SOLID STATE OPTRONICS

SP541-X



1 Form A
Solid State Relay

DESCRIPTION

The SP541-X is a single-pole, single-throw, normally open multipurpose DC solid-state relay. It is designed to replace electromechanical relays in critical applications that require fast switching and solid state reliability. The relay consists of an integrated circuit that drives an enhancement type DMOS transistor. The integrated circuit is optically coupled to a light emitting diode. A 300-ohm input resistor in series with the LED is also provided in this circuit.

FEATURES

- High Load Current (1.5A MAX)
- Low input control power consumption (2.5mA TYP)
- Low On-resistance (1 ohm MAX)
- High input-to-output isolation
- Long life/high reliability

APPLICATIONS

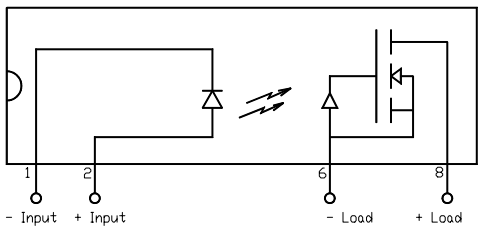
- Multiplexers
- Meter reading systems
- Data Acquisition
- Medical equipment
- Battery monitoring
- Home/Safety security systems

OPTIONS/SUFFIXES*

- -H High Input-to-Output Isolation

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

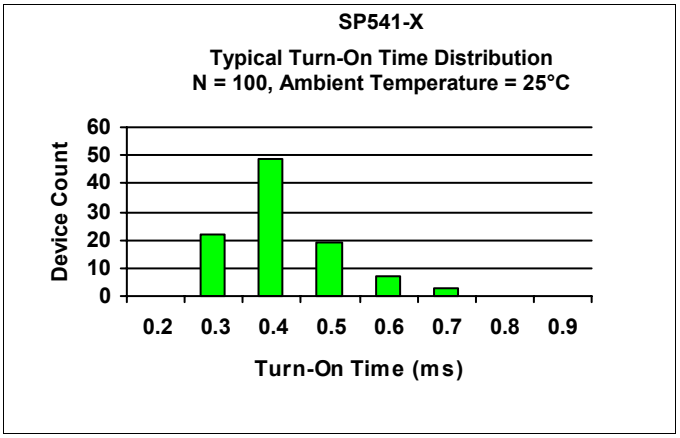
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- UL FILE #E90096

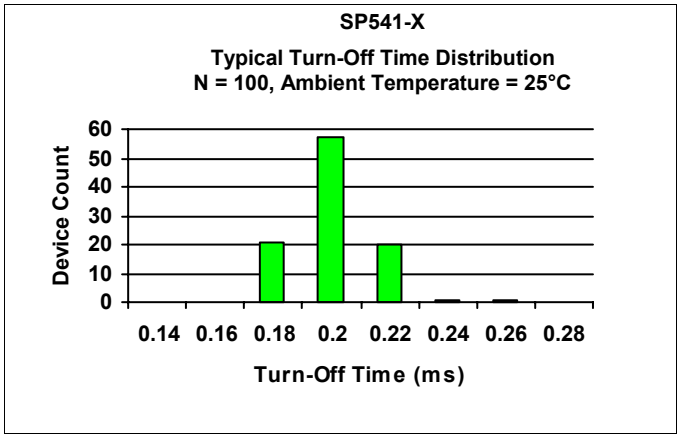
ELECTRICAL CHARACTERISTICS - 25°C

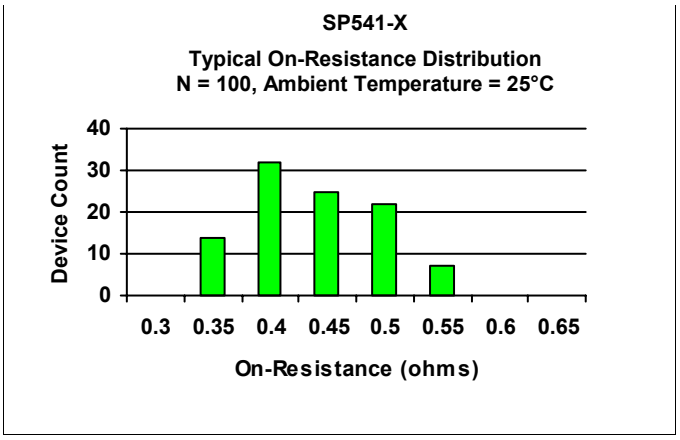
PARAMETER	UNIT	MIN	TYP	MAX	TEST CONDITIONS
INPUT SPECIFICATIONS					
LED Forward Voltage	V		1.2	1.5	If = 10mA
LED Reverse Voltage	V	6	12		Ir = 10uA
Input Resistor	Ω		300		
Turn-On Current	m A		2.5	5	Io = 1.1A
Turn-Off Current	m A		0.5		
OUTPUT SPECIFICATIONS					
Blocking Voltage	V	60			Io = 1uA
Continuous Load Current	A			1.5	If = 5mA
On-Resistance	Ω		0.5	1	Io = 1.1A
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 = 1.1A
Turn-Off Time	m s		0.1	0.5	If = 5mA, Io = 1.1A
Isolation Resistance	G Ω	100			
Coupled Capacitance	p F		3		
Contact Transient Ratio	V / μ s	2000	7000		dV = 50V

