

DUAL POLE OptoMOS® RELAYS

LBA110/LBA110L



FEATURES

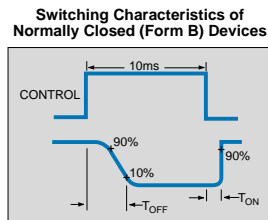
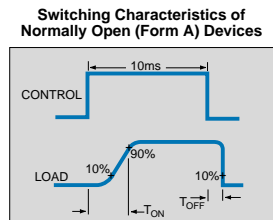
- Small 8 Pin DIP Package
- Low Drive Power Requirements (TTL/CMOS Compatible)
- No Moving Parts
- High Reliability
- Arc-Free With No Snubbing Circuits
- 3750V_{RMS} Input/Output Isolation
- FCC Compatible
- VDE Compatible
- No EMI/RFI Generation
- Machine Insertable, Wave Solderable
- Current Limiting, Surface Mount and Tape & Reel Versions Available

APPROVALS

- UL Recognized: File Number E76270
- CSA Certified: File Number LR 43639-10
- BSI Certified to:
 - BS EN 60950:1992 (BS7002:1992)
Certificate #: 7344
 - BS EN 41003:1993
Certificate #: 7344

OPTIONS / SUFFIXES

- P: Flatpack Package
- L: Current Limiting
- S: Surface Mount Package
- TR: Tape & Reel



DESCRIPTION

LBA110 is 350V, 120mA, 35Ω independent 1-Form-A and 1-Form-B relays. It is designed to provide an ideal solution where a complimentary Form-A/Form-B relay pair is required. Current limiting version is available ("L" suffix).

APPLICATIONS

- Telecommunications
 - Telecom Switching
 - Tip/Ring Circuits
 - Modem Switching (Laptop, Notebook, Pocket Size)
 - Hookswitch
 - Dial Pulsing
 - Ground Start
 - Ringer Injection
- Instrumentation
 - Multiplexers
 - Data Acquisition
 - Electronic Switching
 - I/O Subsystems
 - Meters (Watt-Hour, Water, Gas)
- Medical Equipment-Patient/Equipment Isolation
- Security
- Aerospace
- Industrial Controls

RATINGS (@ 25° C)

Parameter	Min	Typ	Max	Units
Input Power Dissipation	-	-	150 ¹	mW
Input Control Current	-	-	50	mA
Peak (10ms)	-	-	1	A
Reverse Input Voltage	-	-	5	V
Total Power Dissipation	-	-	800 ²	mW
Capacitance				
Input to Output	-	3	-	pF
Isolation Voltage				
Input to Output	3750	-	-	V _{RMS}
Operational Temperature	-40	-	+85	°C
Storage Temperature	-40	-	+125	°C
Soldering Temperature				
DIP Package	-	-	+260	°C
Flatpack/Surface Mount Package	-	-	+220	°C
(10 Seconds Max.)				

