

**FEATURES:**

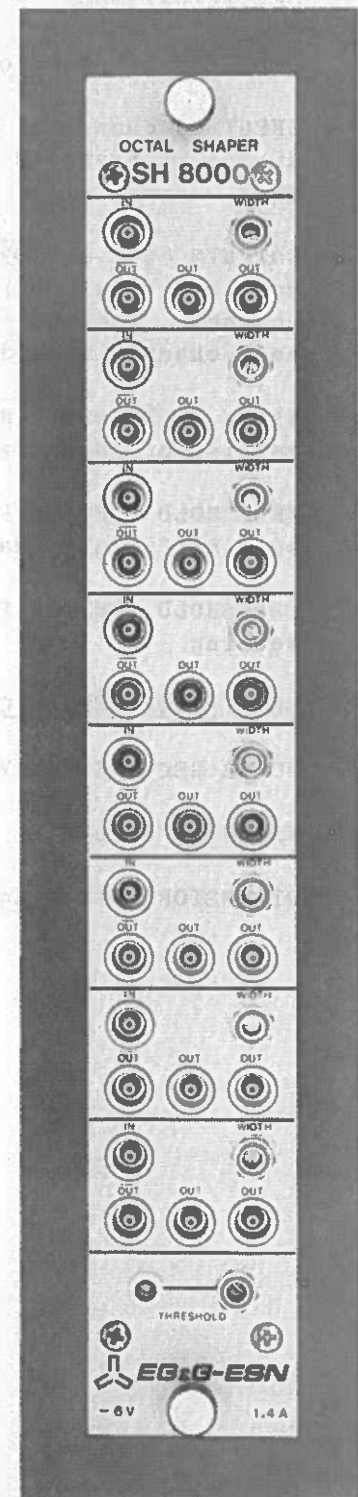
- \* 8 Independent channels
- \* Adjustable threshold
- \* Adjustable width and deadtime for ring suppression
- \* 3 outputs per channel

**APPLICATIONS:**

- \* Logic signal refreshing after long cable delays
- \* Logic inversion
- \* Logic fan-out

The EG&G ESN Model SH8000 Octal Shaper provides a means of refreshing weak Fast-NIM logic signals. The unit is particularly useful for refreshing signals after a long cable delay. The SH8000 contains 8 channels of shaping with a common threshold adjustment in a single-width NIM package.

To suppress multiple triggering due to signal ringing a built-in deadtime width adjustment is provided for each channel. The deadtime can be set between 30 and 600 ns. A single threshold adjustment controls the trigger level of all channels. The threshold may be set between -200mV and -2.5 V.



**SPECIFICATIONS:**

**DEADTIME** 110 % of output width setting

**INPUT** (8 channels) Front-panel LEMO connector accepts negative Fast-NIM logic signal. Threshold adjustable between -200 mV and -2.5 V; input impedance, 50 Ohms.

**OUTPUTS** (OUT and  $\overline{\text{OUT}}$ ) (8 channels) Front-panel LEMO connectors provide two non-inverting (OUT) and one inverting ( $\overline{\text{OUT}}$ ) negative Fast-NIM outputs per channel. Nominal -16 mA output. Output width is independently adjustable for each channel from 30 to 600 ns.

**WIDTH ADJUSTMENT** (8 channels) Front-panel screwdriver adjustment allows setting of output width. Range, 30 to 600 ns.

**THRESHOLD CONTROL** Front-panel screwdriver adjustment allows common threshold setting for all channels. Range, -200 mV to -2.5 V.

