

Specifications (measured @ Ta= 25°C, nom. Vin, full load unless otherwise stated)

BASIC CHARACTERISTICS

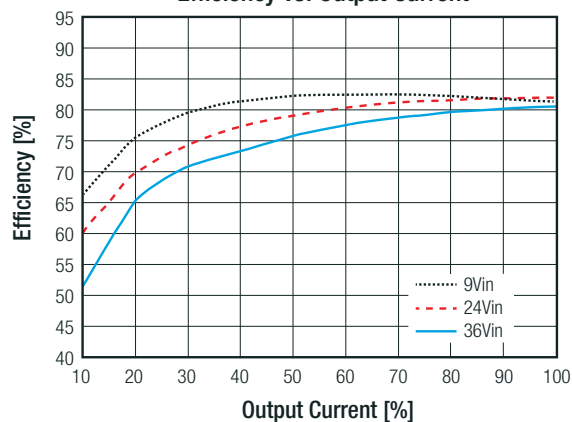
Parameter	Condition		Min.	Typ.	Max.
Input Filter			Pi-Type		
Input Voltage Range	nom. Vin = 24VDC nom. Vin = 48VDC		9VDC 18VDC	24VDC 48VDC	36VDC 75VDC
Input Surge Voltage	100ms max.	nom. Vin = 24VDC nom. Vin = 48VDC			50VDC 100VDC
Input Reflected Ripple Current ⁽⁵⁾				30mA _{p-p}	
Minimum Load ⁽⁶⁾			10%		
Start-up Time	Power up			20ms	
ON/OFF CTRL ⁽⁷⁾	Positive Logic	DC-DC ON DC-DC OFF	Open or 3.5VDC < V _{CTRL} < 12VDC Short or 0VDC < V _{CTRL} < 1.2VDC		
	Negative Logic	DC-DC ON DC-DC OFF	Short or 0VDC < V _{CTRL} < 1.2VDC Open or 3.5VDC < V _{CTRL} < 12VDC		
Input Current of CTRL pin	DC-DC ON		-0.5mA		+1.0mA
Standby Current	DC-DC OFF			20mA	
Internal Operating Frequency			270kHz	300kHz	330kHz
Ripple and Noise	20MHz BW	Single Dual		50mV _{p-p} 75mV _{p-p}	

Notes:

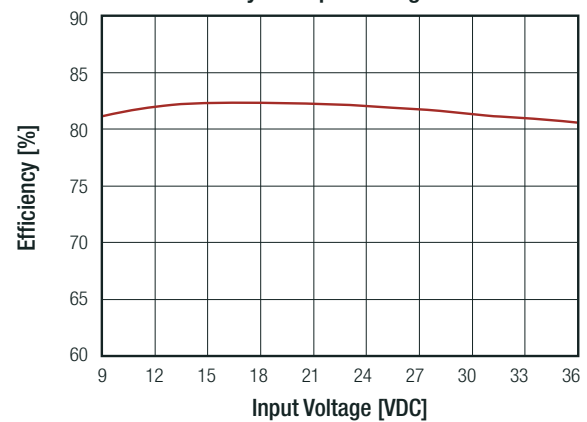
- Note5: Simulated source impedance of 12μH. 12μH inductor in series with +Vin
 Note6: The RP10-EW series requires a minimum of 10% loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices, however they may not meet all listed specification
 Note7: If no suffix is specified, pin6 will be absent.
 If fitted, the ON/OFF control function can be positive or negative logic. The pin voltage is referenced to -Vin pin

RP10-2405SEW

Efficiency vs. Output Current



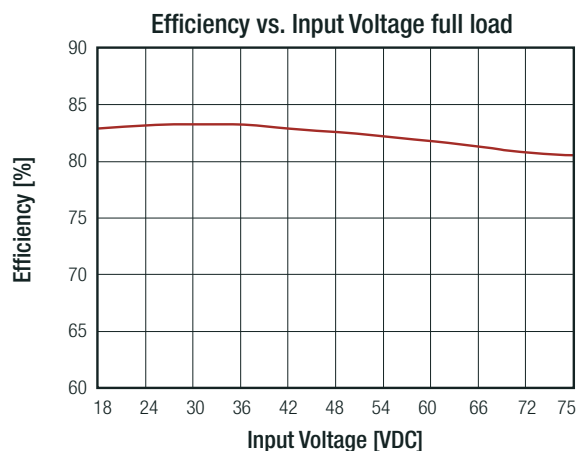
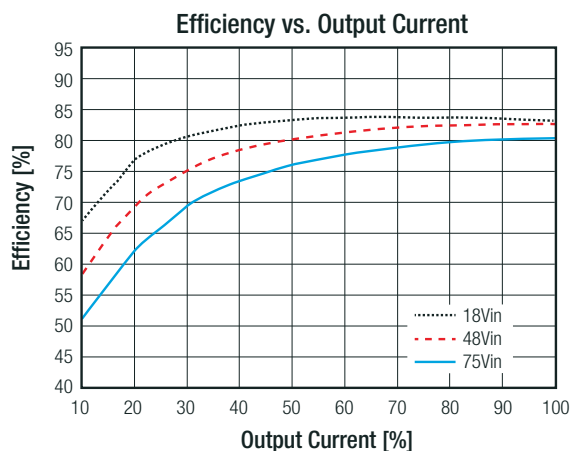
Efficiency vs. Input Voltage full load



