

DC-DC CONVERTER
MODEL SDC 60.4
(60 WATTS 4 OUTPUTS)

SDC 60.4

APPLICATION:

- * mobile or battery based electronic equipment
- * Communication and Audio Equipment
- * Cash Register
- * Ticket Printer
- * Test, Measuring, and other Instrumentation

FEATURES:

- * QUAD Output Voltages
- * WIDE Input Voltage Range
- * Overvoltage Protection (Input and Output)
- * Short Circuit Protection
- * Input Filters
- * very small Dimensions
- * high Power Density
- * COMPACT Design
- * RF tight Metal Housing
- * RF In- and Output Filters
- * high Efficiency
- * NO Optocoupler
- * Power Fail Signal Output
- * Input ENABLE Terminal

INPUT: 16 to 36 Volts

AVAILABLE WITH DIFFERENT OUTPUT VOLTAGES:

MODEL				
SDC 60.4 ÷ 12	+ 5 V	+ 12 V	± 12 V	
SDC 60.4 ÷ 24	+ 5 V	+ 24 V	± 12 V	
SDC 60.4 ÷ 28	+ 5 V	+ 28 V	± 12 V	

OTHER VOLTAGES ON REQUEST.

DESCRIPTION: The SDC 60.4 is a very small packaged DC/DC Converter with a wide range of input voltages. The power density of about 3 W/squ. inch is rather high, considering the conversion principle together with large storage capacitors.

The conversion process uses the well known feed through principle. While this technique needs more parts it is advantageous in a number of ways. Because of the requirement for a very slim design (the parts height is only about 0.8 inches or 20 mm) the used principle became mandatory. A number of highly interesting design features complement the basic design to provide multiple outputs as well as an input voltage range of more than 2 : 1 (about 16 to > 36 V) (other ranges on request).

In order to provide high power (60 Watts) together with up to 4 outputs on an extremely small board space (EUROCARD), a high conversion frequency had to be selected. A good compromise was to use 100 kHz, where the design of the magnetics was still manageable, electrolytic capacitors still usable, and the resulting sizes of components small enough to fit on the available board space. Additional RF filters provide small switching disturbances of output voltages.

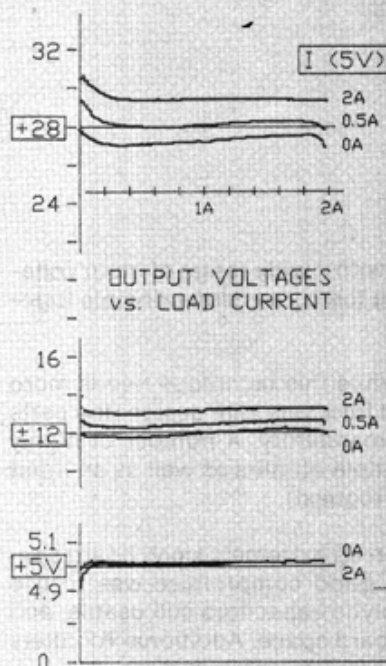
A magnetically coupled output storage inductor was used to provide multiple regulated output voltages.

The converter provides reverse polarity protection and an overvoltage crowbar on the + 5 V output. Up to 20 msec of continuous output is provided (at a load of about 10 Watts), when the input voltage drops. A power fail signal indicates a battery voltage drop to below 16 V of input voltage.

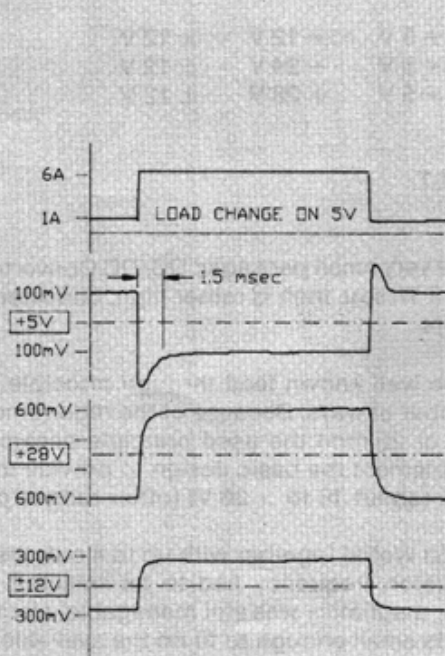
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Because of high capacitance input-storage-electrolytics, turn ON current limit circuit was thought to be necessary. This circuit on the other hand had to withstand rather high currents, would drop the overall efficiency, increasing the costs, while the valuable board space would be wasted. So we decided against it and provided an ENABLE input. This input can be used as an external inrush current limit feature. The present design provides optimum performance on very small space, while keeping the costs low.