**THRESHOLD MONITOR** Front-panel testpoint allows monitoring of threshold setting.

**ELECTRICAL/MECHANICAL**

**POWER REQUIRED** -6 V, 1400 mA

**WEIGHT** 0.9 kg

**DIMENSIONS** NIM single-width module, 3.3x22.1 cm front panel.

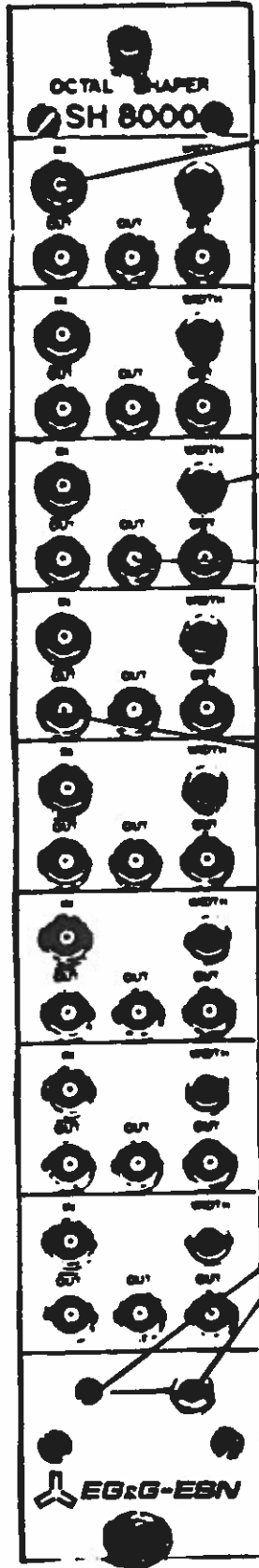


For more information on **EG&G** products and their applications contact your local representative or **United States** EG&GORTEC, 100 Midland Rd. Oak Ridge, TN 37830, telephone (615) 482-4411 telex 55-7450 **Canada**: EG&G Instruments Div. Ontario, telephone (416) 475-8420 telex 389-6966615 **West Germany**: EG&G Instruments GmbH, Munich, telephone 089-926920 telex 528257 **France**: EG&G Instruments SARL, Evry, Cedex, telephone 06-077-93-66, telex 680785 **United Kingdom**: EG&G Instruments Ltd, Bracknell, telephone 344-423931 telex 847164 **Italy**: EG&G Instruments s.r.l., Milan, telephone 02-738-6294, telex 320377 **The Netherlands**: EG&G Instruments B.V., AB Nieuwegein, telephone 30-887520, telex 40830 **Japan**: SEIKO EG&G Co. Ltd., Koto-Ku, Tokyo, telephone 01-638-1506, telex 781-02622410

SH 8000

OCTAL SHAPER / FAST NIM

Refresh of Logical Signals after long cable delays



INPUT FAST NIM

- 6 ns MIN WIDTH
- 50  $\Omega$  INTERNALLY TERMINATED
- THRESHOLD ADJUSTABLE BY SCREWDRIVER ONCE PER MODULE BETWEEN -200 mV and -2.5 V

