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	8	V
OUTPUT				
DC or peak AC load voltage	$I_L \leq 50$ µA	V_L	350	V
Continuous DC load current one pole operating		I_L	150	mA
Continuous DC load current two poles operating		I_L	110	mA
Peak load current (single shot)	t = 100 ms	I_P	(1)	
SSR				
Ambient temperature range		T_{amb}	- 40 to + 85	°C
Storage temperature range		T_{stg}	- 40 to + 150	°C
Pin soldering temperature (2)	t = 10 s max.	T_{sld}	260	°C
Input to output isolation voltage		V_{ISO}	5300	V_{RMS}
Pole-to-pole isolation voltage (S1 to S2)			500	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) Refer to current limit performance application note for a discussion on relay operation during transient currents.

(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 = 100 mA, t = 10 ms	I_{Fon}		2	3	mA
LED forward current, switch turn-off	V_L = ± 300 V	I_{Foff}	0.2	0.8		mA
LED forward voltage	I_F = 10 mA	V_F	1.15	1.26	1.45	V
OUTPUT						
On-resistance	I_F = 5 mA, I_L = 50 mA	R_{ON}	12	20	25	Ω
Pole-to-pole on-resistance matching (S1 to S2)	I_F = 5 mA, I_L = 50 mA			0.2	2	ΔΩ
Off-resistance	I_F = 0 mA, V_L = ± 100 V	R_{OFF}	0.5	5000		GΩ
Current limit	I_F = 5 mA, t = 5 ms, V_L = ± 6 V	I_{LMT}	230	270	370	mA
Off-state leakage current	I_F = 0 mA, V_L = ± 100 V	I_O		0.02	200	nA
	I_F = 0 mA, V_L = ± 350 V	I_O			1	µA
Output capacitance	I_F = 0 mA, V_L = 1 V	C_O		55		pF
	I_F = 0 mA, V_L = 50 V	C_O		10		pF
Pole-to-pole capacitance (S1 to S2)	I_F = 0 mA			3		pF
	I_F = 5 mA			4		pF
Switch offset	I_F = 5 mA	V_{OS}		0.15		µV
TRANSFER						
Capacitance (input to output)	V_{ISO}	C_{ISO}		1.1		pF

Note

- Minimum and maximum values are testing requirements. Typical values are characteristics of the device and are the result of engineering evaluation. 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}		1.6	2.5	ms
Turn-off time	I_F = 10 mA, I_L = 50 mA	t_{off}		0.65	2.5	ms

