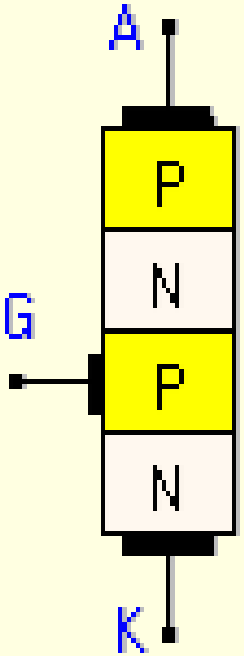
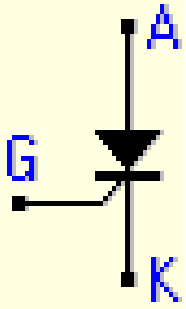
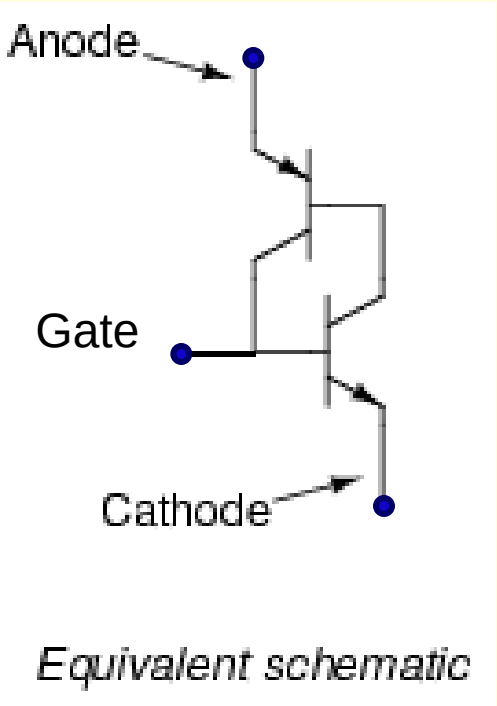
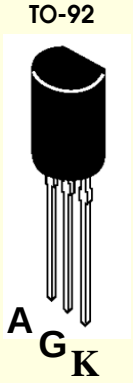
CHƯƠNG 3
HỌ LINH KIỆN 4 LỚP

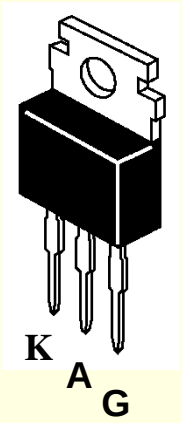
SCR (SILICON CONTROLED RECTIFIER)

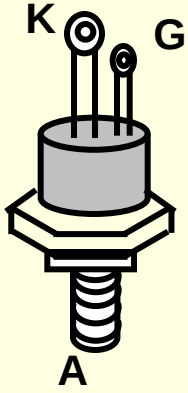






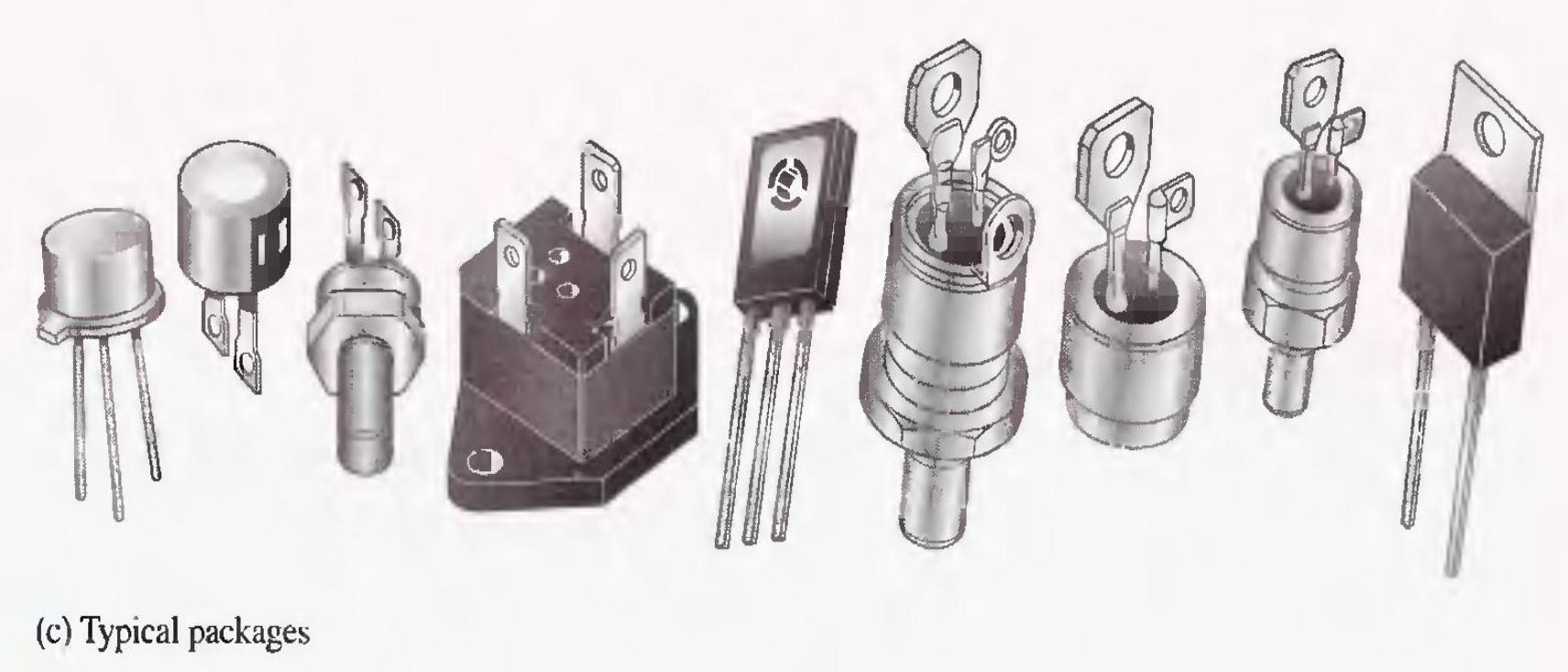






SCR (SILICON CONTROLED RECTIFIER)

