

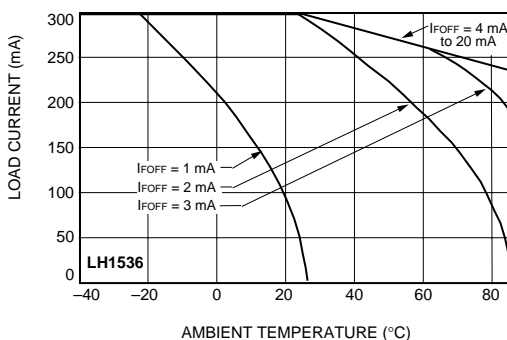
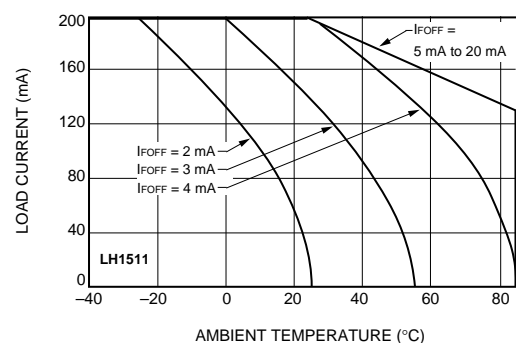
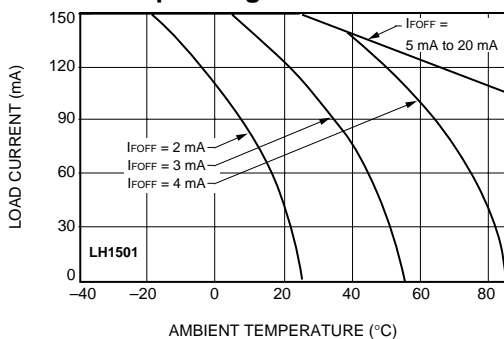
### Absolute Maximum Ratings $T_A=25^\circ\text{C}$

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.

Parameter	Symbol	Test Conditions	LH1501	LH1511	Units	
Ambient Operating Temperature Range	$T_A$	—	-40 to +85	-40 to +85	$^\circ\text{C}$	
Storage Temperature Range	$T_{\text{stg}}$	—	-40 to +150	-40 to +150	$^\circ\text{C}$	
Pin Soldering Temperature	$T_S$	$t=10\text{ s max}$	260	260	$^\circ\text{C}$	
Input/Output Isolation Test Voltage	$V_{\text{ISO}}$	$V_{\text{rms}} t=1\text{ s}$ $I_{\text{ISO}}=10\text{ }\mu\text{A max}$	5300	5300	Vrms	
LED Continuous Forward Current	$I_F$	—	50	50	mA	
LED Reverse Voltage	$V_R$	$I_R \leq 10\text{ }\mu\text{A}$	8	8	V	
dc or Peak ac Load Voltage	$V_L$	$I_L \leq 50\text{ }\mu\text{A}$	350	200	V	
Continuous dc Load Current	$I_L$	—	Bidirectional Operation	150	200	mA
			Unidirectional Operation	250	350	mA
Peak Load Current	$I_P$	$t=100\text{ ms}$ (single shot)	400	600	mA	
Output Power Dissipation (continuous)	$P_{\text{DISS}}$	—	550	550	mW	

### Recommended Operating Conditions



## Electrical Characteristics $T_A=25^\circ\text{C}$

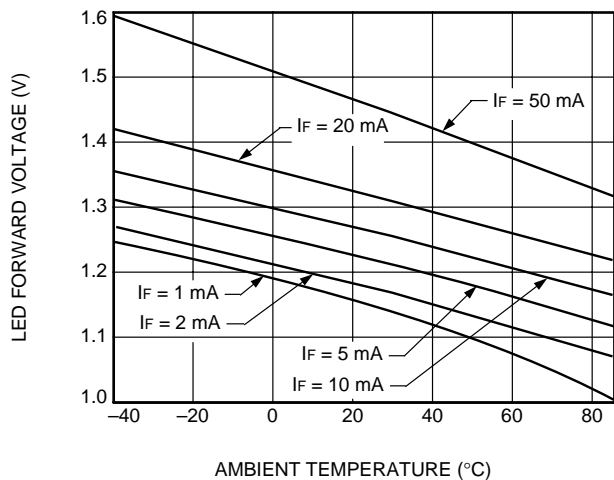
Minimum and maximum values are testing requirements. Typical values are characteristics of the device

and are the result of engineering evaluations. Typical values are for information purposes only and are not part of the testing requirements.

