

Product Marking

Type designation, applicable safety approval and recognition marks, CE mark, pin allocation, and product logo.

Input voltage range and input current, nominal output voltage and current, degree of protection, batch no., serial no., and data code including production site, version (modification status) and date of production.

Functional Description

The converters are designed as active clamp forward converters with a switching frequency of approximately 120 kHz. The built-in high-efficient input filter together with a small input capacitance generates very low inrush current of short duration. An antiparallel diode acts as reverse polarity protection together with the external circuit breaker or fuse.

The circuitry providing the interruption time (opt. M) is located after the input filter.

The rectification on the secondary side is provided by synchronous rectifiers, in order to keep the losses as low as possible. The output voltage control logic is located on the secondary side and influences the primary logic through magnetic feedback.

An auxiliary converter supplies all circuits with a stable bias voltage.

An output ORing FET is available (option Q) and allows for a redundant power supply system. If there are no external circuit breakers, it is possible to order the converter with incorporated fuse (opt. F). Because this fuse is not accessible, a serial diode provides reverse polarity protection (only with option F or M).

Opt. D encompasses an additional auxiliary connector and allows for output voltage adjust and a primary shutdown. An output voltage monitor controls a relay with a change-over contact.

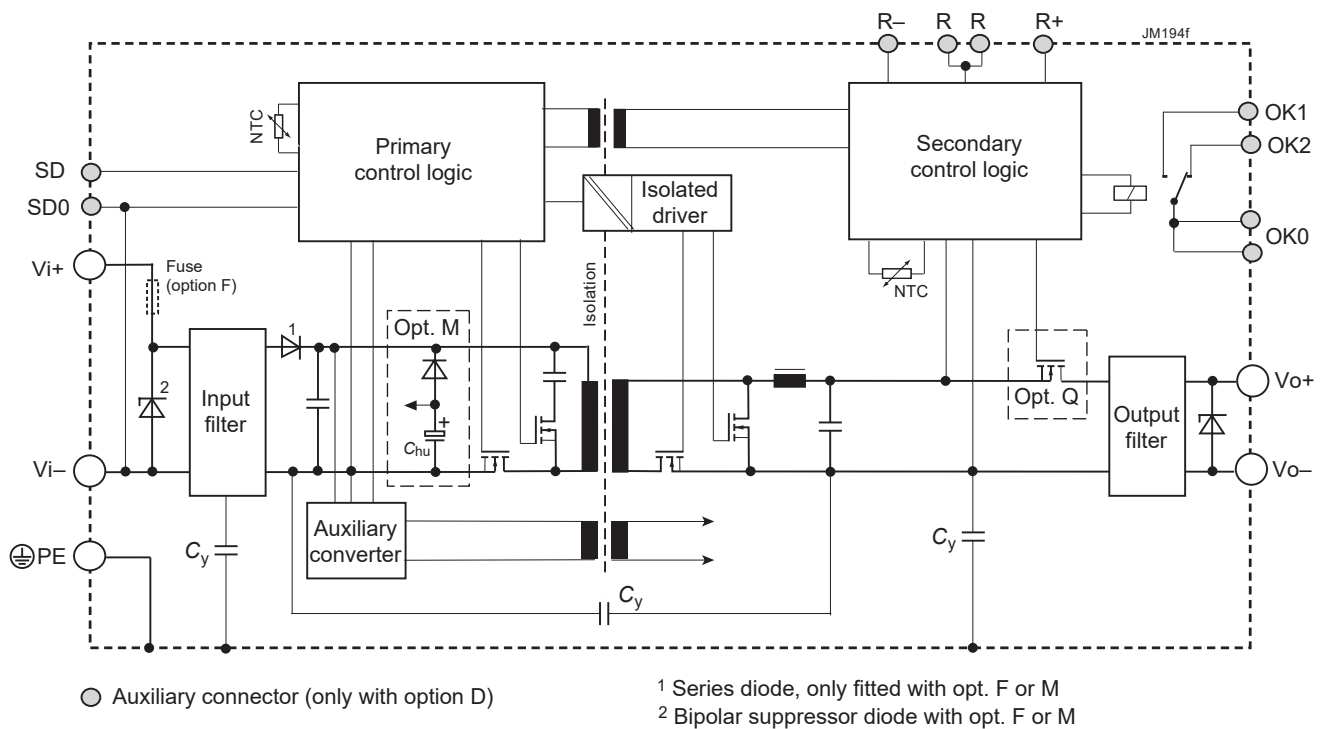


Fig. 1
Block diagram

Electrical Input Data

General conditions:

- $T_A = 25\text{ °C}$, unless T_C is specified.