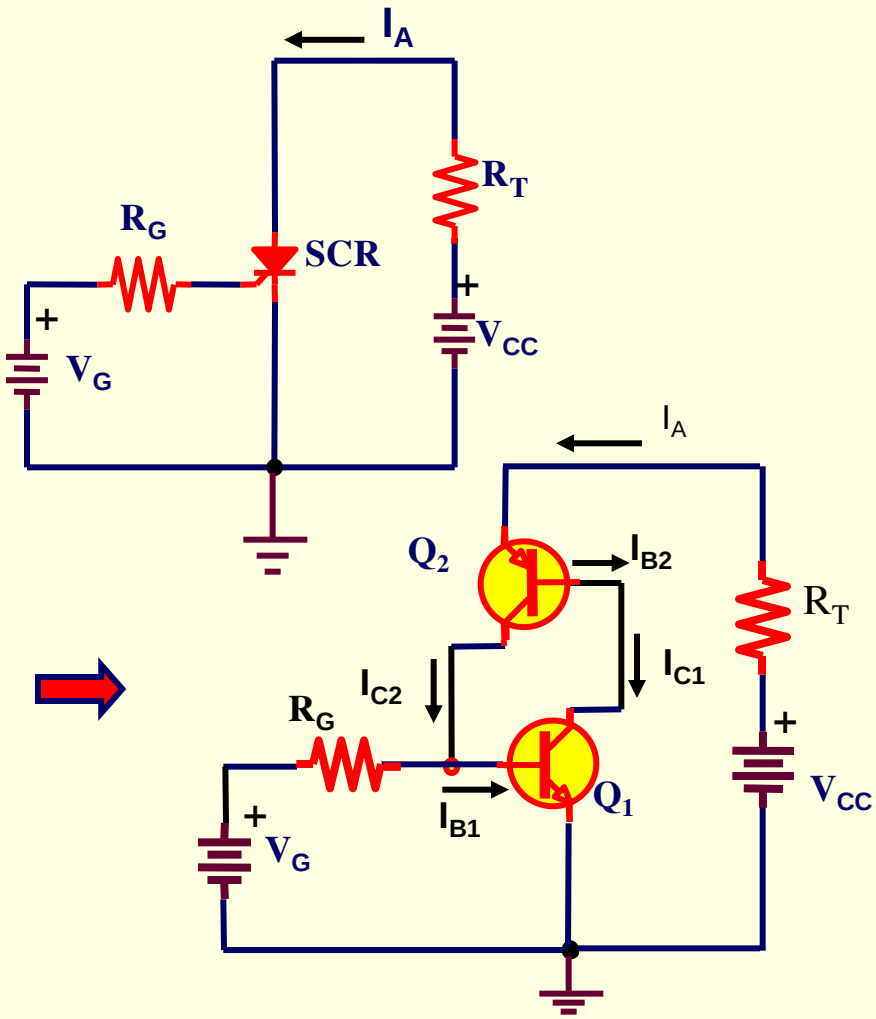
HÌNH DẠNG THỰC TẾ :

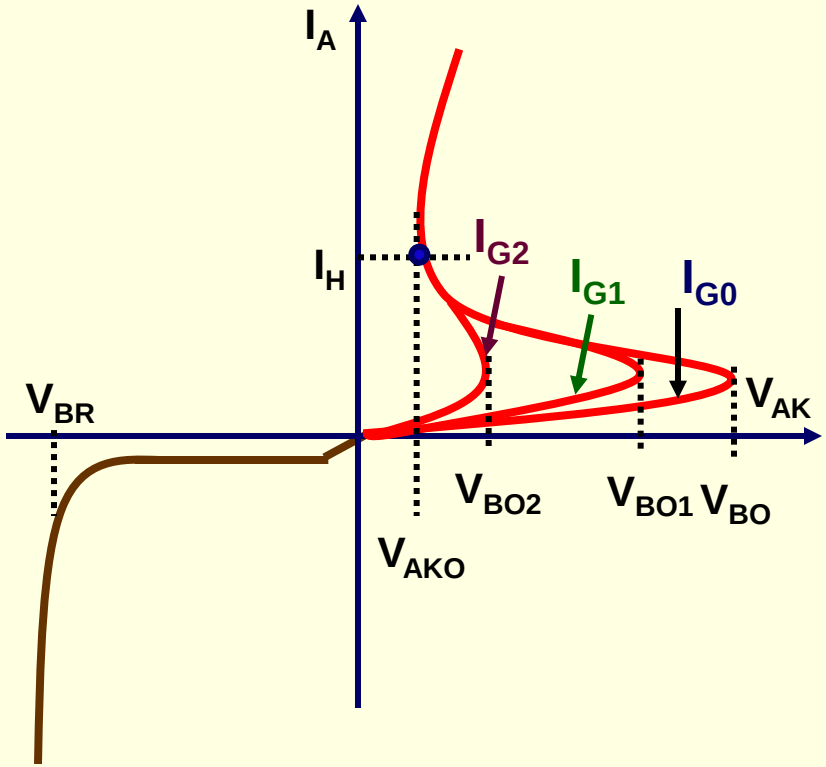


(c) Typical packages

SCR (SILICON CONTROLED RECTIFIER)