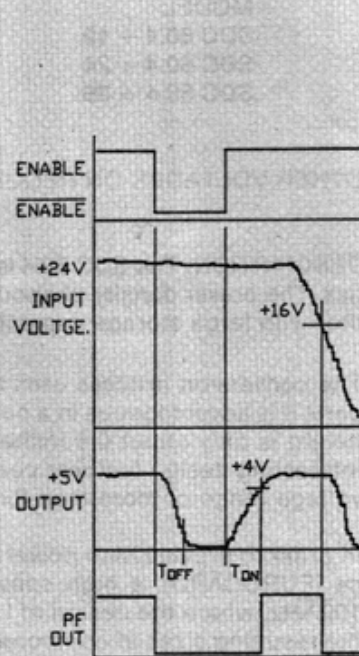
OUTPUT VS. LOAD

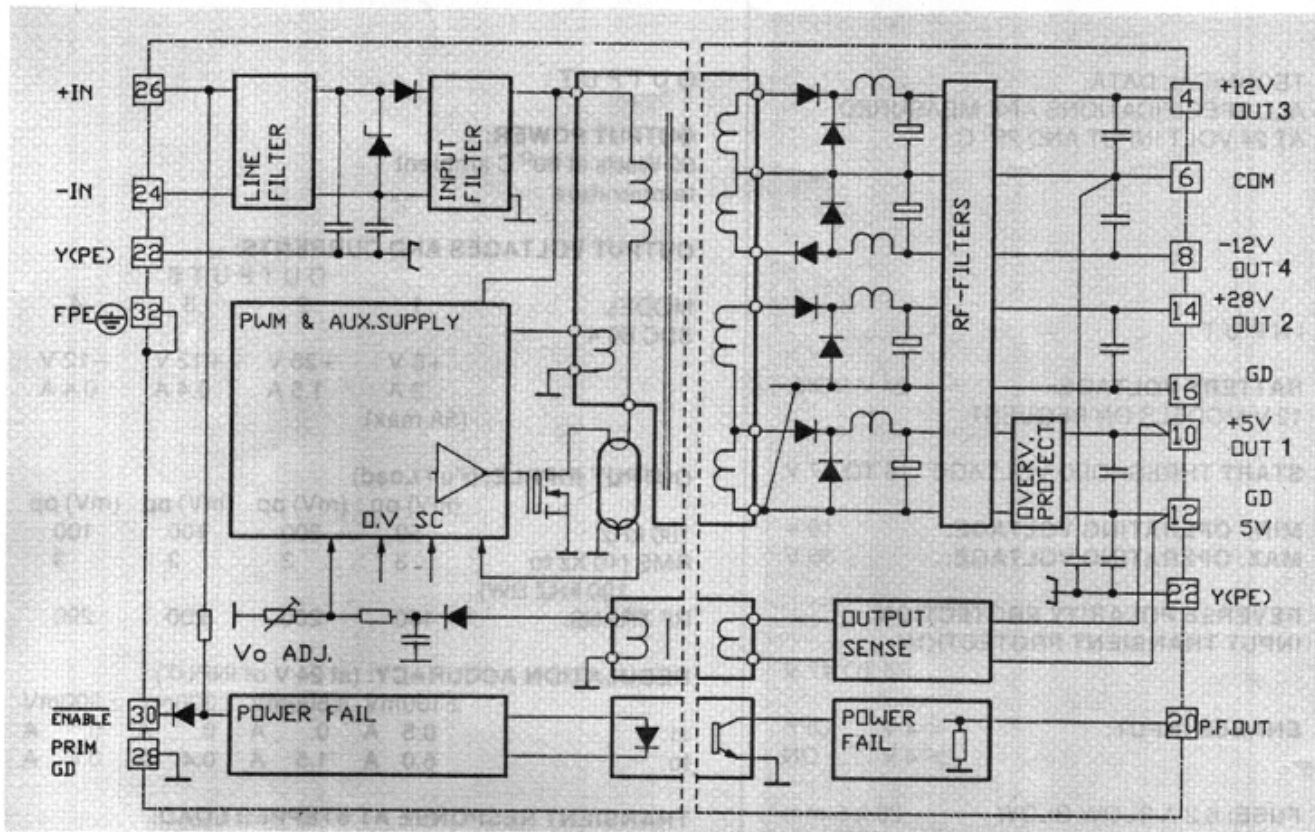