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RP20-4805SFW



REGULATIONS

Parameter	Condition		Value
Output Accuracy			±1.0%.
Line Regulation	low line to high line, full load		±0.2%
Load Regulation	0% to 100% load	Single	±0.5%
		Dual	±1.0%
Cross Regulation	asymmetrical 25%<>100% load		±5.0%
Transient Response Recovery Time	25% load step change		250µs typ.

PROTECTIONS

Parameter	Condition		Value
Short Circuit Protection (SCP)			continuous, automatic recovery
Over Voltage Protection (OVP)	zener diode clamp	3.3Vout	3.9VDC
		5Vout	6.2VDC
		12Vout	15VDC
		15Vout	18VDC
Over Load Protection (OLP)	% Iout rated		150% typ.
Isolation Voltage ⁽⁸⁾	I/P to O/P		1.6kVDC/ 1 minute
	I/P to O/P to case		1.6kVDC/ 1 minute
Isolation Resistance	Viso= 500VDC		1GΩ min.
Isolation Capacitance			300pF max.

Notes:

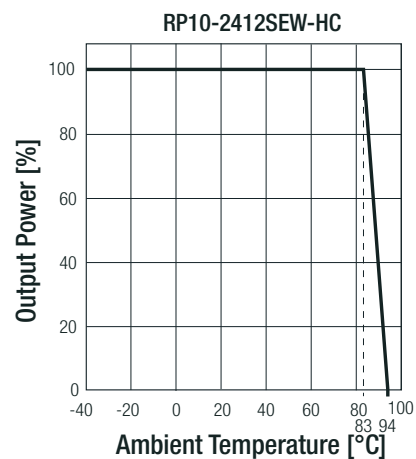
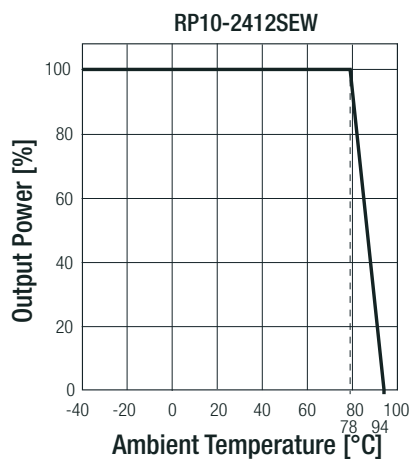
Note8: For repeat Hi-Pot testing, reduce the time and/or the test voltage

Note9: This power module is not internally fused. An input line fuse must always be used

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ENVIRONMENTAL		
Parameter	Condition	Value
Operating Temperature Range	without derating	-40°C to +78°C
	with derating	-40°C to +94°C
Maximum Case Temperature		+105°C
Temperature Coefficient		±0.02%/K max.
Thermal Impedance	@ natural convection 0.1m/s	without heat-sink 12K/W
		with heat-sink 10K/W
Operating Humidity	non-condensing	5% - 95% RH
Thermal Shock		according to MIL-STD-810F
Vibration		according to MIL-STD-810F
MTBF	MIL-HDBK-217F, G.B.	3342 x 10 ³ hours
	Bellcore TR-NWT-000332 ⁽¹⁰⁾	1976 x 10 ³ hours

Derating Graph ⁽¹¹⁾



Notes:

Note10: BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C (Ground fixed and controlled environment)

Note11: 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 RECOM Techsupport for detailed information

SAFETY AND CERTIFICATIONS

Certificate Type (Safety)	Condition	Standard
Information Technology Equipment, General Requirements for Safety	E196683	UL60950-1, 2nd Edition, 2011 CAN/CSA-C22.2 No. 60950-1-07, 2nd Edition, 2011
EAC	RU-AT.49.09571	TP TC 004/2011
RoHS 2		RoHS-2011/65/EU + AM-2015/863