Table 2a: Input data of RCM150 models

Model			24RCM150			110RCM150			Unit
Characteristics		Conditions	min	typ	max	min	typ	max	
$V_{i\text{cont}}$	Operating input voltage continuous	$I_o = 0 - I_{o\text{max}}$ $T_{C\text{min}} - T_{C\text{max}}$	16.8	(24)	45.0	50.4	(110)	137.5	V
V_{i2s}	for $\leq 2\text{ s}$	without shutdown	14.4		50.4	43.2		154	
$V_{i\text{nom}}$	Nominal input voltage		24, (36)			(72), (96), 110			
$V_{i\text{abs}}$	Input voltage limits	3 s without damage	0		55	0		165	
I_i	Typical input current	$V_{i\text{nom}}, I_{o\text{nom}}$	6.8			1.5			A
P_{i0}	No-load input power	$V_{i\text{min}} - V_{i\text{max}}, I_o = 0$	2.5		4	4 ²		6	W
$P_{i\text{SD}}$	Idle input power	$V_{i\text{min}} - V_{i\text{max}}, V_{\text{SD}} = 0\text{ V}$	0.7		1.5	0.7 ²		1.5	
C_i	Input capacitance ¹		40			10			μF
R_i	Input resistance					100			m Ω
$I_{\text{inr p}}$	Peak inrush current	$V_i = V_{i\text{max}}, P_{o\text{nom}}$				75			A
$t_{\text{inr d}}$	Duration of inrush current					0.5			
t_{on}	Start-up time after removal of shutdown	$V_{i\text{min}}, P_{o\text{nom}}$				1000			ms
		$0 \rightarrow V_{i\text{min}}, P_{o\text{nom}}$				300			
		$V_{\text{SD}} = 0 \rightarrow 5\text{ V}$				300			

Table 2b: Input data of RCM300 models

Model			24RCM300			110RCM300			Unit
Characteristics		Conditions	min	typ	max	min	typ	max	
$V_{i\text{cont}}$	Operating input voltage continuous	$I_o = 0 - I_{o\text{max}}$ $T_{C\text{min}} - T_{C\text{max}}$	16.8	(24)	45.0	50.4	(110)	137.5	V
V_{i2s}	for $\leq 2\text{ s}$	without shutdown	14.4		50.4	43.2		154	
$V_{i\text{nom}}$	Nominal input voltage		24, (36)			(72), (96), 110			
$V_{i\text{abs}}$	Input voltage limits	3 s without damage	0		55	0		165	
I_i	Typical input current	$V_{i\text{nom}}, I_{o\text{nom}}$	13.9			3			A
P_{i0}	No-load input power	$V_{i\text{min}} - V_{i\text{max}}, I_o = 0$	4		6	4		6	W
$P_{i\text{SD}}$	Idle input power	$V_{i\text{min}} - V_{i\text{max}}, V_{\text{SD}} = 0\text{ V}$	1.5			1.5			
C_i	Input capacitance ¹		6			12			μF
R_i	Input resistance					140			m Ω
$I_{\text{inr p}}$	Peak inrush current	$V_i = V_{i\text{max}}, P_{o\text{nom}}$				120			A
$t_{\text{inr d}}$	Duration of inrush current					0.5			
t_{on}	Start-up time after removal of shutdown	$V_{i\text{min}}, P_{o\text{nom}}$				1000			ms
		$0 \rightarrow V_{i\text{min}}, P_{o\text{nom}}$				300			
		$V_{\text{SD}} = 0 \rightarrow 5\text{ V}$				300			

¹ Not smoothed by the inrush current limiter at start-up (for inrush current calculation)

² Typ. value at $V_{i\text{max}}$. At lower V_i , the idle and low-load input power are smaller.