NGUYÊN LÝ VÀ ĐẶC TUYẾN :

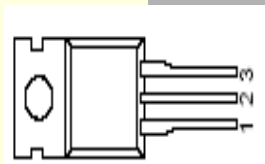




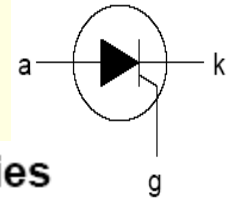
SCR (SILICON CONTROLED RECTIFIER)

DATASHEET:

1	cathode
2	anode
3	gate
tab	anode



BT151 series



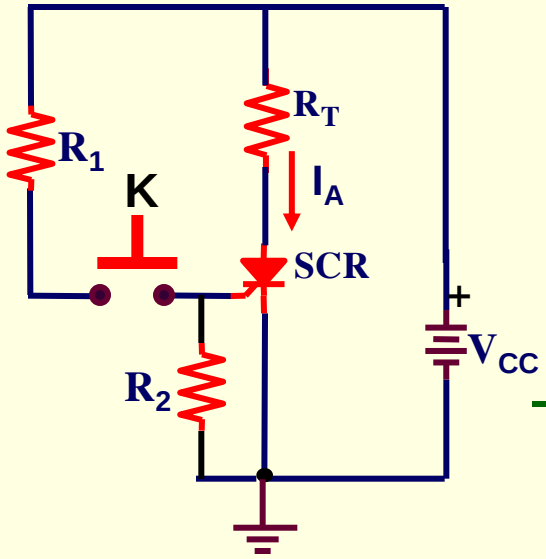
LIMITING VALUES

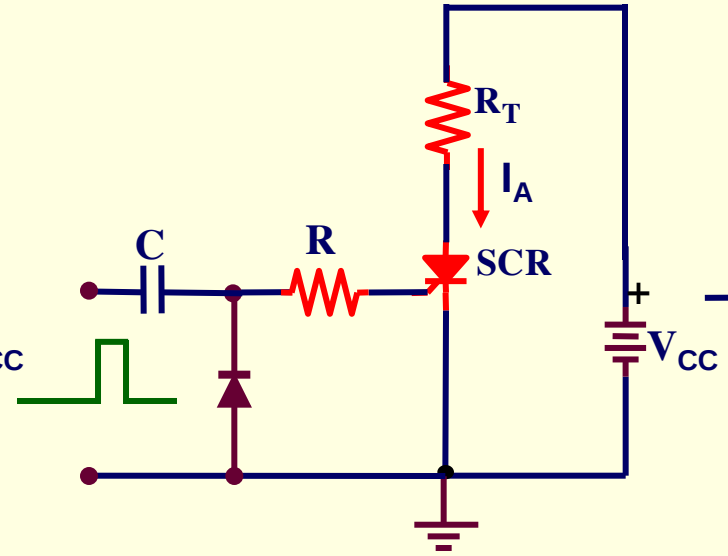
Limiting values in accordance with the Absolute Maximum System (IEC 134).

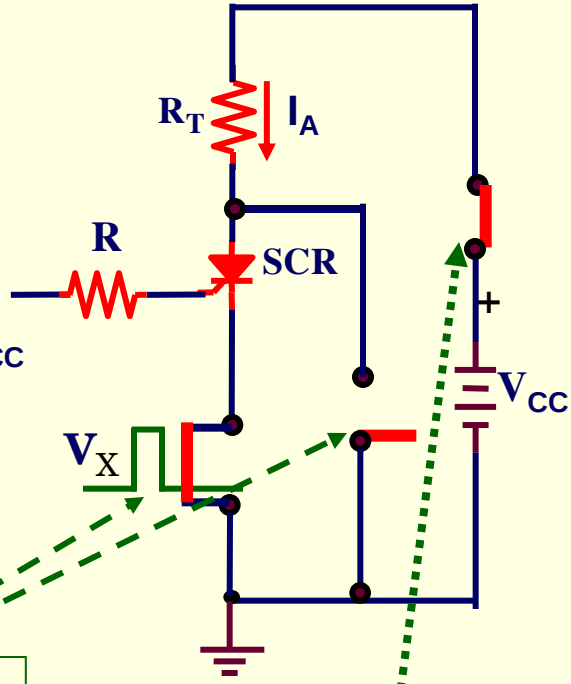
SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.			UNIT
				-500R	-650R	-800R	
V_{DRM}, V_{RRM}	Repetitive peak off-state voltages		-	500[1]	650[1]	800	V
$I_{T(AV)}$	Average on-state current	half sine wave; $T_{mb} \leq 109$ °C	-	7.5			A
$I_{T(RMS)}$	RMS on-state current	all conduction angles	-	12			A
I_{TSM}	Non-repetitive peak on-state current	half sine wave; T_j = 25 °C prior to surge					
		t = 10 ms	-	100			A
		t = 8.3 ms	-	110			A
I^2t	I^2t for fusing	t = 10 ms	-	50			A^2s
dI_T/dt	Repetitive rate of rise of on-state current after triggering	I_{TM} = 20 A; I_G = 50 mA; dI_G/dt = 50 mA/µs	-	50			A/µs
I_{GM}	Peak gate current		-	2			A
V_{GM}	Peak gate voltage		-	5			V
V_{RGM}	Peak reverse gate voltage		-	5			V
P_{GM}	Peak gate power		-	5			W
$P_{G(AV)}$	Average gate power	over any 20 ms period	-	0.5			W
T_{stg}	Storage temperature		-40	150			°C
T_j	Operating junction temperature		-	125			°C

