

Type	Ordering code	Package
SAS 580	Q 67000-S28	} DIP 18
SAS 590	Q 67000-S29	

Channel memory for use in radio and TV sets. The four stages can be selected by touching the sensor area. Each stage is provided with an indicator output. The tuning voltage is applied to a common output. SAS 580 is the basic component for the first 4 channels. The number of channels can be increased by 4 with each additionally connected SAS 590 amplifier.

### Features

- High input sensitivity
- Low saturation voltage of the driver outputs
- Low temperature drift of the tuning switches
- Driver outputs to control filament lamps, LEDs, neon lamps, or nixie tubes
- Standby operation possible
- Ring counter up to 10 kHz
- No external diode matrix
- Single power supply

### Maximum ratings

Supply voltage (without series resistor)	$V_{16}$	36	V
Current consumption (for operation with higher voltage, a series resistor is required)	$I_{16}$	15	mA
Driver current	$I_3, I_5, I_7, I_9$	55	mA
Max. driver current, $t_{max.} \leq 2$ s	$I_3, I_5, I_7, I_9$ max.	100	mA
Junction temperature	$T_j$	150	°C
Storage temperature range	$T_{stg}$	-40 to 125	°C
Thermal resistance (system-air)	$R_{th SA}$	90	K/W

### Operating range

Supply voltage 1	$V_{16}$	10 to 36	V
Ambient temperature	$T_A$	0 to 70	°C

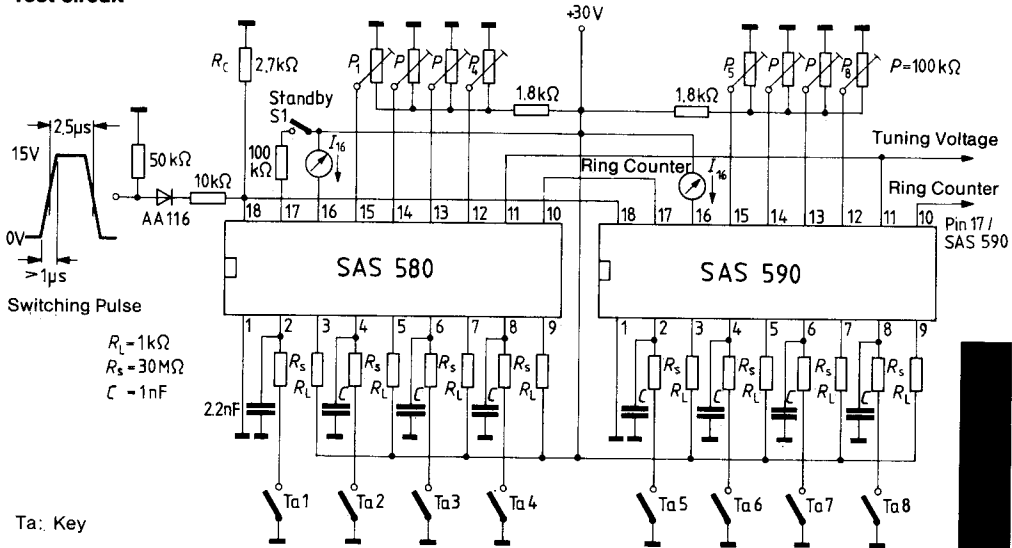
**Characteristics**

with reference to test circuit,  $V_{16} = 30 \text{ V}$ ,  $T_A = 25 \text{ }^\circ\text{C}$

		min	typ	max	
Internal current consumption					
channel switched	$I_6$	4.5	7	9.5	mA
channel not switched	$I_6$	2.9	5	8.5	mA
Voltage at pin 18					
during touching keys 1...8	$V_{18s}$	3.25	3.7	4.2	V
after touching keys 1...8	$V_{18h}$	2.6	2.9	3.2	V
Saturation voltage of driver outputs					
$R_L = 1 \text{ k}\Omega$	$V_3, V_5, V_7, V_9$		0.8	1.5	V
$R_L = 30 \text{ k}\Omega$	$V_3, V_5, V_7, V_9$		30	60	mV
Reverse voltage of driver outputs					
$I_{rev} = 100 \text{ }\mu\text{A}$	$V_3, V_5, V_7, V_9$	60			V
$I_{rev} = 5 \text{ }\mu\text{A}$	$V_3, V_5, V_7, V_9$	50			V
Tuning voltage					
Input current of tuning voltage inputs	$V_{12}, V_{13}, V_{14}, V_{15}$	0.3		$V_{16} - 2$	V
Offset voltage of tuning switches <sup>1)</sup>	$I_2, I_3, I_4, I_5$		150	300	nA
	$V_{12-11}, V_{13-11}$			$\pm 100$	mV
	$V_{14-11}, V_{15-11}$			$\pm 100$	mV
Temperature drift of tuning voltage switches ( $T_A = 25$ to $50 \text{ }^\circ\text{C}$ ) <sup>1)</sup>	$V_7$			5	mV
Resistance of tuning output	$R_{q11}$		3		k $\Omega$
$I_{11} < \pm 30 \text{ }\mu\text{A}$					
Input current					
for channel switching amplifiers	$I_2, I_4, I_6, I_8$	20	80	200	nA
Input threshold voltage of switching amplifiers ( $I_2, I_4, I_6, I_8 = 80 \text{ nA}$ )	$V_2, V_4, V_6, V_8$		5.5		V
Switching frequency of ring counter	$f_{rc}$		10		kHz
Reset to channel 1					
Switching pulse level	$V_{SI18}$		15		V
Switching pulse duration	$T_{SI18}$	70			$\mu\text{s}$
Switching pulse rise time	$t_{SILH18}$			1	$\mu\text{s}$
Switching to the next stage					
Switching pulse level	$V_{SI18}$		15		V
Switching pulse duration	$T_{SI18}$		2.5		$\mu\text{s}$
Switching pulse rise time	$t_{SILH18}$			1	$\mu\text{s}$
<b>Characteristics of the Z diode</b>					
Z voltage ( $I_{16(30V)} + 3 \text{ mA}$ )	$V_Z$	34		39	V