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

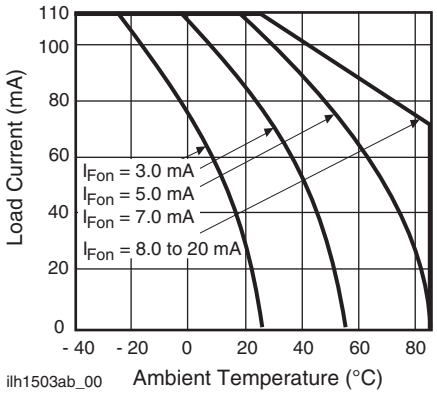


Fig. 1 - Recommended Operating Conditions

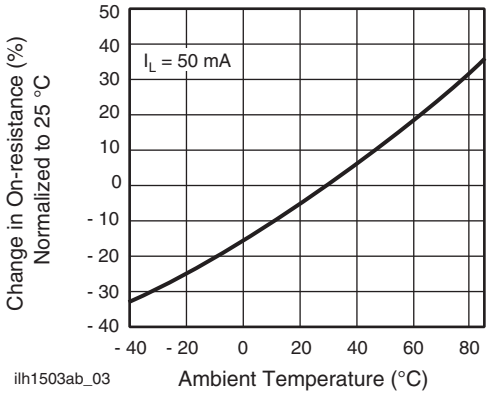


Fig. 4 - On-Resistance vs. Temperature

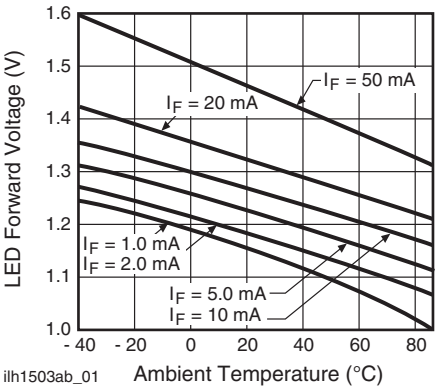


Fig. 2 - LED Voltage vs. Temperature

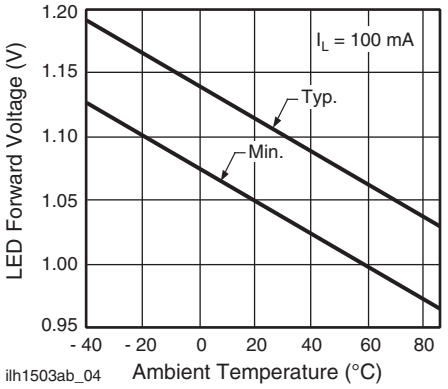


Fig. 5 - LED Dropout Voltage vs. Temperature

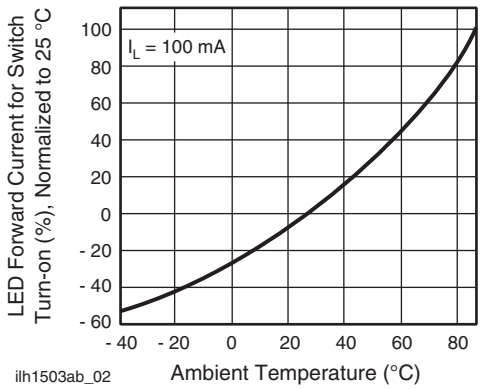


Fig. 3 - LED Current for Switch Turn-on vs. Temperature

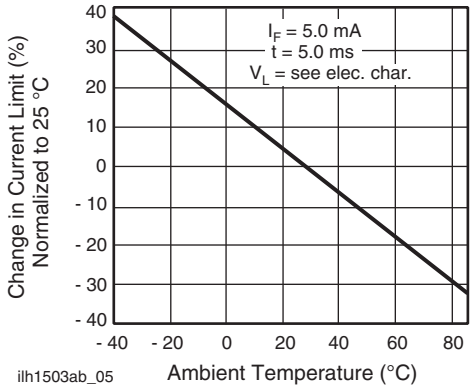


Fig. 6 - Current Limit vs. Temperature

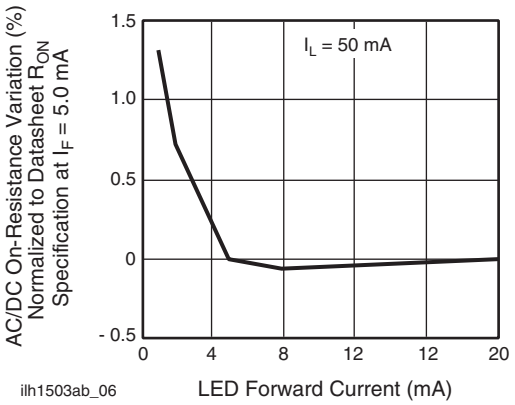


Fig. 7 - Variation in On-Resistance vs. LED Current

