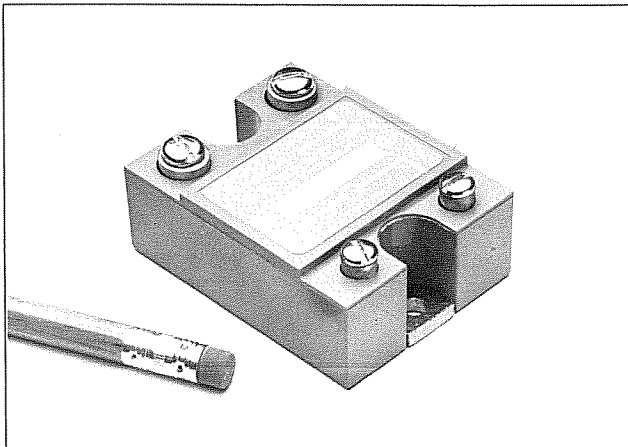




SILICON POWER CUBE

10 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
- 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 (UL pending on 380V & 480V) CSA Certified

TYPE	DC INPUT ZERO CROSS SWITCH				AC INPUT ZERO CROSS SWITCH				DC INPUT RANDOM SWITCH			
	120D10SP	240D10SP	380D10SP	480D10SP	120A10SP	240A10SP	380A10SP	480A10SP	120D10-10SP	240D10-10SP		
MODEL NO.												
INPUT SPECIFICATIONS (DC CONTROL MODELS)												
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		
INPUT SPECIFICATIONS (AC CONTROL MODELS)												
Control Voltage Range	Vrms	—				90-280		90-140		—		
Input Current (Max.)	mArms	—				6		—		—		
Must Turn On Voltage	Vrms	—				90		—		—		
Must Turn Off Voltage	Vrms	—				10		—		—		
COUPLING SPECIFICATIONS (INPUT/OUTPUT)												
Dielectric (Min.)	Vrms	4000				4000				4000		Note 1
Insulation Resistance (Min. @ 500 Vdc)	Ohms	10 ¹⁰				10 ¹⁰				10 ¹⁰		
Capacitance (Max.)	pF	10				10				10		
OUTPUT SPECIFICATIONS												
Load Current Range	Arms	.05-10				.05-10				.05-10		Fig. 1
Surge Current Range 1 Cycle (Max.)	Apk	120				120				120		Fig. 2
Load Voltage Range	Vrms	24-140	24-280	180-380	180-530	24-140	24-280	180-380	180-530	24-140	24-280	
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	8				10				12		
On-State Voltage Drop (Max.) @ Rated Current	Vpk	1.6				1.6				1.6		
Thermal Resistance Junction-Case (R _{θj-c})	°C/W	1.48				1.48				1.48		Note 3
I ² @t = 8.3 mSec (Max.)	A ² Sec	60				60				60		
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

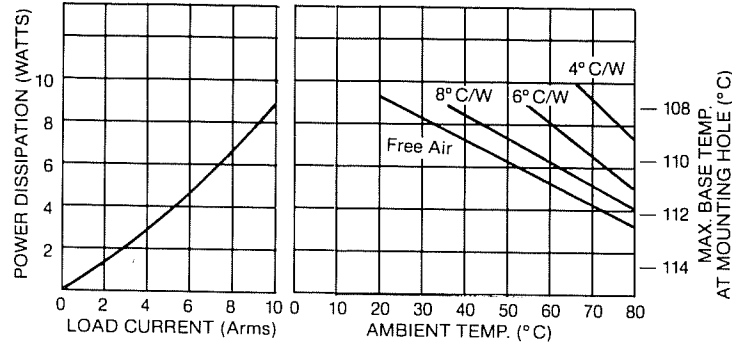


FIGURE 1 — THERMAL DERATING CURVES

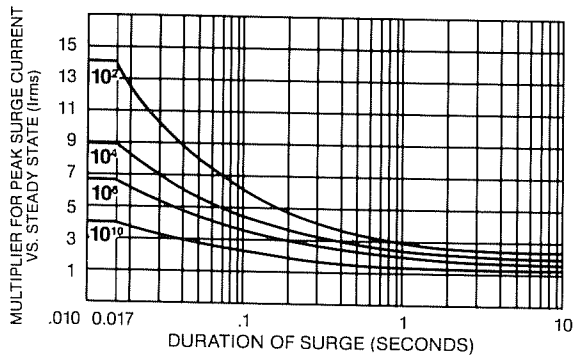


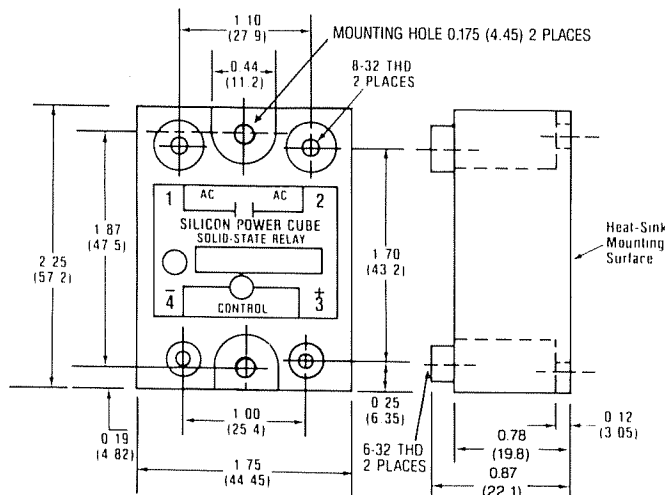
FIGURE 2 — ALLOWABLE PEAK SURGE CURRENT VS. DURATION/EXPECTED LIFETIME

- ▲ **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:

1. Dielectric and insulation resistance are measured between input and output, input and baseplate, and output and baseplate.
2. Internal RC snubber network is provided in DC control models for dv/dt protection.
3. 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 ($R_{\theta c-s}$ of $.07^{\circ}\text{C/W}$).
4. Ambient temperature range for "Random" switching types is 0°C to $+80^{\circ}\text{C}$.

OUTLINE/MOUNTING DIMENSIONS



All Dimensions in inches (mm)
Tolerances: $\pm .035$ (.88)

GENERAL SPECIFICATIONS

- Ambient temperature range:
 - 30 to $+80^{\circ}\text{C}$ operating (Note 4)
 - 40 to $+120^{\circ}\text{C}$ storage
- Weight: 3.5 oz. (98g) 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

