LH1533AB/AAC/AACTR

Dual 1 Form A
Solid State Relay

FEATURES

- **Dual Channel (LH1550)**
- **Current Limit Protection**
- **I/O Isolation, 5300 V_{RMS}**
- **Typical R_{ON} 37 Ω**
- **Load Voltage 350 V**
- **Load Current 90 mA**
- **High Surge Capability**
- **Linear, AC/DC Operation**
- **Clean Bounce Free Switching**
- **Low Power Consumption**
- **SMD Lead Available on Tape and Reel**

AGENCY APPROVALS

- **UL – File No. E52744**
- **CSA – Certification 093751**
- **BSI/BABT Cert. No. 7980**
- **VDE 0884 Approval**
- **FIMKO Approval**

APPLICATIONS

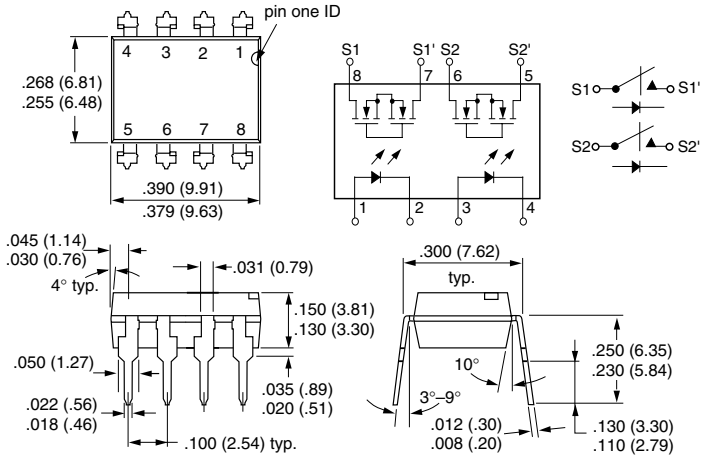
- **General Telecom Switching**
  - **On/off Hook Control**
  - **Ring Delay**
  - **Dial Pulse**
  - **Ground Start**
  - **Ground Fault Protection**
- **Instrumentation**
- **Industrial Controls**

DESCRIPTION

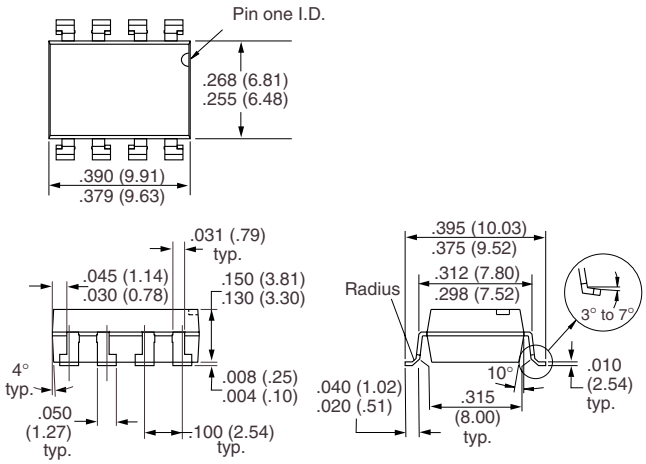
The LH1533 (Dual 1 Form A) relays are SPST normally open switches that can replace electromechanical relays in many applications. They are constructed using a GaAlAs LED for actuation control and an integrated monolithic die for the switch output. The die, fabricated in a high-voltage dielectrically isolated technology is comprised of a photodiode array, switch control circuitry, and MOSFET switches. In addition, the relays employ current-limiting circuitry, enabling them to pass FCC 68.302 and other regulatory surge requirements when overvoltage protection is provided.