¹ Derate Linearly 1.33 mw/°C
² Derate Linearly 6.67 mw/°C

Note: For Mechanical Dimensions See Pages 408-415

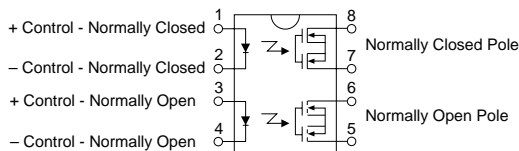
SPECIFICATIONS

PARAMETER	CONDITIONS	SYMBOL	LBA110			LBA110L			UNITS
			MIN	TYP	MAX	MIN	TYP	MAX	
Output Characteristics @ 25°C									
Load Voltage (Peak)	-	V_L	-	-	350	-	-	350	V
Load Current *(Continuous) AC/DC Configuration	-	I_L	-	-	120	-	-	120	mA
Peak Load Current	10ms	I_{LPK}	-	-	350	-	-	-	mA
On-Resistance AC/DC Configuration	$I_L=120mA$	R_{ON}	-	23	35	-	23	35	Ω
Off-State Leakage Current	$V_L=350V$	I_{LEAK}	-	-	1	-	-	1	μA
Switching Speeds	$I_F=5mA, V_L=10V$ $I_F=5mA, V_L=10V$	T_{ON} T_{OFF}	-	-	3	-	-	3	ms
Turn-On			-	-	3	-	-	3	ms
Turn-Off									
Output Capacitance	50V; f=1MHz	C_{OUT}	-	25	-	-	25	-	pF
Load Current Limiting	Form A only	I_{CL}	-	-	-	130	170	210	mA
Input Characteristics @ 25°C									
Input Control Current	$I_L=$ Load Current	I_F	5	-	50	5	-	50	mA
Input Dropout Current	-	I_F	0.4	0.7	-	0.4	0.7	-	mA
Input Voltage Drop	$I_F=5mA$	V_F	0.9	1.2	1.4	0.9	1.2	1.4	V
Reverse Input Voltage	-	V_R	-	-	5	-	-	5	V
Reverse Input Current	$V_R=5V$	I_R	-	-	10	-	-	10	μA
Input to Output Capacitance	-	$C_{I/O}$	-	3	-	-	3	-	pF
Input to Output Isolation	-	$V_{I/O}$	3750	-	-	3750	-	-	V_{RMS}

*NOTE: If both poles operate simultaneously load current must be derated so as not to exceed the package power dissipation value.

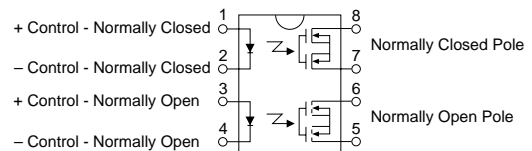
LBA110 Pinout

AC/DC Configuration



LBA110L Pinout

AC/DC Configuration



Note: For Mechanical Dimensions See Pages 408-415

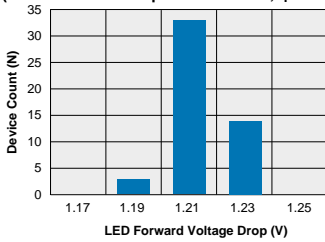
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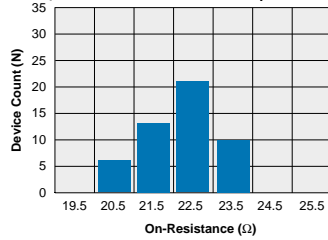
LBA110/LBA110L

PERFORMANCE DATA

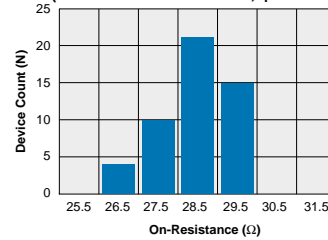
LBA110
Typical LED Forward Voltage Drop
(N=50 Ambient Temperature = 25°C; I_F = 5mADC)



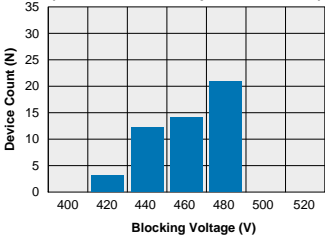
LBA110 - FormA
Typical On-Resistance Distribution
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC, I_F=5mADC)



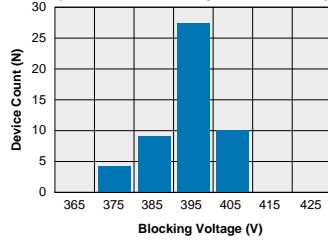
LBA110 - FormB
Typical On-Resistance Distribution
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC, I_F=5mADC)



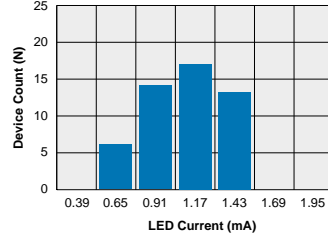
LBA110 - FormA
Typical Blocking Voltage Distribution
(N=50 Ambient Temperature = 25°C)



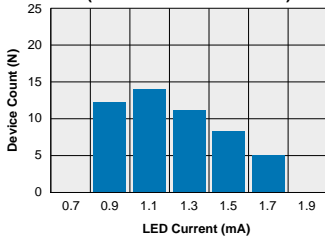
LBA110 - FormB
Typical Blocking Voltage Distribution
(N=50 Ambient Temperature = 25°C)