<sup>1)</sup> measured between connected input and pin 11.

Test circuit



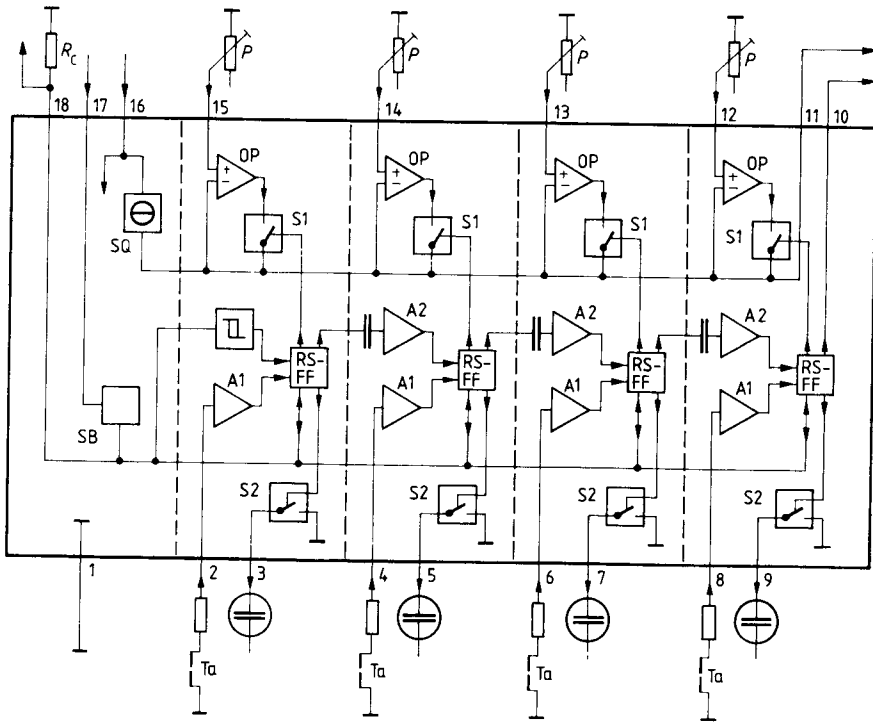
SAS 580 is absolutely necessary for testing SAS 590;  
 otherwise no function  
 SAS 580 can be tested individually.

During channel changes, the capacitor operating as a load on pin 11 is reversely charged with a current of approx.  $\pm 50\ \mu\text{A}$ .

SAS 580 only: After applying supply voltage  $V_{16}$ , channel 1 is selected, i.e. the tuning voltage is switched from pin 15 to pin 11 and the lamp at pin 3 is switched on.

$V_{17} < 0.5\ \text{V}$  means standby operation, i.e. even when selecting another channel, the previously selected channel remains stored. Selection of a new channel is not possible. A stored channel must be present again after closing S1.

