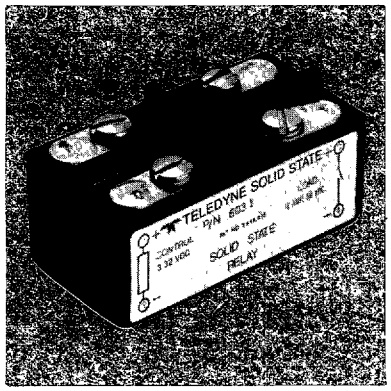
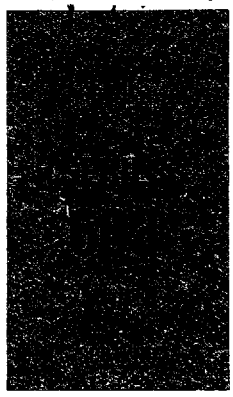


TELEDYNE SOLID STATE

SOLID STATE DC RELAY

OPTICALLY ISOLATED
2 & 5 A/50 Vdc
(AC OR DC INPUT CONTROL)



FEATURES

- **TTL compatible inputs**
- **Optional controlled rise & fall times**
- **Terminal options: Screws, quick disconnects, or PC Board solder pins**

DESCRIPTION

These optically coupled DC SSRs are rated at 2 and 5 A respectively, at 50 Vdc, and are available with either TTL compatible DC inputs or AC line voltage inputs. Optional controlled output rise and fall times provide the following added advantages:

a) limit in-rush currents for capacitive and lamp loads
b) limit turn-off transients with inductive loads
c) minimize EMI and switching transients

The adaptive package design offers a choice of screw or quick disconnect terminals for chassis, panel, or heat sink mounting, or solder pins for direct mounting on PC boards.

PART NUMBERING (See Note 1)

INPUT CONTROL VOLTAGE RANGE	OUTPUT VOLTAGE RATING	OUTPUT LOAD RATING & PART NUMBERING			
				CONTROLLED RISE AND FALL TIME	
		2 A	5 A	2 A	5 A
3-32 Vdc	50 Vdc	603-1	603-2	603-21	603-22
90-250 Vac		603-11	603-12		

ELECTRICAL SPECIFICATIONS
(25°C UNLESS OTHERWISE SPECIFIED)

INPUT (CONTROL) SPECIFICATIONS			MIN.	TYP.	MAX.	UNITS	NOTES
DC INPUT MODELS	Control Voltage Range (-30°C to +80°C)		3		32	Vdc	Note 4
	Input Current at 5V (-30°C to +80°C)				5 5	mA	Fig 3
	Input Current at 32V (-30°C to +80°C)			32	36	mA	Fig 3
	Must Turn-On Voltage		3			Vdc	
	Must Turn-Off Voltage (-30°C to +80°C)				0 8	Vdc	
AC INPUT MODELS	Control Voltage Range (-30°C to +80°C)		90		250	Vac	
	Input Current at Max. Control Voltage				25	mA	Fig 3
	Turn-On Voltage (-30°C to +80°C)		90			Vac	
	Turn-Off Voltage (-30°C to +80°C)				20	Vac	
	Control Voltage Frequency		47		70	Hz	
Isolation (Input to Output, Input to Case, Output to Case)			10⁹			OHMS	
Capacitance (Input to Output)				10	20	pF	
Dielectric Strength (Input to Output, Input to Case, Output to Case)			1500			Vrms	60 Hz Sine Wave
Reverse Voltage Protection (DC Control)					32	Vdc	
OUTPUT (LOAD) SPECIFICATIONS			**MIN.**	**TYP.**	**MAX.**	**UNITS**	**NOTES**
Output Current Rating (Resistive)		603-1, -11, -21			2	A	Fig 1 & 2
		603-2, -12, -22			5	A	
Load Voltage Rating			3		50	Vdc	
Voltage Drop at Max. Current				1	1.5	Vdc	
Surge Current (% of Rating)							Fig 4
DC INPUT MODELS	Turn On Time Delay ($T_{d(on)}$) 5V in / 50V load	603-1, -2		15	25	μs	Fig 5 6, 7
		603-21, -22		25	100	μs	
	Rise Time (T_r)	603-1, -2		50	75	μs	
	5V in / 50V load	603-21, -22	0 5	1	2	ms	
	Turn Off Time Delay ($T_{d(off)}$)	603-1, -2			100	μs	
	5V in / 50V load	603-21, -22		1	2	ms	
	Fall Time (T_f)	603-1 -2		100	200	μs	
	5V in / 50V load	603-21, -22	65	100	145	μs	
AC INPUT MODELS	Turn-On Time (time delay (T_d) + rise time (T_r)) 120V in / 50V load			15	25	ms	
	Turn-Off Time (time delay (T_d) + fall time (T_f)) 120V in / 50V load			15	25	ms	
Output Leakage Current (at 50V, 80°C)		603-1, -11, -21		5	10	mA	
		603-2, -12, -22		5	15	mA	
Power Dissipation Factor (D)					1 5	W/A	
Power Switch Junction Temperature (T_J Max.)					150	°C	