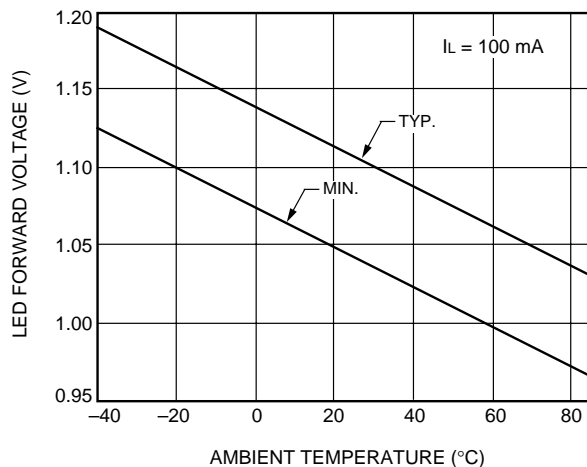
	Parameter	Symbol	Test Conditions	Values	LH1501	LH1511	Units	
I N P U T	LED Forward Current for Switch Turn-off	$I_{Foff}$	—	Min	—	—	mA	
				Typ	1.0	1.0	mA	
				Max	2.0	2.0	mA	
	LED Forward Current for Switch Turn-on	$I_{Fon}$	$t=10\text{ ms}$	Min	0.2	0.2	mA	
				Typ	0.9	0.9	mA	
				Max	—	—	mA	
	LED Forward Voltage	$V_F$	$I_F=10\text{ mA}$	$V_L$	$\pm$	300	150	V
				Min	1.15	1.15	V	
				Typ	1.26	1.26	V	
O U T P U T	ON-resistance ac/dc Pins 4, 6 (+) to 5 (-) dc Pins 4, 6 (+) to 5 (-)	$R_{ON}$	$I_F=0\text{ mA}$ $I_L=50\text{ mA}$	Min	12	6	$\Omega$	
				Typ	20	10	$\Omega$	
				Max	25	15	$\Omega$	
			$I_F=0\text{ mA}$ $I_L=100\text{ mA}$	Min	3.00	1.50	$\Omega$	
				Typ	5.00	2.50	$\Omega$	
				Max	6.25	3.75	$\Omega$	
	OFF-resistance	$R_{OFF}$	$I_F=5\text{ mA}$ $V_L=\pm 100\text{ V}$	Min	0.1	0.1	$G\Omega$	
				Typ	1.4	1.4	$G\Omega$	
				Max	—	—	$G\Omega$	
	Off-state Leakage Current	—	$I_F=5\text{ mA}$ $V_L=\pm 100\text{ V}$	Min	—	—	$\mu\text{A}$	
				Typ	0.07	0.07	$\mu\text{A}$	
				Max	1.0	1.0	$\mu\text{A}$	
			$I_F=5\text{ mA}$	Min	—	—	$\mu\text{A}$	
				Typ	0.08	0.07	$\mu\text{A}$	
				Max	1.0	1.0	$\mu\text{A}$	
Output Capacitance	—	$I_F=5\text{ mA}$ $V_L=1\text{ V}$	Min	—	—	pF		
			Typ	45	35	pF		
			Max	—	—	pF		
		$I_F=5\text{ mA}$ $V_L=50\text{ V}$	Min	—	—	pF		
			Typ	10	15	pF		
			Max	—	—	pF		
Switch Offset	—	$I_F=0\text{ mA}$	Min	—	—	$\mu\text{V}$		
			Typ	0.1	0.1	$\mu\text{V}$		
			Max	—	—	$\mu\text{V}$		
Input/Output Capacitance	$C_{ISO}$	$V_{ISO}=1\text{ V}$	Min	—	—	pF		
			Typ	0.8	0.8	pF		
			Max	—	—	pF		
	Turn-off Time	$t_{off}$	$I_F=5\text{ mA}$ $I_L=50\text{ mA}$	Min	—	—	ms	
				Typ	2.0	1.0*	ms	
				Max	3.0	3.0*	ms	
	Turn-on Time	$t_{on}$	$I_F=5\text{ mA}$ $I_L=50\text{ mA}$	Min	—	—	ms	
				Typ	1.0	1.2*	ms	
				Max	3.0	3.0*	ms	

\*  $I_F=10\text{ mA}$ .

