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engineering data service

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SA309

MECHANICAL DATA

Bulb	T-8
Base	Small 6-Pin, AG-7, with Even Numbered Pins Removed
Maximum Bulb Diameter	1.015 Inches
Maximum Seated Height	$1\frac{15}{16}$ Inches
Cathode	Cold Cathode
Mounting Position	Any
Color of Discharge	Blue-White

ELECTRICAL DATA

RATINGS

	Min.	Max.	
Anode Voltage	425	600	Volts
Trigger Voltage	4	12	Kv
Dissipation[1]		3.5	Watts
Frequency[2]		100	pps

TYPICAL OPERATION

Anode Voltage	500 Volts
Discharge Capacitor	1 μfd
Flashes per Second	20
Trigger Voltage	5 Kv
Light Output, Approx., in Lumen Secs. per Flash	5

NOTES:

1. *Tube dissipation in watts is equal to* $\frac{f\,C\,(V)^2}{2}$ *where C is the discharge capacitance in μfd, V is the voltage in kilovolts, and f is the number of flashes or pulses per second.*

2. *Tube frequency may be increased provided total dissipation of 3.5 watts is not exceeded.*

APPLICATION DATA

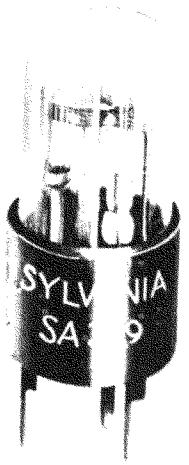
Sylvania Strobotron Type SA309 is a high-intensity strobotron which produces bluish-white light pulses at frequencies of the order of 100 flashes per second. It is designed to fill the need for a reasonably priced, compact, slow-rate strobotron suitable for true-color viewing of relatively low-frequency rotary and reciprocatory motion. The stroboscopic effect of the repetitive, synchronized light flashes "freezes" the motion permitting either visual or photographic examination. The SA309 is especially useful in automotive timing, spot viewing of ink flow and registry in multi-color printing, adjustment of packaging machinery, wheel balancing and similar applications.

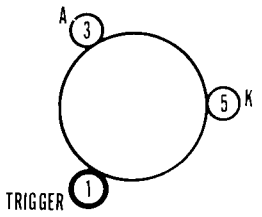
In designing circuits for the Sylvania Type SA309, it is desirable that the time constant (RC) be as long as possible consistent with the selected operating voltage and with the desired maximum flash rate. Too short a time constant, at high repetition rates, may result in a continuous discharge due to insufficient deionization time.

(Continued on reverse side)

QUICK REFERENCE DATA

The Sylvania Type SA309 is a high-intensity strobotron designed for visual or photographic examination of rotary and reciprocatory motion.





SA 309

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ELECTRONICS DIVISION
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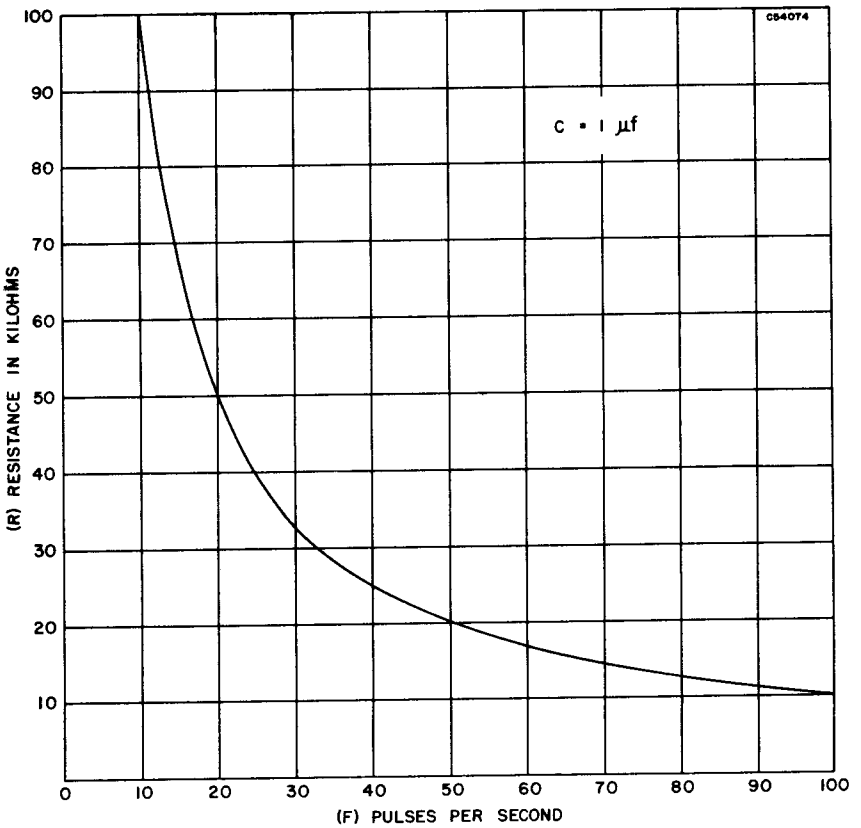
Prepared and Released By The TECHNICAL PUBLICATIONS SECTION EMPORIUM, PENNSYLVANIA

