SOLID STATE OPTRONICS

SP540-X

1 Form A
Solid State Relay

DESCRIPTION

The SP540-X is a single-pole, single-throw, normally open multipurpose DC solid-state relay designed to replace electromechanical relays in critical applications requiring fast switching and solid state reliability. It is composed of an AlGaAs LED optically coupled to a Photo Diode Array that drives an Low On-resistance Enhancement Type DMOS transistor on the output, providing a high load current rating. A 300 ohm input resistor in series with the LED eliminates the need for a discrete resistor to be provided in application circuit, allowing the SP540-X to be activated by most common logic level signals.

FEATURES

- High Continuous Load Current Rating (750mA)
- Low On-resistance (2 ohms MAX)
- Low Input Control power consumption (2.5mA TYP)
- 300 ohm input resistor (in series with input LED)
- High input-to-output isolation
- Long life/high reliability

APPLICATIONS

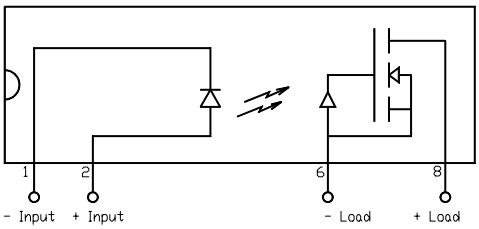
- Reed relay replacement
- Meter reading systems
- Medical equipment
- Battery monitoring
- Multiplexers

OPTIONS/SUFFIXES*

- -H High Output Isolation
- -TR Tape and Reel

NOTE: Suffixes listed above are not included in marking on device for part number identification.

SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS*

PARAMETER	UNIT	MIN	TYP	MAX
Storage Temperature	°C	-55		120
Operating Temperature	°C	-40		85
Continuous Input Current	mA			40
Transient Input Current	mA			400
Reverse Input Control Voltage	V	6		
Output Power Dissipation	W			1.2

*The values indicated are absolute stress ratings. Functional operation of the device is not implied at these or any conditions in excess of those defined in electrical characteristics section of this document. Exposure to Absolute Ratings may cause permanent damage to the device and may adversely affect reliability.

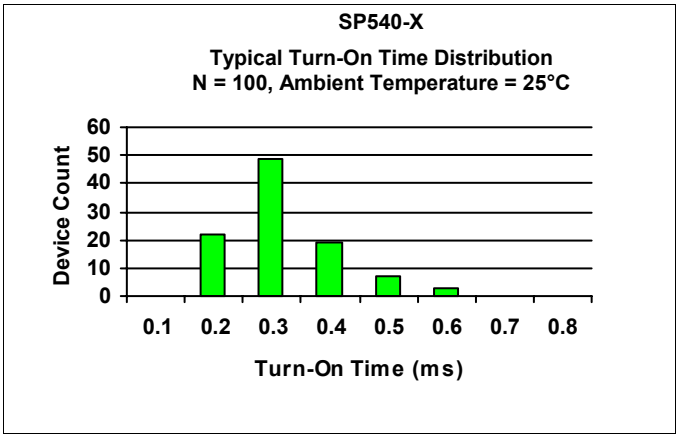
APPROVALS

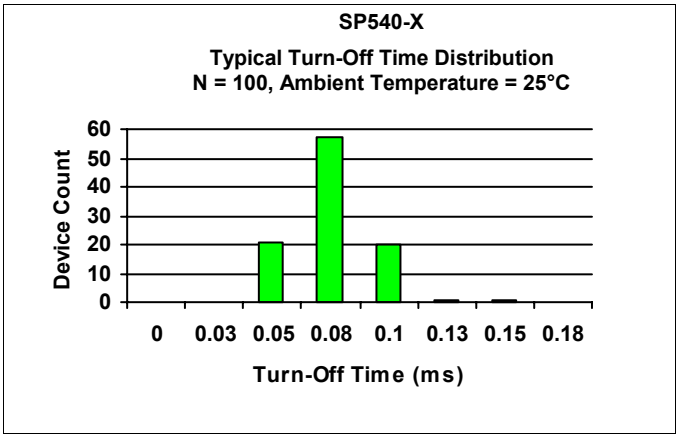
- CSA CERTIFICATE #LR 111581-1
- UL FILE #E90096

