

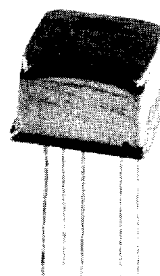
# 53018 through 53022 SPST SOLID STATE RELAYS



## FEATURES

- Replacements for 692-1, 692-2, 692-3, 693-1, -2
- Choice of AC or DC Models
- 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 +125°C
- Military Environmental Screening Available

## MILITARY SPST SOLID STATE RELAYS



## GENERAL DESCRIPTION

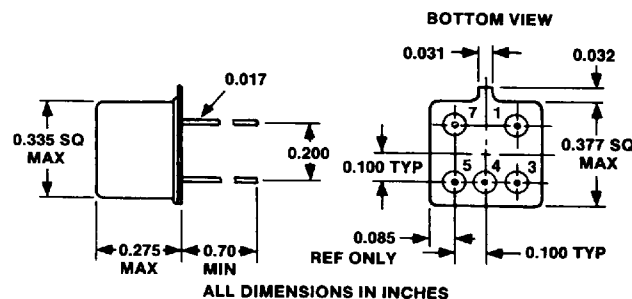
The MII 53018 through 53022 are military SPST solid-state relays. These light-weight devices are resistant to damage from shock and vibration, and are immune to contact-related problems (contamination, arcing) associated with mechanical equivalents.

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.

These solid-state relays 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.

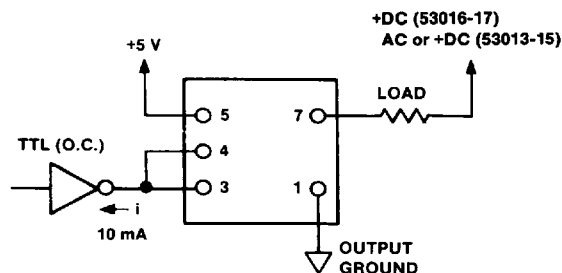
## PACKAGE DIMENSIONS



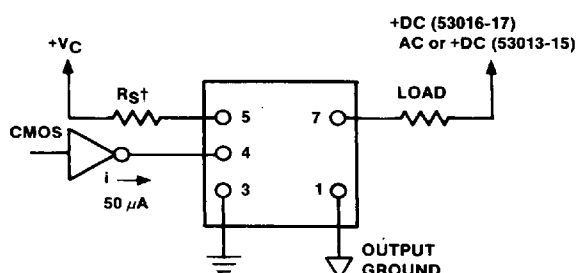
**TABLE 1**  
**LIMITING RESISTANCE ( $R_s$ ) VALUES**  
(Without Heat Sink)

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

## APPLICATION INFORMATION



**TTL CONFIGURATION**  
(NON-INVERTING)



**CMOS CONFIGURATION**  
(INVERTING)

Limiting resistor ( $R_s$ ) may be required. See Table 1.

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# 53018 through 53022

## SPST SOLID STATE RELAYS

### ABSOLUTE MAXIMUM RATINGS

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

### ELECTRICAL CHARACTERISTICS\*

T<sub>A</sub> = +25°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				1.5	VDC
Turn-On Voltage		3.8			VDC
Input (Control) Characteristics CMOS Configuration					
Input Current			25	50	μA
Control Voltage Range		2.5		18	VDC
Bias Supply - V <sub>C</sub>	See Table 1 - Bias Resistance	3.8		32	VDC
Bias Current			13	16	mA
Turn-Off Voltage			2.5	2.8	VDC
Turn-On Voltage		0.5			VDC
Total Schmitt Hysteresis			1.8		VDC

### ELECTRICAL CHARACTERISTICS\*

T<sub>A</sub> = +25°C

PARAMETER	CONDITIONS	53018	53019	53020	53021	53022	UNITS
Maximum Continuous Operating Output Voltage					100	400	VDC
		400	200	100			VAC Peak or VDC
Maximum Load Current	25 °C	90	180	240	350	135	mA
On Resistance -Maximum	25 °C	50	20	8	4	25	Ohms
Typical Thermal Resistance, θJA θJC		135	135	135	135	135	°C/W
		35	35	35	35	35	°C/W
Turn-On Time, Maximum		1.0	1.0	1.0	2.0	2.0	ms
Turn-Off Time, Maximum		13	13	13	9	9	ms
Off State Leakage, Maximum	80% of Maximum Output Voltage	1.0	1.0	1.0	1.0	1.0	μA
Dielectric Strength, Minimum	I/O, 60 Hz Sine Wave	1000	1000	1000	1000	1000	V RMS
Typical Isolation Resistance	Input to Case, 500 V	10 <sup>9</sup>	10 <sup>9</sup>	10 <sup>9</sup>	10 <sup>9</sup>	10 <sup>9</sup>	Ohms

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