



TELEDYNE SOLID STATE

SOLID STATE AC RELAY

OPTICALLY ISOLATED
10 THRU 40 A rms

FEATURES

- Optical isolation between control and load circuits
- Logic compatible input current levels
- Constant current input control circuit
- Zero voltage turn-on; zero current turn-off
- High transient immunity
- UL Recognized, File #E55197
- CSA Certified, File #LE31043
- VDE Approved File #10341-4941-1003/A1A (615V Series)

DESCRIPTION

These state-of-the-art AC SSRs utilize custom integrated circuits to replace conventional discrete circuitry. The resultant 40% reduction in component count provides numerous advantages, none the least of which are lower cost and higher reliability.

Optical coupling between control and load circuits provides a minimum of 2500 Vrms input/output isolation. Synchronous "zero voltage" turn-on and zero current turn-off minimize switching transients and EMI. Improved circuit design and built-in snubber protection guarantee high immunity from false triggering and reliable switching of low power factor loads. Constant current input circuitry reduces excessive power dissipation at higher input voltage levels.

The 615V is designed to meet the creepage/clearance spacings and the isolation dielectric strength requirements, and radiated emissions of VDE and IEC.

PART NUMBERING

LOAD CURRENT (A)	OUTPUT VOLTAGE RATING		615 SERIES			615V SERIES	
	CONTINUOUS (RMS)	TRANSIENT (PEAK)	140	250	250	250	
			200	400	600	550	
10			615-1	615-2	615-2H	615V-2H	
25			615-3	615-4	615-4H	615V-4H	
40			615-5	615-6	615-6H	615V-6H	

ELECTRICAL SPECIFICATIONS (25°C UNLESS OTHERWISE NOTED)

INPUT (CONTROL) SPECIFICATIONS		MIN.	MAX.	UNITS
Control Voltage Range	615	3	32	Vdc
	615V	3.8	32	
Input Current (See Figure 1)	5V	615	12	mA
		615V	15.5	
	32V	615	14	
		615V	18	
Must Turn-On Voltage (-40°C ≤ Ta ≤ 80°C)	615	3.0		Vdc
	615V	3.8		
Must Turn-Off Voltage (-40°C ≤ Ta ≤ 80°C)			1.0	Vdc
Isolation (Input to Output, Input to Case, Output to Case)	615	10 ⁹		OHMS
	615V	10 ¹⁰		
Capacitance (Input to Output)			15	pF
Dielectric Strength (Input and Output to Case)		2500		Vrms 60 Hz Sine Wave
Dielectric Strength (Input to Output)	615	2500		
	615V	3750		
Reverse Voltage Protection			32	VDC
OUTPUT (LOAD) SPECIFICATIONS		MIN.	MAX.	UNITS
Output Current Rating (See Figures 2 and 4 for Temperature Derating)		0.10 0.25	10 25, 40	Arms
Load Voltage Rating	-1, -3, -5	25	140	Vrms
	-2, -2H, -4, -4H, -6, -6H	25	250	
Frequency Range		47	70	Hz
Surge Current Rating (16ms) (See Figure 3)			1000	% OF RATING
Over Voltage Rating (Transient Peak)	-1, -3, -5	200		V PEAK Note 6
	-2, -4, -6	400		
	-2H, -4H, -6H	600		
On-State Voltage Drop at Rated Current			1.5	Vrms
Turn-On Time (60 Hz)			0.5	cycle
Turn-Off Time (60 Hz)			0.5	cycle
Off-State Leakage	@ 140 V		6	mA rms
	@ 250 V		9	
Off-State dv/dt (See Note 1)			200 (TYP)	V/μs
Triac Power Dissipation Factor (D)	-1, -2, -2H		1.21	WATTS/A
	-3, -4, -4H		1.2	
	-5, -6, -6H		1.125	
Fusing I ² T (1 ms)	-1, -2, -2H		20	A ² s
	-3, -4, -4H		150	
	-5, -6, -6H		300	
Triac Junction Temperature (T _J Max.)			110	°C
Thermal Resistance, Junction to HS (Θ _{JS}) (Includes Θ _{CS})	-1, -2, -2H		3.1	°C/W
	-3, -4, -4H		2.0	
	-5, -6, -6H		1.0	

CHARACTERISTIC CURVES

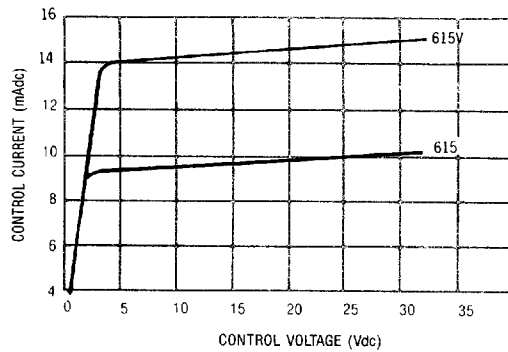


FIGURE 1 - INPUT CURRENT VS. VOLTAGE (TYPICAL)

