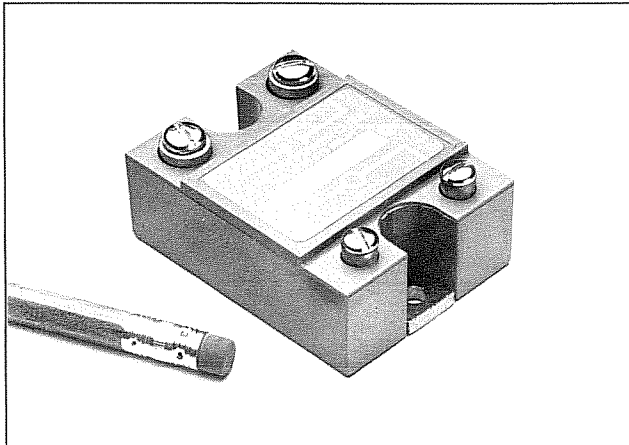




**SILICON  
POWER  
CUBE**

**80 AMP  
SOLID STATE AC RELAY  
SCR OUTPUT**



**FEATURES**

- SPC's Inverse-Parallel SCR Power Hybrid technology provides highly efficient thermal management for greatly increased cyclic life
- High performance/low cost circuit design
- Internal RC snubber included in all DC control models
- 4000 Vrms optical isolation
- Both "Zero Voltage" & phase controllable "Random" Switching versions
- High voltage (1200 Vpk) versions for 480 Vrms services
- Industry standard "Chassis Mount" package
- UL Recognized, CSA Certified

TYPE	DC INPUT ZERO CROSS SWITCH				AC INPUT ZERO CROSS SWITCH				DC INPUT RANDOM SWITCH			
	120D80SP	240D80SP	380D80SP	480D80SP	120A80SP	240A80SP	380A80SP	480A80SP	120D80-10SP	240D80-10SP		
<b>INPUT SPECIFICATIONS (DC CONTROL MODELS)</b>												
Control Voltage Range	Vdc	3-32		4-32	—				3.5-26			
Input Current (Max.)	mAdc	30				—				30		
Must Turn On Voltage	Vdc	3		4	—				3.5			
Must Turn Off Voltage	Vdc	1				—				1		
Reverse Polarity Protection (Max.)	Vdc	32				—				26		
<b>INPUT SPECIFICATIONS (AC CONTROL MODELS)</b>												
Control Voltage Range	Vrms	—				90-280		90-140	—			
Input Current (Max.)	mArms	—				6		15	—			
Must Turn On Voltage	Vrms	—				90		—				
Must Turn Off Voltage	Vrms	—				10		—				
<b>COUPLING SPECIFICATIONS (INPUT/OUTPUT)</b>												
Dielectric (Min.)	Vrms	4000				4000		4000		Note 1		
Insulation Resistance (Min. @ 500 Vdc)	Ohms	10 <sup>10</sup>				10 <sup>10</sup>		10 <sup>10</sup>				
Capacitance (Max.)	pF	10		16	10		16	10				
<b>OUTPUT SPECIFICATIONS</b>												
Load Current Range: Min. (Res.)/(Ind.) - Max.	Arms					.05/5-80				Fig. 1		
Surge Current Range 1 Cycle (Max.)	Apk	1200				1200		1200		Fig. 2		
Load Voltage Range	Vrms	24-140	48-280	180-380	180-530	24-140	48-280	180-380	180-530	24-140	48-280	
Transient Overvoltage	Vpk	400	600	800	1200	400	600	800	1200	400	600	
Frequency Range	Hz	47-70				47-70				47-70		
Off-State dv/dt (Min.)	V/μSec	500				500				500		Note 2
Off-State Leakage Current (Max.)	mArms	10		12	10		1	12				
On-State Voltage Drop (Max.) @ Rated Current	Vpk	1.6				1.6		1.6				
Thermal Resistance Junction-Case (R <sub>θj-c</sub> )	°C/W	0.31				0.31		0.31		Note 3		
I <sup>2</sup> @ t = 8.3mSec (Max.)	A <sup>2</sup> Sec	6000				6000		6000				
Turn-On Time (Max.) @ 60 Hz	mSec	8.3				10		0.02				
Turn-Off Time (Max.) @ 60 Hz	mSec	8.3				40		8.3				
Power Factor (Min.) With Max. Load	—	0.5				0.5		0.5				

