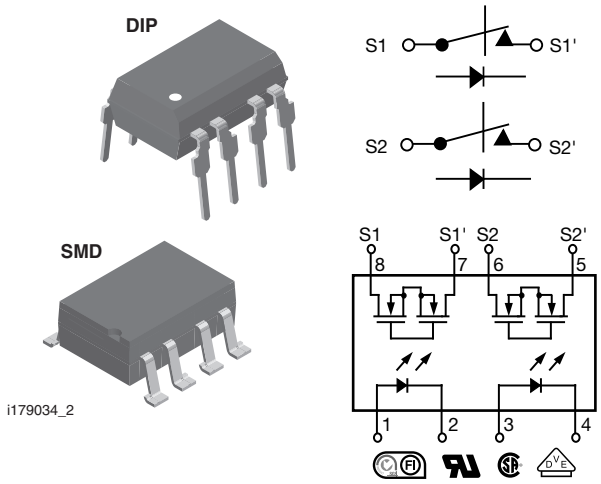
LH1523BB, LH1523BAC, LH1523BACTR

Dual 1 Form B Solid State Relay



FEATURES

- Dual channel (LH1511)
- Isolation test voltage 3750 V_{RMS}
- Typical R_{ON} 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

Pb-free

e3

RoHS COMPLIANT

APPLICATIONS

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

DESCRIPTION

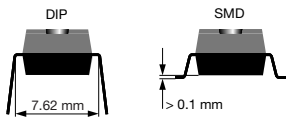
The LH1523 dual 1 form B relays are SPST normally closed switches that can replace electromechanical relays in many applications. The relays are constructed as a multi chip hybrid device. Actuation control is via an infrared LED. The output switch is a combination of a photodiode array with MOSFET switches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

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

L	H	1	5	2	3	B	#	#	T	R
PART NUMBER						ELECTR. VARIATION	PACKAGE CONFIG.		TAPE AND REEL	



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

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)				
PARAMETER	**TEST CONDITION**	**SYMBOL**	**VALUE**	**UNIT**
INPUT				
LED continuous forward current		I_F	50	mA
LED reverse voltage	$I_R \leq 10$ µA	V_R	5	V
OUTPUT				
DC or peak AC load voltage	$I_L \leq 50$ µA	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 ms	I_P	400	mA
SSR				
Ambient temperature range		T_{amb}	- 40 to + 85	°C
Storage temperature range		T_{stg}	- 40 to + 125	°C
Pin soldering temperature [2]	t = 10 s max.	T_{sld}	260	°C
Input to output isolation voltage	t = 1 s, I_{ISO} = 10 µA max.	V_{ISO}	3750	V_{RMS}
Pole-to-pole isolation voltage (S1 to S2) [1], (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.

(1) Breakdown occurs between the output pins external to the package.

(2) 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 °C, unless otherwise specified)						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
INPUT						
LED forward current, switch turn-on	I_L = ± 200 mA, t = 10 ms	I_{Fon}	0.2	0.9		mA
LED forward current, switch turn-off	V_L = ± 150 V	I_{Foff}		1	2	mA
LED forward voltage	I_F = 10 mA	V_F	1.15	1.22	1.45	V
OUTPUT						
On-resistance	I_F = 0 mA, I_L = 50 mA	R_{ON}		10	15	Ω
Off-resistance	I_F = 5 mA, V_L = ± 100 V	R_{Off}	0.1	1.4		GΩ
Off-state leakage current	I_F = 5 mA, V_L = ± 200 V	I_O		0.07	1	µA
Output capacitance	I_F = 5 mA, V_L = 50 V	C_O		50		pF
TRANSFER						
Capacitance (input to output)	V_{ISO} = 1 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 °C, unless otherwise specified)						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Turn-on time	I_F = 10 mA, I_L = 50 mA	t_{on}		1	3	ms
Turn-off time	I_F = 10 mA, I_L = 50 mA	t_{off}		2	3	ms