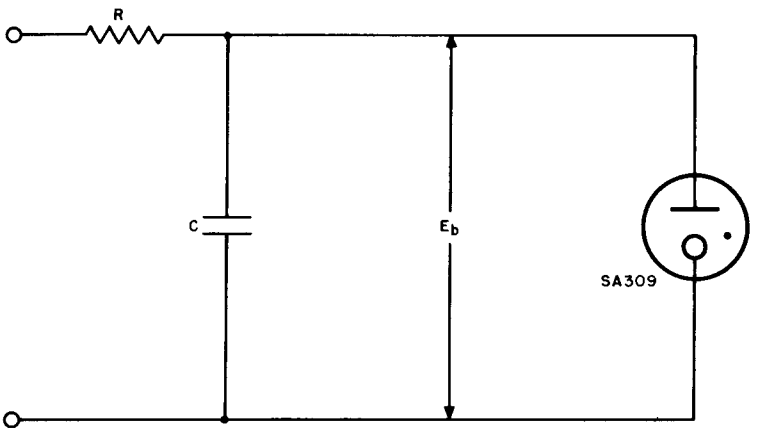
9-54-30

APPLICATION DATA

Too long a time constant may effectively lower the tube voltage by permitting the tube to be triggered before it reaches the operating voltages necessary to produce full light output. The ionization time of the tube itself is generally well below 10 microseconds. The deionization time depends upon the tube and the circuit. The graph below shows the value of resistance to use with a 1μfd condenser to achieve a given flash rate (pps).



GRAPH SHOWING VALUE OF RESISTANCE TO USE WITH 1μf CAPACITOR TO ACHIEVE A GIVEN FLASH RATE, PPS



$T = 1/f = RC$

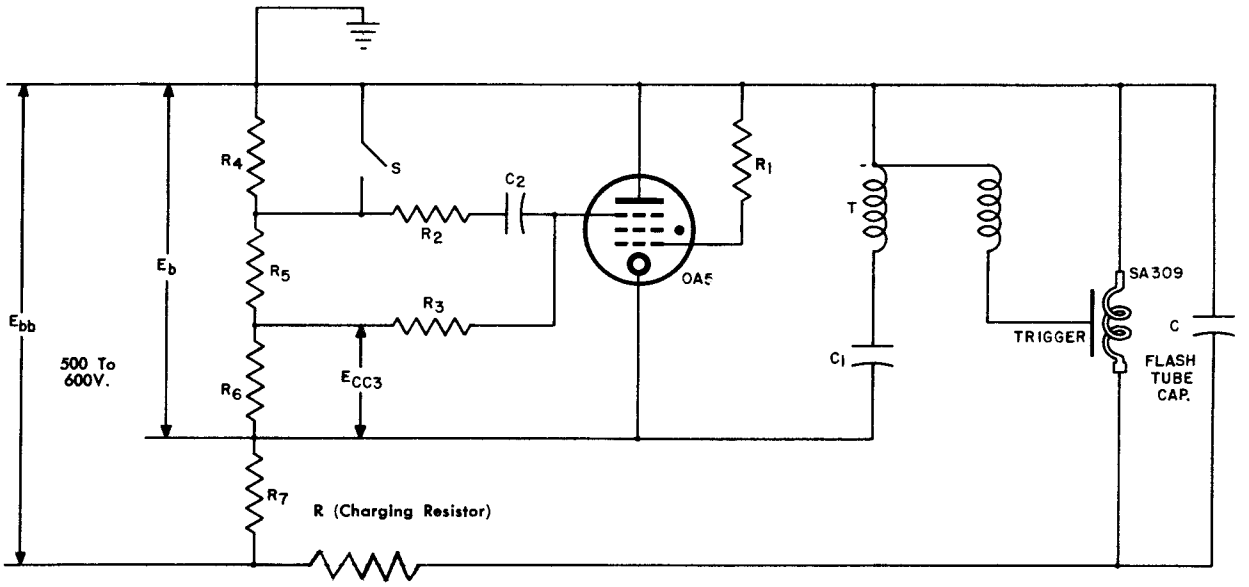
where:

R = Resistance in Megohms
C = Capacitance in $\mu\mu$f

T = Time in Seconds
f = Pulses/sec.

BASIC RC CIRCUIT FOR USE WITH THE TYPE SA309 STROBOTRON

APPLICATION DATA CONT'D



$R_1, R_3 = 10$ Meg. $R_5 = 3.9$ Meg. $C_1 = 0.1 - 0.25$ μfd
$R_2 = 240$ K $R_6 = 1.0$ Meg. $C_2 = .01$ μfd
$R_4 = 2$ Meg. $R_7 = 0.5$ Meg. $C = 1.0$ μfd

SYNCHRONOUS SWITCH TRIPPING CIRCUIT FOR USE WITH THE SA309 STROBOTRON

RELATIVE SPECTRAL RESPONSE