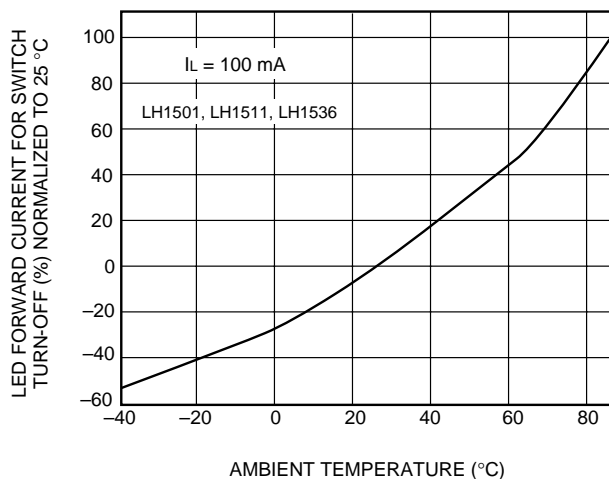
### A. LED Voltage vs. Temperature



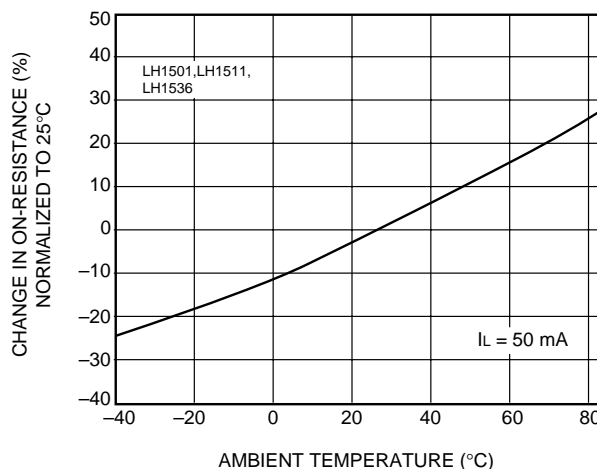
### B. LED Dropout Voltage vs. Temperature



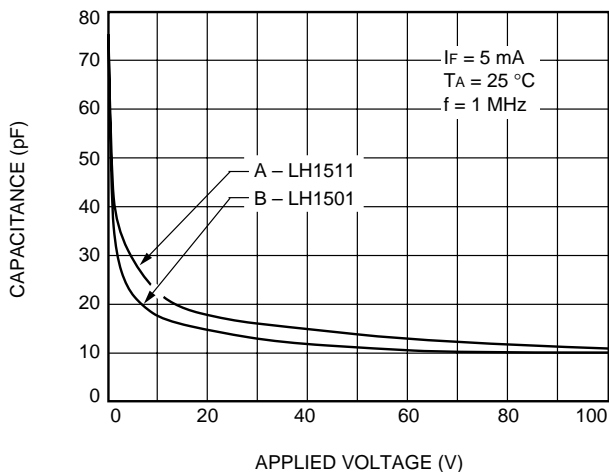
### C. LED Current for Switch Turn-Off vs. Temperature



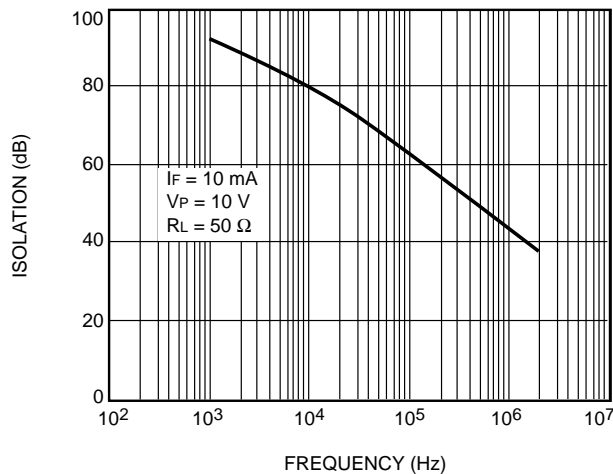
### D. ON-Resistance vs. Temperature



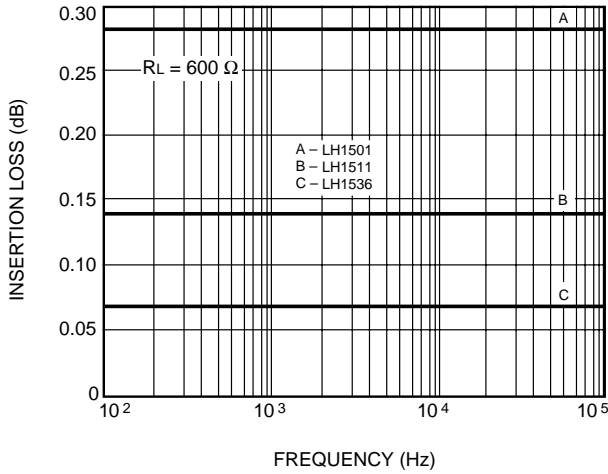
### E. Switch Capacitance vs. Applied Voltage