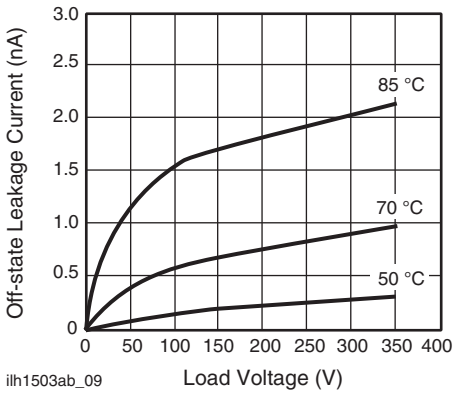


Fig. 10 - Leakage Current vs.
Applied Voltage at Elevated Temperatures

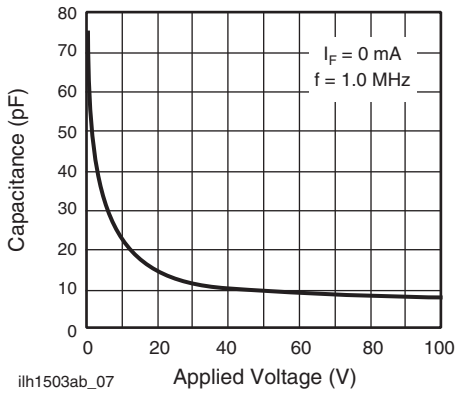


Fig. 8 - Switch Capacitance vs. Applied Voltage

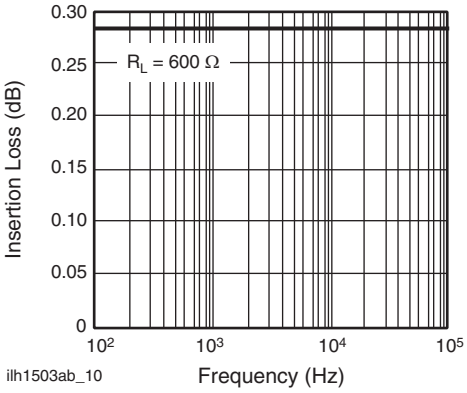


Fig. 11 - Insertion Loss vs. Frequency

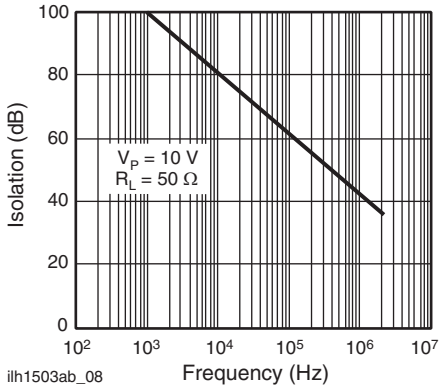


Fig. 9 - Output Isolation

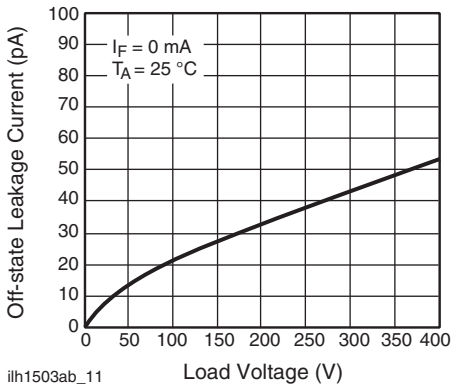


Fig. 12 - Leakage Current vs. Applied Voltage

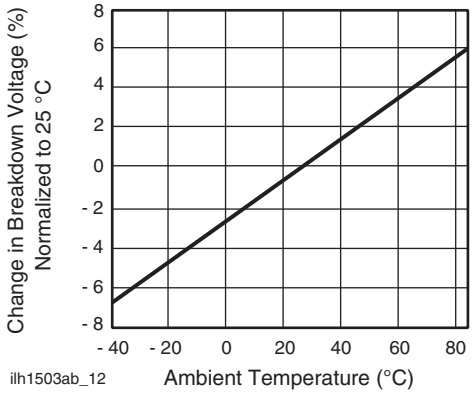


Fig. 13 - Switch Breakdown Voltage vs. Temperature

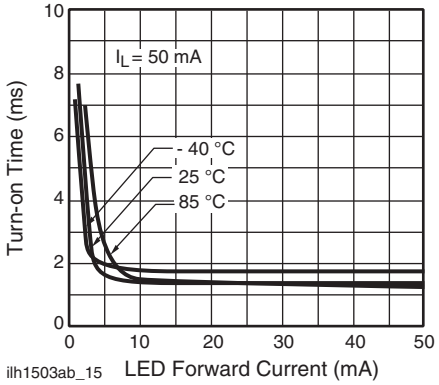


Fig. 16 - Turn-on Time vs. LED Current

