

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	$I_3, I_5, I_7, I_9 \text{ max.}$	100	mA
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-40 to 125	°C
Thermal resistance (system-air)	$R_{\text{th SA}}$	90	K/W

Operating range

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

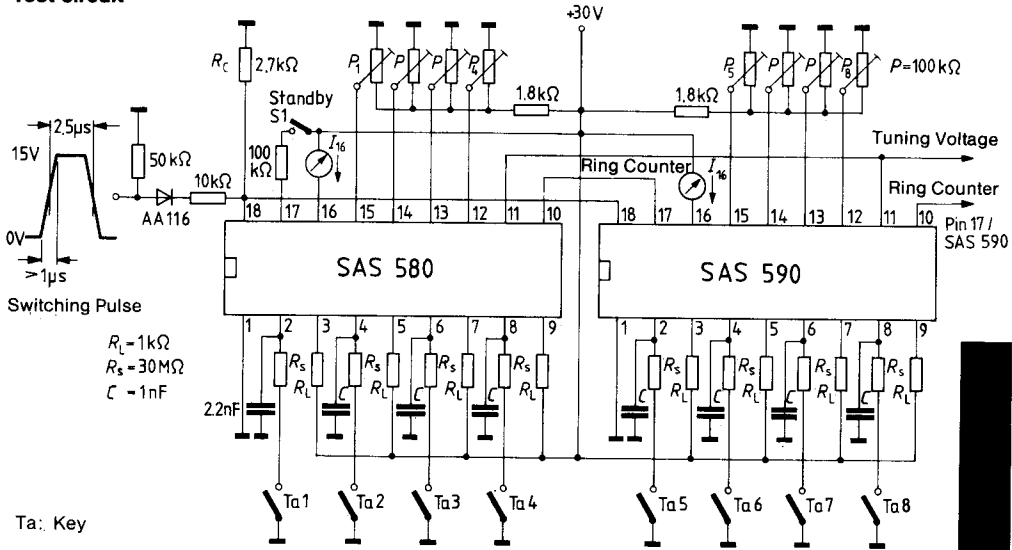
Characteristics

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

		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					
$I_{ev} = 100 \mu\text{A}$	V_3, V_5, V_7, V_9	60			V
$I_{ev} = 5 \mu\text{A}$	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 ¹⁾	I_2, I_3, I_4, I_5		150	300	nA
	V_{12-11}, V_{13-11}			± 100	mV
	V_{14-11}, V_{15-11}			± 100	mV
Temperature drift of tuning voltage switches ($T_A = 25$ to 50°C) ¹⁾	V_T			5	mV
Resistance of tuning output	R_{q11}		3		k Ω
$I_{11} < \pm 30 \mu\text{A}$					
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			μs
Switching pulse rise time	t_{SILH18}			1	μs
Switching to the next stage					
Switching pulse level	V_{SI18}		15		V
Switching pulse duration	T_{SI18}		2.5		μs
Switching pulse rise time	t_{SILH18}			1	μs
Characteristics of the Z diode					
Z voltage ($I_{16} (30 \text{ V}) + 3 \text{ mA}$)	V_Z	34		39	V

¹⁾ measured between connected input and pin 11.