CHARACTERISTIC CURVES

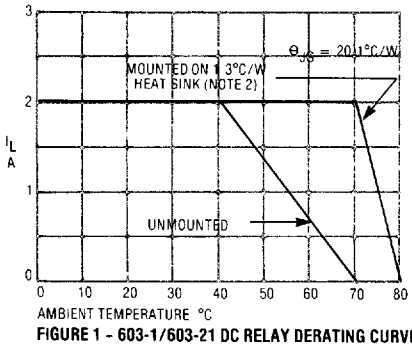


FIGURE 1 - 603-1/603-21 DC RELAY DERATING CURVE

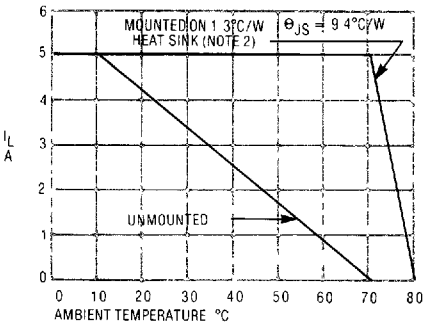


FIGURE 2 - 603-2/603-22 DC RELAY DERATING CURVE

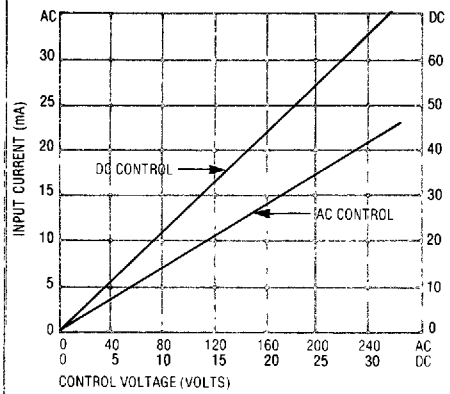


FIGURE 3 - INPUT CURRENT VS. CONTROL VOLTAGE (TYPICAL) ALL UNITS

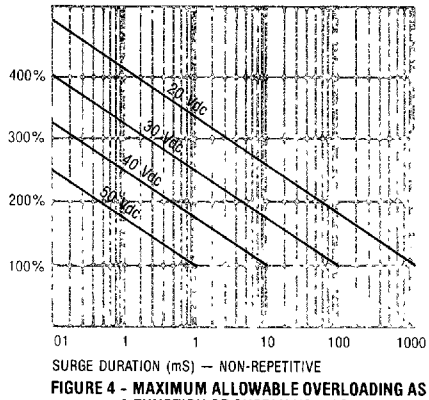


FIGURE 4 - MAXIMUM ALLOWABLE OVERLOADING AS A FUNCTION OF SUPPLY VOLTAGE

RESPONSE CURVES

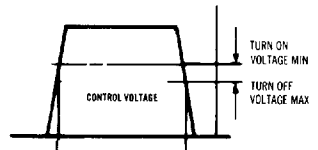


FIGURE 5

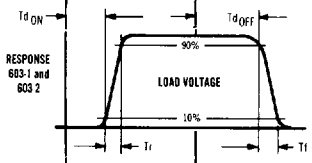


FIGURE 6

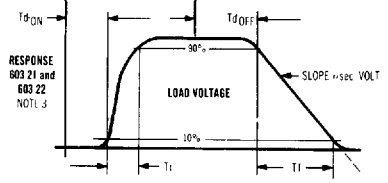


FIGURE 7

MECHANICAL SPECIFICATIONS

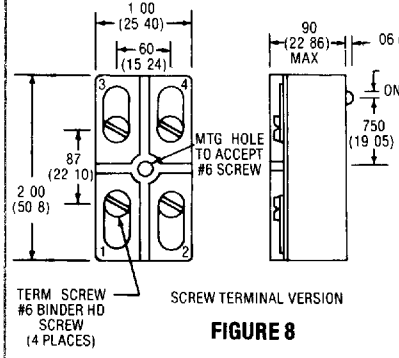


FIGURE 8

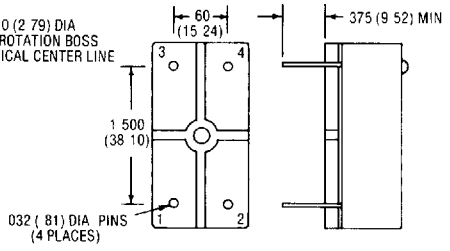


FIGURE 9

- Ambient Temperature Range:
  -30°C to +80°C Operating
  -30°C to +80°C Storage
- Weight: 3 oz. max.
- Case Material: Aluminum, black anodized
- Header Material: Phenolic, black
- Epoxy Encapsulated
- Vibration: 30g, 50-500 Hz.

TOLERANCES

.XX ± .01 (.25); .XXX ± .005 (.13)

DIMENSIONS ARE SHOWN IN INCHES (MILLIMETERS)

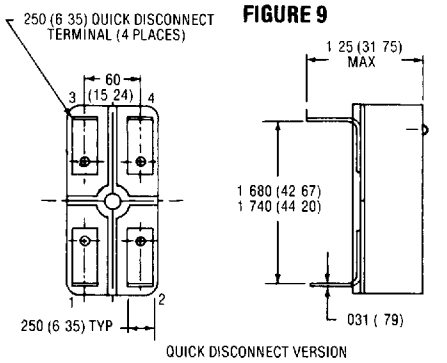
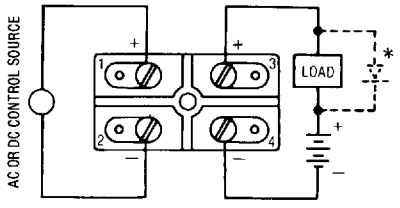


FIGURE 10

WIRING DIAGRAM



Input and output polarity must be observed
*Inductive loads must be diode suppressed

NOTES:

1. Basic part number provides for screw terminals only (Fig. 8). For PC Board pins add suffix "P" to part number (Fig. 9). For quick disconnect terminals, add suffix "Q" (Fig. 10).
2. Relays mounted with silicon grease on a 1.3°C/W heat sink.
3. Maximum continuous duty repetition rate for both 603-21 & 603-22 at full load current is one cycle/second.
4. Rise and fall times of input signal must be ≤ 10 µs, or damage to output stage may result.

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