TELEDYNE SOLID STATE

HIGH VOLTAGE SOLID STATE AC RELAY

OPTICALLY ISOLATED 15 THRU 40 A/480 Vac

SERIES 621

SPST-NO

FEATURES

- High input/output isolation (3750 Vrms)
- High output voltage ratings
- High dv/dt rating (200V/μs minimum)
- Logic compatible DC input voltage ranges
- Multipurpose screw/quick disconnect terminals
- Designed to meet safety requirements of UL, CSA, and VDE
- Zero voltage turn-on; zero current turn-off
- UL Recognized File # E55197 (621-1 thru 621-6)
- CSA Certified, File #31043 (621-1 thru 621-6)

DESCRIPTION

The 621 Series high voltage AC SSRs were designed for applications involving high line voltages (up to 480 Vrms) and/or high peak transient voltages (up to 800V peak). In addition, the high input/output isolation rating of 3750 Vrms meets VDE specifications for equipment to be used in the European market. The 480 Vrms continuous load voltage rating also provides sufficient guard band for 220 Vrms 3-phase ungrounded wye or delta systems where high line to line voltages are experienced. A choice of two DC input control ranges offers compatibility with both high and low level logic. Recessed barriered multi-purpose screw/quick disconnect terminals with resulting long creepage paths provide additional safety from arc-over.

PART NUMBERING

INPUT CONTROL VOLTAGE RANGE	OUTPUT VOLTAGE RATING		OUTPUT (LOAD) CURRENT RATING & PART NUMBERS		
	Continuous (RMS)	Transient (PEAK)	15 A	25 A	40 A
3-14 Vdc	480	800	621-1	621-3	621-5
12-32 Vdc	480	800	621-2	621-4	621-6
90-250 Vac	480	800	621-11	621-13	621-15

PATENT # 3,648,075

ELECTRICAL SPECIFICATIONS

(25°C UNLESS OTHERWISE SPECIFIED)

INPUT (CONTROL) SPECIFICATIONS			MIN.	TYP.	MAX.	UNITS
Control Voltage Range		621-1, -3, -5	3.0		14	Vdc
		621-2, -4, -6	12		32	
		621-11, -13, -15	90		250	Vac
Input Current at (−40°C ≤ Ta ≤ 80°C)	5 Vdc	621-1, -3, -5			16	mA
	28 Vdc	621-2, -4, -6			20	
	250 Vac	621-11, -13, -15			18	
Must Turn-On Voltage (−40°C ≤ Ta ≤ 80°C)		621-1, -3, -5	3.8			Vdc
		621-2, -4, -6	12			
		621-11, -13, -15	90			Vac
Must Turn-Off Voltage (−40°C ≤ Ta ≤ 80°C)		621-2, -4, -6			1.0	Vdc
		621-1, -3, -5			1.0	
		621-11, -13, -15			3.5	Vac
Isolation (Input to Output, Input to Case, Output to Case)			10^9			OHMS
Capacitance (Input to Output)				8	10	pF
Dielectric Strength (Input to Output, Input to Case, Output to Case)			3750			Vrms 60 Hz
Reverse Voltage Protection					30	Vdc
OUTPUT (LOAD) SPECIFICATIONS			**MIN.**	**TYP.**	**MAX.**	**UNITS**
Output Current Rating (See Figures 2 & 3)			0.10		15, 25, 40	Arms
Load Voltage Rating			25		480	Vrms
Frequency Range			45		70	Hz
Surge Current Rating (60 Hz, 1 Cycle) (See Figure 4)					1000	% OF RATING
Overvoltage Rating Transient (T ≤ 20 ms)					800	V (PEAK)
On-State Voltage Drop at Rated Current				0.8	1.5	Vac
Turn-On Time (60 Hz)					1/2	CYCLE
Turn-On Time (60 Hz)	DC Input				1.0	CYCLE
	AC Input				40	ms
Off-State Leakage at 440 Vac (−40°C ≤ Ta ≤ 80°C)					10	mArms
Zero Voltage Turn-On Point				±20		V (PEAK)
Off-State dv/dt (See Note 1)			200			V/μs
Fusing I^2T (1 ms)	621-1, -2				150	A^2s
	621-3, -4				250	
	621-5, -6				300	
Triac Power Dissipation Factor (D)	15A, 25A				1.21	WATTS/A
	40A				1.25	
Triac Junction Temperature (T_J Max.)					125	°C
Thermal Resistance Junction to Heatsink (Θ_{JS}) (Includes Θ_{CS})	621-1, -2				1.4	°C/W
	621-3, -4				1.1	
	621-5, -6				1.1	

