

DUAL POLE OptoMOS® RELAYS

LAA110/LAA110L



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

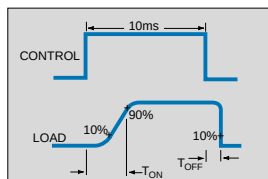
APPROVALS

- 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

Switching Characteristics of Normally Open (Form A) Devices



DESCRIPTION

LAA110 is a 350V, 120mA, 35Ω 2-Form-A relay. It provides an integrated solution to fit most applications where two Form-A relays are required. Current limiting version is available ("L" suffix, see specification for variations in performance).

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 (10 Seconds Max.)	-	-	+220	°C

¹ Derate Linearly 1.33 mW/°C

² Derate Linearly 6.67 mW/°C

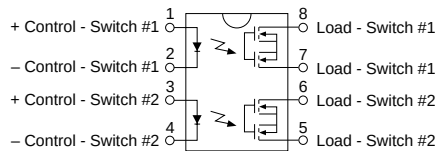
Note: For Mechanical Dimensions See Pages 408-415

SPECIFICATIONS

LAA110						LAA110L			
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	MIN	TYP	MAX	UNITS
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 max	I _{LPK}	-	-	350	-	-	-	mA
On-Resistance AC/DC Configuration	I _L =120mA	R _{ON}	-	25	35	-	30	35	Ω
Off-State Leakage Current	V _L =350V	I _{LEAK}	-	-	1	-	-	1	μA
Switching Speeds									
Turn-On	I _F =5mA, V _L =10V	T _{ON}	-	-	3	-	-	3	ms
Turn-Off	I _F =5mA, V _L =10V	T _{OFF}	-	-	3	-	-	3	ms
Output Capacitance	50V; f=1MHz	C _{OUT}	-	25	-	-	25	-	pF
Load Current Limiting		I _{CL}	-	-	-	130	170	210	mA
Input Characteristics @ 25°C									
Input Control Current	I _L =120mA	I _F	5	-	50	5	-	50	mA
Input Dropout Current	-	-	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 _{RM}

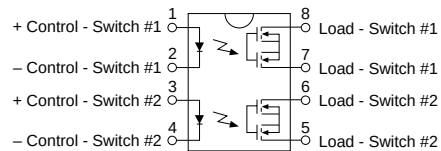
LAA110 Pinout

AC/DC Configuration



LAA110L Pinout

AC/DC Configuration



Note: For Mechanical Dimensions See Pages 408-415

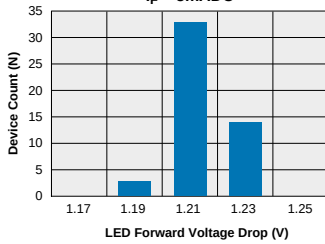
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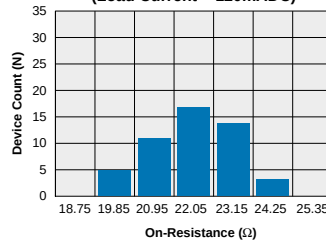
LAA110/LAA110L

PERFORMANCE DATA

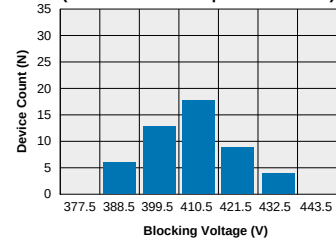
LAA110
Typical LED Forward Voltage Drop
(N=50 Ambient Temperature = 25°C)
 $I_F = 5\text{mA}$



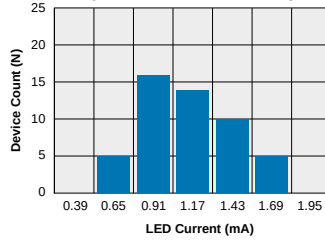
LAA110
Typical On-Resistance Distribution
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mA)



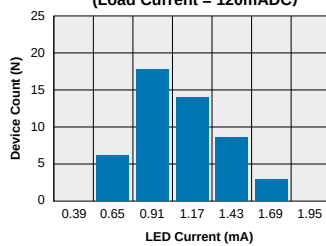
LAA110
Typical Blocking Voltage Distribution
(N=50 Ambient Temperature = 25°C)