Package Dimensions in Inches (mm)

DIP



SMD

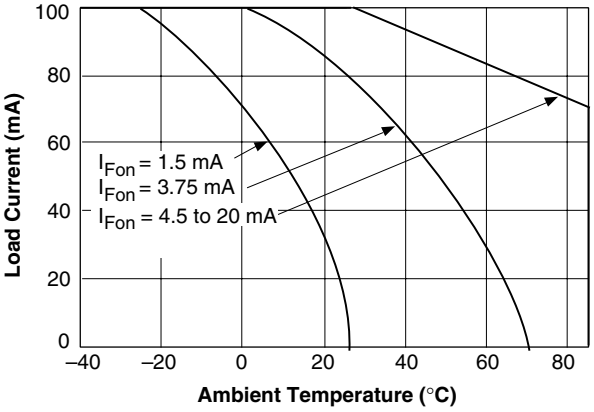


Part Identification

Part Number	Description
LH1533AB	8-pin DIP, Tubes
LH1533AAC	8-pin SMD, Gullwing, Tubes
LH1533AACTR	8-pin SMD, Gullwing, Tape and Reel

www.infineon.com/opto • 1-888-Infineon (1-888-463-4636)
OSRAM Opto Semiconductors GmbH & Co. OHG • Regensburg, Germany
www.osram-os.com • +49-941-202-7178

Recommended Operating Conditions



Absolute Maximum Ratings, T_A=25°C

Stresses in excess of the absolute Maximum Ratings can cause permanent damage to the device. These are absolute stress ratings only. 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 time can adversely affect reliability.

Ambient Temperature Range (T_A) ..... –40 to +85°C
Storage Temperature Range (T_{stg}) ..... –40 to +150°C
Pin Soldering Temperature (t=10 s max) (T_S) ..... 260°C
Input/Output Isolation Voltage
(t=1.0 s) (V_{ISO}) ..... 5300 V_{RMS}
LED Continuous Forward Current (I_F) ..... 50 mA
LED Reverse Voltage (I_R≤10 µA) (V_R) ..... 5.0 V
DC or Peak AC Load Voltage (I_L≤50 µA) (V_L) ..... 350 V
Continuous DC Load Current (I_L)
One Pole Operating ..... 90 mA
Two Poles Operating ..... 70 mA
Power Dissipation (continuous) (P_{DISS}) ..... 600 mW

Electrical Characteristics, T_A=25°C

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.

Parameter	Sym.	Min.	Typ.	Max.	Units	Test Conditions
Input						
LED Forward Current, Switch Turn-on	I_{Fon}	—	—	2.5	mA	I_L=100 mA, t=10 ms
LED Forward Current, Switch Turn-off	I_{Foff}	0.01	—	—	mA	V_L±300 V
LED Forward Voltage	V_F	0.9	1.2	1.4	V	I_F=5.0 mA
Output						
ON-resistance	R_{ON}	25	37	50	Ω	I_F=5.0 mA, I_L=±90 mA
Current Limit	I_{LMT}	150	200	270	mA	I_F=5.0 mA, t=5.0 ms V_L=13 V
Off-state Leakage Current	—	—	—	1.0	µA	I_F=0 mA, V_L=±350 V
Transfer						
Turn-on Time	t_{on}	—	—	3.0	ms	I_F=5.0 mA, I_L=50 mA
Turn-off Time	t_{off}	—	—	3.0	ms	I_F=5.0 mA, I_L=50 mA

