TELEDYNE RELAYS
A Unit of Teledyne Electronic Technologies

SMART **Series SR75-1**

1.5A, 60Vdc Optically Isolated, Short-Circuit Protected
DC Solid-State Relay

Part Number*	Relay Description
SR75-1	Solid-State Relay with Terminals for Through-Hole mount
SR75-1S	Solid-State Relay with Terminals for Surface Mount

* A 'W' or 'T' suffix denoting the S Teledyne reliability screening level, must be added to the part number.

ELECTRICAL SPECIFICATIONS

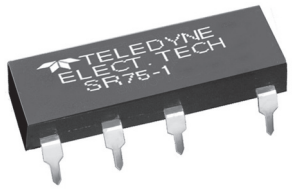
(-55°C TO 105°C, Ambient Temperature Unless Otherwise Specified)

INPUT (CONTROL) SPECIFICATIONS

	Min	Max	Units
Control Voltage Range (See Note 2)	3.8	32.0	Vdc
Input Current @ 5 Vdc (See Figure 1)		11.0	mA
Must Turn-On Voltage (See Note 3)	3.8		Vdc
Must Turn-Off Voltage		1.5	Vdc
Reverse Voltage Protection		-32.0	Vdc

OUTPUT (LOAD) SPECIFICATION

	Min	Max	Units
Load Voltage Rating		60	Vdc
Transient Blocking Voltage		80	Vdc
Output Current Rating (See Figure 2)		1.5	Adc
On Resistance (See Figure 3, Note 8)		0.5	Ohm
Leakage Current at Rated Voltage		100	µA
Turn-On Time		4.5	ms
Turn-Off Time		0.5	ms
dV/dt @ 60 Vdc (See Note 8)		100	V/µs
Electrical System Spike (See Note 9)		± 600	Vpk
Input to Output Capacitance at 1 MHz (See Note 9)		20	pF
Dielectric Strength	1000		Vrms
Insulation Resistance	10^8		Ohm
Junction Temperature		130	°C
Thermal Resistance (Junction to Ambient)		90	°C/W
Solderability (10 sec)		260	°C



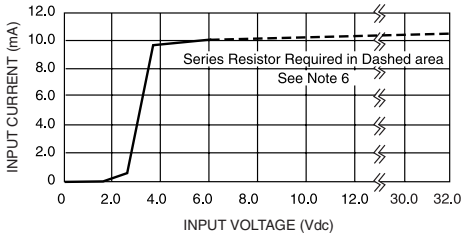
FEATURES/BENEFITS

- Short-Circuit Protected: Prevents damage to system components, assemblies and system wiring
- Optical Isolation: Isolates control circuits from load transients Eliminates ground loops and signal ground noise
- Low Off-State Leakage: For high off-state impedance
- Switches High Currents: To 1.5 Adc
- High Noise Immunity: Control signals isolated from switching noise
- High Dielectric Strength: For safety and for protection of control and signal level circuits

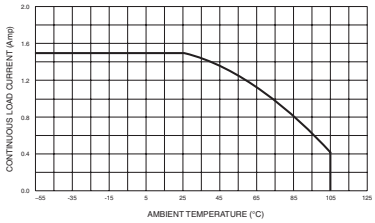
DESCRIPTION

The SR75-1 solid-state relay utilizes a power FET switch that is protected against short-circuit and overload currents. The short-circuit protection feature not only provides protection should a short or overload occur while the relay is on, but will also provide protection should the relay be switched into a short. In either case, the relay will sense the short-circuit condition and then block it indefinitely until the short is removed and the unit is reset by cycling the input control. Using the SR75-1 to switch power sources and loads can prevent fires, damage to system assemblies and system wiring. The power FET output offers low "ON" resistance and can switch loads in either the high or the low side of the power line. The SR75-1 is packaged in a 16-pin DIP package with either surface-mount or through-hole mounting available.