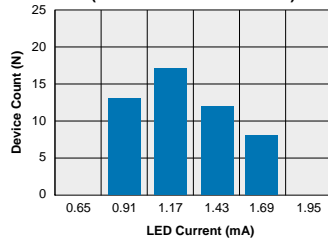
LBA110 - FormA
Typical I_F for Switch Dropout
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC)



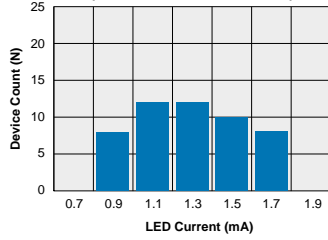
LBA110 - FormB
Typical I_F for Switch Dropout
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC)



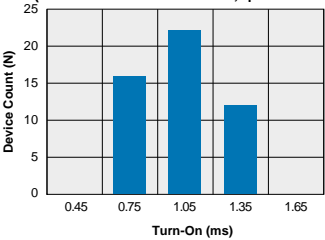
LBA110 - FormA
Typical I_F for Switch Operation
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC)



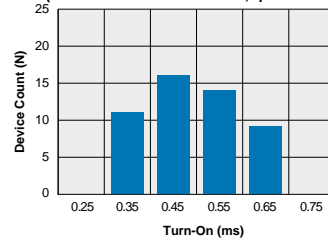
LBA110 - FormB
Typical I_F for Switch Operation
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC)



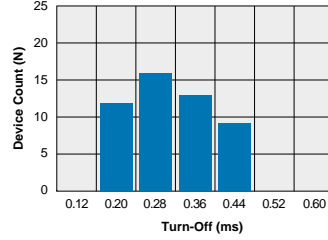
LBA110 - FormA
Typical Turn-On Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC; I_F = 5mADC)



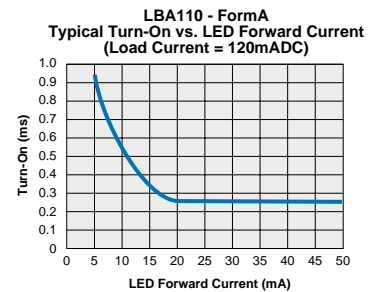
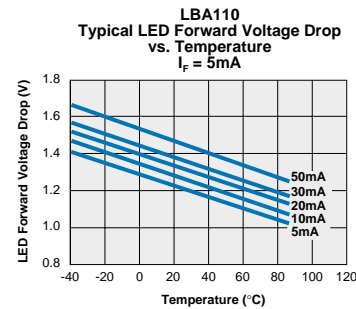
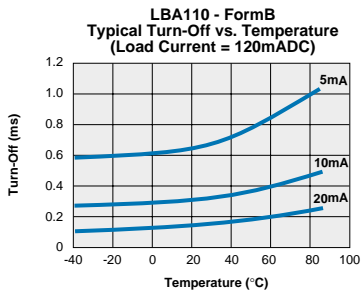
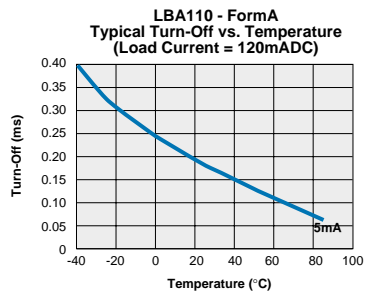
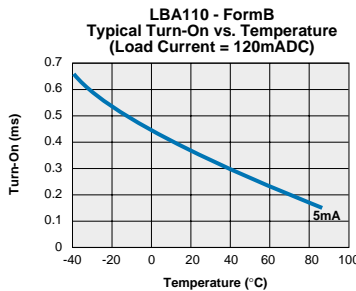
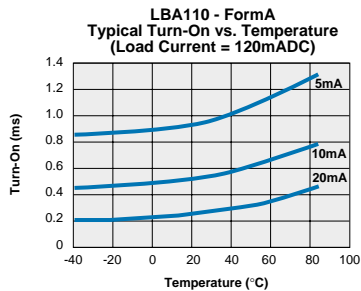
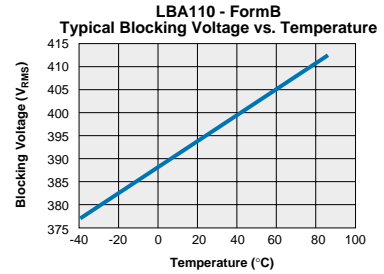
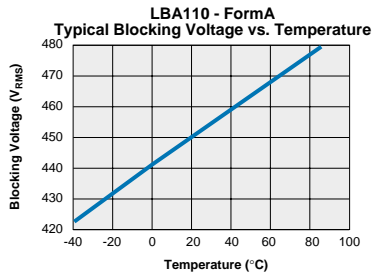
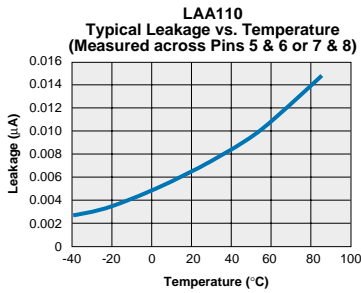
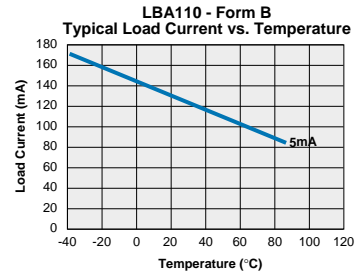
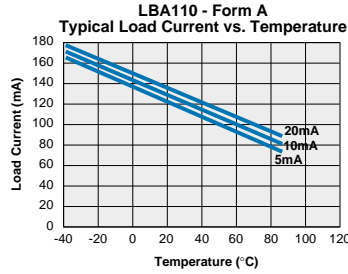
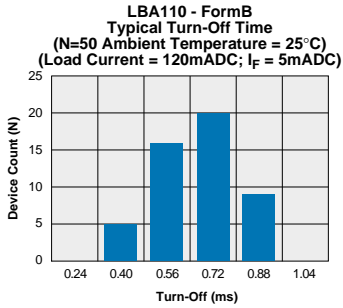
LBA110 - FormB
Typical Turn-On Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC; I_F = 5mADC)



