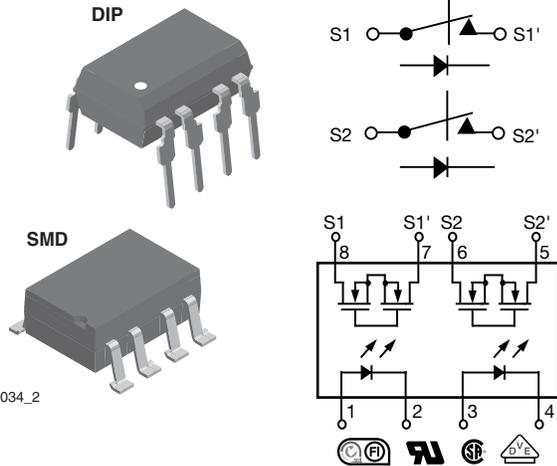


## Dual 1 Form B Solid State Relay



i179034\_2

### 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	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">L</div> <div style="border: 1px solid black; padding: 2px;">H</div> <div style="border: 1px solid black; padding: 2px;">1</div> <div style="border: 1px solid black; padding: 2px;">5</div> <div style="border: 1px solid black; padding: 2px;">2</div> <div style="border: 1px solid black; padding: 2px;">3</div> <div style="border: 1px solid black; padding: 2px;">B</div> <div style="border: 1px solid black; padding: 2px;">#</div> <div style="border: 1px solid black; padding: 2px;">#</div> <div style="border: 1px solid black; padding: 2px;">T</div> <div style="border: 1px solid black; padding: 2px;">R</div> </div> <p style="text-align: center;"> <span style="margin-right: 100px;">PART NUMBER</span> <span style="margin-right: 100px;">ELECTR. VARIATION</span> <span style="margin-right: 100px;">PACKAGE CONFIG.</span> <span style="margin-right: 100px;">TAPE AND REEL</span> </p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>DIP 7.62 mm</p> </div> <div style="text-align: center;"> <p>SMD &gt; 0.1 mm</p> </div> </div>
PACKAGE	UL, CSA, FIMKO
SMD-8, tubes	LH1523BAC
SMD-8, tape and reel	LH1523BACTR
DIP-8, tubes	LH1523BB



<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , 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.

<sup>(1)</sup> Breakdown occurs between the output pins external to the package.

<sup>(2)</sup> Refer to reflow profile for soldering conditions for surface mounted devices (SMD). Refer to wave profile for soldering conditions for through hole devices (DIP).

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , 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		$\text{G}\Omega$
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.

<b>SWITCHING CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , 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<sub>amb</sub> = 25 °C, unless otherwise specified)

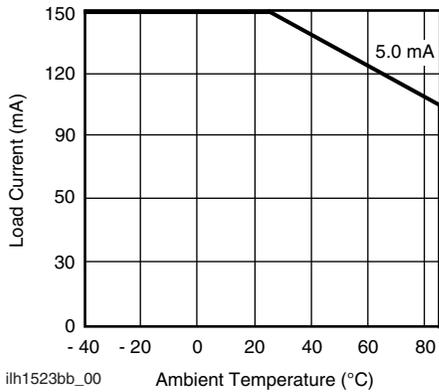
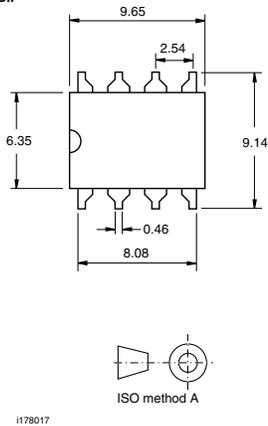


Fig. 1 - Recommended Operating Conditions

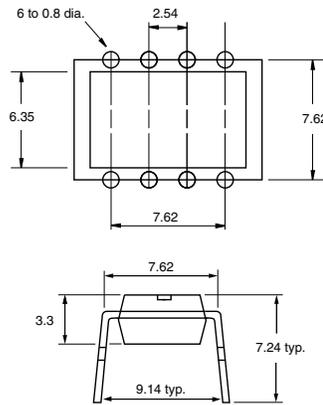
## PACKAGE DIMENSIONS in inches (millimeters)

DIP

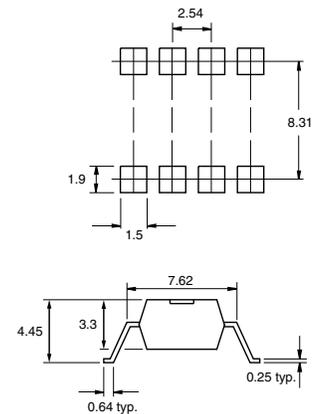
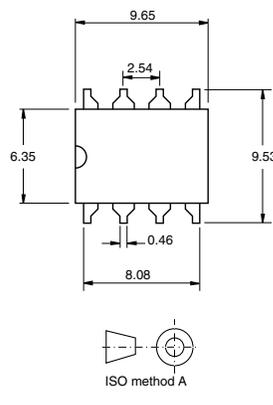


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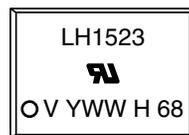
SMD



i178018



## PACKAGE MARKING (example)



### Note

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



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