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

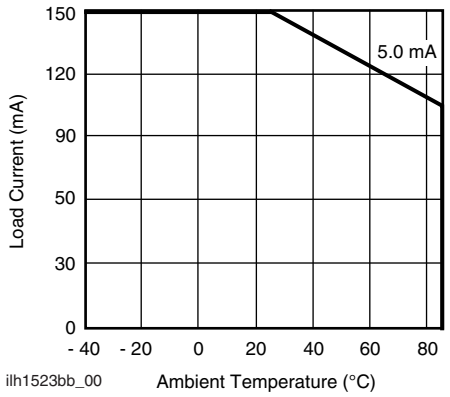
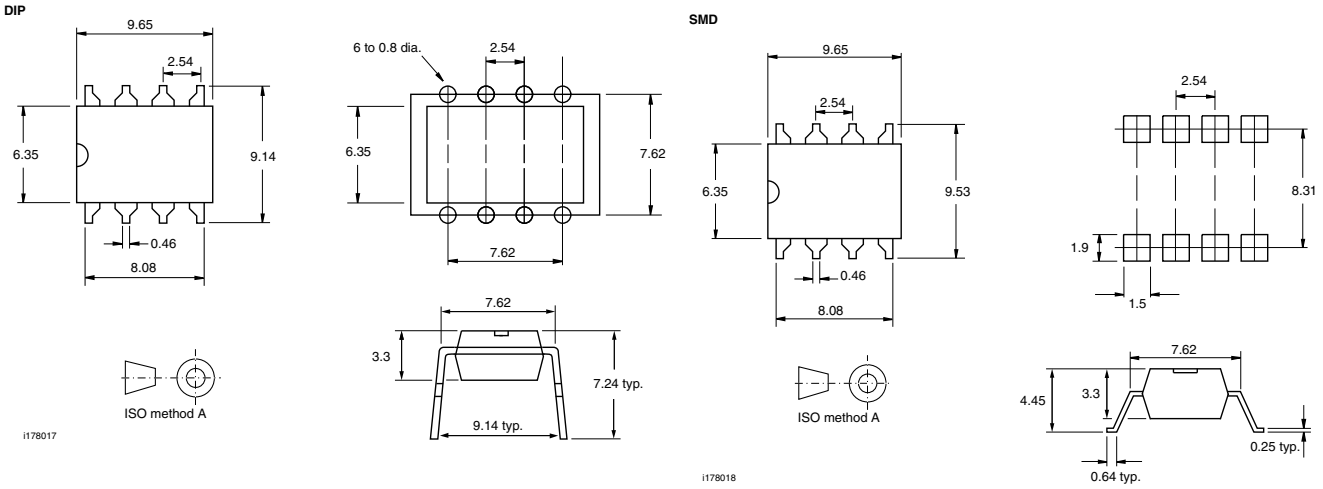
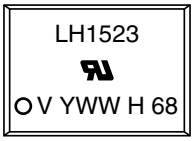


Fig. 1 - Recommended Operating Conditions

PACKAGE DIMENSIONS in inches (millimeters)



PACKAGE MARKING (example)



Note

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

Footprint and Schematic Information for LH1523BAC, LH1523BACTR, LH1523BB

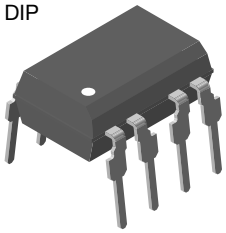
The footprint and schematic symbols for the following parts can be accessed using the associated links. They are available in Eagle, Altium, KiCad, OrCAD / Allegro, Pulsonix, and PADS.

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

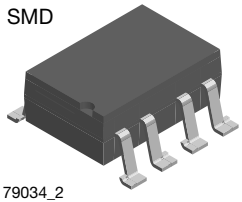
PART NUMBER	FOOTPRINT / SCHEMATIC
LH1523BAC	www.snapeda.com/parts/LH1523BAC/Vishay/view-part
LH1523BACTR	www.snapeda.com/parts/LH1523BACTR/Vishay/view-part
LH1523BB	www.snapeda.com/parts/LH1523BB/Vishay/view-part

For technical issues and product support, please contact optocoupleranswers@vishay.com.

DIP



SMD



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