LBA110 - FormA
Typical Turn-Off Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC; I_F = 5mADC)



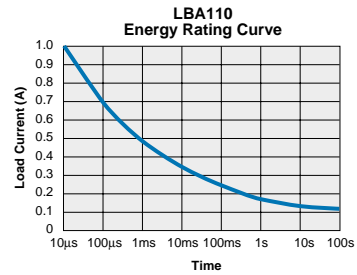
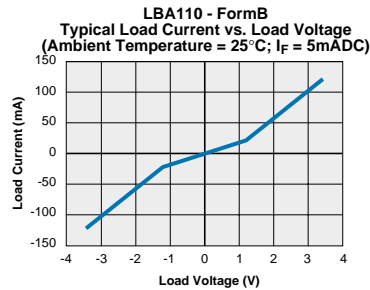
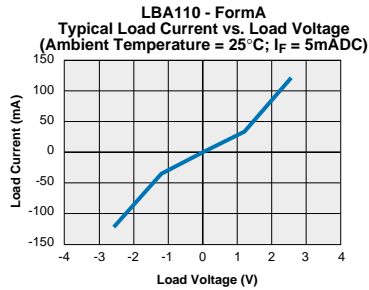
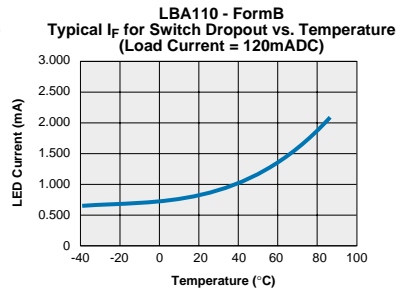
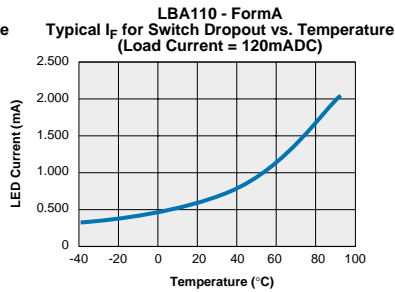
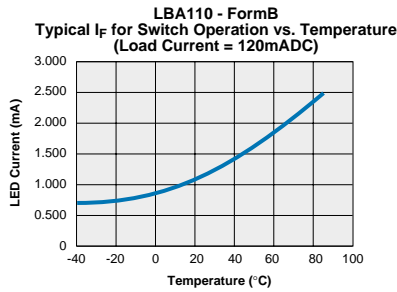
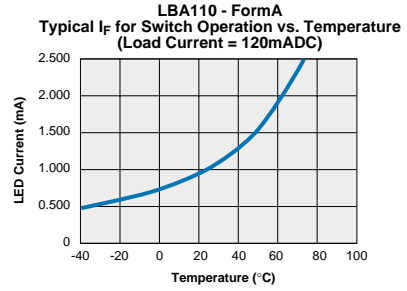
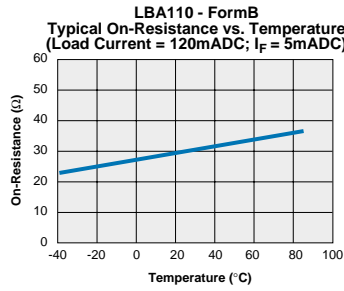
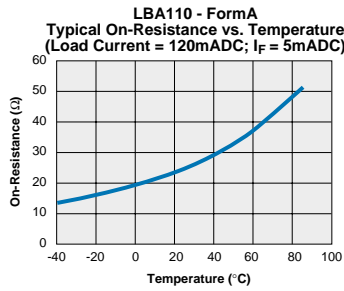
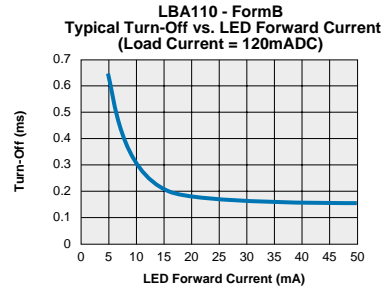
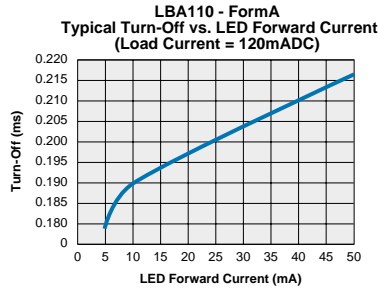
