

Outline Drawing and Circuit Diagram

Dimension	Inches	Millimeters
A	0.55 Min.	14.0 Min.
B	0.12 Max.	3.0 Max.
C	0.16	4.0
D	0.39	1.0
E	0.098 Max.	2.5 Max.

Dimension	Inches	Millimeters
F	0.016	0.4
G	0.10	2.5
H	0.018	0.45
J	0.004	0.1
K	0.29 Max.	7.5 Max.



#### Description:

The BS08D-T112 bilateral switch is a silicon planar monolithic integrated circuit with the electrical characteristics of a bilateral thyristor. The device is designed to switch at 7 to 9 volts with a 0.01%/°C temperature coefficient and have excellently matched characteristics in both directions.

#### Features:

- Low Switching Voltage of 7 to 9 Volts
- Excellent Switching Voltage Temperature Characteristics (0.01%/°C)
- High Reliability Devices
- Gate Electrode Facilitating Switching Operation Control and Synchronization

#### Applications:

- Trigger Circuits for Thyristor or Triac, Oscillators, Timers

#### Ordering Information:

BS08D-T112 is tape and fancil packaged (2500/box).



Powerex, Inc., 173 Pavilion Lane, Youngwood, Pennsylvania 15697 (724) 925-7272 www.pwrx.com

**BS08D-T112**  
Silicon Bilateral Switch

**Absolute Maximum Ratings,  $T_j = 25^\circ\text{C}$  unless otherwise specified**

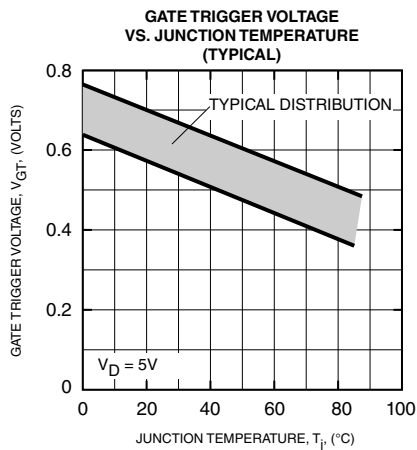
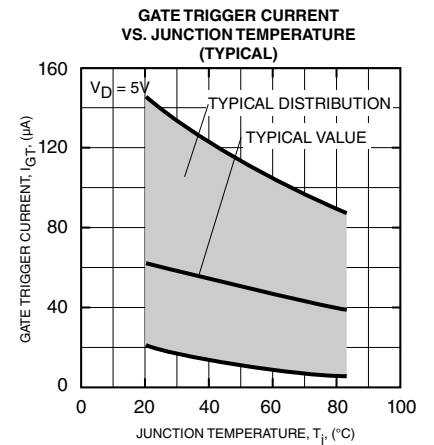
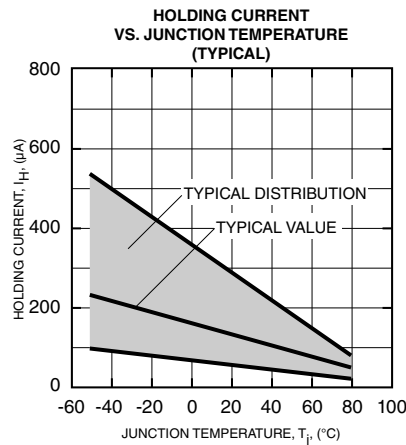
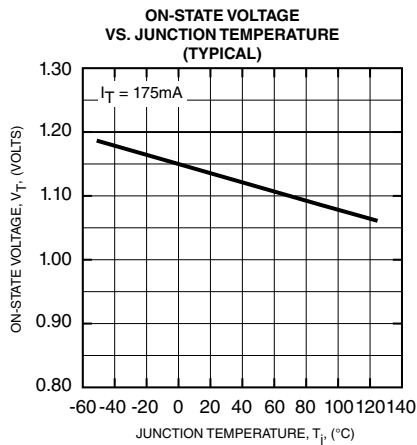
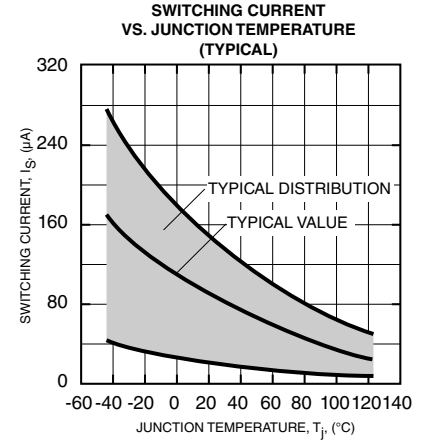
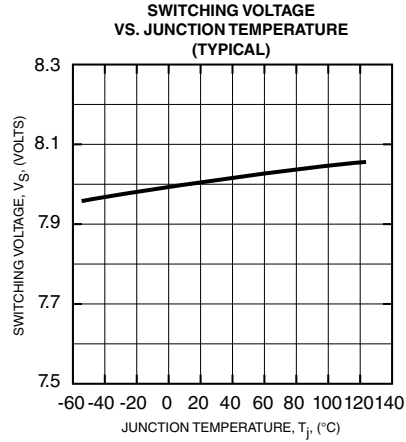
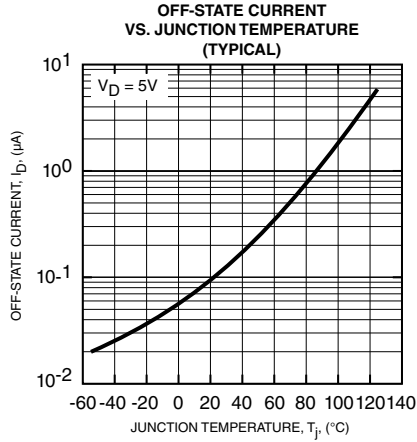
Characteristics	Symbol	BS08D-T112	Units
DC Forward Anode Current	$I_T$	175	mA
Repetitive Peak Forward Current (1% Duty Cycle, 10 $\mu\text{s}$ Pulsewidth), $T_a = 100^\circ\text{C}$	—	1.0	Amperes
Non-repetitive Peak Forward Current (10 $\mu\text{s}$ Pulsewidth)	—	2.0	Amperes
Power Dissipation	$P_T$	450	mW
DC Gate Current	$I_G$	5	mA
Storage Temperature	$T_{\text{stg}}$	-55 to 125	$^\circ\text{C}$
Operating Temperature	$T_j$	-55 to 125	$^\circ\text{C}$