SCR (SILICON CONTROLED RECTIFIER)

CÁC PHƯƠNG PHÁP KÍCH DẪN VÀ NGẮT SCR VỚI NGUỒN DC:





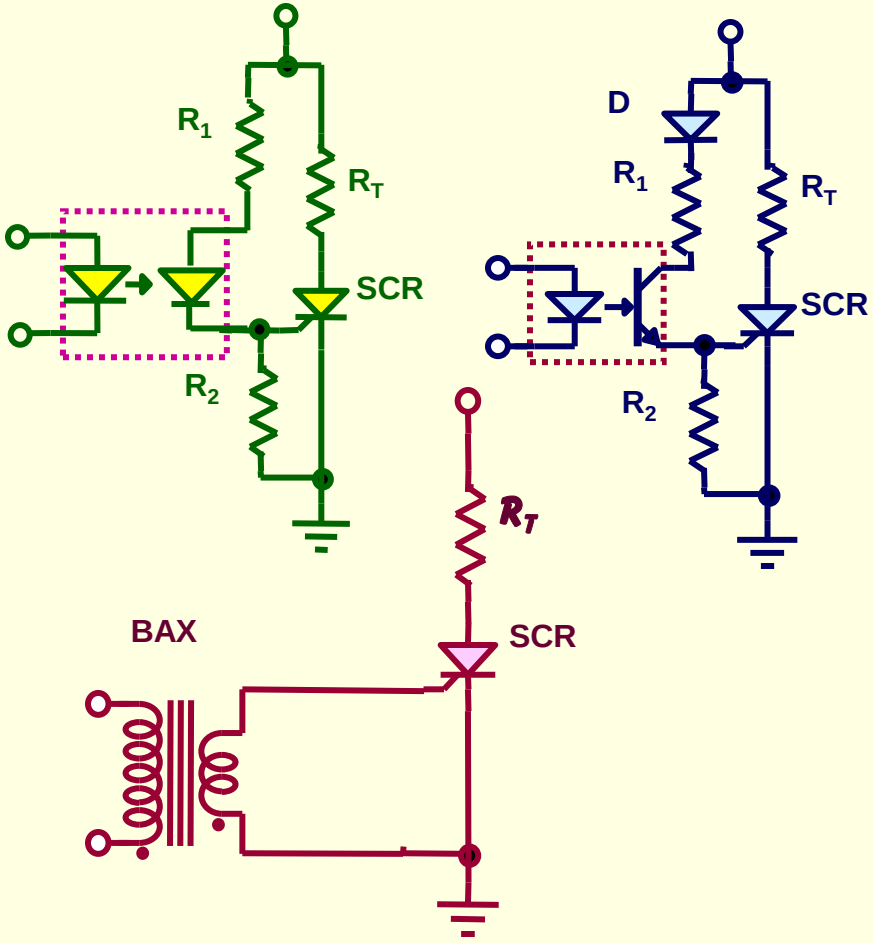


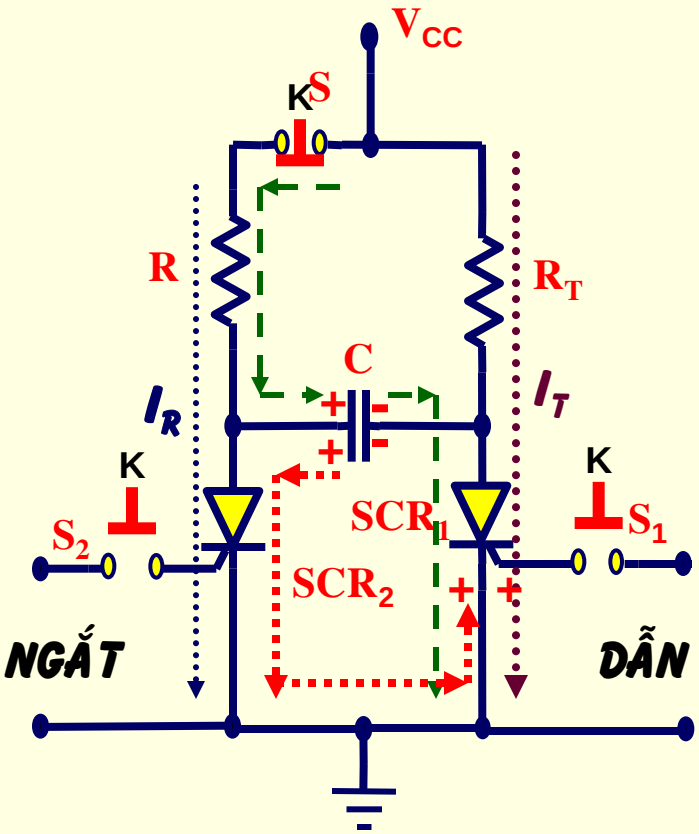
PP TẮT GIẢM DÒNG $I_F < I_H$

PP TẮT CƯỠNG BỨC

SCR (SILICON CONTROLED RECTIFIER)

