Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

BASIC CHARACTERISTICS					
Parameter	**Condition**		**Min.**	**Typ.**	**Max.**
Input Filter					Pi-Type
Input Voltage Range	nom. Vin = 12VDC nom. Vin = 24VDC nom. Vin = 48VDC		9VDVC 18VDC 36VDC	12VDC 24VDC 48VDC	18VDC 36VDC 75VDC
Input Surge Voltage	100ms max.	nom. Vin = 12VDC nom. Vin = 24VDC nom. Vin = 48VDC			36VDC 50VDC 100VDC
Under Voltage Lockout (UVLO)	nom. Vin = 12VDC	DC-DC ON DC-DC OFF		8VDC	9VDC
	nom. Vin = 24VDC	DC-DC ON DC-DC OFF		16VDC	18VDC
	nom. Vin = 48VDC	DC-DC ON DC-DC OFF		33VDC	36VDC
Input Reflected Ripple Current (4)				20mAp-p	
Start-up time	Power up ON/OFF CTRL			450ms 5ms	
Operating Frequency Range			360kHz	400kHz	440kHz
Minimum Load (5)			10%		
ON/OFF CTRL (6)	Positive Logic	DC-DC ON DC-DC OFF			Open or 3.0VDC < V_{CTRL} < 12VDC Short or 0VDC < V_{CTRL} < 1.2VDC
Input Current of CTRL pin	DC-DC ON		-0.5mA		+0.5mA
Standby Current	DC-DC OFF			2.5mA	
Ripple and Noise	20MHz BW, with 1µF MLCC on output			85mVp-p	

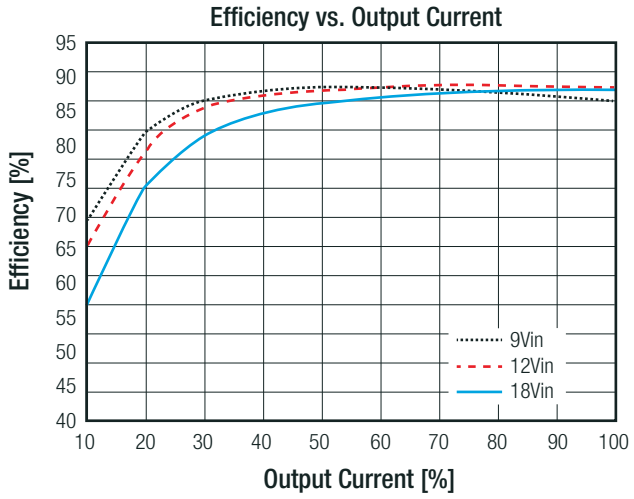
Notes:

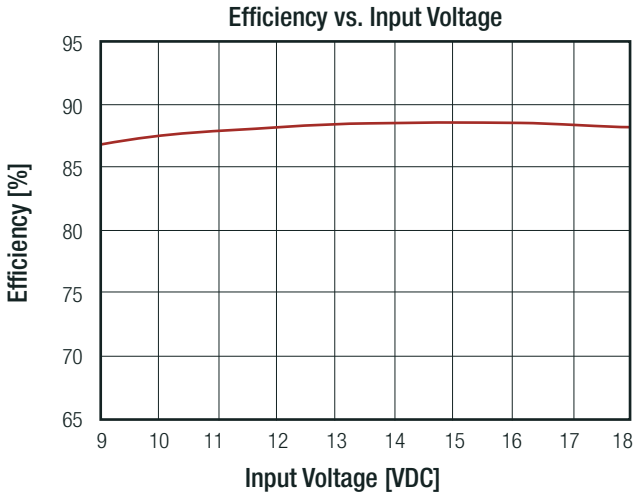
Note4: Simulated source impedance of 12µH. 12µH inductor in series with +Vin