**Electrical and Mechanical Characteristics,  $T_j = 25^\circ\text{C}$  unless otherwise specified**

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Switching Voltage	$V_S$	$T_a = 25^\circ\text{C}$	7	8	9	Volts
Switching Current	$I_S$	$T_a = 25^\circ\text{C}$	—	—	200	$\mu\text{A}$
Absolute Switching Voltage Difference	$ V_{S1} - V_{S2} $	$T_a = 25^\circ\text{C}$	—	—	0.5	Volts
Absolute Switching Current Difference	$ I_{S1} - I_{S2} $	$T_a = 25^\circ\text{C}$	—	—	100	$\mu\text{A}$
Holding Current	$I_H$	$T_a = 25^\circ\text{C}$	—	—	1.5	mA
Off-state Current	$I_D$	$V_D = 5\text{V}, T_a = 25^\circ\text{C}$	—	—	1.0	$\mu\text{A}$
		$V_D = 5\text{V}, T_a = 85^\circ\text{C}$	—	—	10	$\mu\text{A}$
Temperature Coefficient of Switching Voltage	—	$T_a = -55$ to $85^\circ\text{C}$	—	$\pm 0.01$	—	$\%/^\circ\text{C}$
Peak On-state Voltage	$V_T$	$I_T = 175\text{mA}, T_a = 25^\circ\text{C}$	—	—	1.4	Volts
Gate Trigger Current	$I_{GT}$	$V_D = 5\text{V}, T_a = 25^\circ\text{C}$	10	—	200	$\mu\text{A}$
Gate Non-trigger Voltage	$V_{GD}$	$V_D = 5\text{V}, T_a = 85^\circ\text{C}$	0.2	—	—	Volts



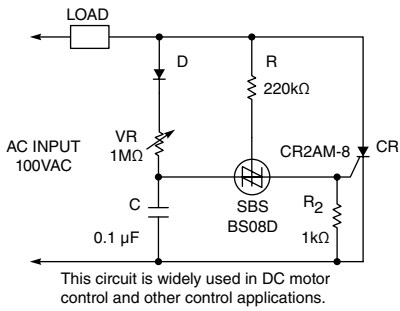
**BS08D-T112**  
Silicon Bilateral Switch



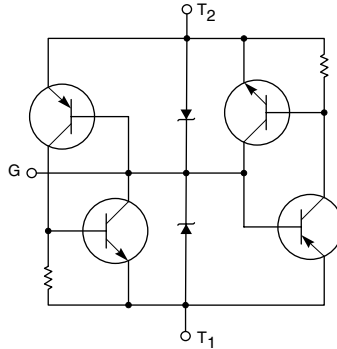
**BS08D-T112**  
Silicon Bilateral Switch

**APPLICATION EXAMPLES**

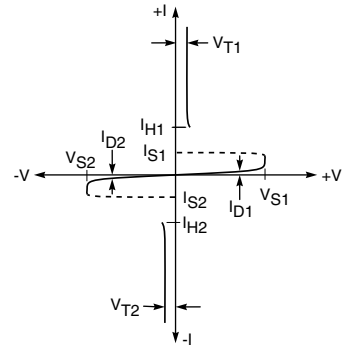
**THYRISTOR TRIGGER CIRCUIT**



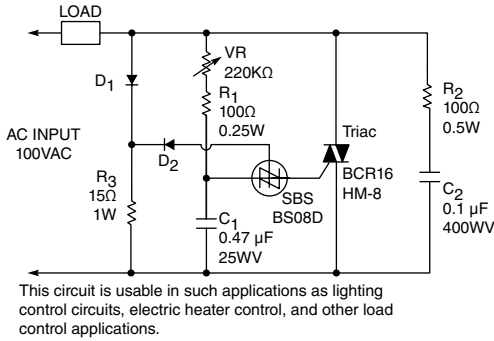
**EQUIVALENT CIRCUIT**



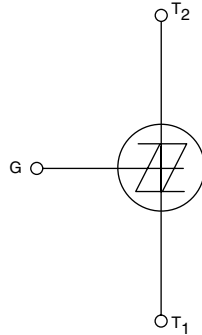
**STATIC CHARACTERISTICS**



**TRIAC TRIGGER CIRCUIT**



**CIRCUIT SYMBOL**



**GATE CHARACTERISTICS MEASUREMENT CIRCUIT**

