



Semitronics Corp.

# Bi-Directional Triode Thyristor Econopower™ Triac

## 40A RMS Up to 600 Volts Isolated TO-3 Mounting Flange

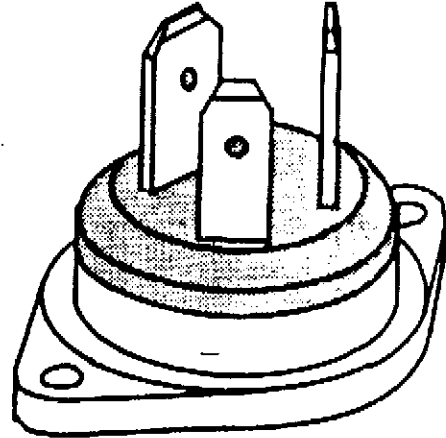
# SC165

A triac is a solid state silicon AC switch which may be gate triggered from an OFF-State to an ON-State for either polarity of applied voltage.

**Econopower™** Triacs are rugged devices particularly suitable for use on industrial and appliance assembly lines. An electrically insulated TO-3 mounting flange may be either screw or rivet-mounted to the heat dissipator and electrical connections may be made mechanically through the use of standard 1/4" and 3/16" mating fast-on terminals. The silicon chip is glass-passivated by a patented process which provides an intimate bond between the critical silicon surfaces and the glass coating. This provides superior device performance and reliability.

### FEATURES:

- Rugged package featuring electrically isolated TO-3 mounting flange and fast-on terminals.
- Very low off-state (leakage) current at room and elevated temperatures.
- Inherent immunity from non-repetitive transient voltage damage (maximum critical rate-of-rise of on-state current subsequent to voltage breakover triggering,  $di/dt = 10A/\mu\text{sec.}$ ).
- Low on-state voltage at high current levels.
- Excellent surge capability.
- 3750 volts RMS surge isolation voltage.
- Selected types available from factory for use where circuit requires operation:
  - with popular zero voltage triggering IC's;
  - with low gate trigger current;
  - at higher commutating  $dv/dt$  levels.



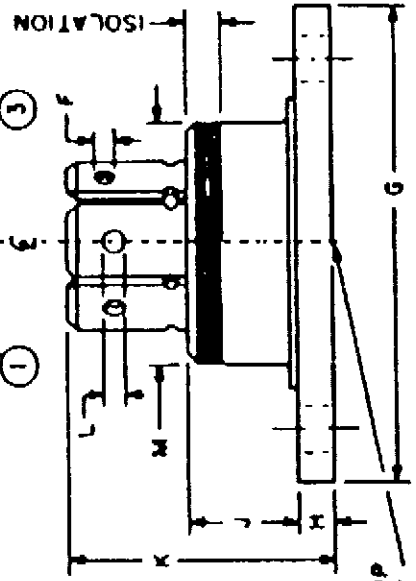
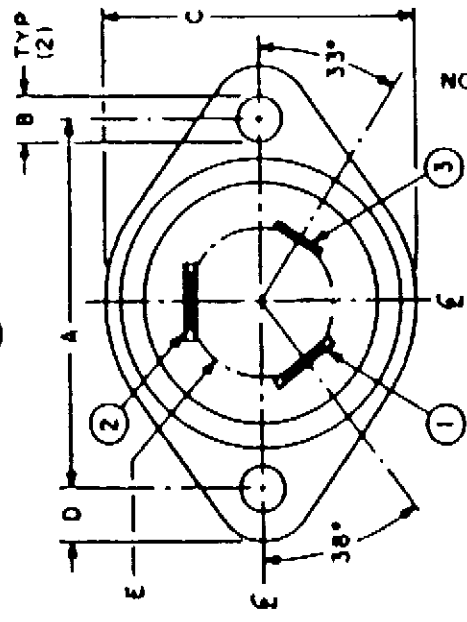
### MAXIMUM ALLOWABLE RATINGS

TYPE	I <sub>T(RMS)</sub> (1)	REPETITIVE PEAK OFF-STATE VOLTAGE, V <sub>DRM</sub> (2)				PEAK ONE FULL CYCLE SURGE (NON-REPETITIVE) ON-STATE CURRENT, I <sub>TSM</sub> AMPERES		I <sup>2</sup> t FOR FUSING FOR TIMES AT (3)	
		B VOLTS	D VOLTS	E VOLTS	M VOLTS			(RMS AMPERE) <sup>2</sup> SECONDS 1.0 MSEC	(RMS AMPERE) <sup>2</sup> SECONDS 8.3 MSEC
						50 HZ	60 HZ		
SC165	40	200	400	500	600	275	300	300	375

Peak Gate Power Dissipation, P<sub>GM</sub> <sup>4</sup> 10 Watts for 20 Microseconds (See Chart 5)  
 Average Gate Power Dissipation, P<sub>G(AV)</sub> 0.5 Watts  
 Peak Gate Current, I<sub>GM</sub> <sup>4</sup> See Chart 5  
 Peak Gate Voltage, V<sub>GM</sub> <sup>4</sup> See Chart 5  
 Storage Temperature, T<sub>stg</sub> -40 to +125°C  
 Operation Temperature, T<sub>j</sub> -40 to +115°C  
 Surge Isolation Voltage <sup>5</sup> 3750 Volts RMS

- NOTES:**
- 1 At the case reference point (see outline drawing) temperature of 65°C maximum and 360° conduction.
  - 2 Ratings apply for zero gate voltage only.
  - 3 Ratings apply for either polarity of main terminal 2 voltage referenced to main terminal 1.
  - 4 Ratings apply for either polarity of gate terminal referenced to main terminal 1.
  - 5 Rating applies from main terminals 1 and 2 and gate terminal to device mounting surface. Test voltage is 50 or 60 Hz sinusoidal waveform applied for one minute.  
Rating applies over the entire device operating temperature range.

# OUTLINE DRAWING



TERMINAL SPECIFICATIONS			
TERMINAL	ACCEPTS FAST-ON CONNECTOR	WIDTH	THK.
1 & 2	.250 SER.	N	P
3	.187 SER.	Q	R

SYM.	INCHES		METRIC (MM)		NOTE
	MIN.	MAX.	MIN.	MAX.	
A	1.182	1.192	30.02	39.80	
B	.150	.161	3.81	4.09	
C	.975	1.025	24.76	26.04	
D	1.75 REF.		4.46 REF.		
E	.480	.500	12.19	12.70	1
F	.050 REF.		1.27 REF.		
G	1.507	1.587	38.27	39.80	
H	.119	.131	3.02	3.33	
J	-	.400	-	10.16	
K	.900	.960	22.86	24.36	
L	.070 REF.		1.77 REF.		
M	.776	.810	19.76	20.57	
N	.247	.253	6.27	6.43	
P	.031	.033	.78	.84	
Q	.184	.190	4.67	4.83	
R	.019	.021	.48	.53	

**NOTES:**

1 Terminal centers are located on "E" dia.