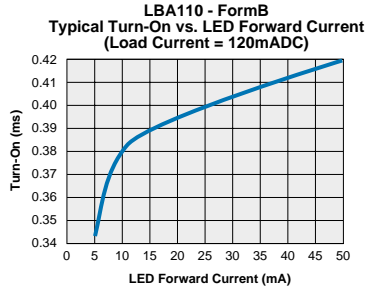
PERFORMANCE DATA



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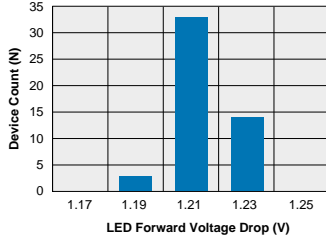
LBA110/LBA110L

PERFORMANCE DATA

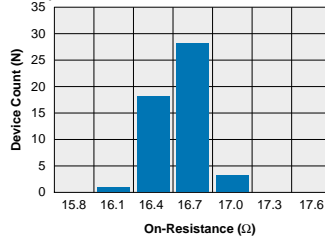


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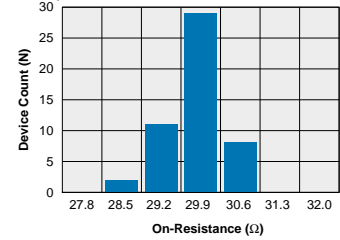
LBA110L
Typical LED Forward Voltage Drop
(N=50 Ambient Temperature = 25°C; I_F = 5mADC)



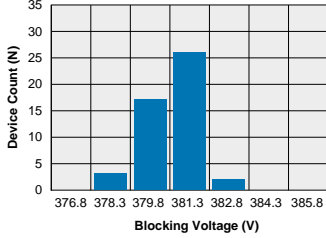
LBA110L - FormA
Typical On-Resistance Distribution
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC, I_F=5mADC)