WIDTH ADJUST

30 ns to 600 ns

2 INDEPENDENT OUTPUTS

FAST NIM

-16 mA = -0.8 V in 50  $\Omega$

OUT

COMPLEMENT OF OUT

COMMON THRESHOLD

-200 mV to -2.5 V

TESTPOINT

THRESHOLD VOLTAGE MINUS 0.7 V

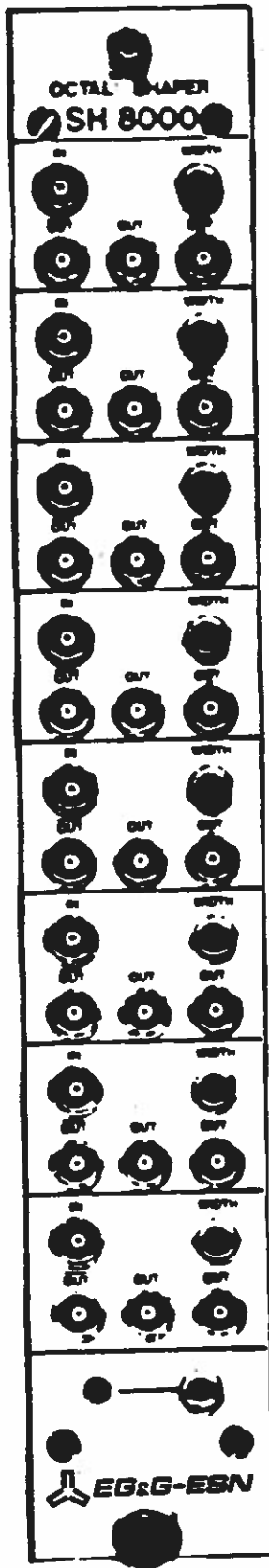
POWER REQUIREMENTS

-6V : 1.4A

SH 8000

OCTAL SHAPER / FAST NIM

Refresh of Logical Signals after long cable delays

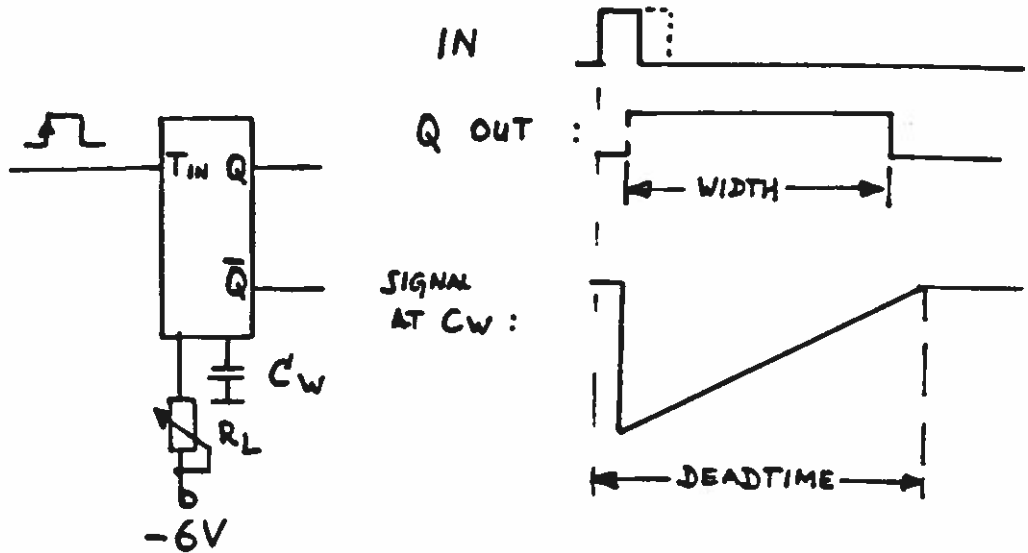


preliminary specifications

- 8 channels
- single NIM width module
- LEMO connectors on front panel
- FAST NIM Input
  - Threshold adjustable by screwdriver once per module between -200 mV and 2,5 V (the testpoint on the front panel shows threshold voltage minus 0,7 V)
- WIDTH individually adjustable by screwdriver between 30 ns and 600 ns
- DEADTIME approximately width + 10 %

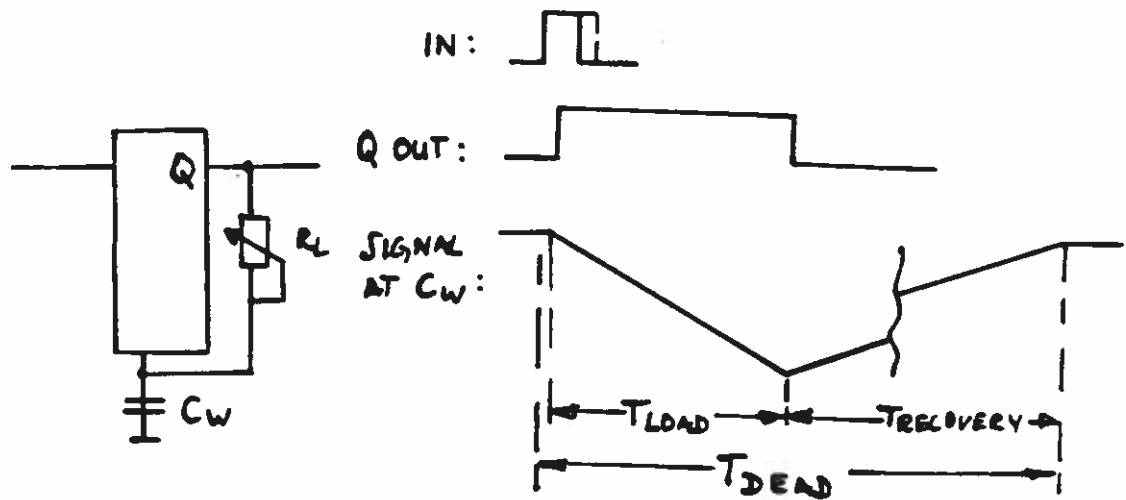
Monostable 10198

PULSE WIDTH / DELAY



WIDTH VARIABLE      1 : 35  
 RECOVERY TIME      10 ns at 2 μs WIDTH

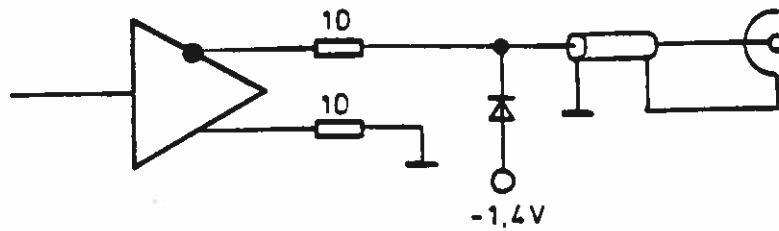
Conventional Solution :