TRANSIENT RESPONSE

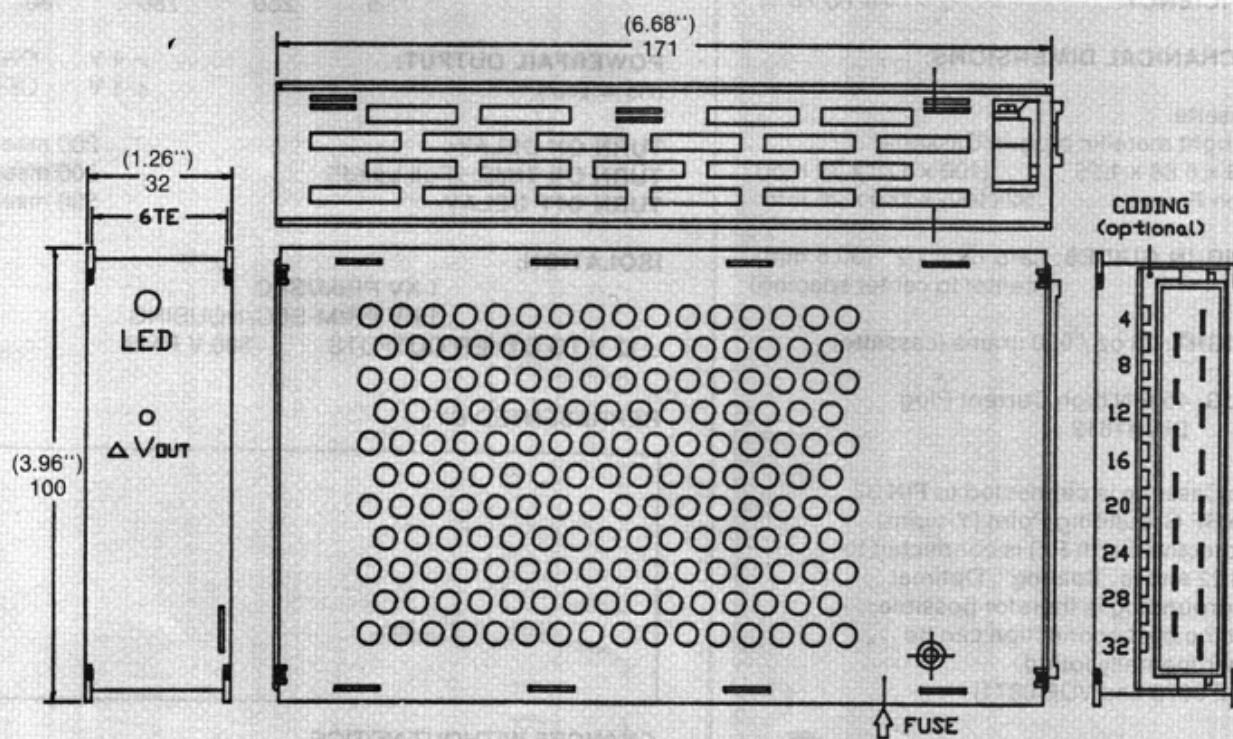


POWER FAIL SIGN.