CÁC PHƯƠNG PHÁP KÍCH DẪN VÀ NGẮT SCR VỚI NGUỒN DC:

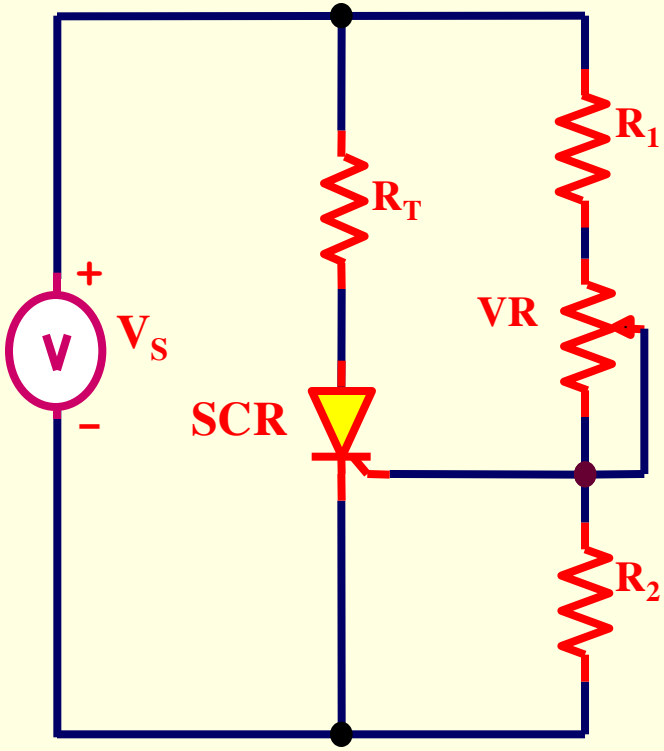


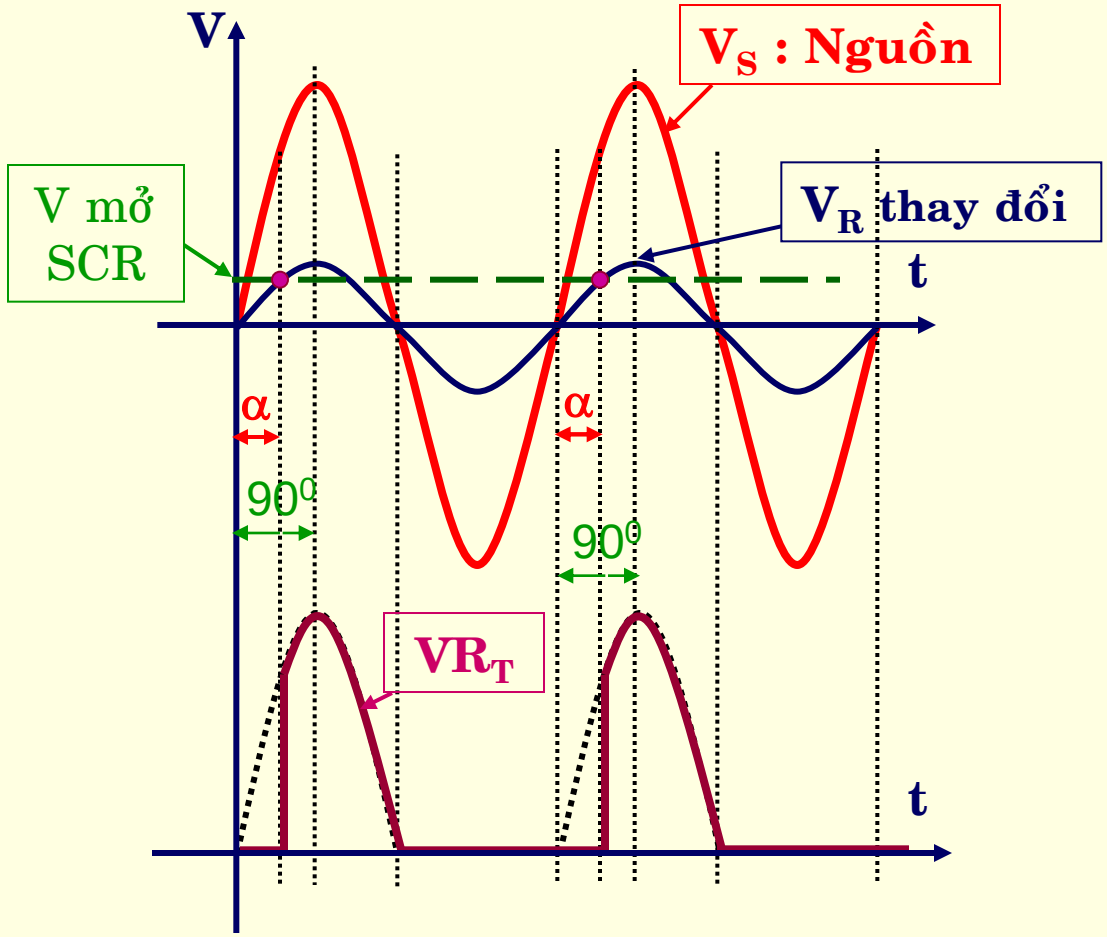


SCR (SILICON CONTROLED RECTIFIER)

CÁC PHƯƠNG PHÁP ĐIỀU KHIỂN SCR CƠ BẢN VỚI NGUỒN AC:

KÍCH SCR VỚI GÓC $\alpha < 90^0$.