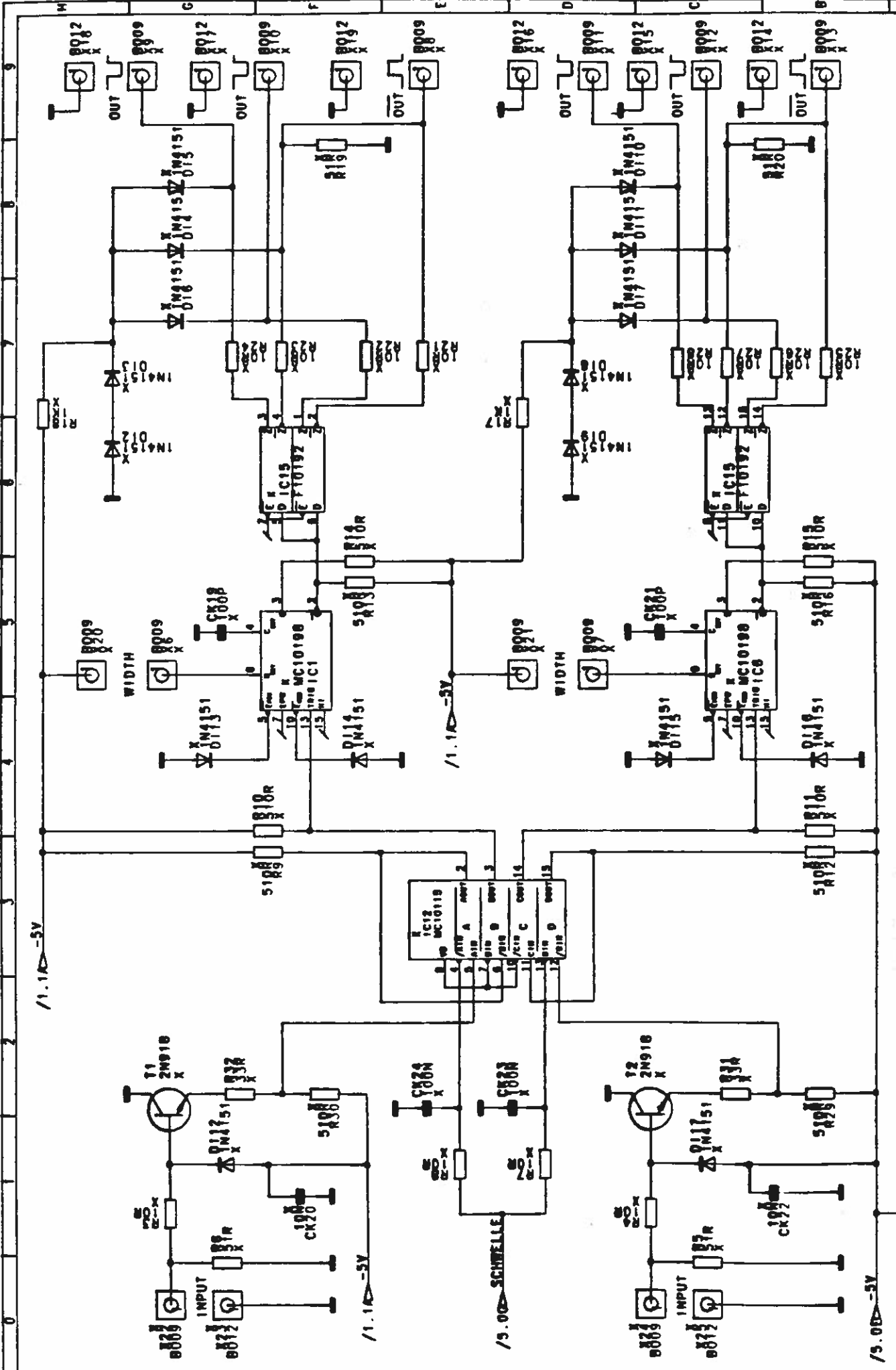
$$T_{LOAD} = R_L \times C_W \quad (R_L : 1 \dots 10 \text{ k}\Omega)$$

