

Part Number*	Military	Relay Description
682-1Y	86031-001	AC Solid State Relay

* The Y suffix denotes parameters tested to MIL-R-28750 test methods.
The W suffix denotes parameters tested to Teledyne specifications.

ELECTRICAL SPECIFICATIONS

(-55°C TO +110°C UNLESS OTHERWISE SPECIFIED)

INPUT (CONTROL) CHARACTERISTICS

		Min	Typ	Max	Units
Input Current	$V_{IN} = 5 \text{ Vdc}$		13	15	mA dc
(See Figure 1)	$V_{IN} = 32 \text{ Vdc}$		13	18	
Turn-Off Voltage (Guaranteed Off)				1.5	Vdc
Turn-On Voltage (Guaranteed On)		3.8			Vdc
Reverse Voltage Protection				-32	Vdc
Input Voltage Range		3.8		32	Vdc

OUTPUT (LOAD) SPECIFICATIONS

	Min	Typ	Max	Units
Output Current Rating (See Figure 3)			1.0	Arms
Output voltage Rating	25		250	Vrms
Frequency Range	45		440	Hz
Output Voltage Drop @ 1 Ampere (See Figure 2)			1.5	Vrms
Off-State Leakage Current (250 Vac, 400 Hz)			1.0	mArms
Turn-On Time			½	Cycle
Turn-Off Time			1	Cycle
Transient Voltage (T < 5 s)			±500	V pk
Surge Current @ 25°C (16 ms) (See Figure 3)			8	Apk
Overload (Repetitive, 10% Duty Cycle)			1.5	Arms
Zero Voltage Turn-On Point at 25° C			±15	V pk
Off-State dv/dt (with Snubber - See Note 2)	100			V/us
Load Power Factor	0.2		1	

**FEATURES**

- Relay Qualified to MIL-R-28750
- Zero voltage turn-on SCR output
- Optical isolation
- Logic compatible input
- Low minimum output current
- Extremely low EMI
- Low profile metal DIP package

DESCRIPTION

This state-of-the-art solid state relay is designed for use in ac power switching applications. The output is rated for 1A at 250 Vrms and can operate from 40 to 440 Hz for resistive and reactive loads with power factors as low as 0.2. Back-to-back SCRs are configured for zero voltage turn-on and can handle current surges up to 8A. The patented circuit design assures the lowest possible EMI by virtually eliminating commutation spikes while maintaining excellent noise immunity. Optical isolation allows safe control of ac loads from low level logic circuits. The low profile metal DIP package is hermetically sealed to withstand severe environmental conditions encountered in military and aerospace applications. This relay is qualified to MIL-R-28750/9-001 and is available to Y screening levels.

WIRING DIAGRAM

OUTPUT (LOAD) SPECIFICATIONS

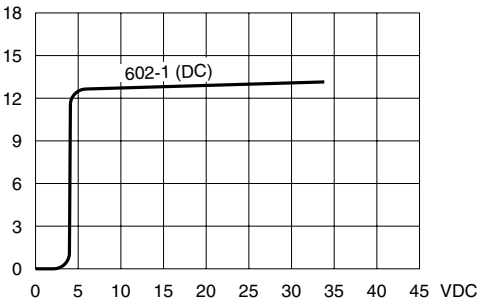
	Min	Typ	Max	Units
Insulation Resistance @ 500 Vdc	10 ⁹			Ohms
Input to Output Capacitance			10	pF
Dielectric Withstanding Voltage	1500			Vac
Junction Temperature (T _j Max)			130	°C
Thermal Resistance Junction to Ambient (θ _{JA})			85	°C/W
Thermal Resistance Junction to Case (θ _{JC})			15	°C/W

ENVIRONMENTAL SPECIFICATIONS*

Ambient Temperature	-55° C to +110° C Operating -55° C to +125° C Storage
Shock	1500 g for 0.5 ms
Vibration	20 g, 10 to 2000 Hz
Acceleration	5000 g

* Contact Factory for Higher level enviromental requirements

MECHANICAL SPECIFICATIONS



TYPICAL INPUT CURRENT VS. INPUT VOLTAGE
FIGURE 1

NOTES:

1. Case temperature is measured at point specified.
2. The dv/dt is 200 V/ms with recommended snubber across output terminals R= 100, ½ W, C=0.01 mf (600V). The dv/dt rating is based on a source impedance of 50 ohms.
3. Output may lose blocking capability during and after surge until T_j falls below maximum.
4. Contact factory for additional specifications.