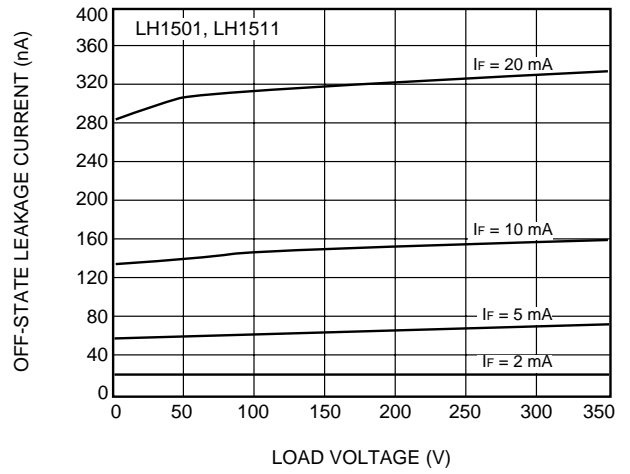
### F. Output Isolation



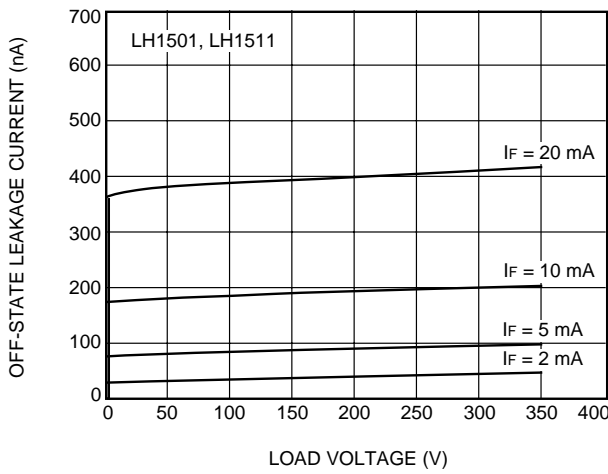
### G. Insertion Loss vs. Frequency



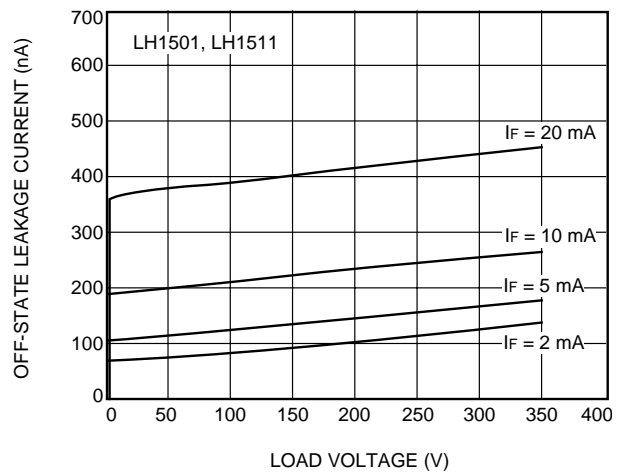
### H. Leakage Current vs. Applied Voltage @ 25°C



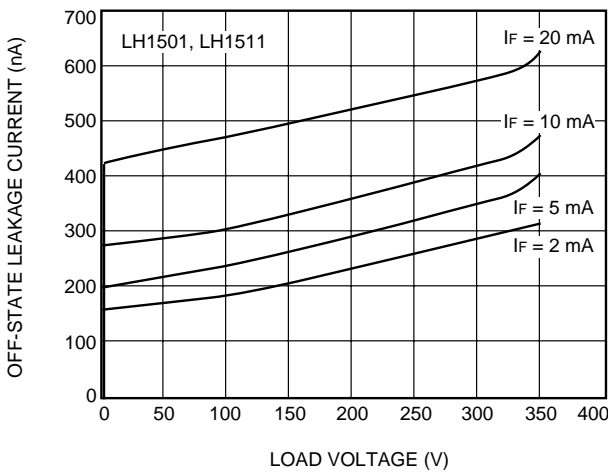
### I. Leakage Current vs. Applied Voltage @ 50°C