$$T_{REC} = R_{PULLDOWN} \times C_W \quad (R_T \approx 50 \text{ k}\Omega)$$

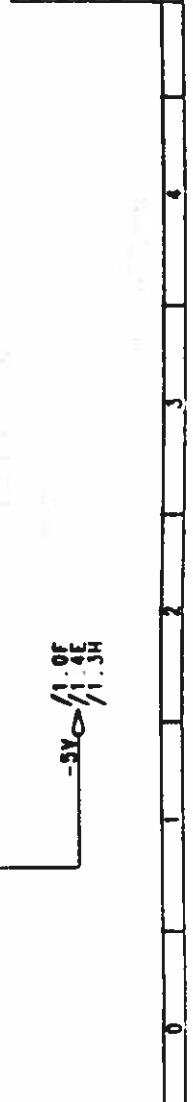
Ausgangsstufe F 10192

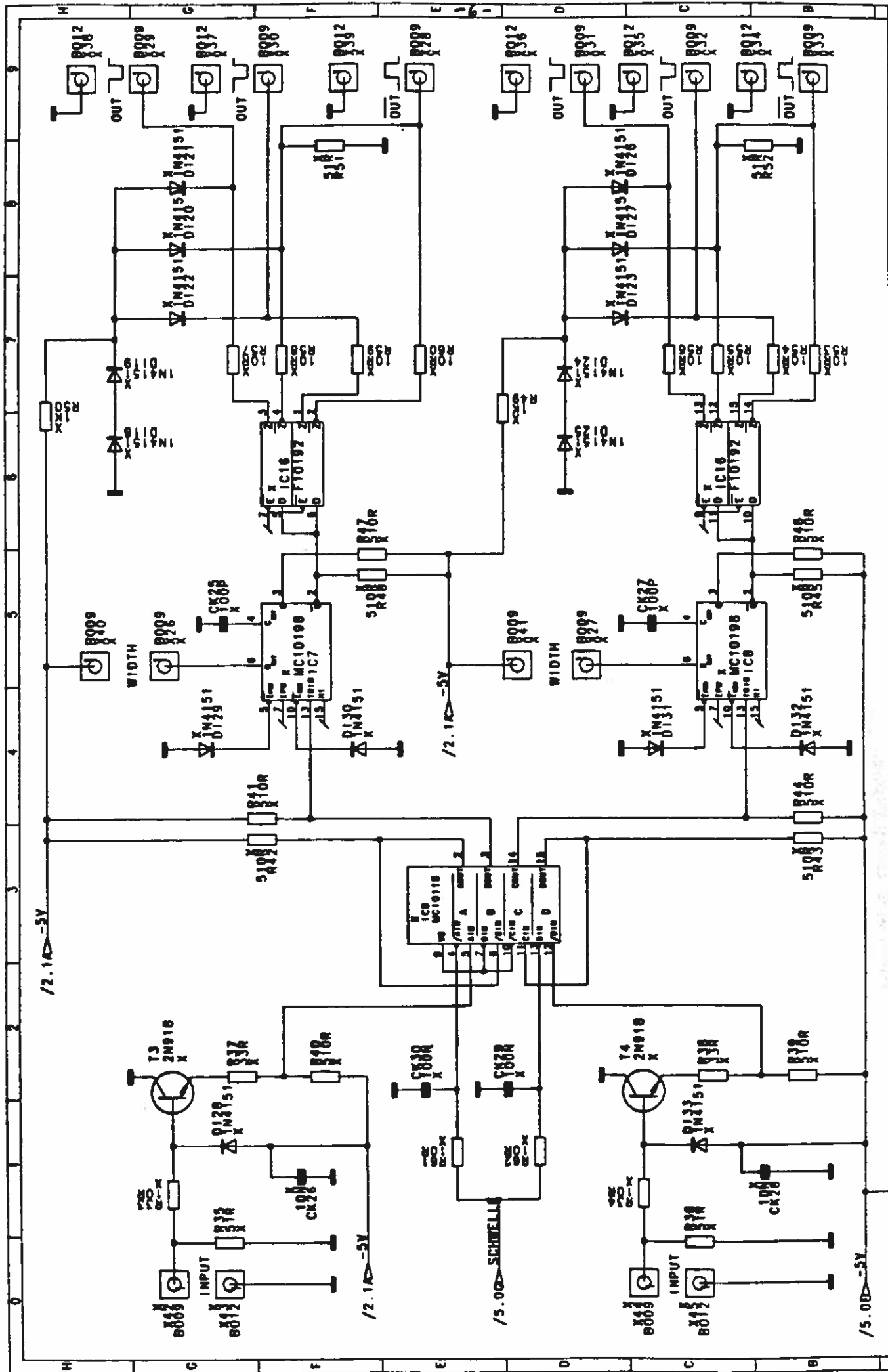


- Kurzschlußfest
- FAST NIM - Ausgang
- $I_{\text{HIGH}} = 0$
- $I_{\text{LOW}} = 15-19 \text{ mA}$  bei  $V_{\text{EE}} = -5.2\text{V}$
- $I_{\text{LOW}} = 16-19 \text{ mA}$  bei  $V_{\text{EE}} = -6.0\text{V}$
  
- treibt  $50 \Omega$
- 4 Teiler in 1IC, jeweils nominal + invertiert
- doppelter Strom durch Verknüpfen zweier Stufen erreichbar
- braucht viel Strom (Kühlrippen)
- nicht angepaßtes Z (am Ende mit  $50 \Omega$  abschließen)



NAME		DATUM	MASSTAB	
ENTW. ALBRECHT		3.84	SH 8001	
BEARB. PRZ		3.84	BLATT 1	
GEPR. ALBRECHT		9.7.84	VON 5	
DARMSTADT			OCTAL SHAPER	
VERS.:				