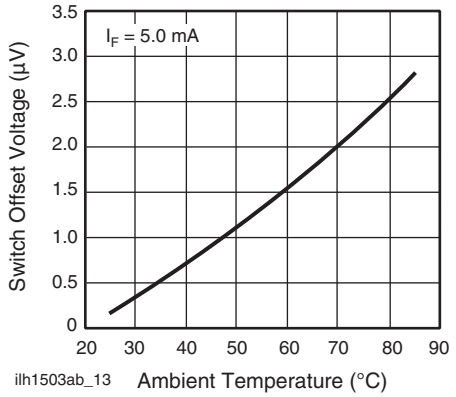


Fig. 14 - Switch Offset Voltage vs. Temperature

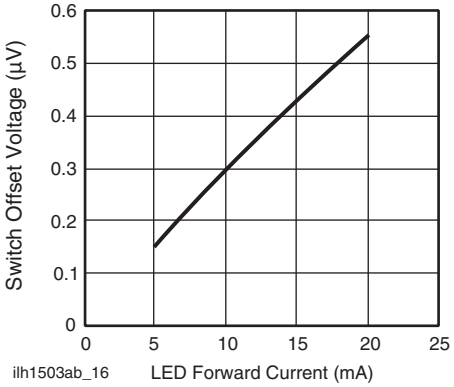


Fig. 17 - Switch Offset Voltage vs. LED Current

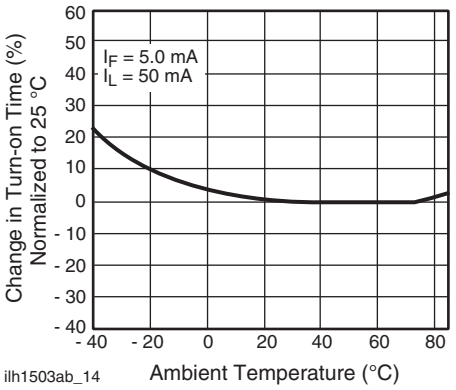


Fig. 15 - Turn-on Time vs. Temperature

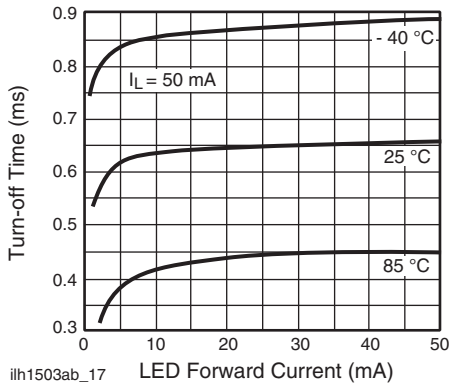
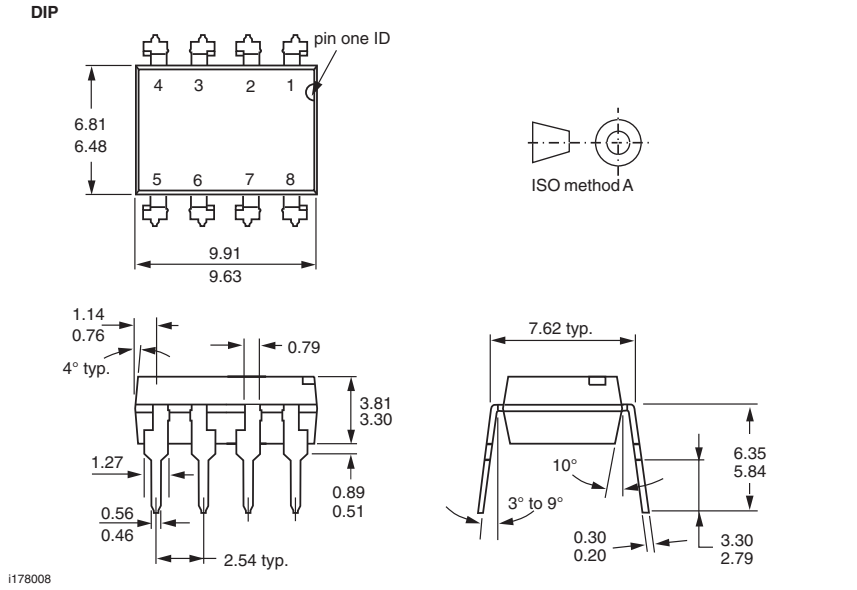
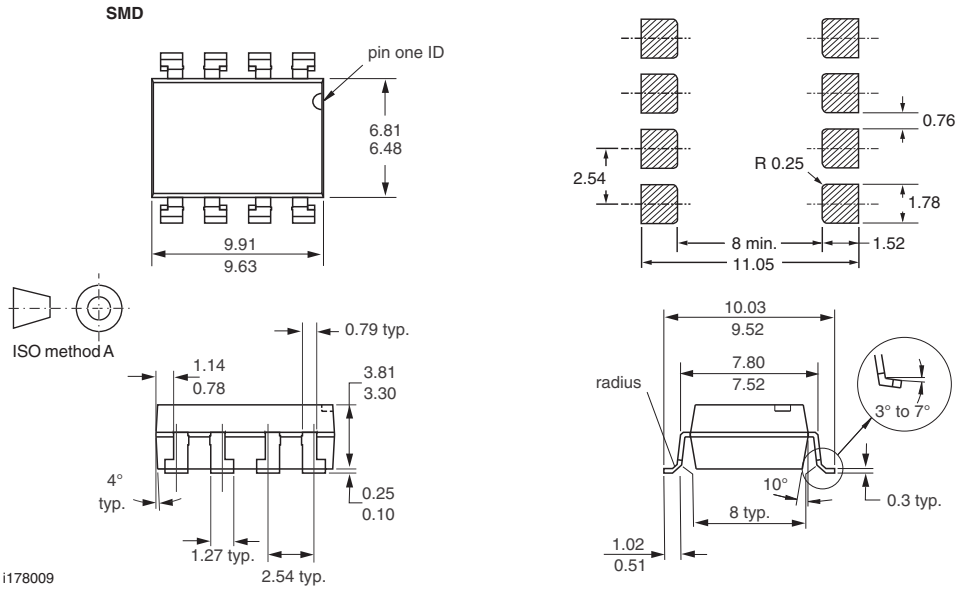


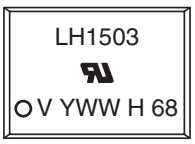
Fig. 18 - Turn-off Time vs. Temperature

PACKAGE DIMENSIONS in millimeters





PACKAGE MARKING (example)



Note

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

Footprint and Schematic Information for LH1503AAC, LH1503AACTR, LH1503AB

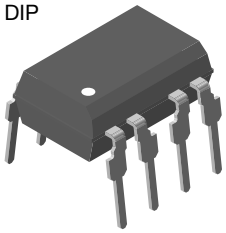
The footprint and schematic symbols for the following parts can be accessed using the associated links. They are available in Eagle, Altium, KiCad, OrCAD / Allegro, Pulsonix, and PADS.

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

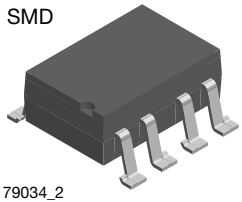
PART NUMBER	FOOTPRINT / SCHEMATIC
LH1503AAC	www.snapeda.com/parts/LH1503AAC/Vishay/view-part
LH1503AACTR	www.snapeda.com/parts/LH1503AACTR/Vishay/view-part
LH1503AB	www.snapeda.com/parts/LH1503AB/Vishay/view-part

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

DIP



SMD



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