

Trigger Devices

Trigger devices come under a variety of different classifications, with somewhat differing characteristics –

- Unijunction Transistors
- Unidirectional Switches
- Bidirectional Switches
- Bilateral Triggers
- 4-Layer Diodes



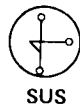
PUT



DIAC



SBS



SUS



UJT

the principal function of all these is to act as trigger devices for SCR and Triac circuits. Motorola makes them all, and with sufficient breadth of specifications to meet any circuit requirement. The variety of different trigger devices available complicates device selection. No specific type of trigger has a clear-cut advantage over all others. Hence, trigger selection is often very subjective, based on the designer's experience and familiarity. Nevertheless, some basic comparisons can be drawn that might simplify the job of trigger selection for designers who have not already formed specific preferences.

Programmable Unijunction Transistors – PUT

Similar to UJTs, except that I_V , I_P and intrinsic standoff voltage are programmable (adjustable) by means of external voltage divider. This stabilizes circuit performance for variations in device parameters. General operating frequency range is from 0.01 Hz to 10 kHz, making them suitable for long-duration timer circuits. Two-package availability provides cost option.

Package	Device Type	I _p		I _{GAO} @40 V	I _v	
		R _G = 10 kΩ	R _G = 1.0 MΩ		R _G = 10 kΩ	R _G = 1.0 MΩ
		μA Max.			μA Min.	μA Max.
Plastic Case 29-02 (TO-92)	2N6027	5.0	2.0	10	70	50
	2N6028	1.0	0.15		25	25
	MPU131	5.0	2.0	5.0	70	50
	MPU132	2.0	0.3	5.0	50	50
	MPU133	1.0	0.15	5.0	50	25

Bilateral Triggers – DIACs

Specifically designed as low-cost bidirectional triggers in line-operated Triac control circuits such as light dimmers, motor controls and temperature controls.

Package	Device Type	V_S Volts Nom		I_S $\mu\text{A Max.}$	mA Max.
		Min.	Max.		
Plastic Case 182-02 (TO-92)	1N5758/MPT20	20	± 4.0	100	
	1N5759	24	± 4.0	100	
	1N5760/MPT28	28	± 4.0	100	
	1N5761/MPT32	32	± 4.0	100	
	1N5762	36	± 4.0	100	
	1N5758A	20	± 2.0	25	
	1N5759A	24	± 2.0	25	
	1N5760A	28	± 2.0	25	
	1N5761A	32	± 2.0	25	
	1N5762A	36	± 2.0	25	

Silicon Bidirectional Switch – SBS

Applications similar to Diac, but has gate electrode that permits synchronization.

Plastic Case 29-02 (TO-92)	MBS4991	6.0	10	500	1.5
	MBS4992	7.5	9.0	120	0.5