CHARACTERISTIC CURVES

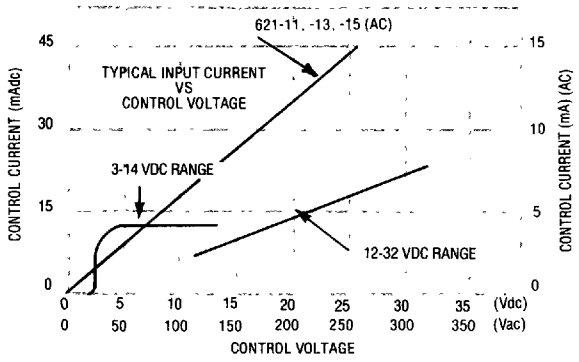


FIGURE 1 - TYPICAL INPUT CURRENT VS. CONTROL VOLTAGE

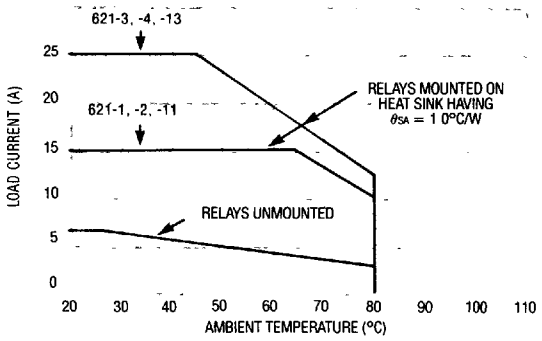


FIGURE 2 - MAXIMUM ALLOWABLE CURRENT VS. AMBIENT TEMPERATURE

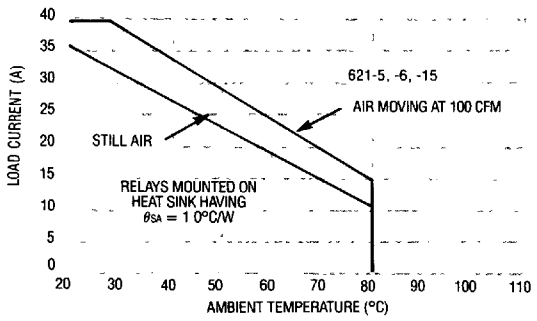


FIGURE 3 - MAXIMUM ALLOWABLE CURRENT VS. AMBIENT TEMPERATURE

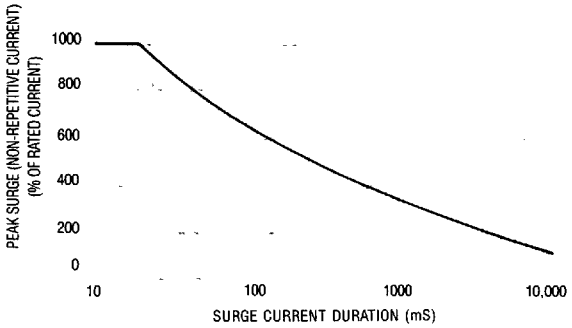
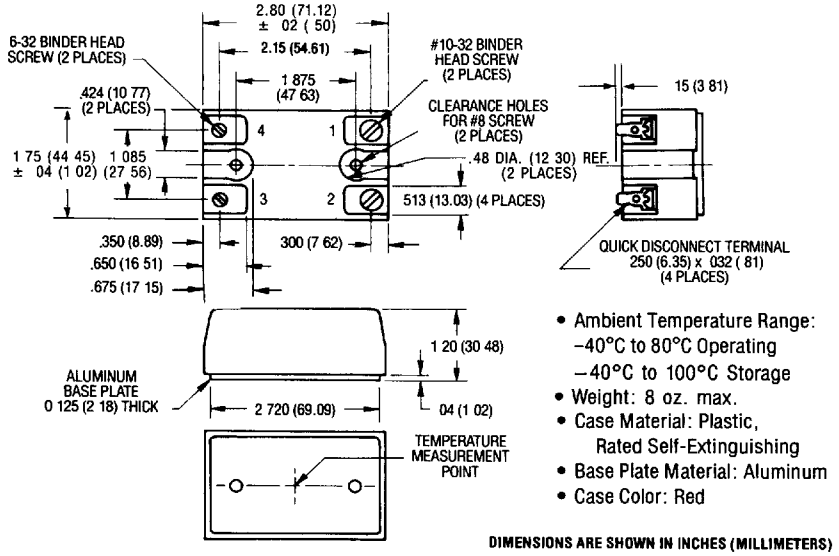


FIGURE 4 - PEAK SURGE CURRENT VS. SURGE CURRENT DURATION (SEE NOTE 3)

MECHANICAL SPECIFICATIONS

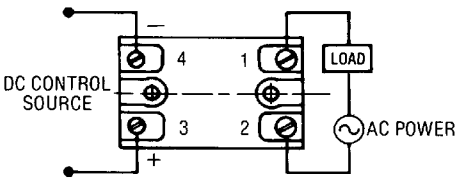


- Ambient Temperature Range:
  −40°C to 80°C Operating
  −40°C to 100°C Storage
- Weight: 8 oz. max.
- Case Material: Plastic, Rated Self-Extinguishing
- Base Plate Material: Aluminum
- Case Color: Red

DIMENSIONS ARE SHOWN IN INCHES (MILLIMETERS)

TOLERANCES:
XX ± 01 (25), XXX ± 005 (13)

WIRING DIAGRAM



NOTES:

1. Output transient (dv/dt) protection is provided in all models, and they are designed to operate resistive or inductive loads to 0.2 power factor. The dv/dt rating is based on a source impedance of 50 ohms.
2. Triac may lose blocking capability during and after surge until T_J falls below maximum.

TELEDYNE SOLID STATE
A Division of Teledyne Relays
12525 Daphne Avenue
Hawthorne, California 90250
(213) 777-0077