Block diagram SAS 580



SQ: Current source  
SB: Standby  
OP: Operational amplifiers  
 $T_a$ : Key

Figure 1

Circuit diagram: one channel

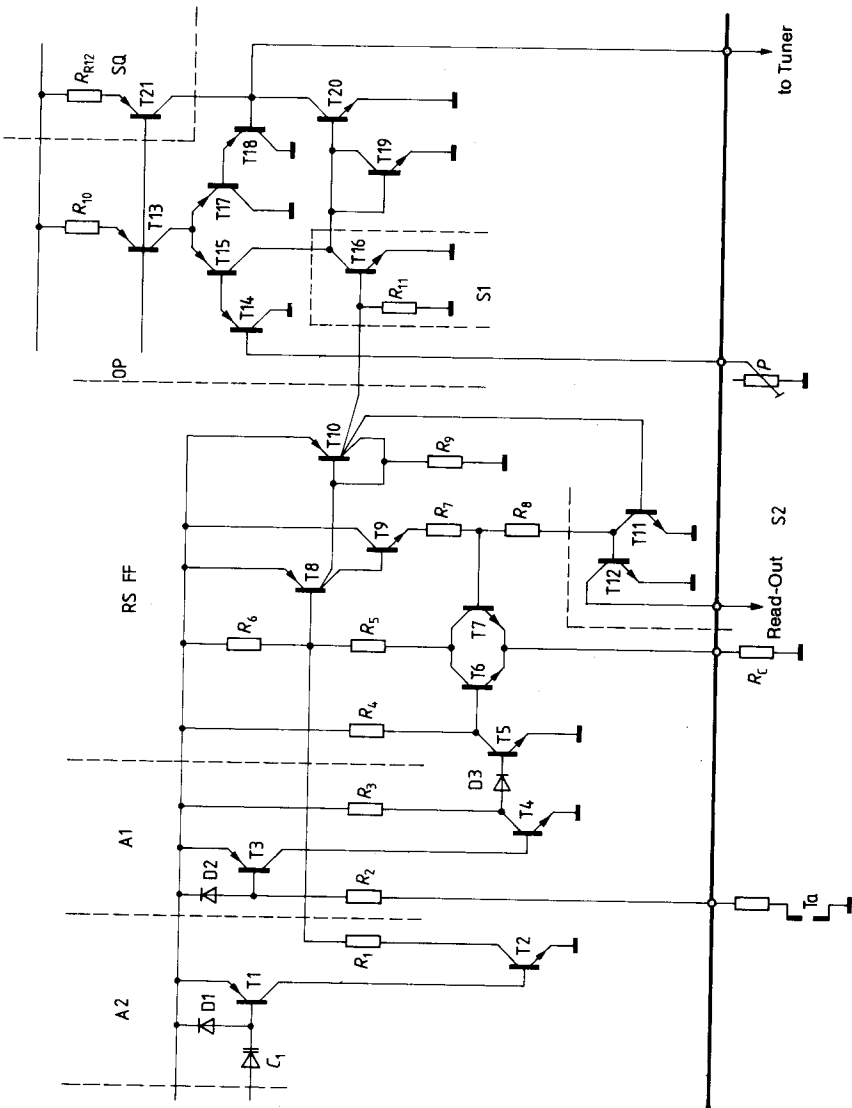


Figure 2

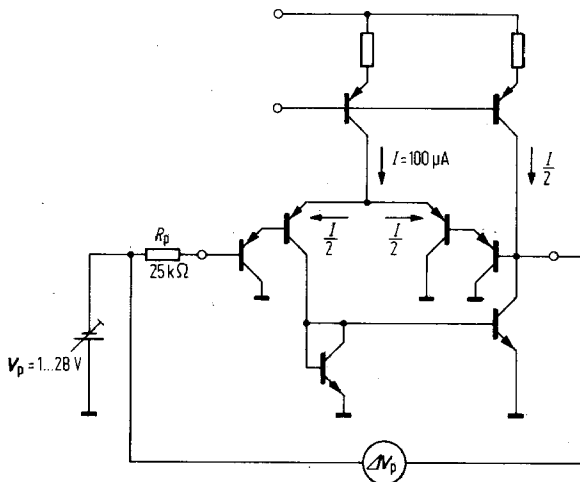


