

# Features

- Designed for 12V - 60V battery-powered apps
- Wide input range (6.5V - 72V)
- 100V surge withstand
- -40°C to +105°C operation at 48V input, full load
- Short circuit protected
- Efficiency up to 83%, no need for heatsinks

# Switching Regulator

## R-78HE-0.3

**0.3 Amp**  
**SIP3**  
**Single Output**



### Description

The R-78HE-5.0-0.3 is a low cost switching regulator module in a compact SIP3 package that has been specially designed for battery-powered use, but will find many other high input voltage applications. The exceptionally wide input voltage and operating temperature range, high MTBF (15 mio. hrs), tight regulation and low quiescent current consumption makes this converter ideal for 36V/48V lithium-ion and 12V/24V/48V lead-acid battery-powered applications. The 100V surge withstand capability means that external voltage clamping circuits can be eliminated and only a simple LC filter is needed for Class A and B EMC conformity.

### Selection Guide

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency <sup>(1)</sup>		Max. Capacitive Load <sup>(2)</sup> [µF]
				@ min. Vin [%]	@ max. Vin [%]	
R-78HE5.0-0.3	6.5 - 72	5	300	83	72	470

#### Notes:

Note1: Efficiency is tested at full load at +25°C ambient

Note2: Max. Cap Load is tested at nominal input and constant resistive load

### Model Numbering



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

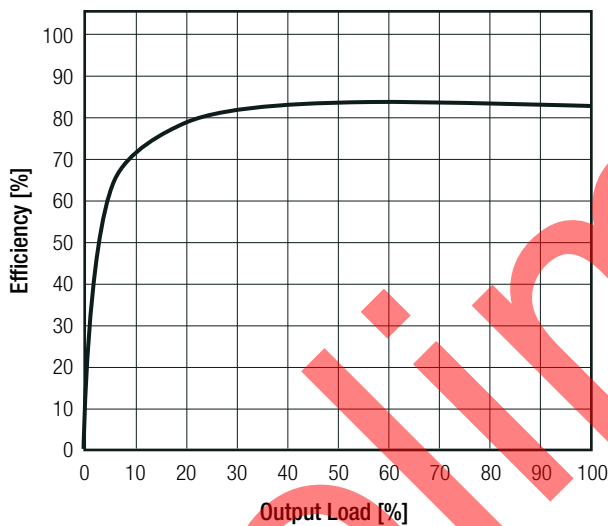
**BASIC CHARACTERISTICS**

Parameter	Condition	Min.	Typ.	Max.
Internal Input Filter				capacitor
Input Voltage Range	nom. Vin= 24VDC	6.5VDC		72VDC
Input Surge Voltage	100ms max.			100VDC
Quiescent Current			1.5mA	3mA
Under Voltage Lockout	DC-DC ON DC-DC OFF		5.3VDC 5.1VDC	
Minimum Load		0%		
Internal Operating Frequency	nom. Vin= 24VDC		135kHz	
Output Ripple and Noise <sup>(3)</sup>	20MHz BW			150mVp-p

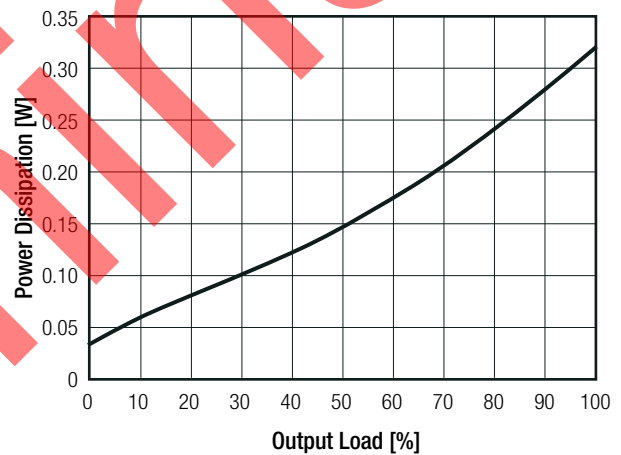
**Notes:**

Note3: Measurements are made with a 10µF MLCC across output (low ESR)

**Efficiency vs. Load**



**Power Dissipation vs. Load**



**REGULATIONS**

Parameter	Condition		Value
Output Accuracy	full load		±1.0% typ. / ±2.5% max.
Line Regulation	low line to high line, full load	8-72Vin 6.5-72Vin	±1.0% typ. ±1.5% max.
Load Regulation	0% to 100% load		1.0% typ.

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