NAME		DATUM	
ENTW.	ALBRECHT	3.84	
BEARB.	PRZ	3.84	
GEPR.	ALBRECHT	9.7.84	

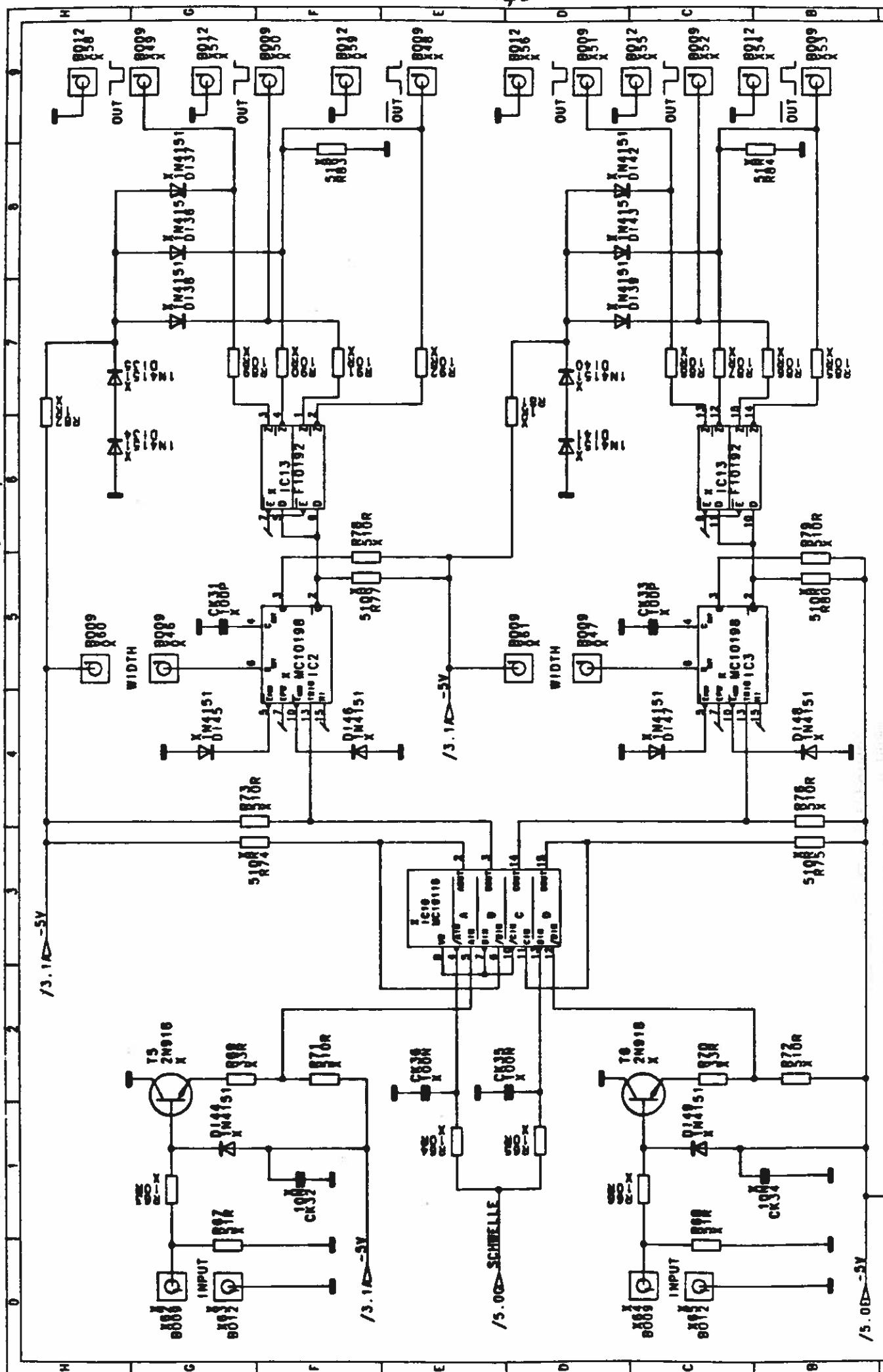
SH 8001

CCTL SHAPER

MASSTAB  