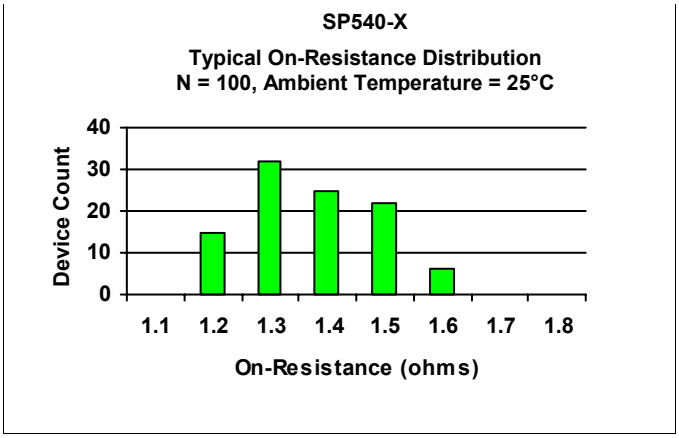
ELECTRICAL CHARACTERISTICS - 25°C

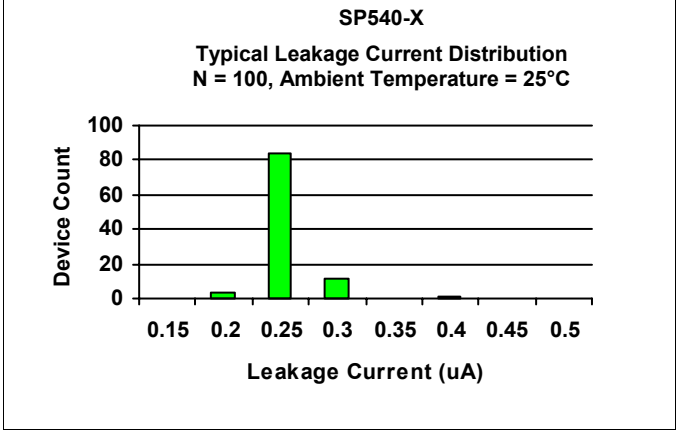
PARAMETER	UNIT	MIN	TYP	MAX	TEST CONDITIONS
INPUT SPECIFICATIONS					
LED Forward Voltage	V		1.2	1.5	If = 10mA
LED Reverse Voltage	V	6	12		Ir = 10uA
Input Resistor	Ω		300		
Turn-On Voltage	V		2	3	Io = 750mA
Turn-Off Voltage	m A		1.35	1.4	
OUTPUT SPECIFICATIONS					
Blocking Voltage	V	60			Io = 10uA
Continuous Load Current	m A			750	If = 5mA
On-Resistance	Ω		1	2	Io = 750mA
Leakage Current	μ A		0.2	10	Vo = 60V
Output Capacitance	p F		25	50	Vo = 25V, f = 1.0MHz
Offset Voltage	m V			0.2	If = 5mA
COUPLED SPECIFICATIONS					
Isolation Voltage	V	2500			T = 1 minute
-H Suffix	V	3750			T = 1 minute
Turn-On Time	m s		0.5	1	If = 5mA, Io = 750mA
Turn-Off Time	m s		0.1	0.5	If = 5mA, Io = 750mA
Isolation Resistance	G Ω	100			
Coupled Capacitance	p F		3		
Contact Transient Ratio	V / μ s	2000	7000		dV = 50V

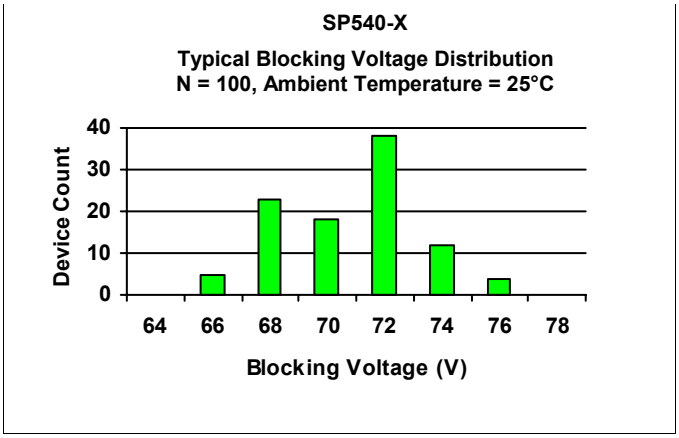
PERFORMANCE DATA

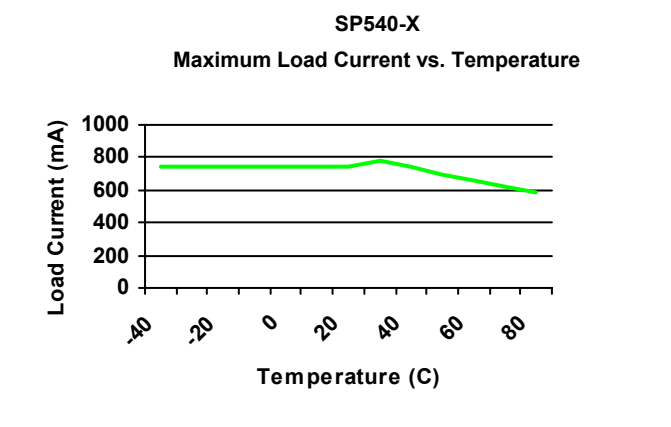






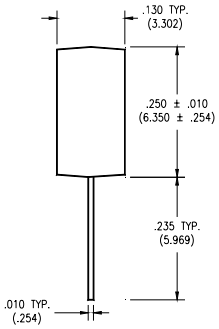




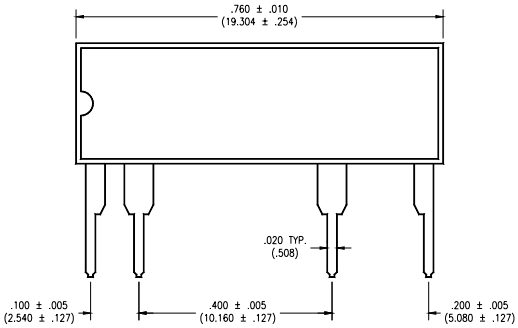


MECHANICAL DIMENSIONS

16 PIN SINGLE IN-LINE PACKAGE



END VIEW



SIDE VIEW

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