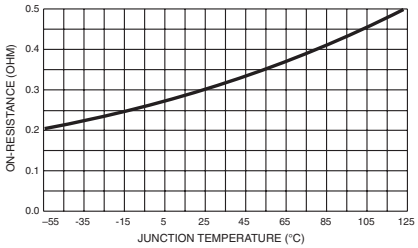
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INPUT CURRENT VS VOLTAGE
FIGURE 1

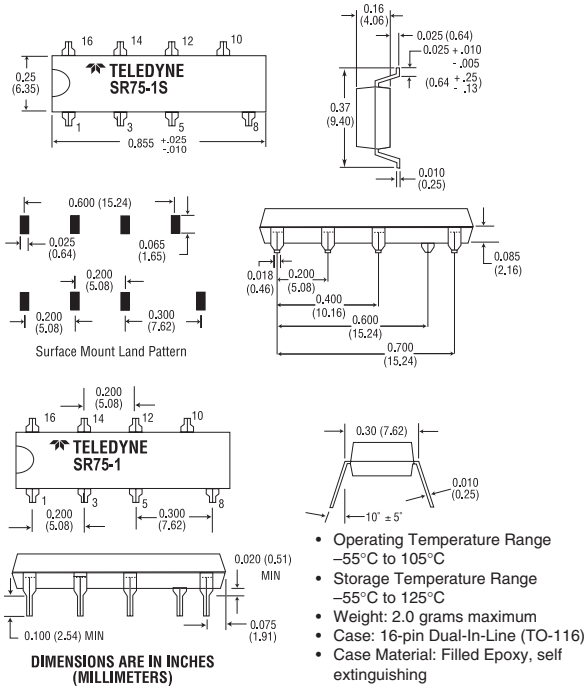


LOAD CURRENT DERATING CURVE
FIGURE 2 (SEE NOTE 7)

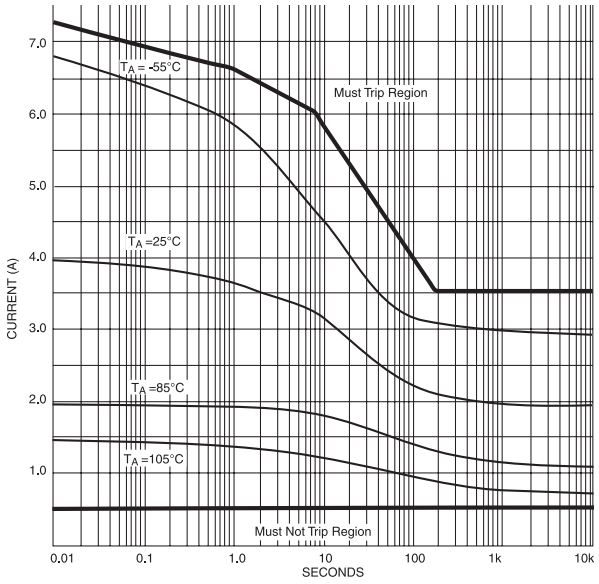


TYPICAL ON RESISTANCE VS T_J
FIGURE 3

MECHANICAL SPECIFICATIONS

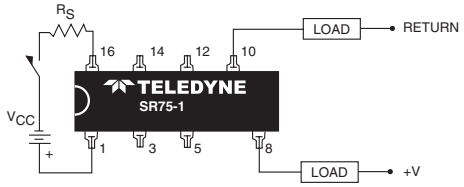


- Operating Temperature Range –55°C to 105°C
- Storage Temperature Range –55°C to 125°C
- Weight: 2.0 grams maximum
- Case: 16-pin Dual-In-Line (TO-116)
- Case Material: Filled Epoxy, self extinguishing

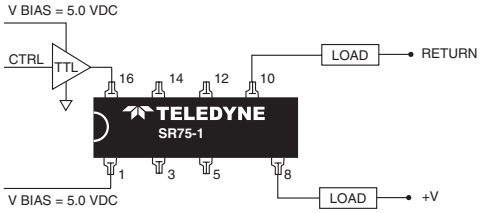


TRIP TIME VS. OVERLOAD CURRENT
FIGURE 4

WIRING CONFIGURATIONS



SHORT-CIRCUIT PROTECTED DC LOADS
(SEE NOTES 2, 4 AND 6)



SHORT-CIRCUIT PROTECTED AC LOADS
(SEE NOTE 6)

NOTES:

1. The input voltage is 5.0 Vdc for all tests unless otherwise specified.
2. For input voltage greater than 6.0 Vdc a series resistor must be used to limit the power dissipation on the input of the relay. The resistor value should be selected using the following equation:
   $R = (V_{BIAS} - 6 \text{ volts})/11mA$
3. The input transitions are to be less than 1.0 msec duration.
4. Inductive loads must be diode suppressed.
5. Reversing the output polarity when the relay is in overload or is sustaining a short circuit may cause permanent damage.
6. Loads may be switched in either the high side or the low side of the power source.
7. Continuous load current rating is determined with relay mounted on a printed circuit card.
8. Tested at 25°C only.
9. Qualification and/or random sample test only.

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