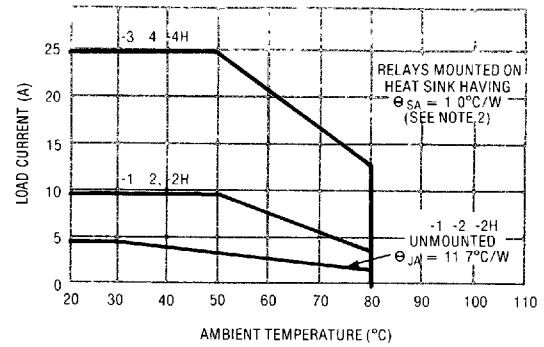


FIGURE 2 - THERMAL DERATING CURVES

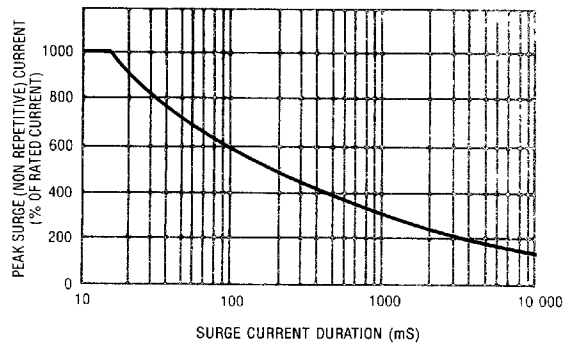


FIGURE 3 - SURGE CURRENT DURATION (See Note 3)

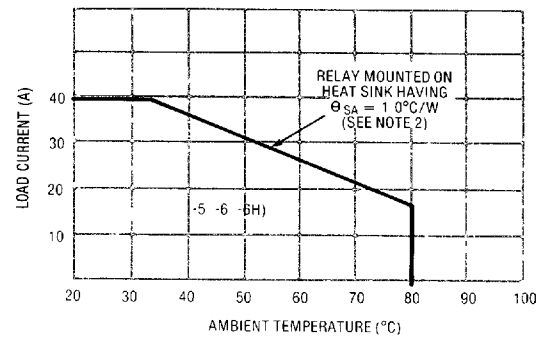
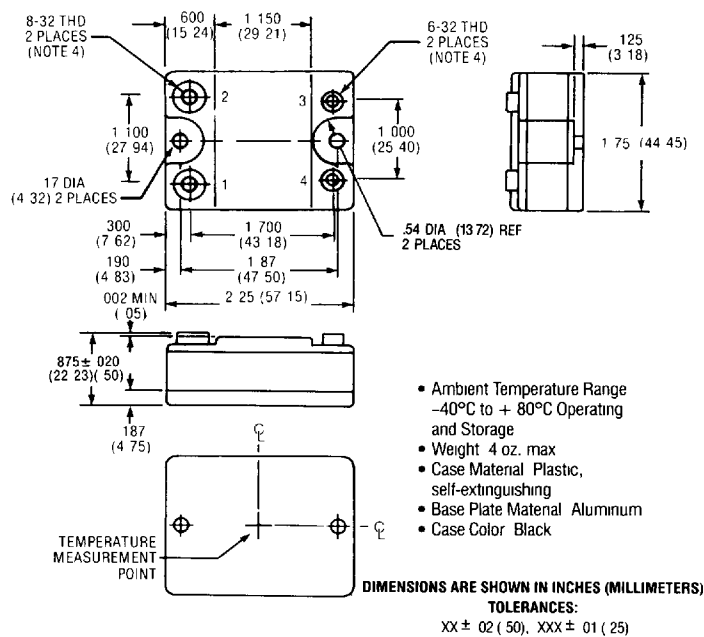
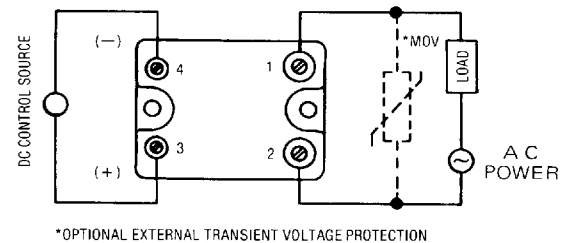


FIGURE 4 - THERMAL DERATING CURVES

MECHANICAL SPECIFICATIONS



WIRING DIAGRAM



*OPTIONAL EXTERNAL TRANSIENT VOLTAGE PROTECTION

USE THE TABLE BELOW FOR SELECTION OF PROPER METAL OXIDE VARISTOR (MOV)

MAXIMUM CONTINUOUS LINE VOLTAGE RATING	TRANSIENT (PEAK) RATING OF RELAY	TELEDYNE MOV P/N
140 Vac	400 V	970-1
250 Vac	600 V	970-2

(SEE 970 SERIES DATA SHEET FOR FURTHER INFORMATION ON MOV'S)

NOTES:

- Output (dv/dt) protection is provided in all models, and they are designed to switch resistive or inductive loads to 0.2 power factor. The dv/dt rating is based on a source impedance of 50 ohms.
- Relays mounted with silicone grease on a 1°C/W heat sink.
- Triac may lose blocking capability during and after surge until T_J falls below maximum.
- Hardware packaged separately: 6-32 and 8-32 Screws and Saddle Clamps.
- Relays may be shipped with 1/4" Quick Disconnects instead of Saddle Clamps by adding a "Q" (for single) or "QQ" (for double) to Basic Part Number (Example: 615-2HQQ).
- The overvoltage rating of the 615V-2H, -4H and -6H is 550V Peak.