Note5: The RP12 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

Note6: The pin voltage is referenced to -Vin pin

RP12-1205SA

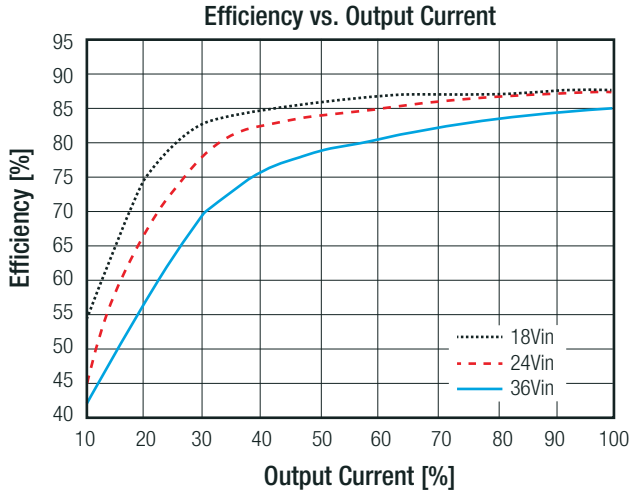


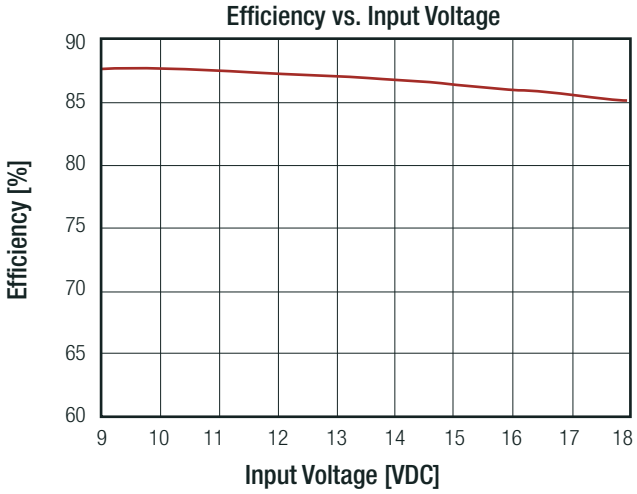


continued on next page

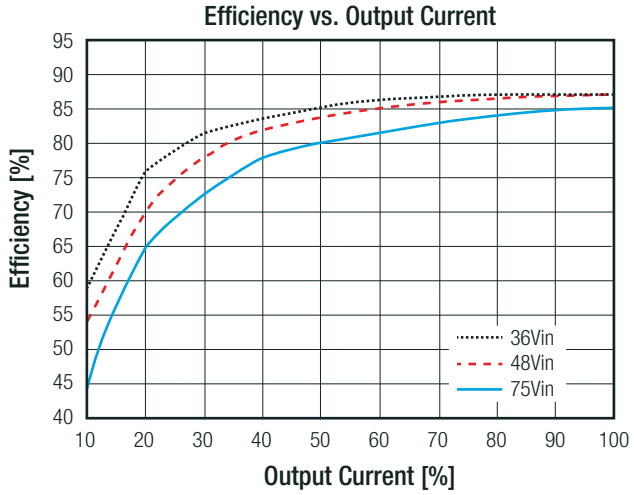
Specifications (measured @ Ta= 25°C, nom. Vin, full load unless otherwise stated)

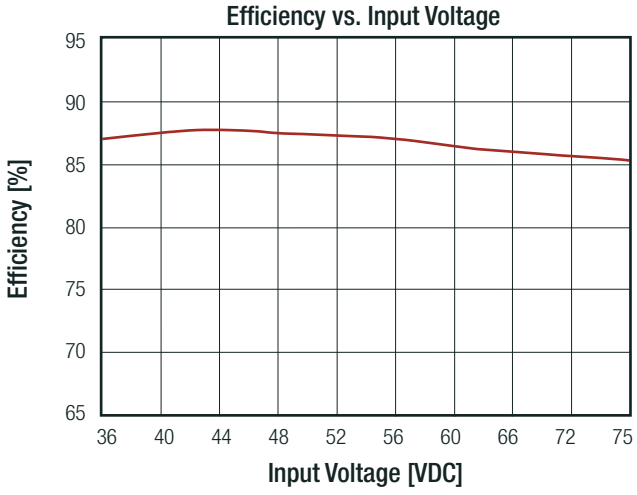
RP12-2405SA





RP12-4805SA





REGULATIONS			
Parameter	**Condition**		**Value**
Output Accuracy			±1.2%
Line Regulation	low line to high line, full load	Single Dual	±0.2% ±0.5%
Load Regulation	Single (0% to 100% load)	DIP24 SMD	±0.5% ±1.0%
	Dual (0% to 100% load)	DIP24, SMD	±1.0%
Cross Regulation	asymmetrical 25%<>100% load		±5.0%
Transient Response Recovery Time	25% load step change		250µs

Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

PROTECTIONS

Parameter	Condition		Value
Short Circuit Protection (SCP)			continuous, automatic recovery
Over Voltage Protection (OVP)	zener diode clamp	3.3Vout 5.1Vout 12Vout 15Vout	3.9VDC 6.2VDC 15VDC 18VDC
Over Load Protection (OLP)	% of Iout rated		150% typ.
Isolation Voltage (7)	DIP24	I/P to O/P; I/P (O/P) to case	1.6kVDC/1 minute
	SMD	I/P to O/P I/P (O/P) to case	1.6kVDC/1 minute 1.0kVDC/1 minute
Isolation Resistance	Viso= 500VDC		1GΩ min.
Isolation Capacitance			1200pF max.

Notes:

Note7: For repeat Hi-Pot testing, reduce the time and/or the test voltage

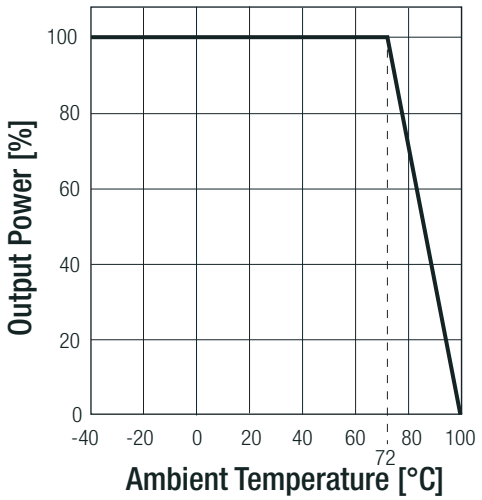
Note8: This power module is not internally fused. An input line fuse must always be used

ENVIRONMENTAL

Parameter	Condition		Value
Operating Temperature Range	3.3Vout, ±5Vout	without derating with derating	-40°C to +65°C -40°C to +100°C
	all others	without derating with derating	-40°C to +72°C -40°C to +100°C
Maximum Case Temperature			+100°C
Temperature Coefficient			±0.02%/K max.
Thermal Impedance	@ natural convection 0.1m/s		20K/W typ.
Operating Altitude			4000m
Operating Humidity	non-condensing		5% - 95% RH
Pollution Degree			PD2
Shock			according to MIL-STD-810F
Vibration			according to MIL-STD-810F
MTBF	MIL-HDBK-217F, G.B. BELLCORE TR-NWT-000332 (9)		2064 x 10^3 hours 2750 x 10^3 hours

Derating Graph (10)

RP12-4815SA



Notes:

Note9: BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C (Ground fixed and controlled environment)

Note10: 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

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

SAFETY AND CERTIFICATIONS		
Certificate Type (Safety)	**Condition**	**Standard**
Information Technology Equipment, General Requirements for Safety	E196683	UL60950-1, 2nd Edition, 2014 C22.2 No. 60950-1-07, 2nd Edition, 2014
EAC	AT.AB49.B.09571	TP TC 004/2011
RoHS 2		RoHS-2011/65/EU + AM-2015/863

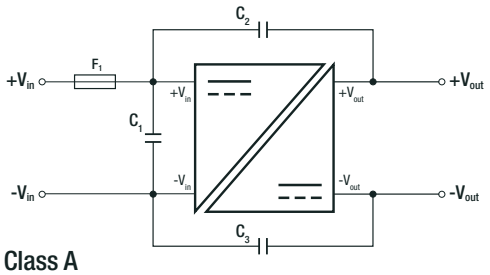
EMC Compliance	Condition	Standard / Criterion
Electromagnetic compatibility of multimedia equipment - Emission requirements	with external filter (see filter suggestion below)	EN55032, Class A and B
ESD Electrostatic discharge immunity test	Air ±8kV and Contact ±6kV	EN61000-4-2, Criteria A
Radiated, radio-frequency, electromagnetic field immunity test	10 V/m	EN61000-4-3, Criteria A
Fast Transient and Burst Immunity (11)	±2kV	EN61000-4-4, Criteria A
Surge Immunity (11)	±1kV	EN61000-4-5, Criteria A
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

Notes:

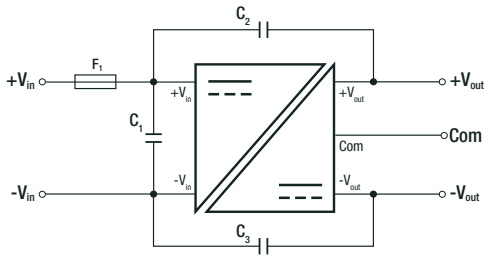
Note11: An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5
Recom suggests Nippon chemi-con KY series 220µF/100V

EMC Filtering Suggestions according to EN55032

Single



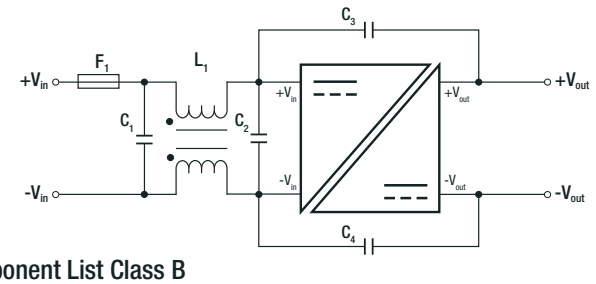
Dual



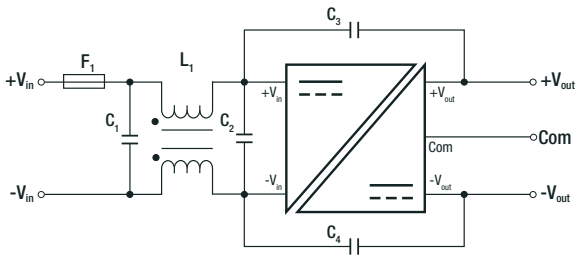
Component List Class A

MODEL	C1	C2/C3
RP12-12xxS_DA, RP12-12xxS_DA/SMD	6.8µF/50V, 1210 MLCC	1000pF/2kV, 1206 MLCC
RP12-24xxS_DA, RP12-24xxS_DA/SMD	4.7µF/50V, 1210 MLCC	1000pF/2kV, 1206 MLCC
RP12-48xxS_DA, RP12-48xxS_DA/SMD	2.2µF/100V, 1812 MLCC	1000pF/2kV, 1206 MLCC

Single



Dual



Component List Class B

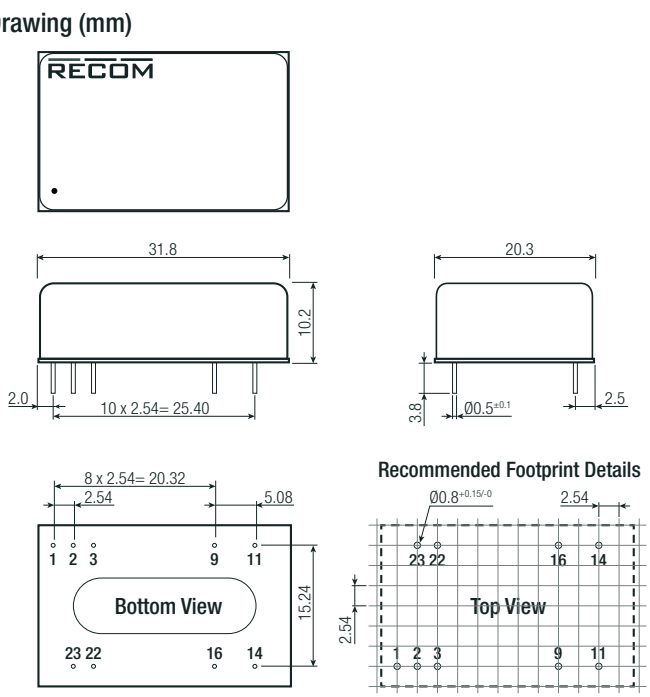
MODEL	C1	C2	C3/C4	L1
RP12-12xxS_DA RP12-12xxS_DA/SMD	3.3µF/50V, 1812 MLCC	N/A	1000pF/2kV, 1206 MLCC	CMC :325µH ref: WE 744290321 or CMC-06
RP12-24xxS_DA RP12-24xxS_DA/SMD	4.7µF/50V, 1812 MLCC	N/A	1000pF/2kV, 1206 MLCC	CMC: 325µH ref: WE 744290321 or CMC-06
RP12-48xxS_DA RP12-48xxS_DA/SMD	2.2µF/100V, 1812 MLCC	2.2µF/100V, 1812 MLCC	1000pF/2kV, 1206 MLCC	CMC: 325µH ref: WE 744290321 or CMC-06

