Features

Switching Regulator

- Efficiency up to 93%, no need for heatsinks
- High voltage input range, up to 50V
- Short circuit protection, thermal shutdown
- All-in-one solution, no external components required
- IEC/EN60950-1 + AM:2 certified



R-78HB/W

0.5 Amp SIP3 Wired Single Output



IEC60950-1 certified EN60950-1 certified EN55032 compliant

Description

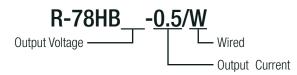
The R-78HBxx/W series high efficiency, high input voltage switching regulators are ideally suited to replace 78xx linear regulators. The efficiency of up to 93% means that very little energy is wasted as heat so there is no need for any heat sinks with their additional space and mounting costs. A wide input voltage range allows the full stored energy utilization of standard 12, 24 and 36V batteries as well as COB LED drivers. No external components are required to make a complete regulated, short-circuit protected supply. A built-in protection diode allows high capacitive loads. Typical applications include Auxiliary fan CV power supplies powered from CC LED drivers, industrial, aerospace and battery powered applications.

Selection Guide					
Part Number	Input Voltage Range ⁽²⁾	Output Voltage	Output Current	Efficiency typ @ min Vin.	Max. Capacitive Load (1)
	[VDC]	[VDC]	[A]	[%]	[μ F]
R-78HB5.0-0.5/W	9-72	5.0	0.5	86	100/6800
R-78HB12-0.5/W	17-72	12	0.5	93	100/6800

Notes:

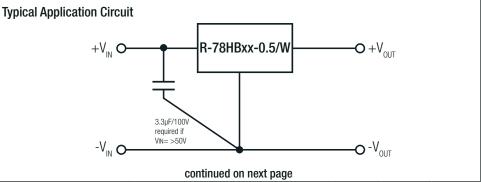
Note1: Max. Cap Load is tested at nominal input and full resistive load with 1 second start-up time and no external components = 100μ F, with <1s start-up time = 6800μ F

Model Numbering



Specifications (measured @Ta= 25°C, full load, nominal input voltage and after warm-up)

BASIC CHARACTERISTICS				
Parameter	Condition	Min.	Тур.	Max.
Input Voltage Range (2)	nom. Vin = 48VDC	9VDC	48VDC	72VDC
Quiescent Current	nom. Vin = 48VDC, 10% load	1mA		5mA
Internal Power Dissipation			0.65W	
Internal Operating Frequency	full load	120kHz		800kHz
Minimum Load (3)		10mA		
Output Ripple and Noise	20MHz BW limited		20mVp-p	60mVp-p





R-78HB/W

Series

Specifications (measured @ Ta= 25°C, full load, nominal input voltage and after warm-up)

Notes:

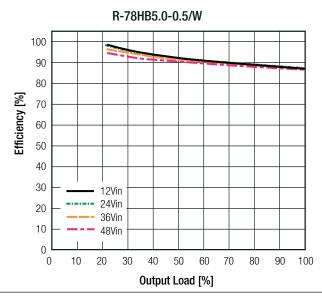
Note2: The converter has built in soft start circuit. Rapidly changing the input voltage from VIN_{min} to VIN_{max}

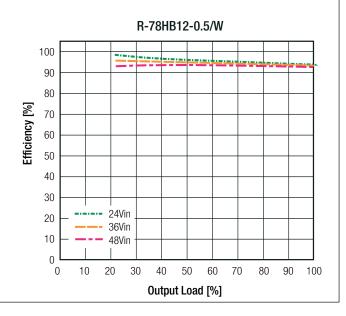
can bypass this circuit and damage the converter

Note3: Operation under no load will not damage the devices, however they may not meet all specifications

A minimum load of 10mA is recommended

Efficiency vs. Load





REGULATIONS			
Parameter	Condition	Value	
Output Voltage Accuracy	100% load	±2.0% typ. / ±3.0% max.	
Line Voltage Regulation	Vin= min. to max., full load	0.4% typ. / 1.0% max.	
Load Voltage Regulation	10% to 100% load	0.3% typ. / 0.6% max.	
Transient Response	with 100µF output capacitor, 100% <-> 50% load	±75mV typ. / ±100mV max.	

PROTECTIONS		
Parameter	Condition	Value
Internal Input Filter		1μF capacitor
Short Circuit Protection (SCP)		continuous, automatic recovery
Short Circuit Input Current		15mA typ. / 25mA max.

