

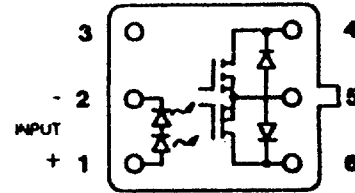


**FEATURES**

- SPST, Normally Open
- Up to 500V RMS Optical Isolation
- Power FET Output - Low On-state Resistance
- Full Military Temperature Operation:  
 -55°C to +120°C  
 - Military Environmental Screening Available
- Improved Thermal Characteristics
- Built and tested per MIL-R-28750 utilizing the test methods of MIL-STD-883
- Built in accordance with 89116

**MILITARY SPST HIGH VOLTAGE  
 AC/DC SOLID STATE RELAYS**

**BLOCK DIAGRAM**



BOTTOM VIEW

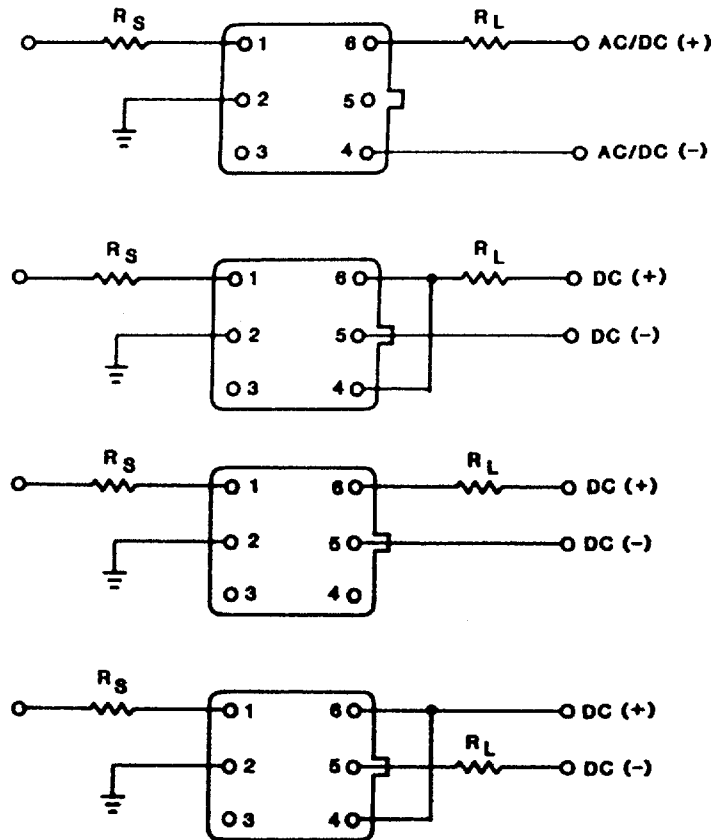
**GENERAL DESCRIPTION**

These solid state relays 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 500 volts AC RMS. Power FET outputs eliminate bipolar offset, and minimize output voltage drop.

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

**WIRING DIAGRAMS**



**GENERAL SPECIFICATIONS**

Part Number	Max. Operating Voltage	Max. Load (25°C)	Replaced Teledyne
53119	±350 VDC	0.25A (see Figure 2)	FBOOKB
53122	±80 VDC	1.0A (see Figure 1)	FBOOCD
53123	±180 VDC	0.50A (see Figure 3)	FBOOFC

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**53119, 53122, 53123**  
**SPST SOLID STATE RELAYS**

[查询"53119"供应商](#)