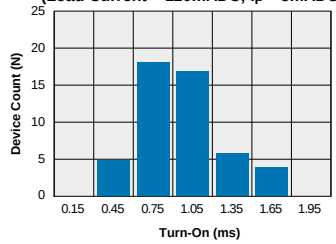
LAA110
Typical I_F for Switch Operation
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mA)



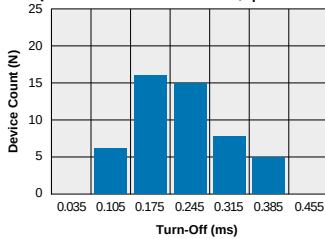
LAA110
Typical I_F for Switch Dropout
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mA)



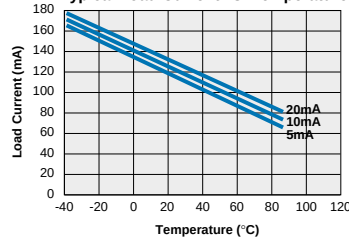
LAA110
Typical Turn-On Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mA; $I_F = 5\text{mA}$)



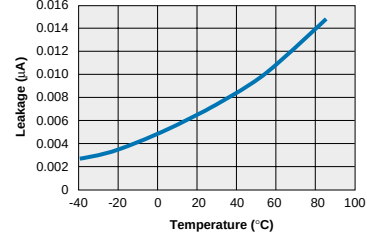
LAA110
Typical Turn-Off Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mA; $I_F = 5\text{mA}$)



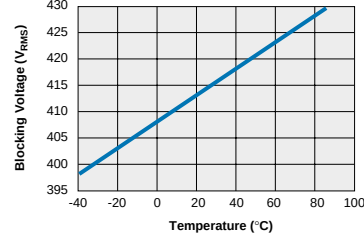
LAA110
Typical Load Current vs. Temperature



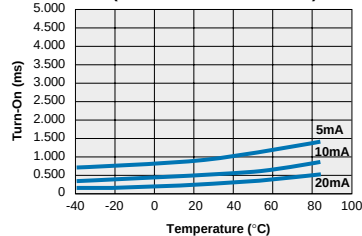
LAA110
Typical Leakage vs. Temperature
(Measured across Pins 5 & 6 or 7 & 8)



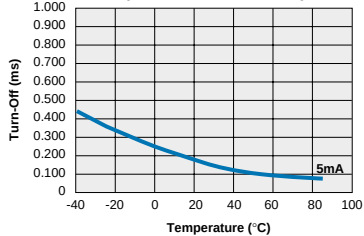
LAA110
Typical Blocking Voltage vs. Temperature