Figure 3

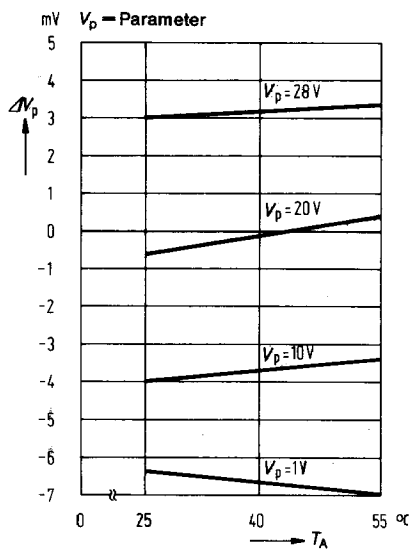


Figure 4

Application circuit 1

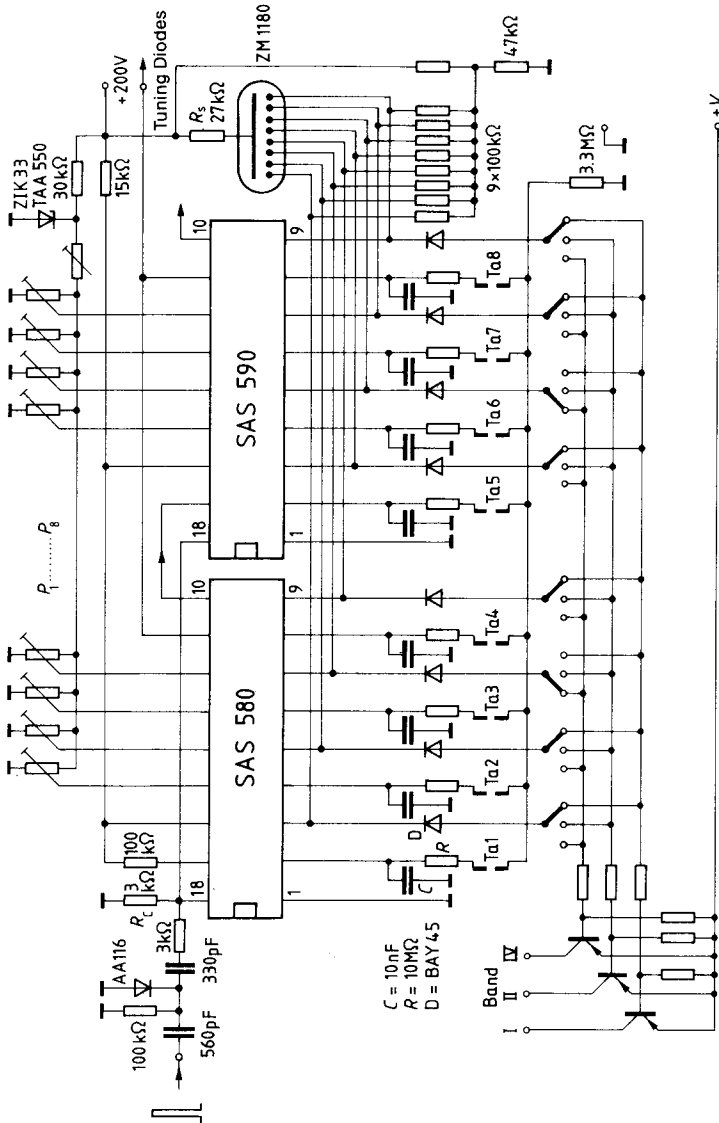


Figure 5

Application circuit 2

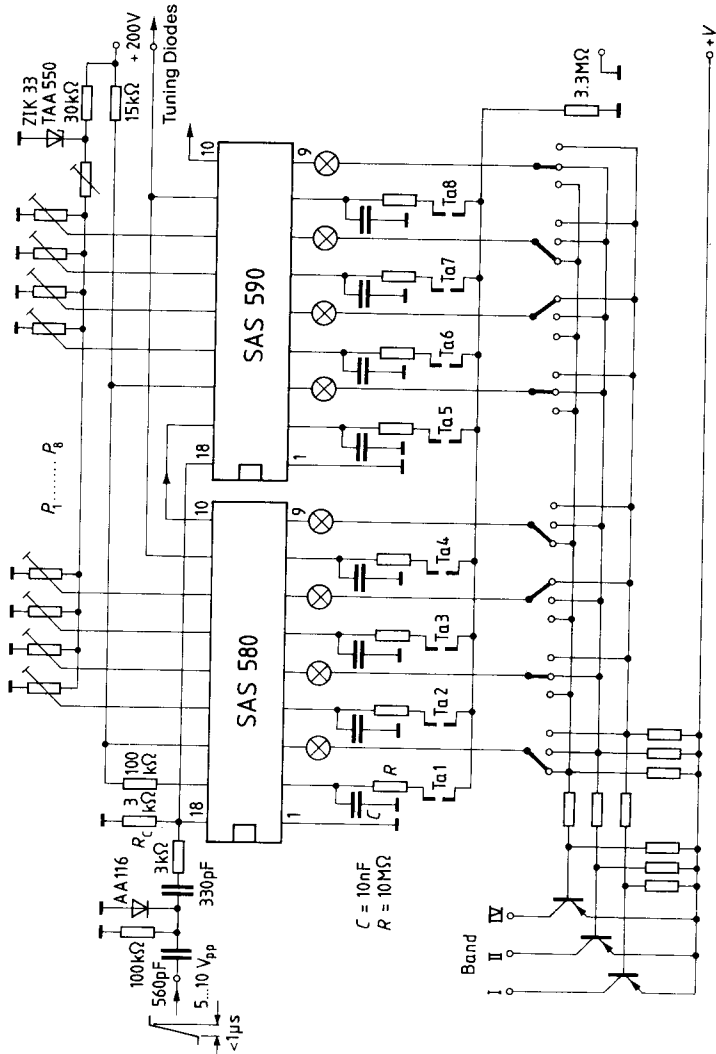


Figure 6