EMC Compliance	Condition	Standard / Criterion
Electromagnetic compatibility of multimedia equipment - Emission requirements	with external filter refer to <i>"EMC Filtering Suggestions"</i>	EN55032, Class A and B
ESD Electrostatic discharge immunity test	Air ±8kV and Contact ±6kV	EN61000-4-2, Criteria B
Radiated, radio-frequency, electromagnetic field immunity test	10 V/m	EN61000-4-3, Criteria A
Fast Transient and Burst Immunity ⁽¹²⁾	±2kV	EN61000-4-4, Criteria B
Surge Immunity ⁽¹²⁾	±2kV	EN61000-4-5, Criteria B
Immunity to conducted disturbances, induced by radio-frequency fields	10 Vr.m.s	EN61000-4-6, Criteria A
Power Magnetic Field Immunity	100A/m continuous; 1000A/m 1s	EN61000-4-8, Criteria A

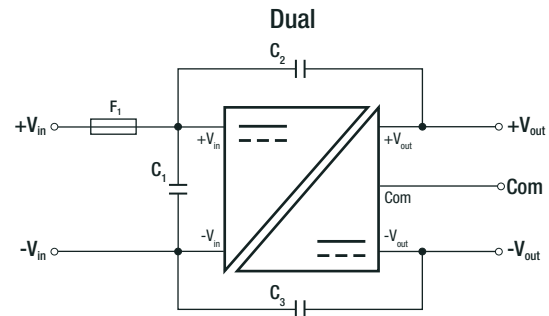
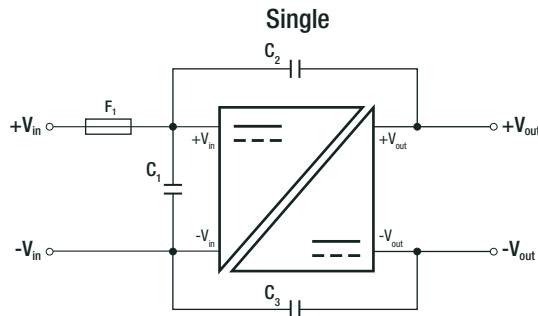
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Specifications (measured @ Ta= 25°C, nom. Vin, full load unless otherwise stated)

Notes:

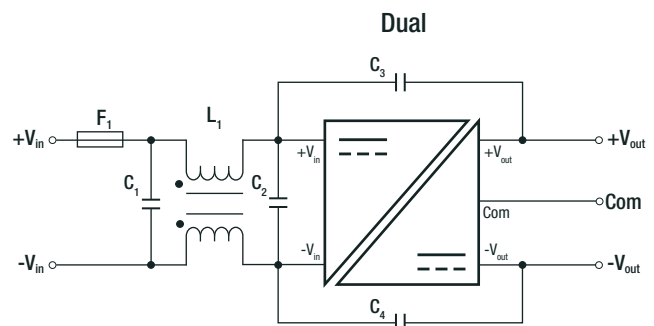
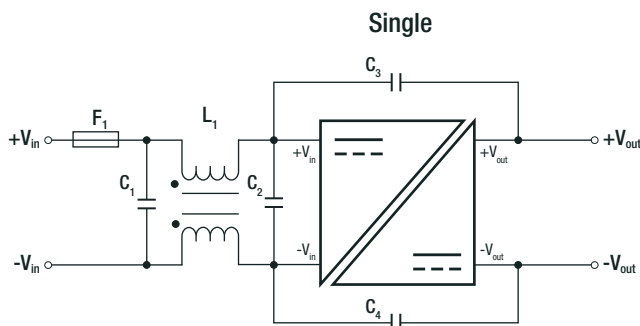
Note12: An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5
Recom suggests Nippon chemi-con KY series 220µF/100V

EMC Filtering Suggestions according to EN55032



Component List Class A

MODEL	C1	C2	C3
RP10-24xxSEW	1µF/50V	1000pF/2kV	1000pF/2kV
RP10-24xxDEW	1210 MLCC	1808 MLCC	1808 MLCC
RP10-48xxSEW	1.5µF/100V	1000pF/2kV	1000pF/2kV
RP10-48xxDEW	1812 MLCC	1808 MLCC	1808 MLCC