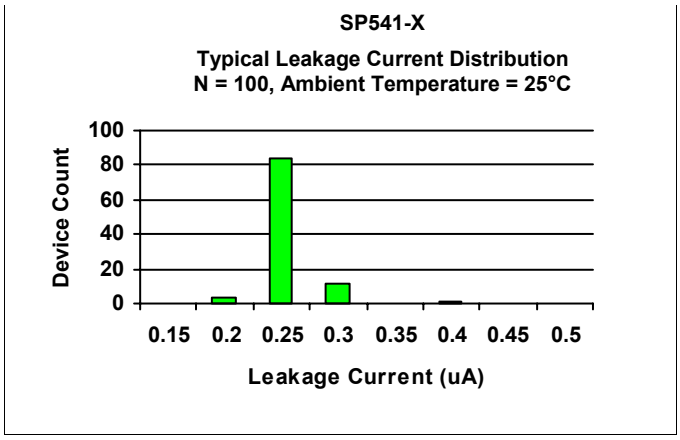
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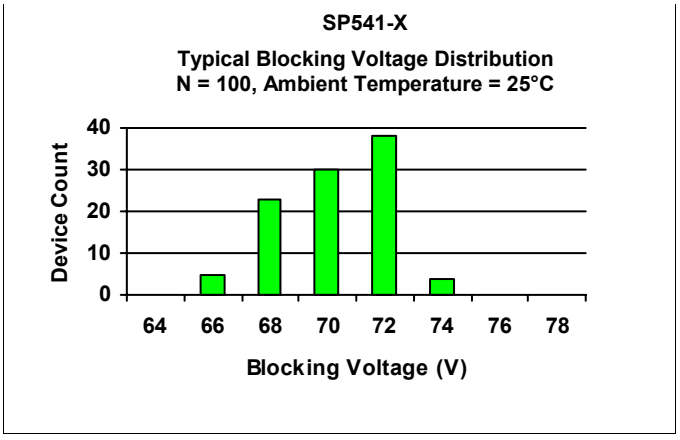
PERFORMANCE DATA

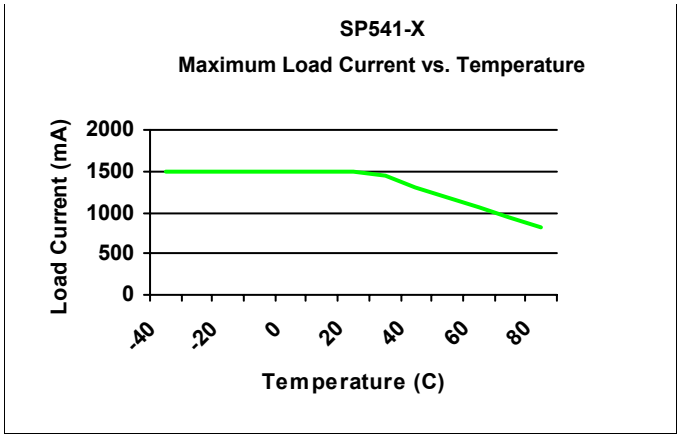






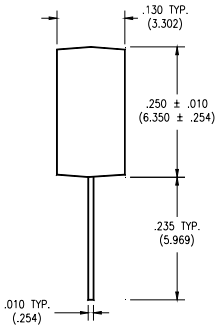




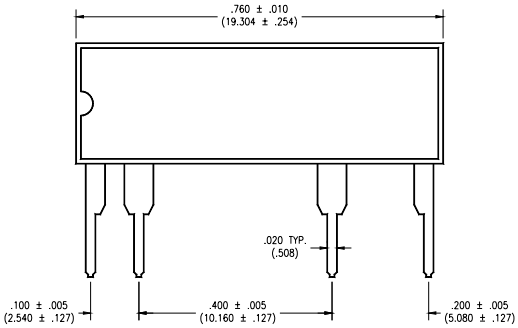


MECHANICAL DIMENSIONS

16 PIN SINGLE IN-LINE PACKAGE



END VIEW



SIDE VIEW

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