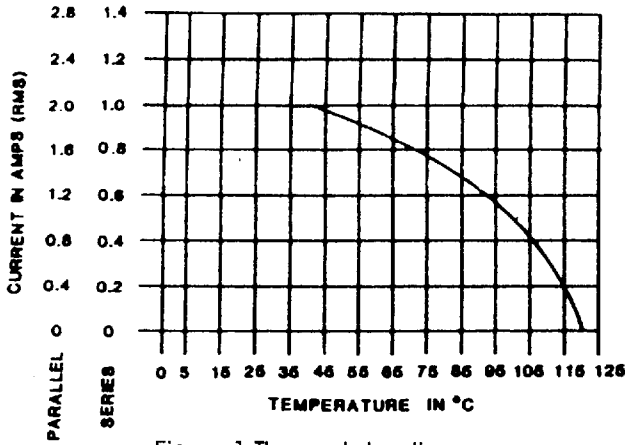


Figure 1 Thermal derating curve  
53122

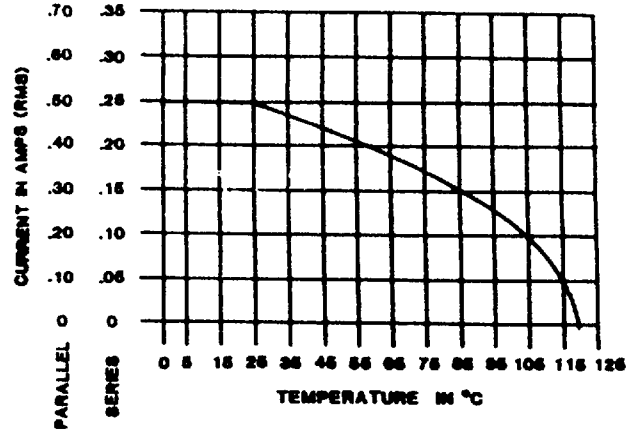


Figure 2 Thermal derating curve  
53119

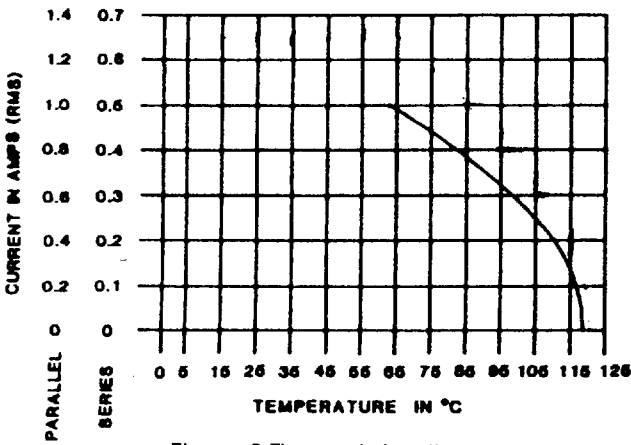


Figure 3 Thermal derating curve  
53123

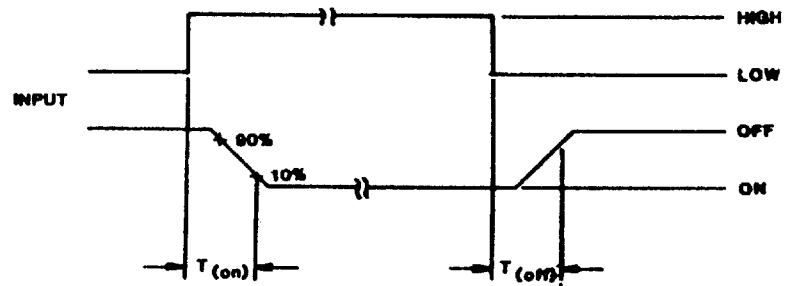
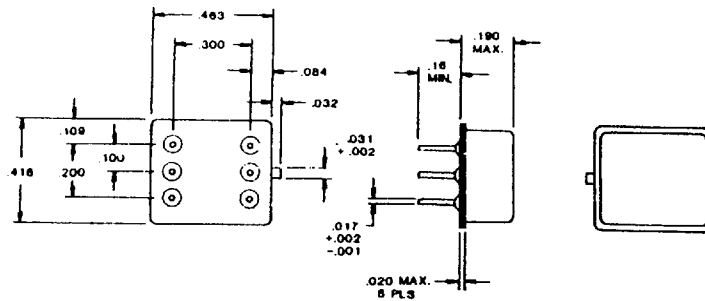


Figure 4 Turn-on/Turn-off timing

**PACKAGE DIMENSIONS**



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**53119, 53122, 53123**  
**SPST SOLID-STATE RELAYS**

**ELECTRICAL CHARACTERISTICS\***  $T_A = -55^\circ\text{C TO } 120^\circ\text{C}$  (unless otherwise noted)

INPUT CHARACTERISTICS		MIN	TYP	MAX	UNITS			
LED Input Current	-55 °C to +105 °C	10		50	mA dc			
	+105 °C to +120 °C	10		25	mA dc			
Rated Input Current			25		mA dc			
Turn-on Current (Assured)		10			mA dc			
Turn-off Current (Assured)				10	µA dc			
Turn-off Voltage (Assured)				1.5	Vdc			
Input Voltage Drop at 25 mA				3.25	Vdc			
Reverse Voltage Protection				-5	Vdc			
OUTPUT CHARACTERISTICS		53119		53122		53123		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
Output Voltage		±350		±80		±180		VDC
Output Load Current (See Figures 1,2,3)		0.25		1.0		0.50		Amps
Output Voltage Drop at 25 mA	Series	2.40		0.75		1.0		VDC
	Parallel	1.80		0.40		0.50		
Output Leakage (25 °C to 120 °C) $V_{in} = 1.5$ VDC	Series	20		20		20		µA
	Parallel	40		40		40		
Output Leakage (-55 °C to 25 °C) $V_{in} = 1.5$ VDC	Series	200		200		200		
	Parallel	400		400		400		nA
On State Resistance @ 25 mA (see Note 1)	Series	8.0		0.6		1.0		Ohms
	Parallel	2.0		.15		.25		
Overload @ 25 °C $I_N = 25$ mA 10 cycles max. at a 1HZ, 10% max. duty cycle (on time)		3.5 x rated current						Amps
Turn-on Time (Figure 4) ( $I_N = 25$ mA)		500		800		800		µs
Turn-off Time (Figure 4) ( $I_N = 25$ mA)		500		500		500		µs
Transient Blocking Voltage (5 seconds max.)		±360		±90		±190		VDC
dv/dt		100		100		100		V/µs
Dielectric Strength		500		500		500		VAC
DC Offset Voltage		100		100		100		µV

Notes: 1. On-state resistance greater than 25°C

$$R_1 = (4 @ 25^\circ\text{C}) e^X \text{ where } X = .0065 (T_j - 25^\circ\text{C})$$

$$X = .0072 (T_j - 25^\circ\text{C}) \text{ for } \pm 350 \text{ VDC}$$

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