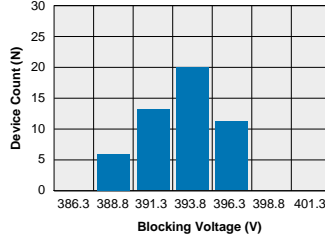
LBA110L - FormB
Typical On-Resistance Distribution
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC, I_F=5mADC)



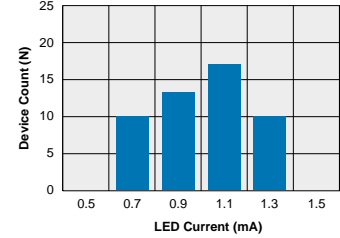
LBA110L - FormA
Typical Blocking Voltage Distribution
(N=50 Ambient Temperature = 25°C)



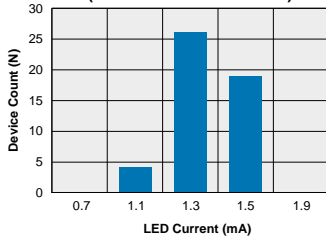
LBA110L - FormB
Typical Blocking Voltage Distribution
(N=50 Ambient Temperature = 25°C)



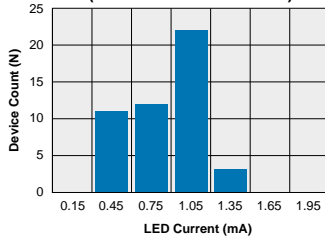
LBA110L - FormA
Typical I_F for Switch Operation
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC)



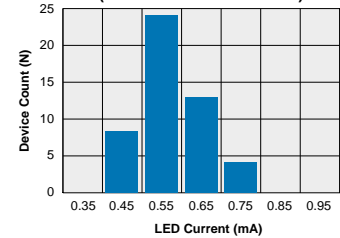
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Typical I_F for Switch Operation
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC)



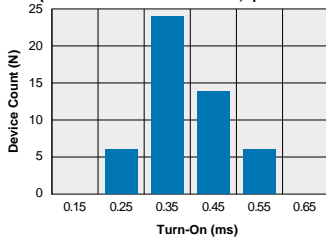
LBA110L - FormA
Typical I_F for Switch Dropout
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC)



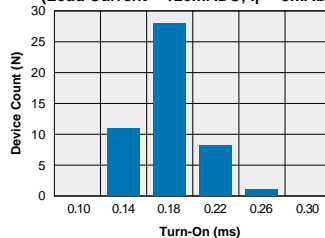
LBA110L - FormB
Typical I_F for Switch Dropout
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC)



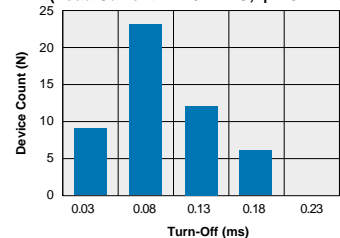
LBA110L - FormA
Typical Turn-On Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC; I_F = 5mADC)



LBA110L - FormB
Typical Turn-On Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC; I_F = 5mADC)



LBA110L - FormA
Typical Turn-Off Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC; I_F = 5mADC)

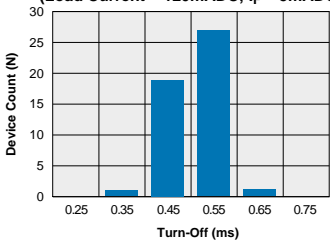


DUAL POLE OptoMOS[®] RELAYS

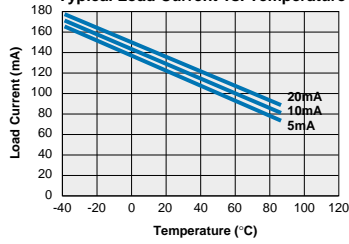
LBA110/LBA110L

PERFORMANCE DATA

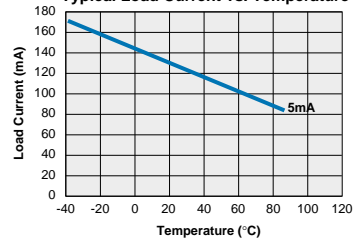
LBA110L - FormB
Typical Turn-Off Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC; I_F = 5mA)



