 6000	1310	83	16000 / 10200

Derating-Graph (Ambient Temperature)



Derating graphes 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)		40mAp-p
Start Up Time (nominal Vin and constant resistor load)		25ms typ.
Remote ON/OFF (see note 7)	DC-DC ON	Open or 3.5V < Vr < 12V
	DC-DC OFF	Short or 0V < Vr < 1.2V
Remote OFF input current	Nominal input	30mA
Output Power		60W max.
Output Voltage Accuracy (full Load and nominal Vin)		±2%
Voltage Adjustability		±10%
Minimum Load	RP60-xx3.305DE 3.3V Output	800mA min.
	others	10% of FL
Line Regulation (LL-HL at full load)		±0.5%
Load Regulation (25% to 100% FL)		±0.5%
Cross Regulation (Note 8)		±5%
Ripple and Noise (20MHz bandwith)		1%/p-p of Vout max.
Temperature Coefficient		±0.02%/°C, max.
Transient Response (25% load step change)		500µS
Over Voltage Protection	3.3V	3.9V
Zener diode clamp (only single)	5V	6.2V
	12V	15V
	15V	18V
Short Circuit Protection		Hiccup, automatic recovery
Efficiency		see „Selection Guide“ table

continued on next page

RP60-S_DE Series

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

Isolation Voltage		1.600VDC min.
Isolation Resistance		10^9 Ω min.
Isolation Capacitance		1000pF max.
Operating Frequency		200kHz typ.
Operating Temperature Range		-25°C to +71°C(with derating)
Maximum Case Temperature		+95°C
Storage Temperature Range		-25°C to +105°C
Thermal Impedance	Natural convection	7.3°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 FR4
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		48g
Dimensions		100.2 x 70.0 x 19.0mm
MTBF (see note 2)		1.533 x 10^6 Hours

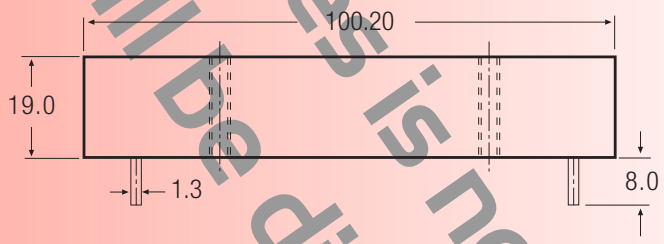
Notes :

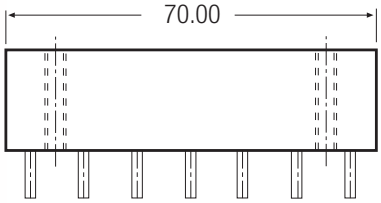
1. The RP60 series required a minimum 10% loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices, however they may not meet all listed specification.
2. BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C (Ground fixed and controlled environment).
3. Simulated source impedance of 12uH. 12uH inductor in series with +Vin.
4. Maximum value at nominal input voltage and full load of standard type.
5. Typical value at nominal input voltage and full load.
6. Test by minimum Vin and constant resistor load.
7. Cross regulation:
   Dual output—Asymmetrical load 25% to 100% full load.
8. See application notes for EMI-filtering.

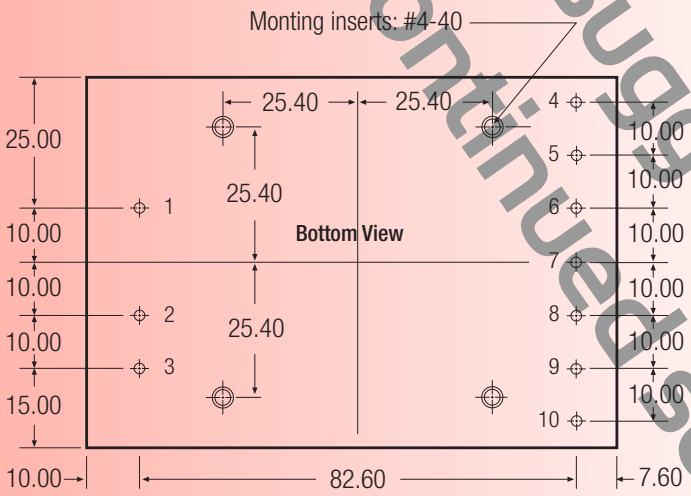
RP60-S_DE Series

Package Style and Pinning (mm)

3rd angle projection







Pin Connections

Pin #	Single	Dual	3.3V / 5V
1	+Vin	+Vin	+Vin
2	-Vin	-Vin	-Vin
3	CTRL	CTRL	CTRL
4	Trim	Trim	Trim
5	+Vout	+Vout	3.3V
6	+Vout	+Vout	3.3V
7	-Vout	Com	Com
8	-Vout	Com	Com
9	No Pin	-Vout	+5V
10	No Pin	-Vout	+5V

NC = No Connection

Pin Pitch Tolerance ±0.35 mm

External Output Trimming

Output can be externally trimmed by using the method shown below.
( ) for dual output trim
[ ] for RP60-xx3.305DE only trim 3.3V