

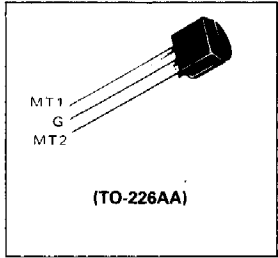
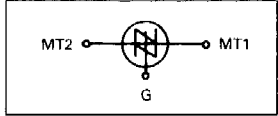
Silicon Bidirectional Switches Diode Thyristors

... designed for full-wave triggering in Triac phase control circuits, half-wave SCR triggering application and as voltage level detectors. Supplied in an inexpensive plastic TO-226AA package for high-volume requirements, this low-cost plastic package is readily adaptable for use in automatic insertion equipment.

- Low Switching Voltage — 8 Volts Typical
- Uniform Characteristics in Each Direction
- Low On-State Voltage — 1.7 Volts Maximum
- Low Off-State Current — 0.1 μ A Maximum
- Low Temperature Coefficient — 0.02 %/°C Typical

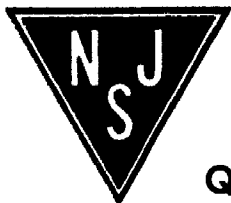
**MBS4991
 MBS4992
 MBS4993**

**SBS
 (PLASTIC)**



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Power Dissipation	P_D	500	mW
DC Forward Current	I_F	200	mA
DC Gate Current (off-state only)	$I_{G(off)}$	5	mA
Repetitive Peak Forward Current (1% Duty Cycle, 10 μ s Pulse Width, $T_A = 100^\circ\text{C}$)	$I_{FM(rep)}$	2	Amps
Non-Repetitive Forward Current (10 μ s Pulse Width, $T_A = 25^\circ\text{C}$)	$I_{FM(nonrep)}$	6	Amps
Operating Junction Temperature Range	T_J	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-65 to +150	$^\circ\text{C}$



MBS4991 • MBS4992 • MBS4993

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic		Symbol	Min	Typ	Max	Unit
Switching Voltage	MBS4991 MBS4992, MBS4993	V_S	6 7.5	8 8	10 9	Vdc
Switching Current	MBS4991 MBS4992 MBS4993	I_S	— —	175 90 175	500 120 250	μAdc
Switching Voltage Differential (See Figure 10)	MBS4991 MBS4992, MBS4993	$ V_{S1} - V_{S2} $	— —	0.3 0.1	0.5 0.2	Vdc
Gate Trigger Current ($V_F = 5 \text{ Vdc}$, $R_L = 1 \text{ k ohm}$)	MBS4992 MBS4993	I_{GF}	— —	— —	100 500	μAdc
Holding Current	MBS4991 MBS4992 MBS4993	I_H	— — —	0.7 0.2 0.3	1.5 0.5 0.75	mAdc
Off-State Blocking Current ($V_F = 5 \text{ Vdc}$, $T_A = 25^\circ\text{C}$) ($V_F = 5 \text{ Vdc}$, $T_A = 85^\circ\text{C}$) ($V_F = 5 \text{ Vdc}$, $T_A = 25^\circ\text{C}$) ($V_F = 5 \text{ Vdc}$, $T_A = 100^\circ\text{C}$)	MBS4991 MBS4991 MBS4992, MBS4993 MBS4992, MBS4993	I_B	— — — —	0.08 2 0.08 6	1 10 0.1 10	μAdc
Forward On-State Voltage ($I_F = 175 \text{ mAdc}$) ($I_F = 200 \text{ mAdc}$)	MBS4991 MBS4992, MBS4993	V_F	— —	1.4 1.5	1.7 1.7	Vdc
Peak Output Voltage ($C_C = 0.1 \mu\text{F}$, $R_L = 20 \text{ ohms}$, (Figure 7))		V_O	3.5	4.8	—	Vdc
Turn-On Time (Figure 8)		t_{on}	—	1	—	μs
Turn-Off Time (Figure 9)		t_{off}	—	30	—	μs
Temperature Coefficient of Switching Voltage (-50 to +125°C)		T_C	—	+0.02	—	%/°C
Switching Current Differential (See Figure 10)		$I_{S1} - I_{S2}$	—	—	100	μA

TYPICAL ELECTRICAL CHARACTERISTICS

FIGURE 1 – SWITCHING VOLTAGE versus TEMPERATURE

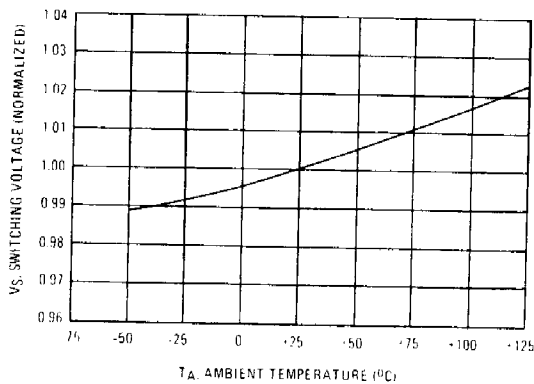


FIGURE 2 – SWITCHING CURRENT versus TEMPERATURE