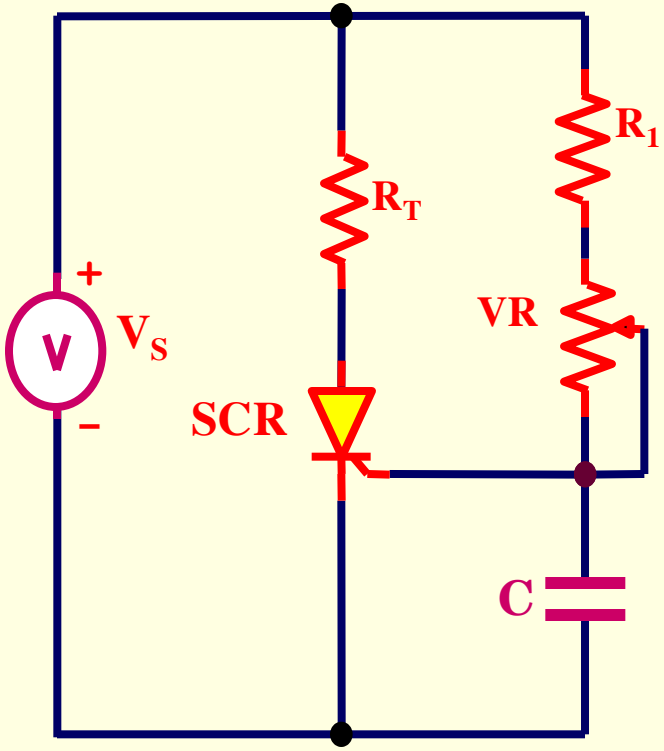


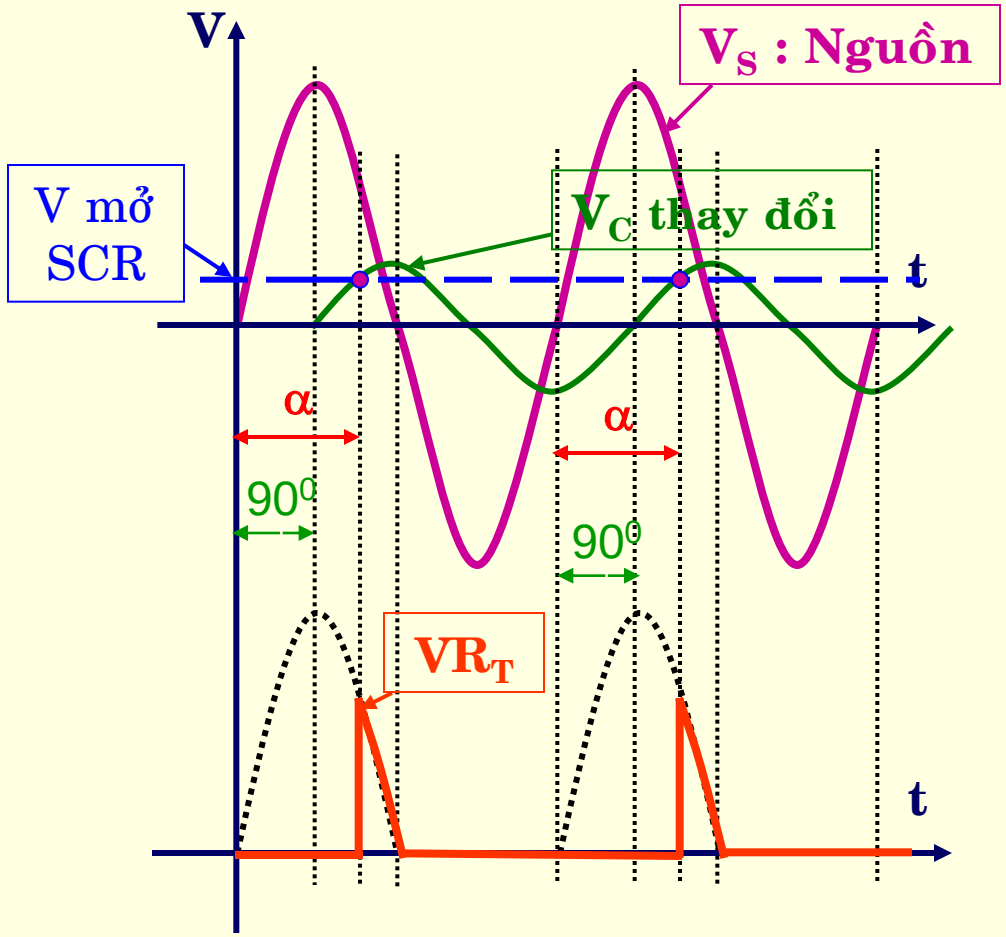


SCR (SILICON CONTROLED RECTIFIER)

CÁC PHƯƠNG PHÁP ĐIỀU KHIỂN SCR CƠ BẢN VỚI NGUỒN AC:

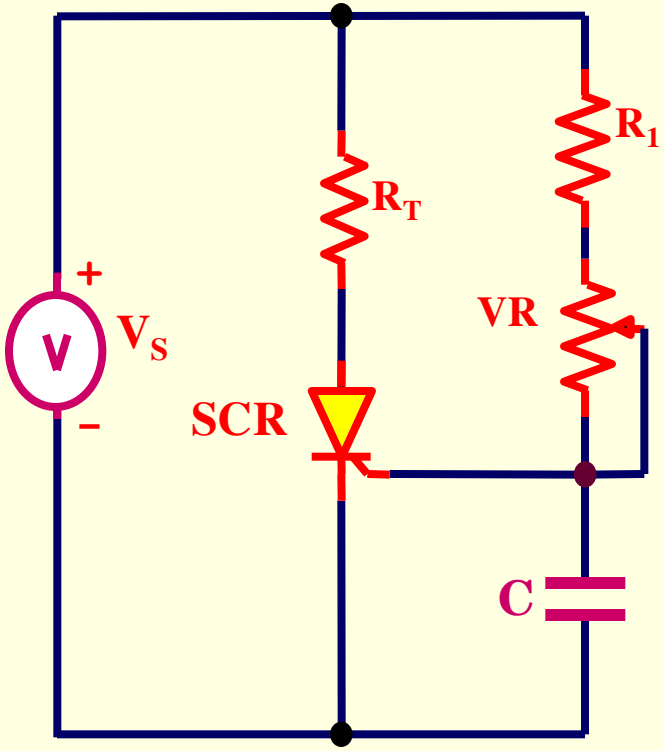
KÍCH SCR VỚI GÓC α >90°.





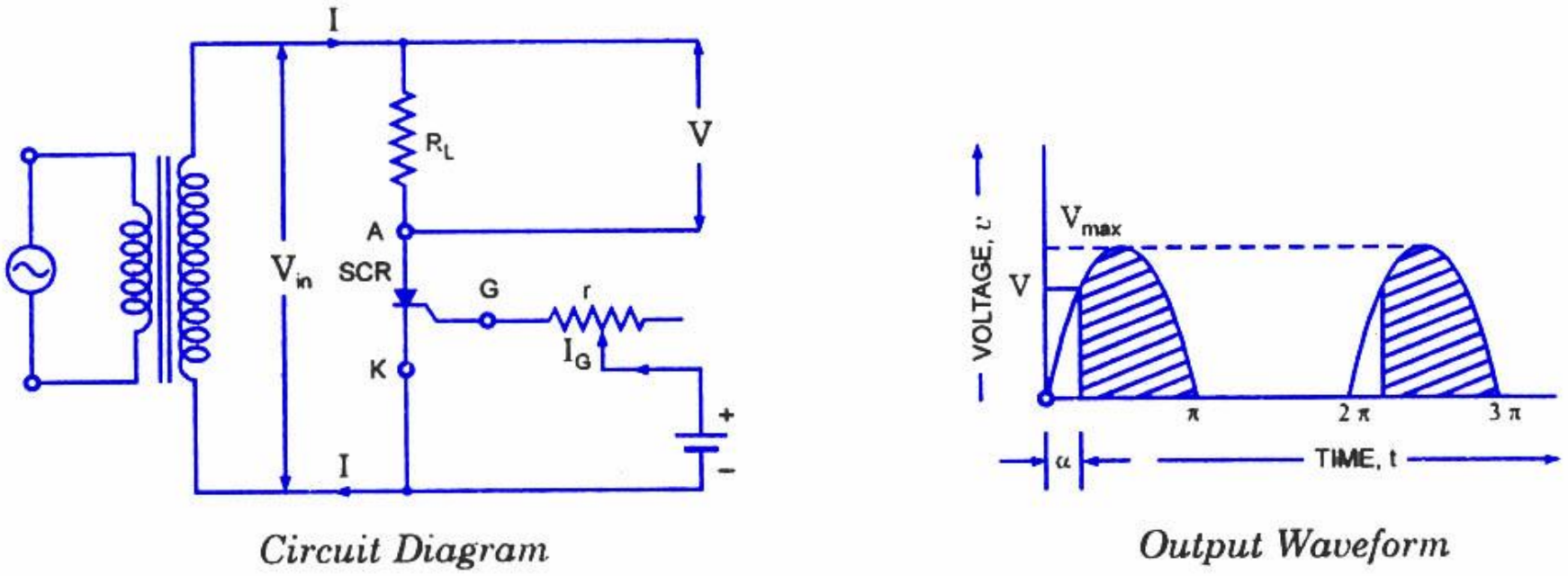
SCR (SILICON CONTROLED RECTIFIER)

Vd: Vẽ dạng sóng điện áp trên tải khi $\alpha = 120^o$. Tính điện áp trung bình trên tải. Biết Vs= 50sin100πt (V)



SCR (SILICON CONTROLED RECTIFIER)