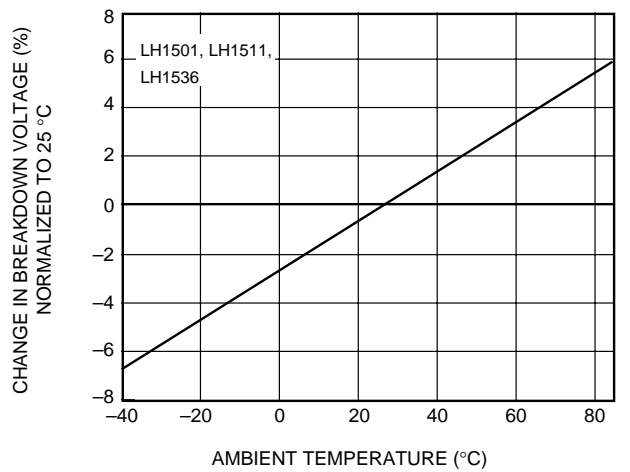
### J. Leakage Current vs. Applied Voltage @ 70°C



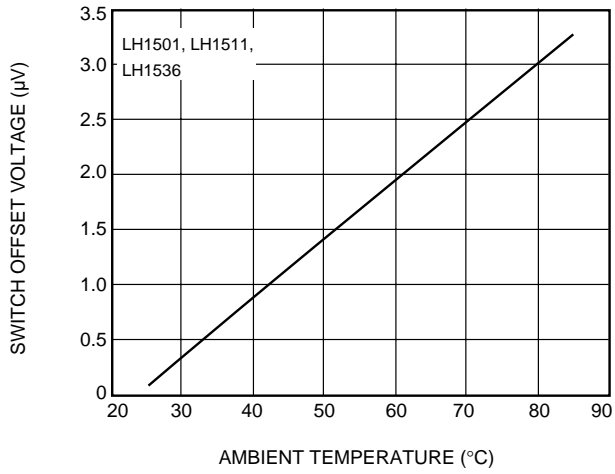
### K. Leakage Current vs. Applied Voltage @ 85°C



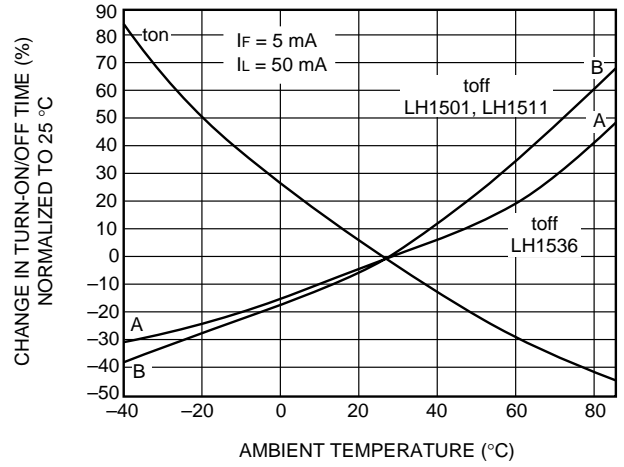
### L. Switch Breakdown Voltage vs. Temperature



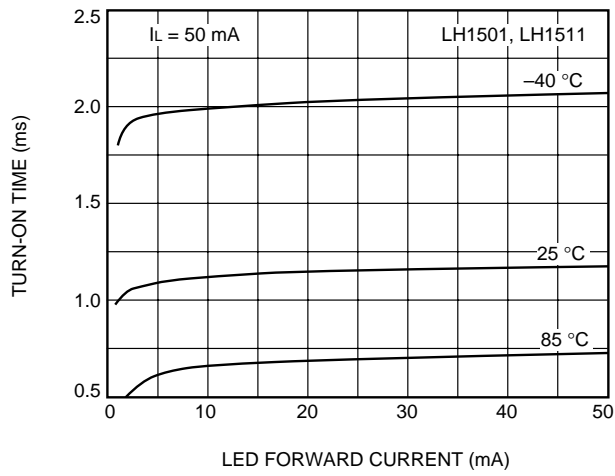
**M. Switch Offset Voltage vs. Temperature**



**N. Turn-On/Off vs. Temperature**



**O. Turn-On Time vs. LED Current**



**P. Turn-Off Time vs. LED Current**