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

DIMENSIONS and PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	case base potting	nickel coated copper non-conductive black plastic epoxy (UL94-V0)
Dimensions (LxWxH)	DIP24 SMD	31.8 x 20.3 x 10.2mm 32.0 x 20.3 x 11.2mm
Weight	DIP24 SMD	18g 20g

DIP24 Dimension Drawing (mm)

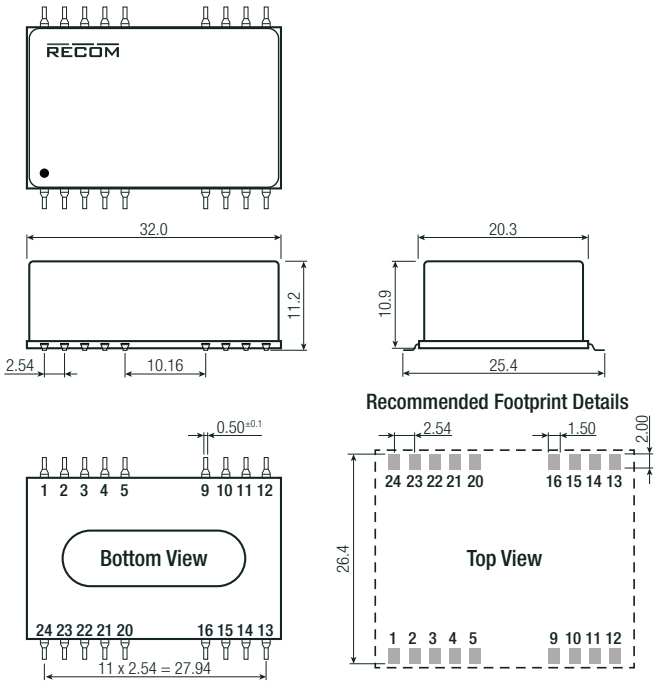


Pin Connections DIP24

Pin #	Single	Dual
1	CTRL	CTRL
2	-Vin	-Vin
3	-Vin	-Vin
9	NC	Com
11	NC	-Vout
14	+Vout	+Vout
16	-Vout	Com
22	+Vin	+Vin
23	+Vin	+Vin

NC = No Connection
Pin Pitch Tolerance ±0.25mm
xx.x = ±0.5mm
xx.xx = ±0.25mm

SMD Dimension Drawing (mm)



Pin Connections SMD

Pin #	Single	Dual
1	CTRL	CTRL
2	-Vin	-Vin
3	-Vin	-Vin
9	NC	Com
11	NC	-Vout
14	+Vout	+Vout
16	-Vout	Com
22	+Vin	+Vin
23	+Vin	+Vin
Others	NC	NC

NC = No Connection
Pin Pitch Tolerance ±0.25mm
xx.x = ±0.5mm
xx.xx = ±0.25mm

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

PACKAGING INFORMATION			
Parameter	**Type**		**Value**
Packaging Dimension (LxWxH)	tube	DIP24	255.0 x 23.0 x 19.0mm
		SMD	255.0 x 32.0 x 16.0mm
Packaging Quantity	DIP24, SMD		7pcs
Storage Temperature Range			-55°C to +125°C
Storage Humidity	non-condensing		5% - 95% RH

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

RECOM:

RP12-1205DA RP12-1205DA/SMD RP12-1205SA RP12-1205SA/SMD RP12-1212DA RP12-1212DA/SMD RP12-1212SA RP12-1212SA/SMD RP12-1215DA RP12-1215DA/SMD RP12-1215SA RP12-1215SA/SMD RP12-123.3SA RP12-123.3SA/SMD RP12-2405DA RP12-2405DA/SMD RP12-2405SA RP12-2405SA/SMD RP12-2412DA RP12-2412DA/SMD RP12-2412SA RP12-2412SA/SMD RP12-2415DA RP12-2415DA/SMD RP12-2415SA RP12-2415SA/SMD RP12-243.3SA RP12-243.3SA/SMD RP12-4805DA RP12-4805DA/SMD RP12-4805SA RP12-4805SA/SMD RP12-4812DA RP12-4812DA/SMD RP12-4812SA RP12-4812SA/SMD RP12-4815DA RP12-4815DA/SMD RP12-4815SA RP12-4815SA/SMD RP12-483.3SA RP12-483.3SA/SMD