

AC SOLID STATE RELAY

TELEDYNE RELAYS

Series 602

10 A, 250 VAC
OPTICALLY ISOLATED

Part* Number	DESC Drawing Number	Relay Description
602-1W		10 A, 250 VAC AC Solid State Relay
602-1Y	86031-001	10 A, 250 VAC AC Solid State Relay

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

ELECTRICAL SPECIFICATIONS

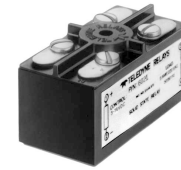
(-55°C TO +95°C UNLESS OTHERWISE SPECIFIED)

INPUT (CONTROL) CHARACTERISTICS

	Min	Typ	Max	Units
Input Current (See Figure 1)				
$V_{IN} = 5 \text{ Vdc}$		13	15	mA dc
$V_{IN} = 32 \text{ Vdc}$		13	16	mA dc
Turn-Off Voltage (Guaranteed Off)			1.0	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)	0.15		10	Amps
Output voltage Rating	25		250	Vac
Frequency Range	45		440	Hz
Output Voltage Drop @ 10 Amp (See Figure 2)			1.5	Vrms
Off-State Leakage Current (250 Vac, 400 Hz)			8.0	mA
Turn-On Time			1/2	Cycle
Turn-Off Time			1	Cycle
Transient Voltage ($T \leq 5s$)			± 460	V pk
Overload Current (See Note 5)			35	Amps
Zero Voltage Turn-On Point			± 15	Vpk
dv/dt @ 25°C (See Note 4)	200			V/ μs
Load Power Factor	0.2			
Insulation Resistance @ 500 Vdc	10^9			Ohm
Input to Output Capacitance			10	pF



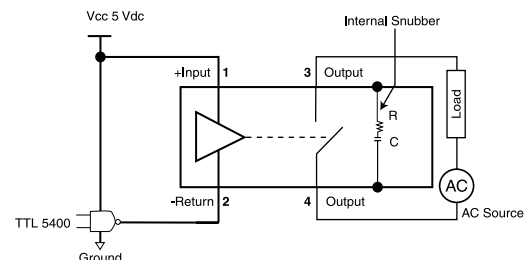
FEATURES

- Available to DESC drawing 86031-001
- Optical isolation
- Low minimum output current
- Extremely low EMI
- Zero voltage turn-on
- Zero current turn-off
- Logic compatible input
- Available to Y screening levels of MIL-PRF-28750

DESCRIPTION

The 602-1 is an AC output solid state relay designed for power switching. The relay incorporates a hermetically sealed, optically coupled solid state relay as a driver. This driver provides zero voltage turn-on as well as a logic compatible control circuit. The relay output is rated for 10A at 250Vac and switches the load with a hermetically sealed triac. A built-in snubber circuit provides reliable switching of both resistive and reactive loads with power factors as low as 0.2. The internal components are potted with a thermally conductive epoxy, which provides an environmental seal for severe environmental conditions encountered in military and aerospace applications. The 602-1 is available in W and Y screening levels. The 602-1Y is available to DESC drawing 86031-001.

WIRING DIAGRAM



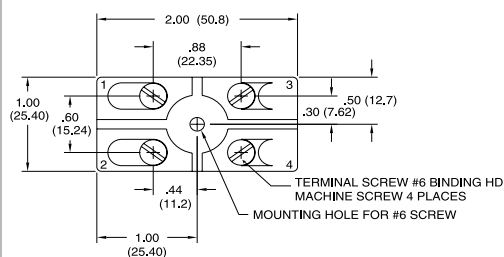
OUTPUT (LOAD) SPECIFICATIONS

	Min	Typ	Max	Units
Dielectric Withstanding Voltage	1500			Vac
Junction Temperature (T _j Max) @ Rated Current			110	°C
Thermal Resistance Junction to Ambient (θ _{JA})			11.5	°C/W
Thermal Resistance Junction to Case (θ _{JC})			2	°C/W

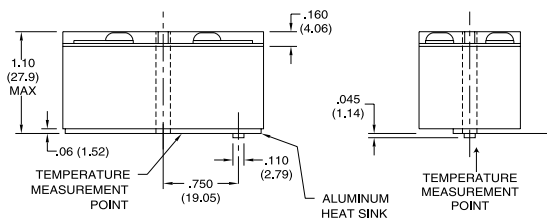
ENVIRONMENTAL SPECIFICATIONS

	Min	Typ	Max	Units
Ambient Temperature				
Operating	-55		+95	° C
Storage	-55		+110	° C
Shock for 6 ms			100	g
Vibration, 78 to 2000 Hz (0.1 Double Amplitude 10 to 78 Hz)			30	g
Acceleration			100	g

MECHANICAL SPECIFICATIONS



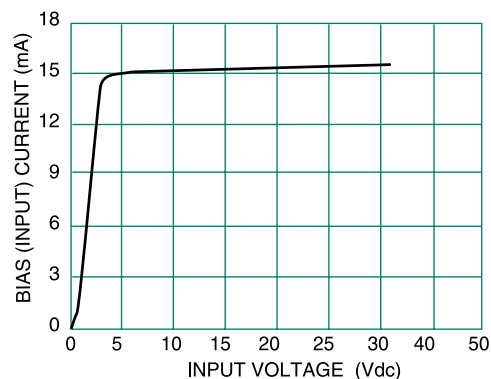
- **Case Material:** Self extinguishing plastic
- **Epoxy Filled**
- **Case Color:** Black
- **Base Plate Material:** Aluminum
- Circuit diagram shown on part is terminal view.



DIMENSIONS ARE SHOWN IN INCHES (MILLIMETERS)

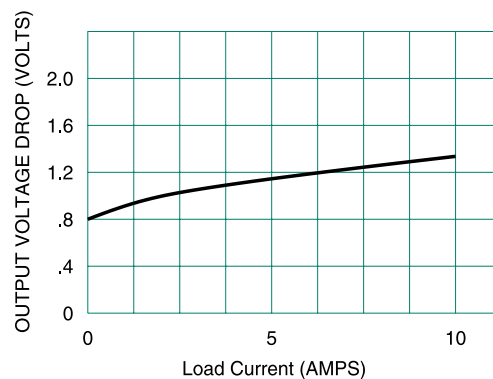
NOTES:

1. UNLESS OTHERWISE SPECIFIED, TOLERANCES: .XXX = $\pm .005$ (0.13mm);
.XX = $\pm .01$ (0.25mm).
2. Weight: max. 3 oz.
3. BUILT IN SNUBBER (R = 100 W C = 0.01mF).
4. Output may lose blocking capabilities during and after surge until T_j falls below maximum.
5. 100mS pulse @ 1 Hz repetitive rate at 25°C, maximum 10 cycles.

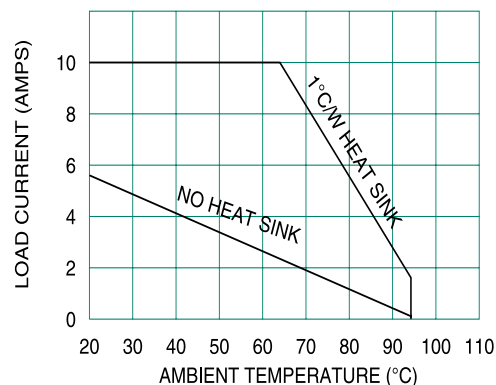


INPUT CURRENT VS INPUT VOLTAGE

FIGURE 1



**LOAD CURRENT VS TYPICAL OUTPUT
VOLTAGE DROP
FIGURE 2**



THERMAL DERATING CURVES

FIGURE 3