Optional Protection Circuit

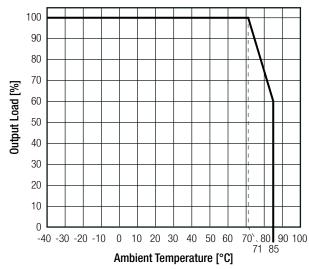


R-78HB/W

Series

Specifications (measured @ Ta= 25°C, full load, nominal input voltage and after warm-up)

ENVIRONMENTAL			
Parameter	Condition		Value
Operating Temperature Range	with derating @ natural convection 0.1m/s	(see graph)	-40°C to +85°C
Maximum Case Temperature			+100°C
Thermal Impedance			55°C/W typ.
Operating Altitude			2000m
Operating Humidity	non-condensing		95% RH max.
Pollution Degree			PD2
MTBF	according to MIL-HDBK-217F, G.B.	+25°C +71°C	7395 x 10 ³ hours 1242 x 10 ³ hours
Derating Graph	100		



SAFETY AND CERTIFICATIONS				
Certificate Type (Safety)	Report / File Number	Standard		
Information Technology Equipment, General Requirements for Safety	1603123	IEC60950-1:2005, 2nd Edition + AM 2:2013 EN60950-1:2006 + AM 2:2013		
EAC	RU-AT.49.09571	TP TC 004/2011		
RoHs 2+		RoHS 2011/65/EU + AM2015/863		
EMC Compliance	Condition	Standard / Criterion		
Electromagnetic compatibility of multimedia equipment - Emission requirements	with external components	EN55032, Class B		
ESD Electrostatic discharge immunity test	Air ±8kV, Contact ±4kV	EN61000-4-2, Criteria A		
Radiated, radio-frequency, electromagnetic field immunity test	3V/m	EN61000-4-3, Criteria A		

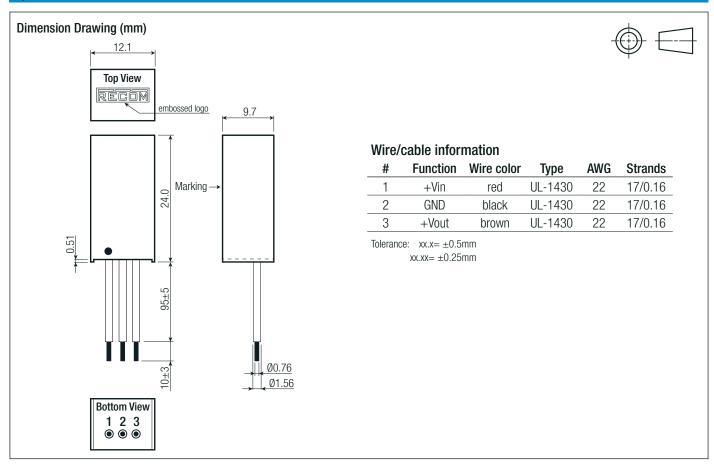
Parameter	Туре	Value
Material	case	non-conductive black plastic, (UL94 V-0)
ivialerial	potting	epoxy, (UL94 V-0)
Package Dimension (LxWxH)		12.1 x 9.7 x 24.0mm
Package Weight		4.5ç

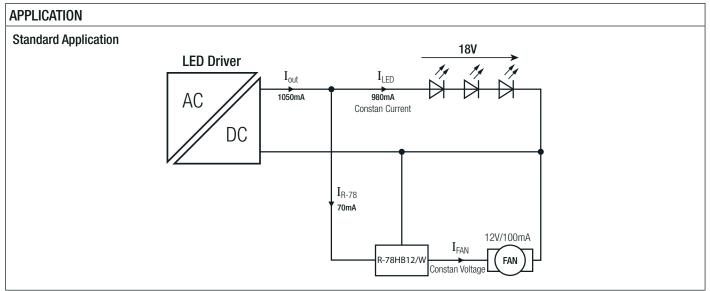


R-78HB/W

Series

Specifications (measured @ Ta= 25°C, full load, nominal input voltage and after warm-up)





PACKAGING INFORMATION			
Packaging Dimension (LxWxH)	cardboard box	140.0 x 130.0 x 65.0mm	
Packaging Quantity		25pcs	
Storage Termperature Range		-55°C to +125°C	
Storage Humidity	non-condensing	95% RH max.	

The product information and specifications may be subject to changes even without prior written notice. The product has been designed for various applications; its suitability lies in the responsibility of each customer. The products are not authorized for use in safety-critical applications without RECOM's explicit written consent. A safety-critical application is an application where a failure may reasonably be expected to endanger or cause loss of life, inflict bodily harm or damage property. The applicant shall indemnify and hold harmless RECOM, its affiliated companies and its representatives against any damage claims in connection with the unauthorized use of RECOM products in such safety-critical applications.