MECHANICAL DIMENSIONS: The cassette can be supplied with customer specified front plates. An optional coding at the Output Connector can be supplied. The plug-in cassette is supplied with an accessible Fuse and a LED Display on the front side. The Output Voltage adjusts through the front plate with a screwdriver. OUTPUT 2, 3 and 4 are varied in the same ratio with changes on the + 5 V Output.



TECHNICAL DATA:
ALL SPECIFICATIONS ARE MEASURED
AT 24 VOLT INPUT AND 25° C

INPUT:

BATTERY VOLTAGE: 24 V NOM.
12 V MODELS ON REQUEST

START THRESHOLD VOLTAGE 16 TO 17 V

MIN. OPERATING VOLTAGE: 16 V

MAX. OPERATING VOLTAGE: 36 V

REVERSE POLARITY PROTECTION

INPUT TRANSIENT PROTECTION

38 TO 47 V

ENABLE INPUT: < 4 V ... OFF
> 4 V ... ON

FUSE: 6.2 A SLOW BLOW 20 x 5 mm
GLASS DIN ... (41662) (IEC 127)

OPERATING TEMPERATURE:

- 25° C
TO + 70° C

EFFICIENCY: 76 TO 78 %

MECHANICAL DIMENSIONS:

Cassette:

RF-tight metallic plug-in Cassette
3.96 x 6.68 x 1.26" (100 x 170 x 32 mm)
Open Frame 92 (100) x 160 x 26 mm

PLUG-IN GUIDES: card rails 1.2" (30.5 mm)
(center to center spacing)

WEIGHT: 23 oz / 650 grams (cassette)

PLUG: 15 PIN high Current Plug
DIN 41612

The Cassette is connected to PIN 32.
The RF Grounding Point (Y-point)
(Protective Earth PF) is connected to
PIN 22 and is „floating“. Optimal
RF grounding is therefor possible
and the best connection can be
experimentally found.
(VDE 0875 and VDE 0871)

OUTPUT:

OUTPUT POWER:

60 Watts at 60° C ambient
temperature

OUTPUT VOLTAGES AND CURRENTS:

MODEL	OUTPUTS			
	1	2	3	4
SDC 60.4	+5 V 2 A (5A max)	+28 V 1.5 A	+12 V 0.4 A	-12 V 0.4 A

OUTPUT RIPPLE: (Full Load)

	(mV) pp	(mV) pp	(mV) pp	(mV) pp
100 kHz	50	200	100	100
RMS (10 Kz to 100 kHz BW)	3	3	3	3
RF TRANS.	100	200	200	200

REGULATION ACCURACY: (at 24 V of INPUT)

	±100mV	±600mV	±300mV	±300mV
at:	0.5 A	0. A	0. A	0. A
to:	6.0 A	1.5 A	0.4 A	0.4 A

TRANSIENT RESPONSE AT STEPPED LOAD:

±200mV ±600mV ±300mV ±300mV

OVERVOLTAGE TRIGGER LEVEL:

(only on +5 V outputs) 5.5 V MIN
6.5 V MAX

OUTPUT IMPEDANCE: (mOHM) stat.

5 250 180 180

POWERFAIL OUTPUT:

(Rs = 2K7)

> 4 V ... ON
< 1 V ... OFF

TURN ON DELAY:

200 msec

TURN ON TIME: (Full Load!)

200 msec

TURN OFF DELAY:

500 msec

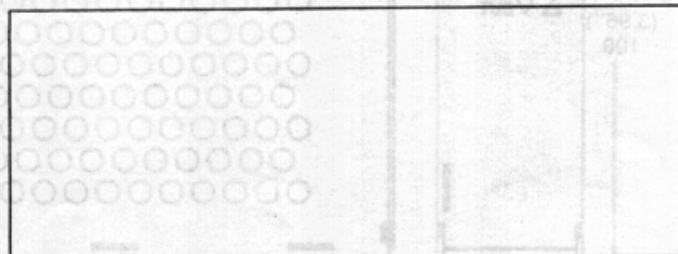
ISOLATION:

1 KV PRIM/SEC

1 KV PRIM-SEC/HOUSING

±12 V TO OTHER OUTPUTS 500 V RMS

REPRESENTED BY:



CHANGES WITHOUT NOTICE.