Test circuit

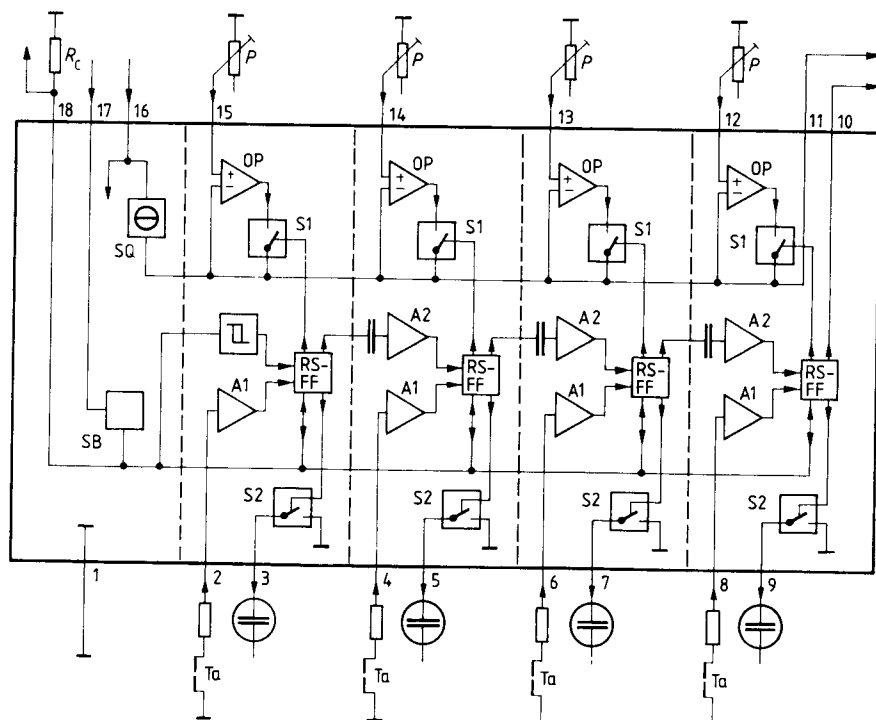


SAS 580 is absolutely necessary for testing SAS 590;
otherwise no function
SAS 580 can be tested individually.