BLATT  
2  
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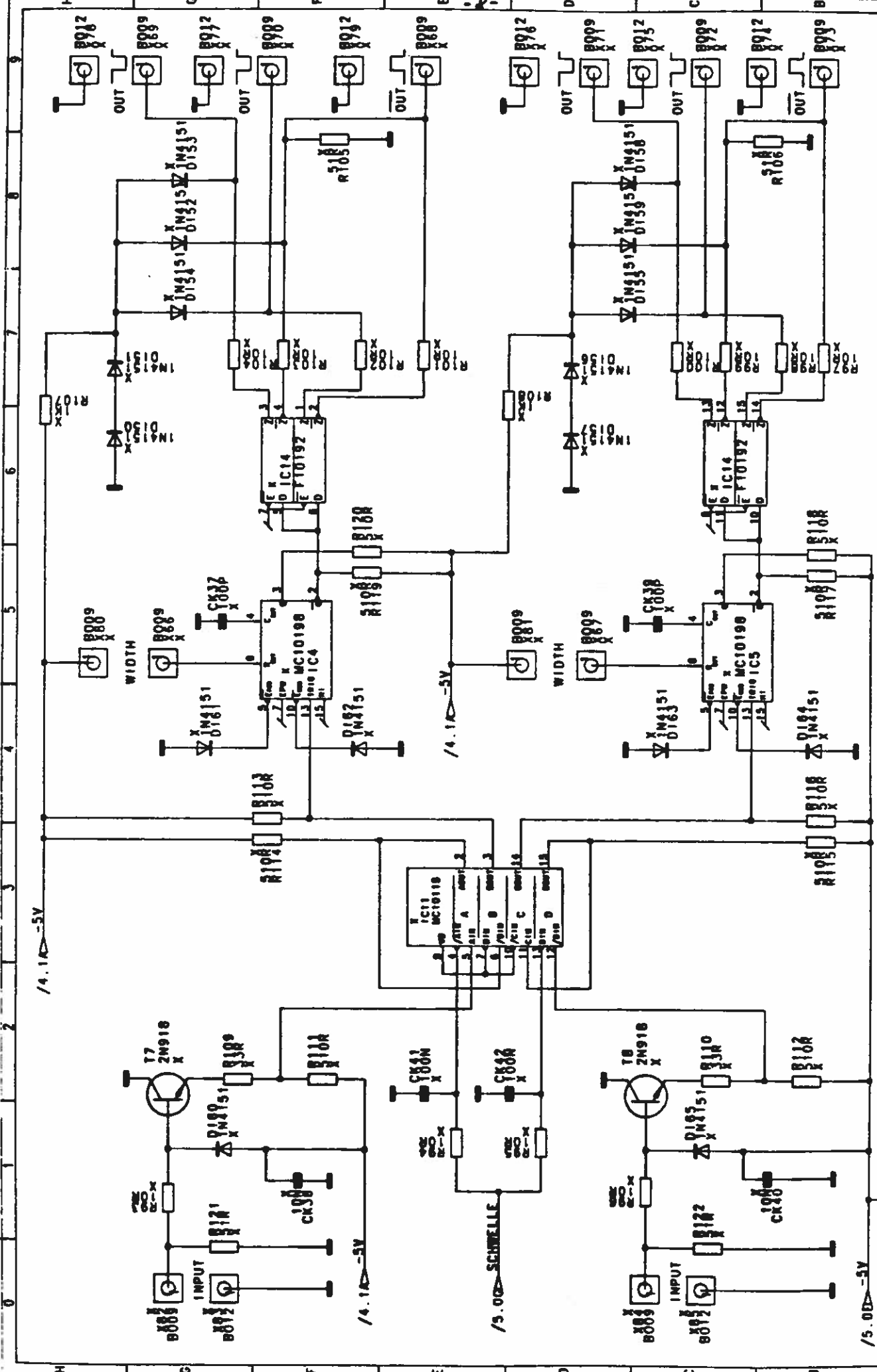
-5V  
/2.0E  
/2.4E  
/2.3H





