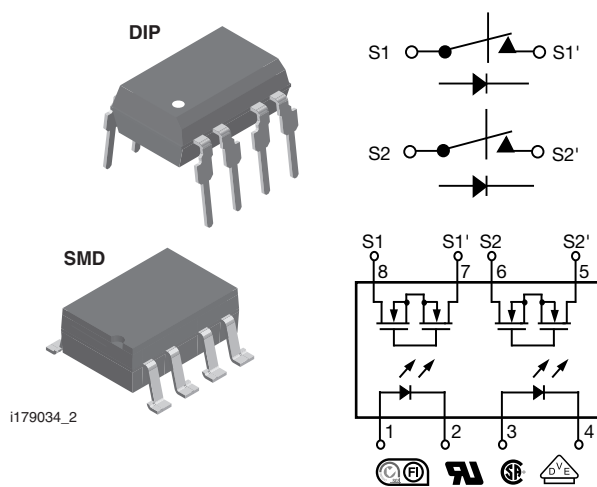


## Dual 1 Form B Solid State Relay



### DESCRIPTION

The LH1523 dual 1 form B relays are SPST normally closed switches that can replace electromechanical relays in many applications. The relays are constructed as a multi chip hybrid device. Actuation control is via an infrared LED. The output switch is a combination of a photodiode array with MOSFET switches and control circuitry.

### FEATURES

- Dual channel (LH1511)
- Isolation test voltage 3750 V<sub>RMS</sub>
- Typical R<sub>ON</sub> 10 Ω
- Load voltage 200 V
- Load current 200 mA
- High surge capability
- Clean bounce free switching
- Low power consumption
- SMD lead available on tape and reel
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### APPLICATIONS

- General telecom switching
  - On/off hook control
  - Ring delay
  - Dial pulse
  - Ground start
  - Ground fault protection
- Instrumentation
- Industrial controls

### AGENCY APPROVALS

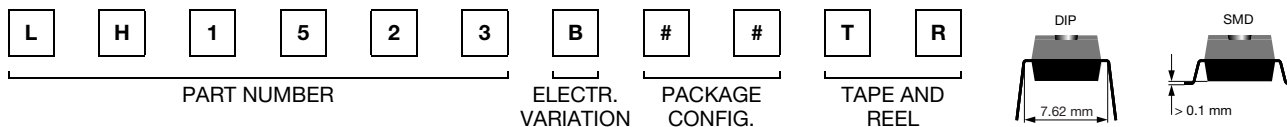
UL1577: file no. E52744 system code H, double protection

CSA: certification no. 093751

DIN EN: 60747-5-2 (VDE 0884)/60747-5-5 (pending), available with option 1

FIMKO: 25419

### ORDERING INFORMATION



PACKAGE	UL, CSA, FIMKO
SMD-8, tubes	LH1523BAC
SMD-8, tape and reel	LH1523BACTR
DIP-8, tubes	LH1523BB



ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
<b>INPUT</b>				
LED continuous forward current		$I_F$	50	mA
LED reverse voltage	$I_R \leq 10\text{ }\mu\text{A}$	$V_R$	5	V
<b>OUTPUT</b>				
DC or peak AC load voltage	$I_L \leq 50\text{ }\mu\text{A}$	$V_L$	200	V
Continuous DC load current, one pole operating		$I_L$	200	mA
Continuous DC load current, two poles operating		$I_L$	140	mA
Peak load current (single shot)	$t = 100\text{ ms}$	$I_P$	400	mA
<b>SSR</b>				
Ambient temperature range		$T_{amb}$	- 40 to + 85	$^{\circ}\text{C}$
Storage temperature range		$T_{stg}$	- 40 to + 125	$^{\circ}\text{C}$
Pin soldering temperature <sup>(2)</sup>	$t = 10\text{ s max.}$	$T_{sld}$	260	$^{\circ}\text{C}$
Input to output isolation voltage	$t = 1\text{ s}, I_{ISO} = 10\text{ }\mu\text{A max.}$	$V_{ISO}$	3750	$V_{RMS}$
Pole-to-pole isolation voltage (S1 to S2) <sup>(1)</sup> , (dry air, dust free, at sea level)			1600	V
Output power dissipation (continuous)		$P_{diss}$	600	mW

**Notes**

- Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of this document. Exposure to absolute maximum ratings for extended periods of the time can adversely affect reliability.
- Breakdown occurs between the output pins external to the package.
- Refer to reflow profile for soldering conditions for surface mounted devices (SMD). Refer to wave profile for soldering conditions for through hole devices (DIP).

ELECTRICAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
<b>INPUT</b>						
LED forward current, switch turn-on	$I_L = \pm 200\text{ mA}, t = 10\text{ ms}$	$I_{Fon}$	0.2	0.9		mA
LED forward current, switch turn-off	$V_L = \pm 150\text{ V}$	$I_{Foff}$		1	2	mA
LED forward voltage	$I_F = 10\text{ mA}$	$V_F$	1.15	1.22	1.45	V
<b>OUTPUT</b>						
On-resistance	$I_F = 0\text{ mA}, I_L = 50\text{ mA}$	$R_{ON}$		10	15	$\Omega$
Off-resistance	$I_F = 5\text{ mA}, V_L = \pm 100\text{ V}$	$R_{Off}$	0.1	1.4		$G\Omega$
Off-state leakage current	$I_F = 5\text{ mA}, V_L = \pm 200\text{ V}$	$I_O$		0.07	1	$\mu\text{A}$
Output capacitance	$I_F = 5\text{ mA}, V_L = 50\text{ V}$	$C_O$		50		pF
<b>TRANSFER</b>						
Capacitance (input to output)	$V_{ISO} = 1\text{ V}$	$C_{IO}$		3		pF

**Note**

- Minimum and maximum values are testing requirements. Typical values are characteristics of the device and are the result of engineering evaluations. Typical values are for information only and are not part of the testing requirements.

SWITCHING CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Turn-on time	$I_F = 10\text{ mA}, I_L = 50\text{ mA}$	$t_{on}$		1	3	ms
Turn-off time	$I_F = 10\text{ mA}, I_L = 50\text{ mA}$	$t_{off}$		2	3	ms



## TYPICAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

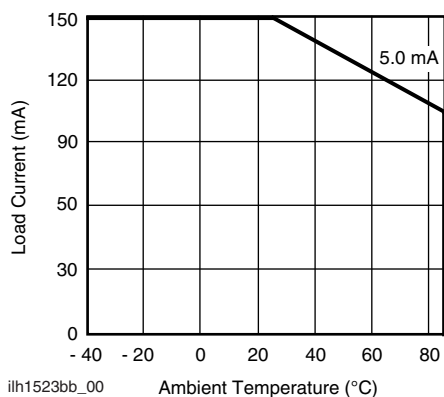
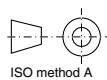
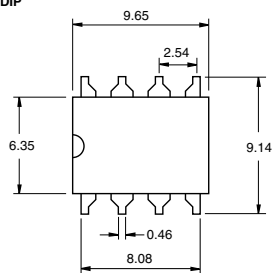


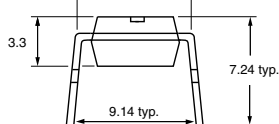
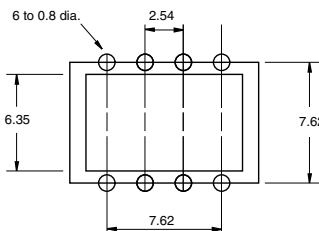
Fig. 1 - Recommended Operating Conditions

## PACKAGE DIMENSIONS in inches (millimeters)

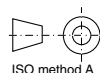
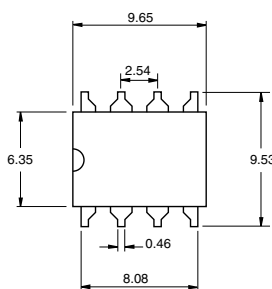
DIP



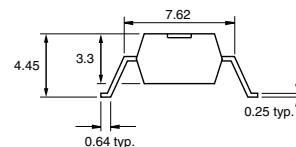
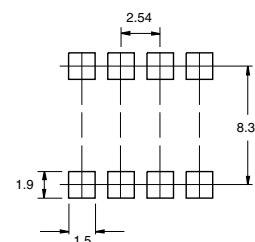
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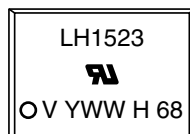
SMD



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## PACKAGE MARKING (example)



### Note

- Tape and reel suffix (TR) is not part of the package marking.



### Footprint and Schematic Information for LH1523BAC, LH1523BACTR, LH1523BB

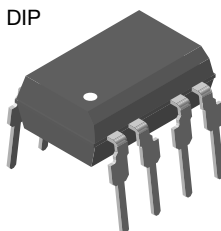
The footprint and schematic symbols for the following parts can be accessed using the associated links. They are available in Eagle, Altium, KiCad, OrCAD / Allegro, Pulsonix, and PADS.

Note that the 3D models for these parts can be found on the Vishay product page.

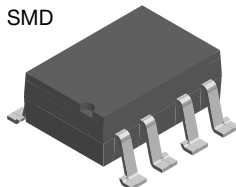
PART NUMBER	FOOTPRINT / SCHEMATIC
LH1523BAC	<a href="http://www.snapeda.com/parts/LH1523BAC/Vishay/view-part">www.snapeda.com/parts/LH1523BAC/Vishay/view-part</a>
LH1523BACTR	<a href="http://www.snapeda.com/parts/LH1523BACTR/Vishay/view-part">www.snapeda.com/parts/LH1523BACTR/Vishay/view-part</a>
LH1523BB	<a href="http://www.snapeda.com/parts/LH1523BB/Vishay/view-part">www.snapeda.com/parts/LH1523BB/Vishay/view-part</a>

For technical issues and product support, please contact [optocoupleranswers@vishay.com](mailto:optocoupleranswers@vishay.com).

DIP



SMD



i179034\_2



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