

53023

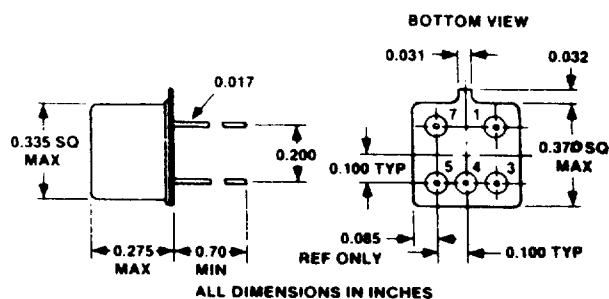
SPST SOLID STATE RELAY



## FEATURES

- Replacement for 690-1
- SPST, Normally Open
- 1000 V RMS Optical Isolation
- CMOS or TTL Compatible Input
- Power FET Output - Low On-state Resistance
- Full Military Temperature Operation:  
-55°C to +105°C  
- Military Environmental Screening Available
- Built and Tested to MIL-R-28750 utilizing the test methods of MIL-STD-883
- Built in Accordance with 85007-001

## PACKAGE DIMENSIONS



## GENERAL DESCRIPTION

The MII 53023 is a military SPST solid-state relay. This light-weight device is resistant to damage from shock and vibration, and immune to contact-related problems (contamination, arcing) associated with mechanical equivalents.

Optical coupling between the input and output stages provides effective isolation up to 1000 volts AC RMS. Power FET outputs eliminate bipolar offset, and minimize output voltage drop.

The control logic is TTL and CMOS compatible, and will accommodate bias supplies between 3.8 and 32 VDC. A built-in Schmitt trigger increases noise margin when using the device in the CMOS input mode.

This solid-state relay are ideal for use in military systems, or wherever high reliability, low power actuation, and light weight are design considerations. Applications include general purpose signal switching and electronic load control.

## APPLICATION INFORMATION

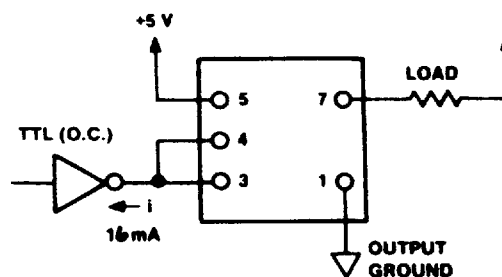
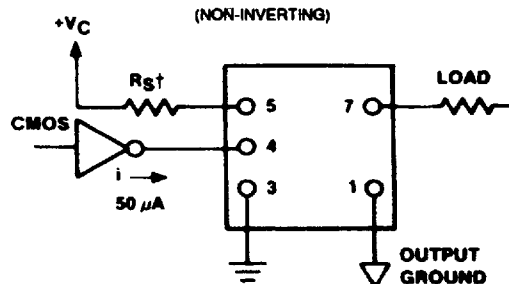
TTL CONFIGURATION  
(NON-INVERTING)CMOS CONFIGURATION  
(INVERTING)

TABLE 1  
LIMITING RESISTANCE ( $R_s$ ) VALUES  
(With Heat Sink)

V(VDC)	3.8-6	6-10	10-14	14-18	18-22	22-26	26-32
R( $\Omega$ )		300	620	910	1200	1500	2000
Rating (W)		1/4	1/4	1/2	1/2	1/2	1

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6112640 0001215 435 2-19

**53023****SPST SOLID-STATE RELAY****ABSOLUTE MAXIMUM RATINGS**

Isolation Voltage ..... 1000 VAC RMS  
 Operating Temperature ..... -55°C to +105°C Case  
 Storage Temperature ..... -55°C to +125°C

**ELECTRICAL CHARACTERISTICS\*** $T_A = +25^\circ\text{C}$ 

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Input (Control) Characteristics TTL Configuration					
Input Current			13	16	mA
Control Voltage Range	See Table 1 - Bias Resistance	3.8		32	VDC
Turn-Off Voltage (Assured)				1.5	VDC
Turn-On Voltage (Assured)		3.8			VDC
Input (Control) Characteristics CMOS Configuration					
Input Current			25	50	$\mu\text{A}$
Control Voltage Range		2.5		18	VDC
Bias Supply - $V_c$	See Table 1 - Bias Resistance	3.8		32	VDC
Bias Current			13	16	mA
Turn-Off Voltage (Assured)			2.5	2.8	VDC
Turn-On Voltage (Assured)		0.5			VDC

**ELECTRICAL CHARACTERISTICS\*** $T_A = +25^\circ\text{C}$ 

PARAMETER	CONDITIONS	MAX	UNITS
Maximum Continuous Operating Output Voltage		60	VDC
Maximum Load Current	25 °C	0.56	A
On Resistance -Maximum	25 °C	0.90	Ohms
Typical Thermal Resistance, $\theta_{JA}$ $\theta_{JC}$		130	$^\circ\text{C}/\text{W}$
		35	$^\circ\text{C}/\text{W}$
Turn-On Delay		0.7	ms
Rise Time		0.8	ms
Turn-Off Delay		1.8	mS
Fall Time		0.4	mS
Off State Leakage, Maximum		10	$\mu\text{A}$
Dielectric Strength, Minimum	I/O, 60 Hz Sine Wave	1000	V RMS
Typical Isolation Resistance	Input to Case, 500 V	$10^9$	Ohms
Transient Voltage		80	VDC
Maximum Output Capacitance	pF at 25 V 1 MHz	160	pF
Maximum Input-Output Capacitance	pF at 25V 1 KHz	5	pF

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