Powerex, Inc., 173 Pavilion Lane, Youngwood, Pennsylvania 15697 (724) 925-7272
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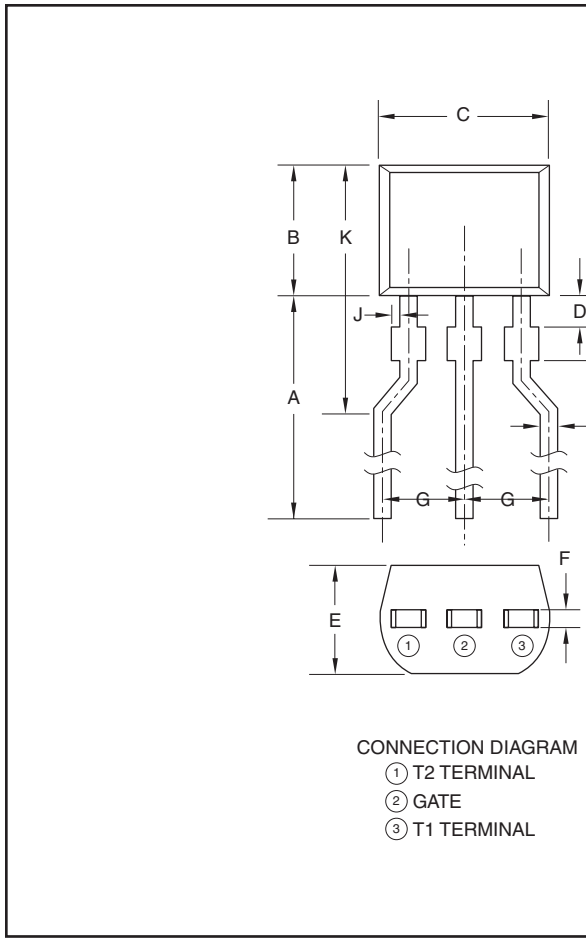
BS08D-T112

Silicon Bilateral Switch

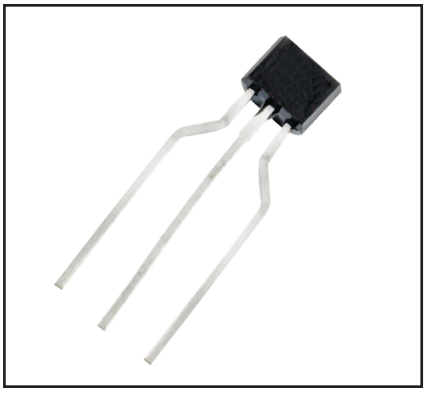


CONNECTION DIAGRAM
① T2 TERMINAL
② GATE
③ T1 TERMINAL

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).

BS08D-T112
Silicon Bilateral Switch

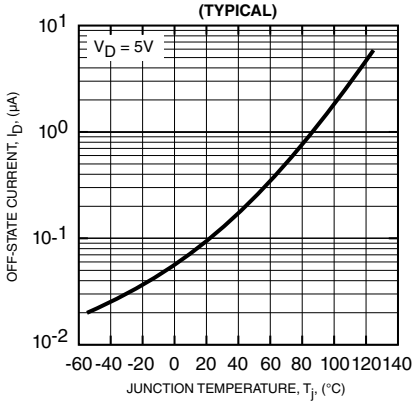
Absolute Maximum Ratings, T_j = 25°C unless otherwise specified

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

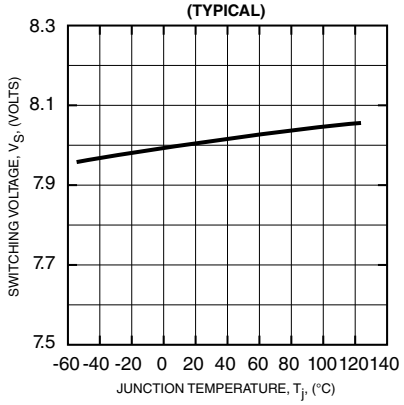
Electrical and Mechanical Characteristics, T_j = 25°C unless otherwise specified

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

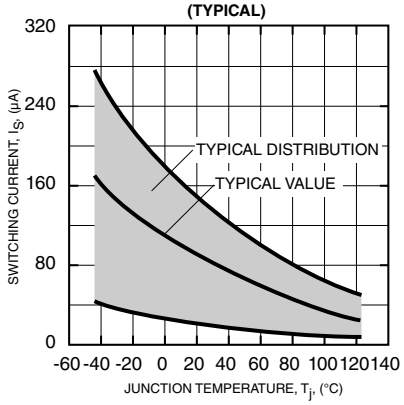
OFF-STATE CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