ỨNG DỤNG



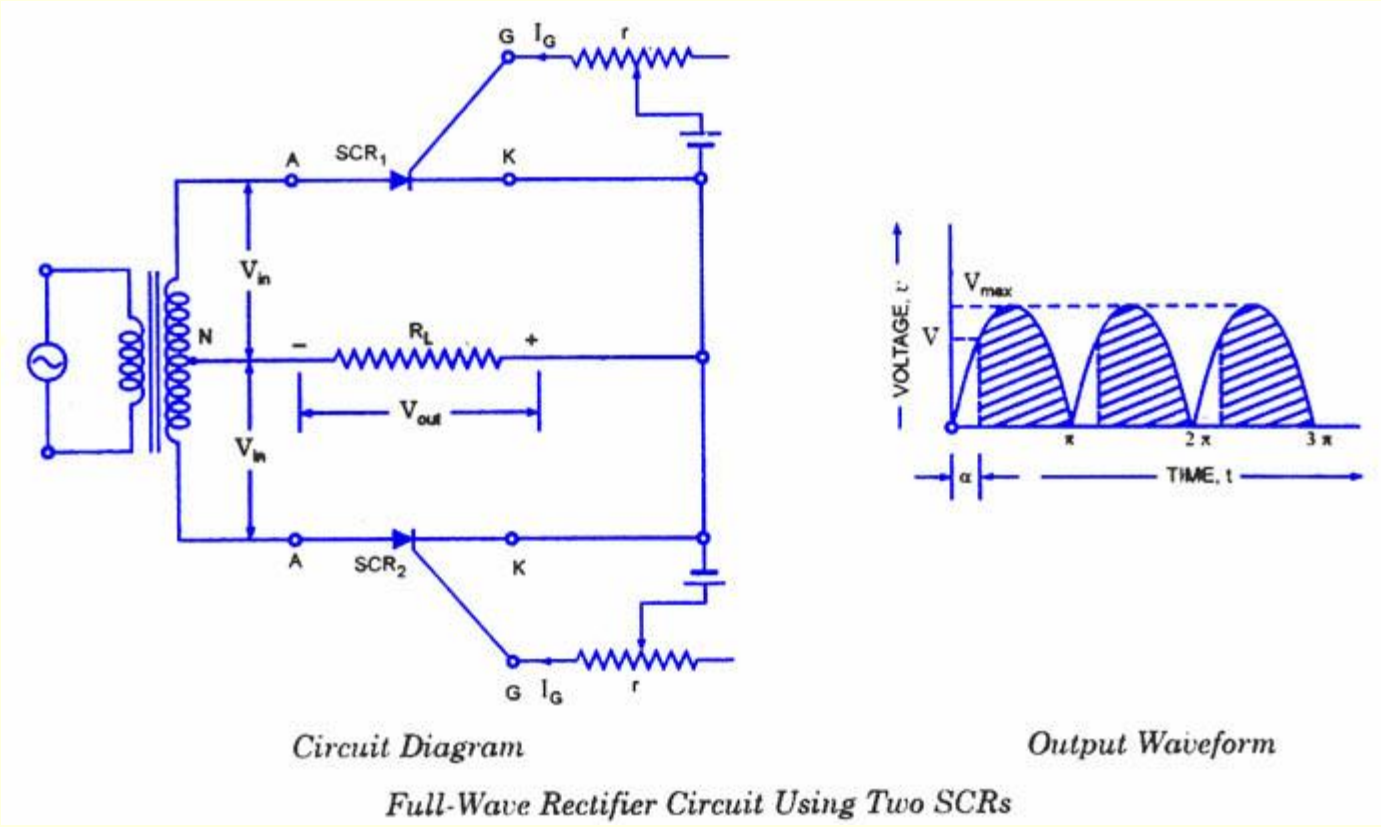
Circuit Diagram

Output Waveform

SCR As Half-Wave Rectifier

SCR (SILICON CONTROLED RECTIFIER)

ỨNG DỤNG

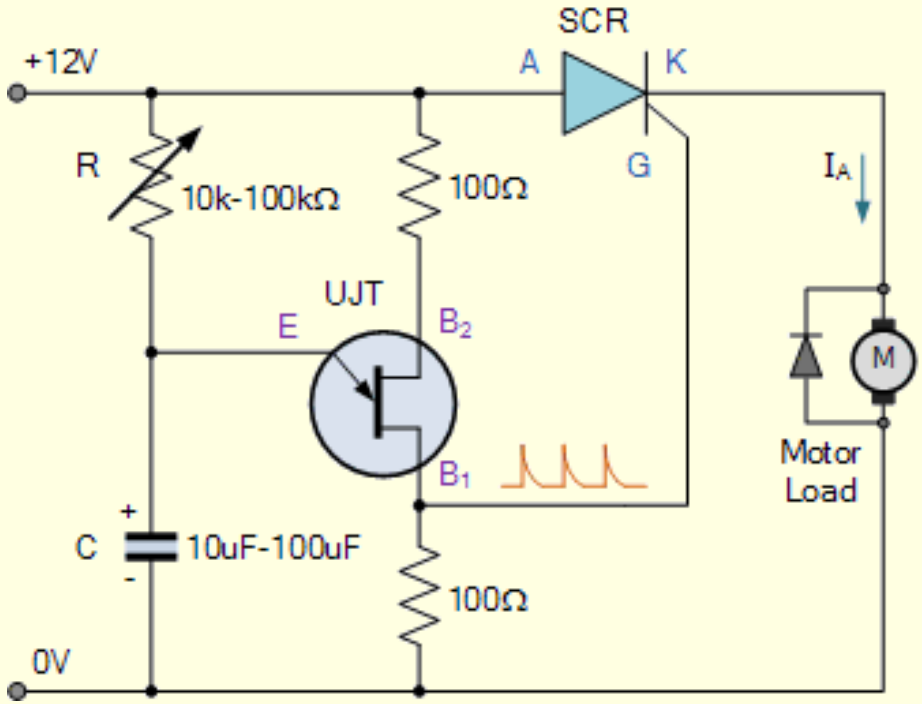


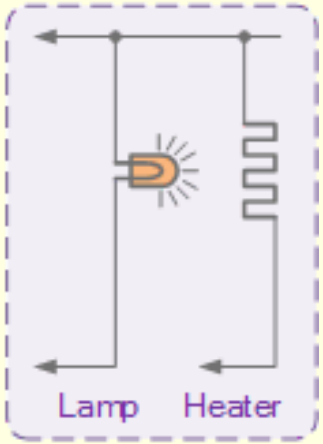
Circuit Diagram *Output Waveform*

Full-Wave Rectifier Circuit Using Two SCRs

SCR (SILICON CONTROLED RECTIFIER)

ỨNG DỤNG





Different AC Loads