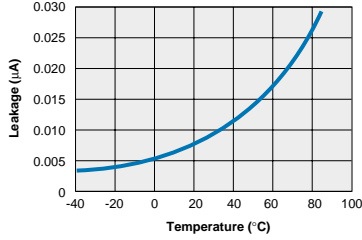
LBA110L - Form A
Typical Load Current vs. Temperature



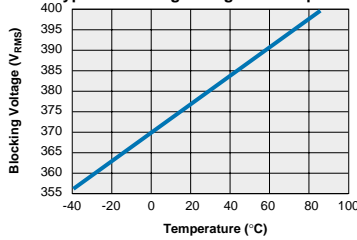
LBA110L - Form B
Typical Load Current vs. Temperature



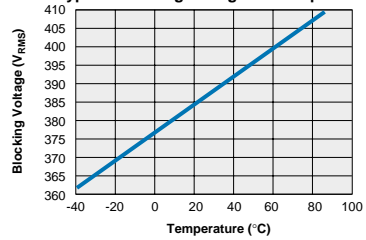
LBA110L
Typical Leakage vs. Temperature
(Measured across Pins 5 & 6 or 7 & 8)



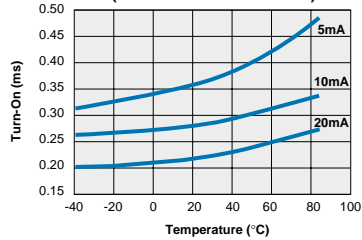
LBA110L - FormA
Typical Blocking Voltage vs. Temperature



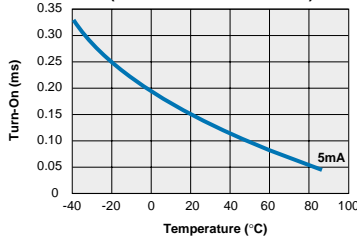
LBA110L - FormB
Typical Blocking Voltage vs. Temperature



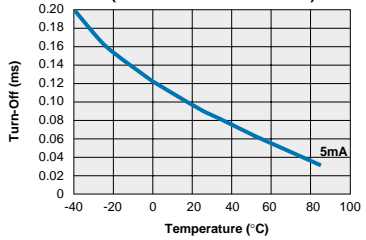
LBA110L - FormA
Typical Turn-On vs. Temperature
(Load Current = 120mADC)



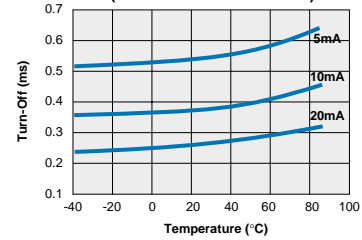
LBA110L - FormB
Typical Turn-On vs. Temperature
(Load Current = 120mADC)



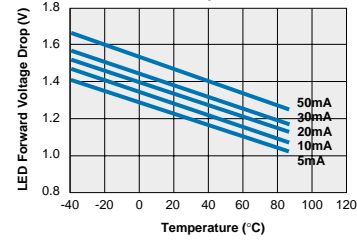
LBA110L - FormA
Typical Turn-Off vs. Temperature
(Load Current = 120mADC)



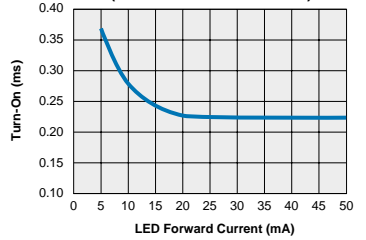
LBA110L - FormB
Typical Turn-Off vs. Temperature
(Load Current = 120mADC)