Typical Performance Characteristics

Figure 1. LED Voltage vs. Temperature

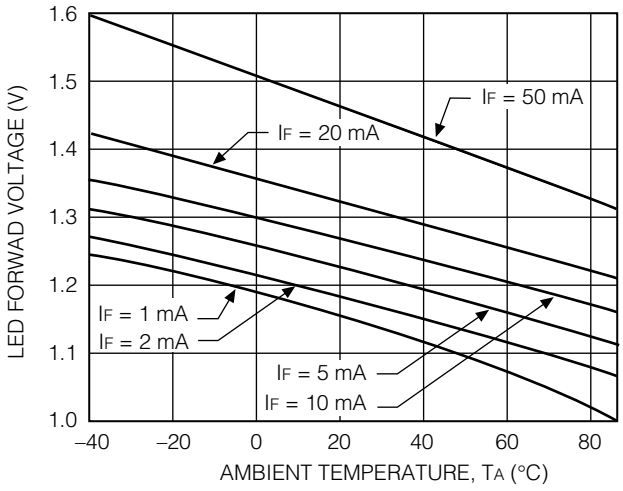


Figure 2. LED Current for Switch Turn-on/off vs. Temperature

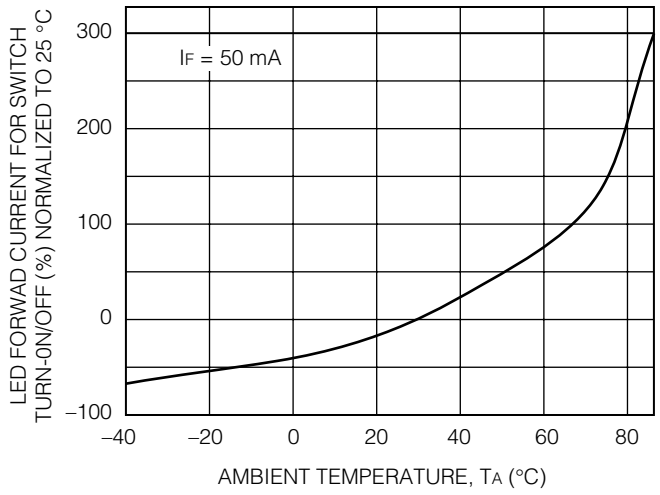


Figure 3. ON-resistance vs. Temperature

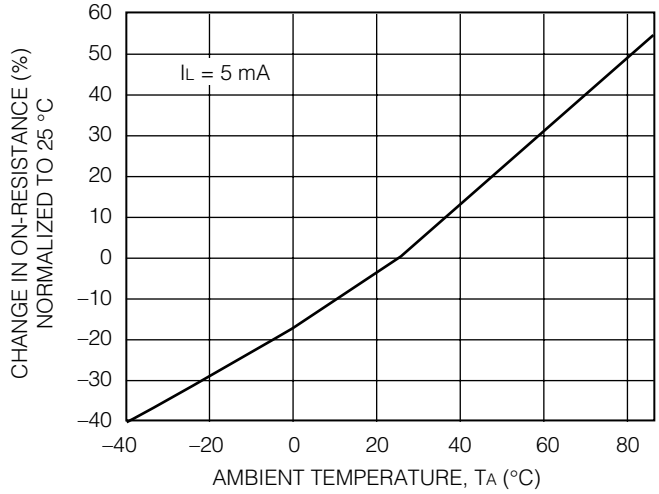


Figure 4. Current Limit vs. Temperature

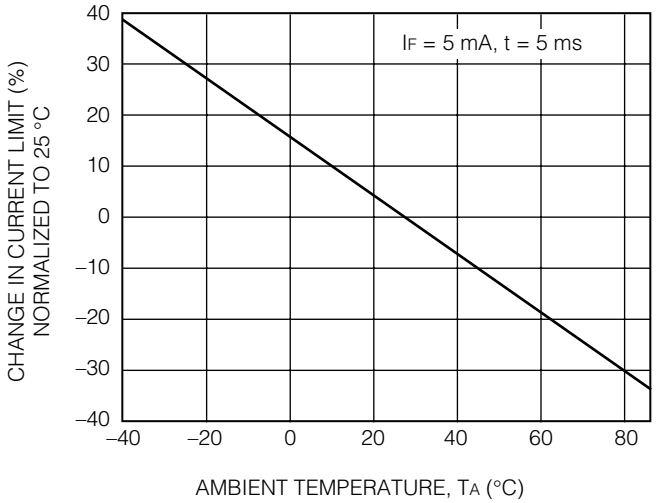


Figure 5. Leakage Current vs. Applied Voltage