Component List Class B

MODEL	C1	C2	C3/C4	L1
RP10-24xxSEW	2.2µF/50V	N/A	1000pF/2kV	CMC: 325µH
RP10-24xxDEW	1812 MLCC		1808 MLCC	ref: WE 744290321 ref.: CMC-06
RP10-48xxSEW	2.2µF/50V	2.2µF/100V	1000pF/2kV	CMC: 325µH
RP10-48xxDEW	1812 MLCC	1812 MLCC	1808 MLCC	ref: WE 744290321 ref.: CMC-06

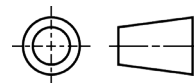
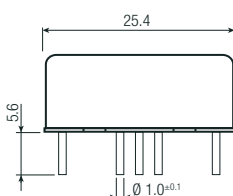
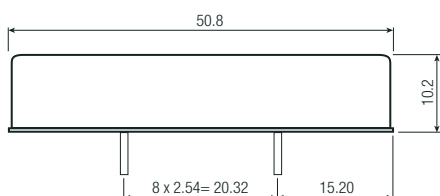
DIMENSIONS and PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	case base potting	nickel coated copper non-conductive black plastic epoxy (UL94 V-0)
Dimensions (LxWxH)	without Heat-sink with Heat-sink	50.8 x 25.4 x 10.2mm 56.8 x 25.4 x 16.8mm
Weight	without Heat-sink with Heat-sink	27g 37.89g

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Dimension Drawing (mm)

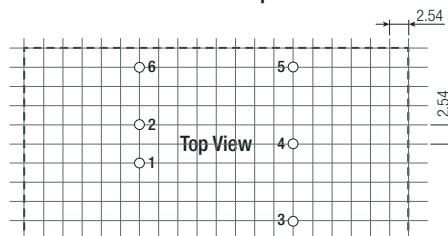
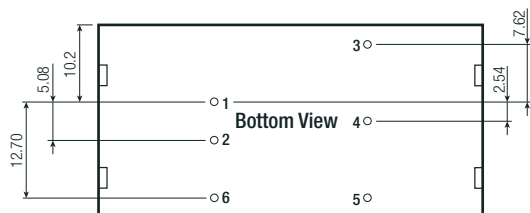


Pinning Information

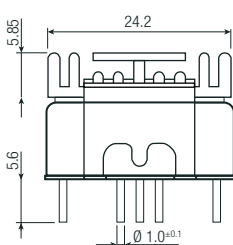
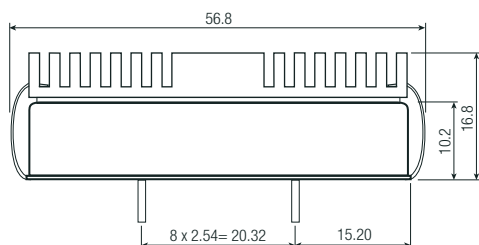
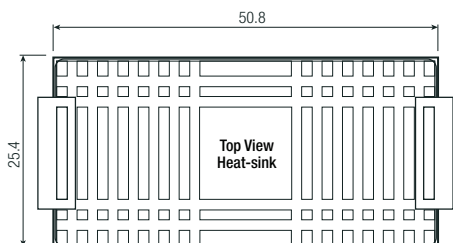
Pin #	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	no Pin	Com
5	-Vout	-Vout
6	CTRL ⁽³⁾	CTRL ⁽³⁾

Tolerance: xx.x= ±0.5mm
xx.xx= ±0.25mm

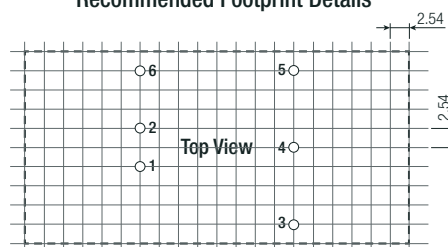
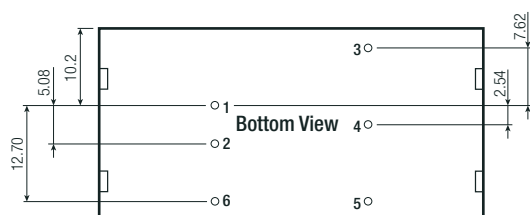
Recommended Footprint Details



Dimension Drawing with Heat-sink (mm)



Recommended Footprint Details



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PACKAGING INFORMATION

Parameter	Type		Value
Packaging Dimension (LxWxH)	tube	without heat-sink	255.0 x 54.0 x 22.0mm
	tray	with heat-sink	302.5 x 222.0 x 20.0mm
Packaging Quantity	tube	without heat-sink	9pcs
	tray	with heat-sink	20pcs
Storage Temperature Range			-55°C to +125°C
Storage Humidity	non-condensing		5% - 95% RH

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