## CHARACTERISTIC CURVES

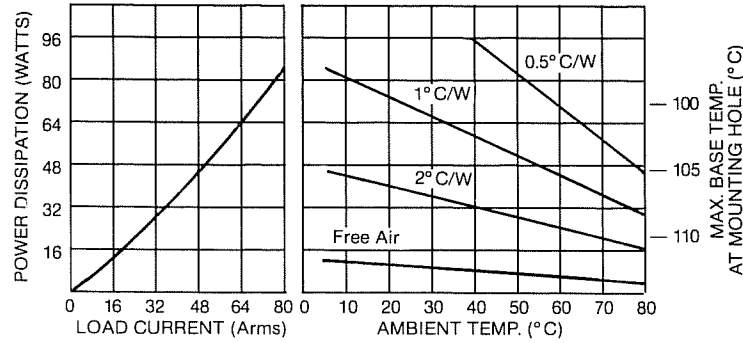


FIGURE 1 — THERMAL DERATING CURVES

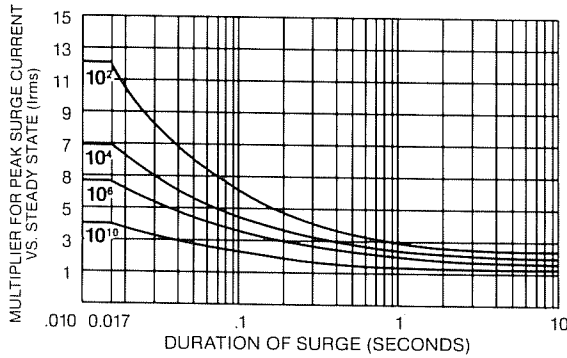


FIGURE 2 — ALLOWABLE PEAK SURGE CURRENT VS. DURATION/EXPECTED LIFETIME

### EXAMPLE:

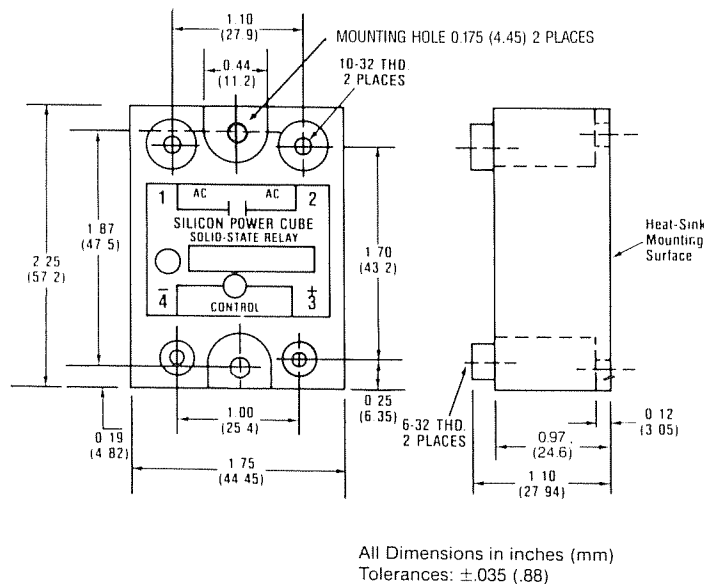
Knowing maximum load current and maximum ambient temperature, use derating curves to determine required heat sink and maximum allowable base plate temperature. On left hand power dissipation curve, locate the point corresponding to maximum load current. Extend a line to the right from that point to the intersection of vertical line on right hand chart corresponding to maximum ambient temperature. From heat sink curve, read directly or extrapolate required heat sink size. Extend the line farther to the right and read on the right hand scale the maximum allowable base plate temperature.

Family of curves shows approximate expected lifetime of relay when subjected to repetitive current surges, i.e., number of surges of a specific magnitude and duration.

## NOTES:

- Dielectric and insulation resistance are measured between input and output, input and baseplate, and output and baseplate.
- Internal RC snubber network is provided in DC control models for dv/dt protection.
- When mounting relays on heatsink surface, use a thin coating of thermal compound (Thermalloy "Thermalcote" or equivalent). This will result in a maximum thermal resistance, case - sink (R<sub>θc-s</sub> of .07°C/W).
- Ambient temperature range for "Random" switching types is 0°C to +80°C.

## OUTLINE / MOUNTING DIMENSIONS



## GENERAL SPECIFICATIONS

- Ambient temperature range:
  - 30 to +80°C operating (Note 4)
  - 40 to +120°C storage
- Weight: 4.0 oz. (113g) max.
- Case Material: Plastic, UL rated self extinguishing
- Base Plate Material: Aluminum (Some models Nickel-plated)
- Terminals: Tin-plated Brass, Nickel-plated screws supplied, unmounted.

## WIRING DIAGRAM