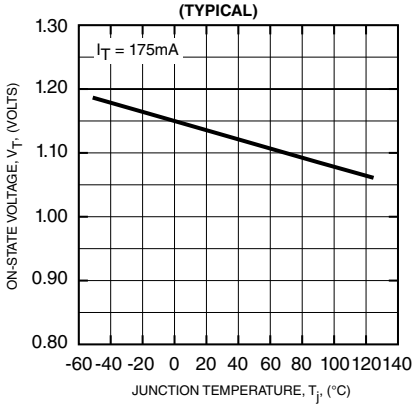
SWITCHING VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)



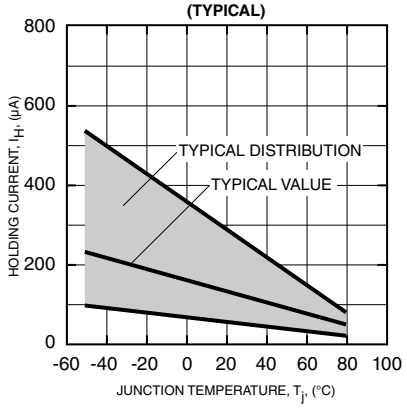
SWITCHING CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



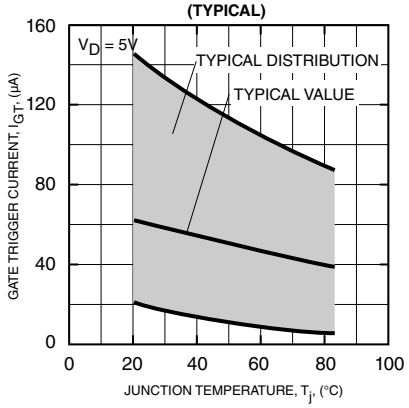
ON-STATE VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)



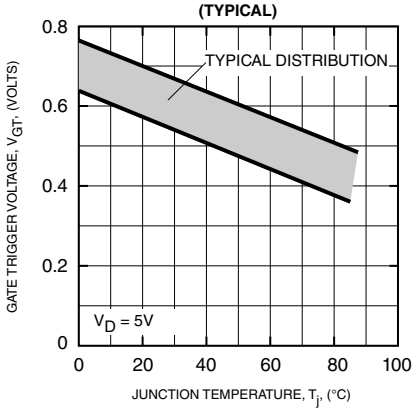
HOLDING CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)



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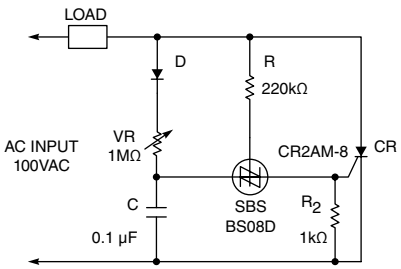
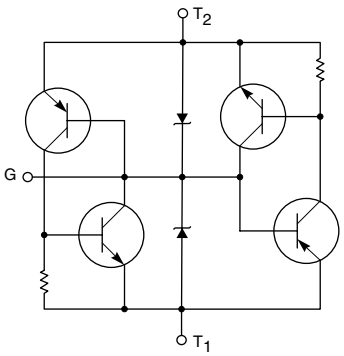
APPLICATION EXAMPLES

THYRISTOR TRIGGER CIRCUIT

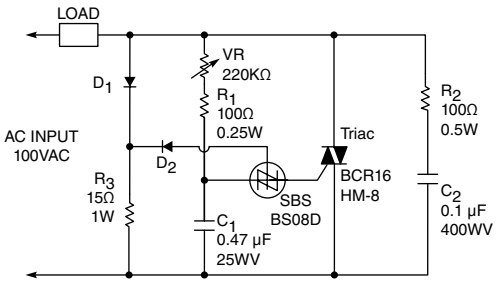


This circuit is widely used in DC motor control and other control applications.

EQUIVALENT CIRCUIT

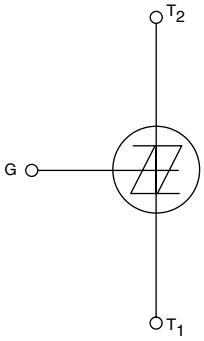


TRIAC TRIGGER CIRCUIT

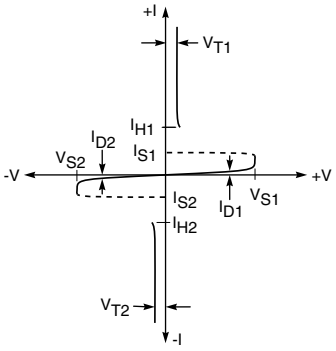


This circuit is usable in such applications as lighting control circuits, electric heater control, and other load control applications.

CIRCUIT SYMBOL



STATIC CHARACTERISTICS



GATE CHARACTERISTICS MEASUREMENT CURCUIT