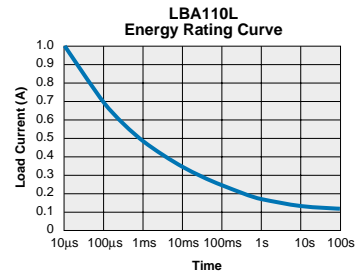
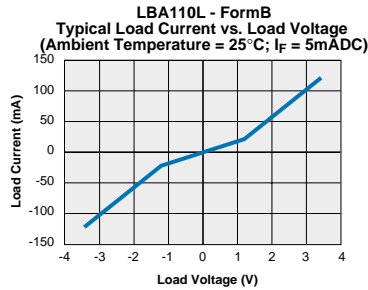
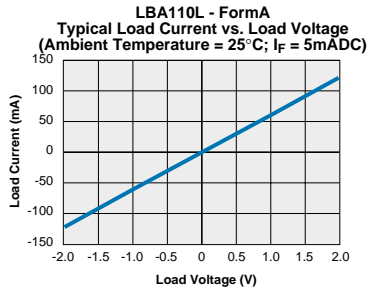
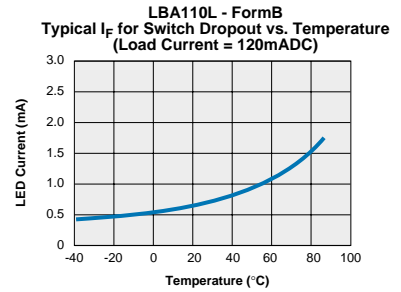
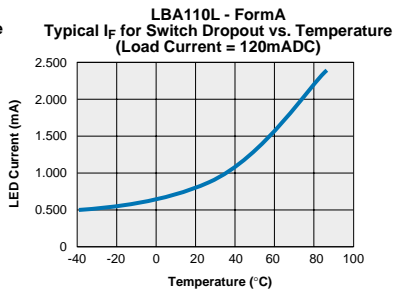
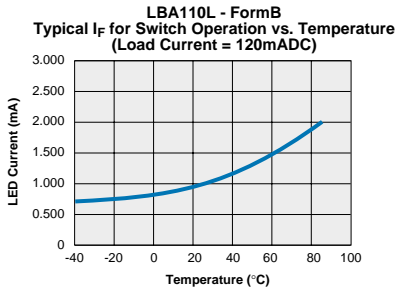
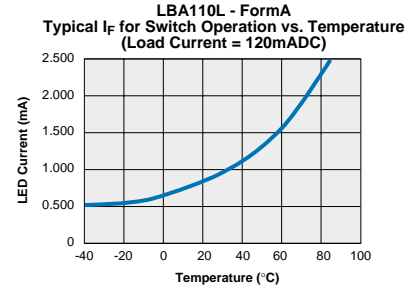
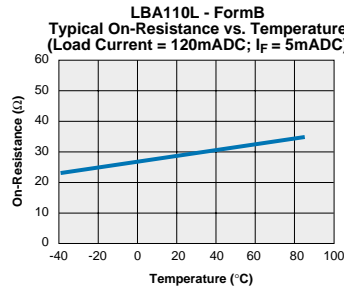
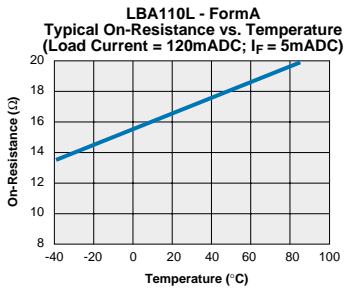
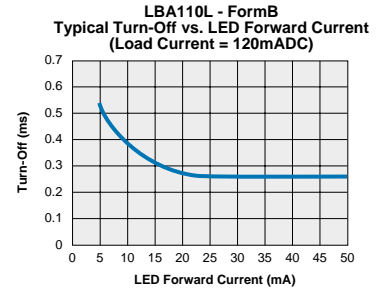
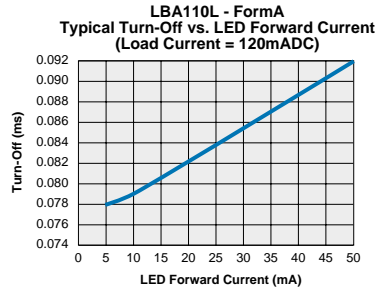
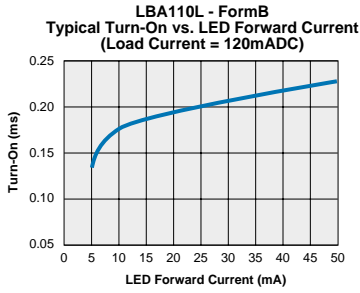
LBA110L
Typical LED Forward Voltage Drop vs. Temperature



LBA110L - FormA
Typical Turn-On vs. LED Forward Current
(Load Current = 120mADC)



PERFORMANCE DATA



DUAL POLE OptoMOS[®] RELAYS

LBA110/LBA110L

PERFORMANCE DATA