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

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

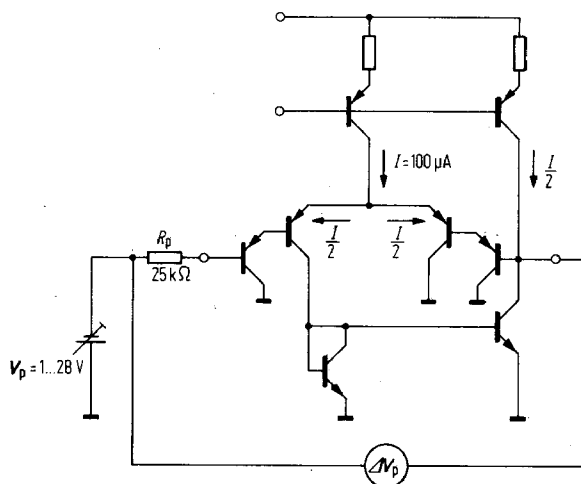


Figure 3

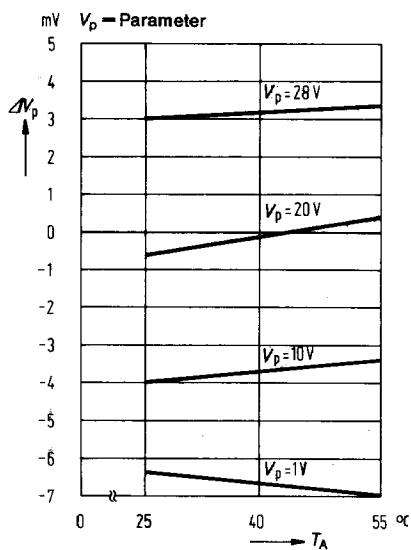


Figure 4

Application circuit 1

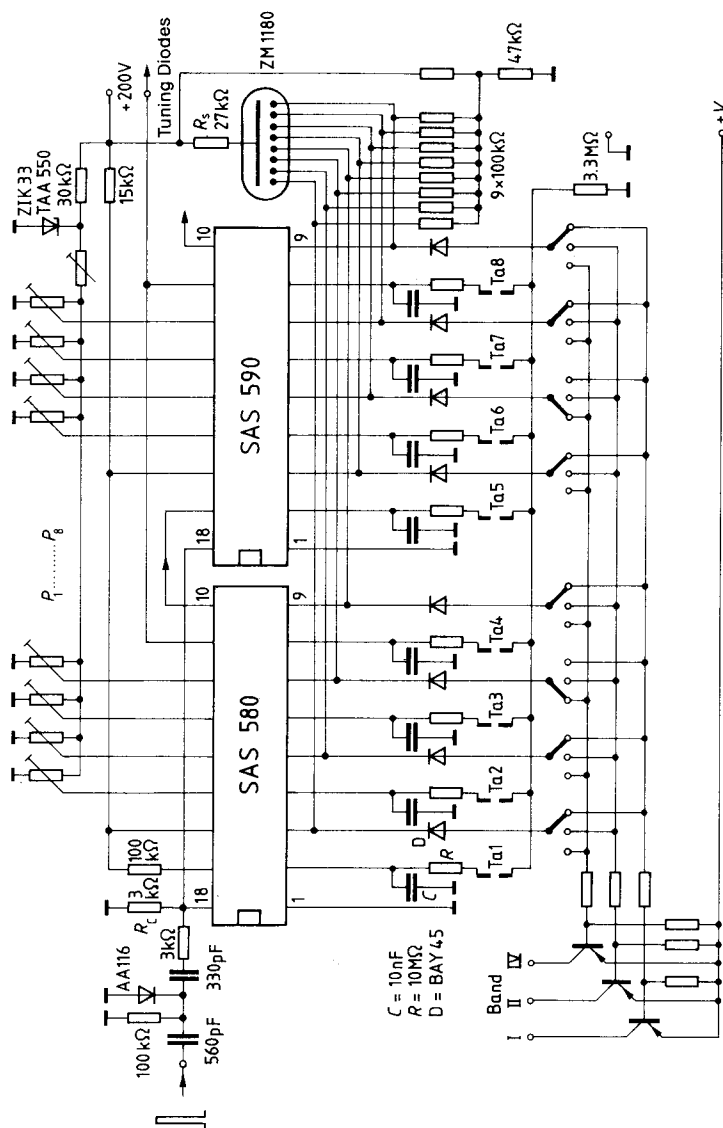


Figure 5

Application circuit 2

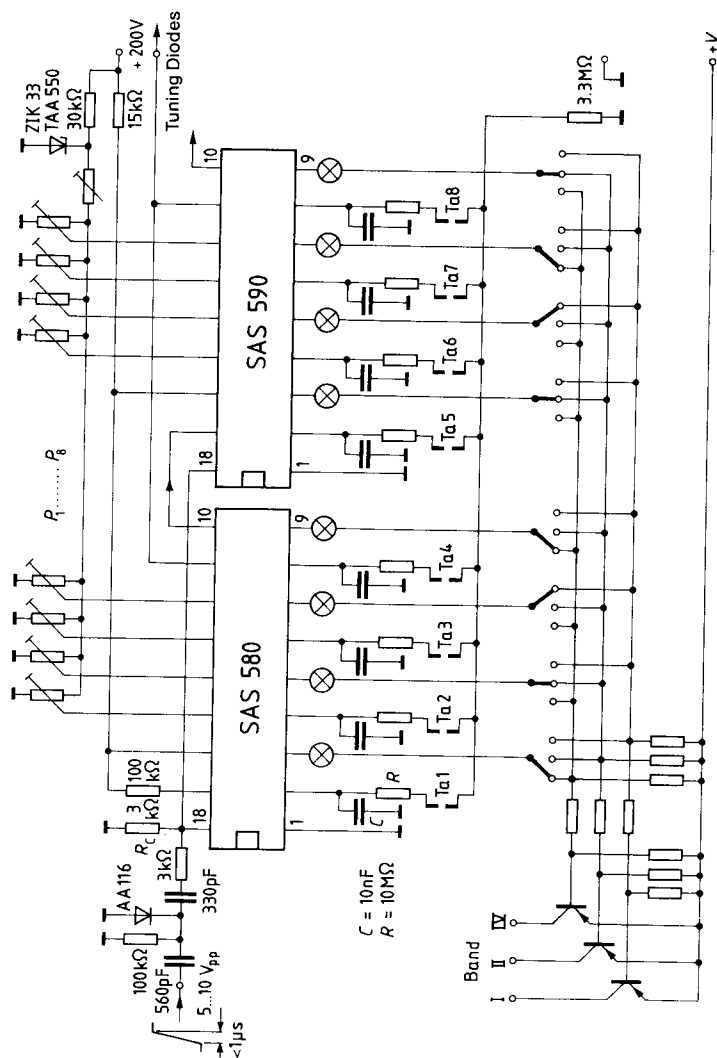


Figure 6