

53230

SPST SOLID-STATE RELAYS



FEATURES

- Short Circuit Protection (SCP)
- 1000 VAC RMS Isolation
- Power FET Output - Low On-state Resistance
- Full Military Temperature Operation:
-55°C to +125°C
- Military Environmental Screening Available
to MIL-R-28750

GENERAL DESCRIPTION

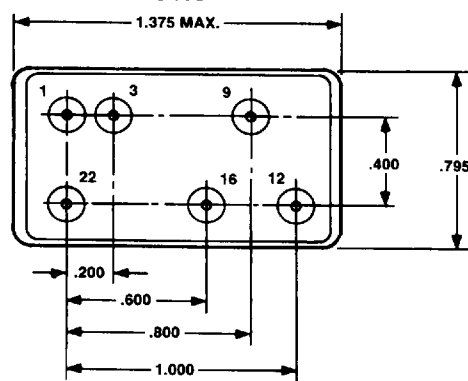
The MII 53230 is a military-grade, SPST solid-state relay. This light-weight device is resistant to damage from shock and vibration, and is immune to contact-related problems inherent with mechanical equivalents.

Effective isolation of 1000 VAC RMS between the input and output stages is achieved through the use of optical coupling. Power FET outputs eliminate bipolar offset, and minimize output voltage drop for high current capability.

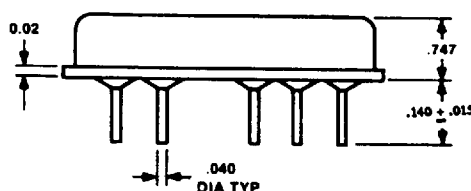
The control input logic may be driven by either CMOS or TTL, and will accommodate bias supplies ranging between 3.8 and 32 VDC.

Integral short-circuit protection is provided. The device senses excessive current flow during switching or normal operating conditions and responds by opening the output. After a short occurs, the output will remain non-conductive indefinitely until the short is removed and the unit reset. This feature prevents damage to the SSR and also averts further system failures that may be caused by the fault condition. Return to normal operation is accomplished by cycling the input control.

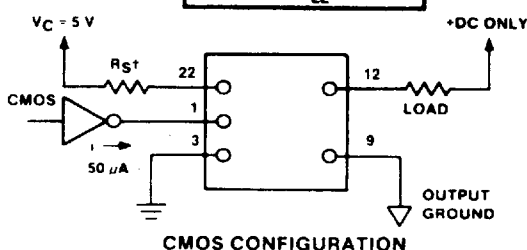
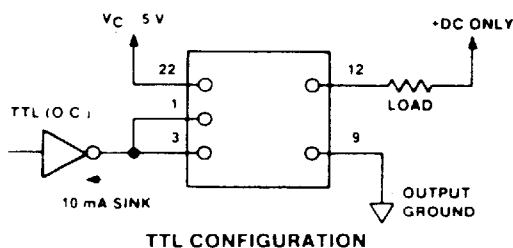
PACKAGE DIMENSIONS



BOTTOM VIEW



PIN	FUNCTION
1	CMOS
3	GND
9	-OUT
12	+OUT
16	N/C
22	V _{CC}



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53230**SPST SOLID STATE RELAY****ELECTRICAL CHARACTERISTICS*** $T_A = +25^{\circ}\text{C}$

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Input Characteristics CMOS Configuration (Figure 1)					
Bias Supply Range, V_{DD}		3.8		32	VDC
Bias Current			12	16	mA
Input Current	5 VDC Input			250	μA
Control Voltage Range		3.8		18	VDC
Turn-Off Voltage		3.2			VDC
Turn-On Voltage				0.5	VDC
Input Characteristics TTL Configuration (Figure 2)					
Input Current			12	16	mA
Control Voltage Range		3.8		32	VDC
Turn-Off Voltage				1.5	VDC
Turn-On Voltage		3.8			VDC
Output Characteristics					
Output Current	$T_c = 25^{\circ}\text{C}$			5.0	Amps DC
Continuous Blocking Voltage				80	VDC
On-State Resistance	$T_c = 25^{\circ}\text{C}$			0.075	Ohms
Turn-On Time	$T_c = 25^{\circ}\text{C}$, See Application Note 1			5.0	mSec
Turn-Off Time	$T_c = 25^{\circ}\text{C}$			3.5	mSec
Off-State Leakage	At Maximum Blocking Voltage			50	μA
Output Capacitance				1600	pF
Short Circuit Current	$T_c = 25^{\circ}\text{C}$		10		Amps
Junction Temperature				150	$^{\circ}\text{C}$
Thermal Resistance, θ_{JA} θ_{JC}				30	$^{\circ}\text{C/W}$
				7	$^{\circ}\text{C/W}$
Dielectric Strength	60 Hz	1000			VAC RMS

APPLICATION NOTES

1. Maximum input switching frequency not to exceed 20 Hz under normal conditions, or 1 Hz if output is shorted.
2. Input transitions should be <1 mS in duration and input source should be "bounceless contact" type.

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