NAME	DATUM
ENTW. ALBRECHT	3.84
BEARB. PRZ	3.84
GEPR. ALBRECHT	9.7.84

SH 8001  
 OCTAL SHAPER  
 DARMSTADT  
 MASSTAB  
 BLATT 3 VON 5

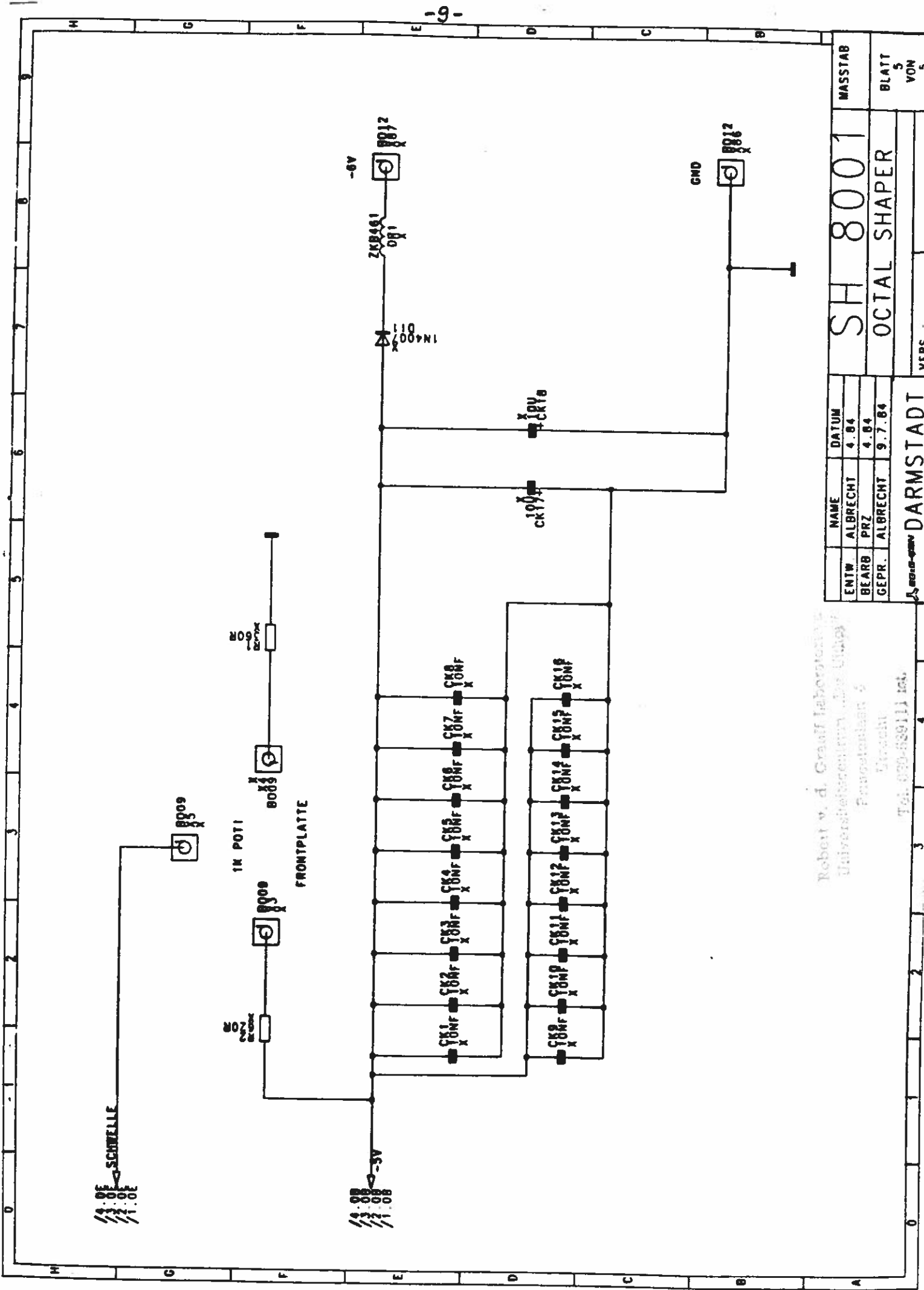


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NAME	DATUM
ENTW. ALBRECHT	3.84
BEARB. PRZ	3.84
GEPR. ALBRECHT	9.7.84

MASSTAB  
 SH 8001  
 OCTAL SHAPER  
 BLATT  
 4  
 VON  
 5

-5V  $\frac{4}{4.4E}$   $\frac{4}{4.3H}$



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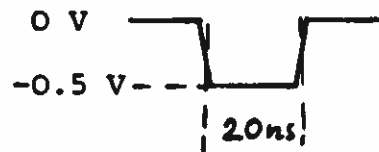
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MASSTAB		SH 8001	
BLATT		OCTAL SHAPER	
VON		5	
VFRS		DARMSTADT	

Testvorschrift:

1. Strom messen : -6 V ;  $\approx$

2. Funktion CHANNEL 1

- Eingangssignal



Anstiegszeit, Abfallzeit etwa 2 ns, Breite  
20 ns negativ , -0.5 V

auf 1. Eingang (Kanal 1) geben

Ausgangssignal OUT auf Oszi geben (mit 50  $\Omega$   
abschließen !)

Signalform soll sein an beiden Ausgängen



- Ausgangssignal  $\overline{\text{OUT}}$  auf Oszi geben (mit 50  $\Omega$   
abschließen)

Signalform



3. Triggerpegel CHANNEL 1 :

Amplitude des Eingangssignals variieren, bis Ausgang  
verschwindet

Schwelle soll etwa bei -400 mV liegen (protokollieren)

4. WIDTH CHANNEL 1

WIDTH variieren,

Am Oszi Pulsbreite messen

MIN  $\approx$  30 ns; MAX  $\approx$  600 ns

Protokollieren

Weiter mit CHANNEL 2 ..... 8