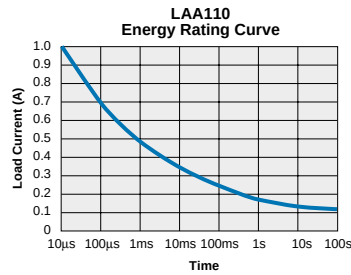
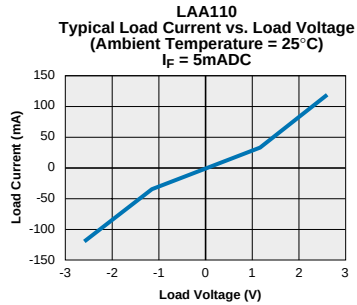
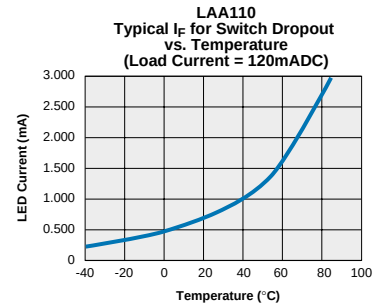
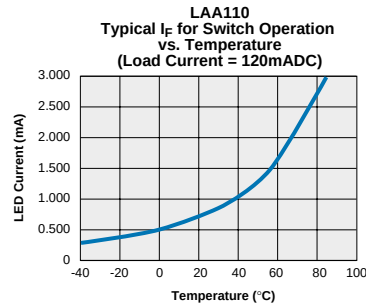
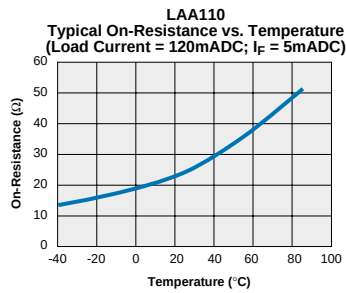
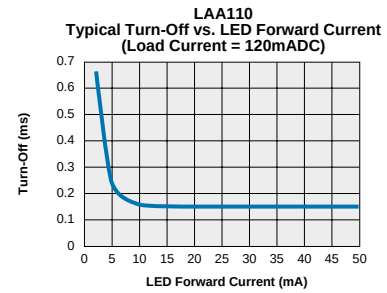
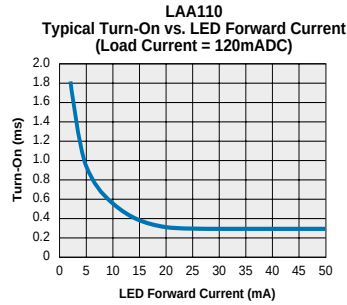
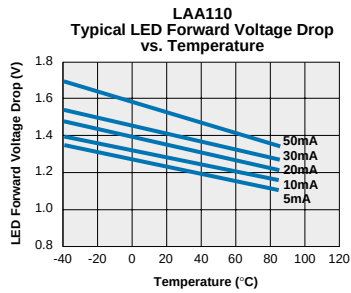
LAA110
Typical Turn-On vs. Temperature
(Load Current = 120mA)



LAA110
Typical Turn-Off vs. Temperature
(Load Current = 120mA)



PERFORMANCE DATA

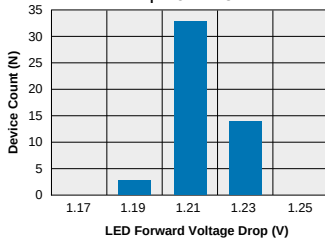


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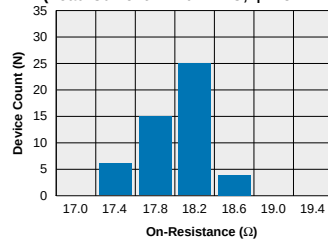
LAA110/LAA110L

PERFORMANCE DATA

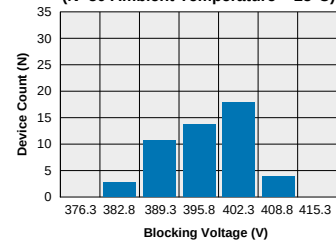
LAA110L
Typical LED Forward Voltage Drop
(N=50 Ambient Temperature = 25°C)
 $I_F = 5\text{mADC}$



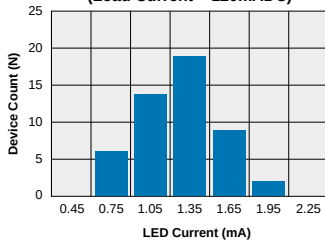
LAA110L
Typical On-Resistance Distribution
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC; $I_F = 5\text{mADC}$)



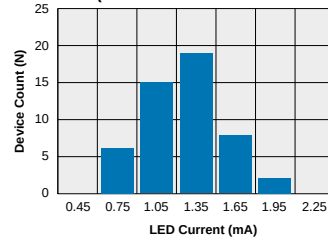
LAA110L
Typical Blocking Voltage Distribution
(N=50 Ambient Temperature = 25°C)



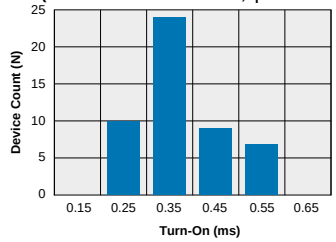
LAA110L
Typical I_F for Switch Operation
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC)



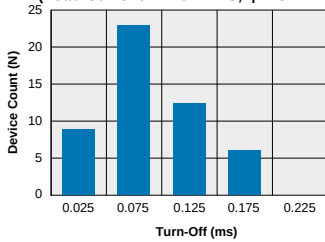
LAA110L
Typical I_F for Switch Dropout
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC)



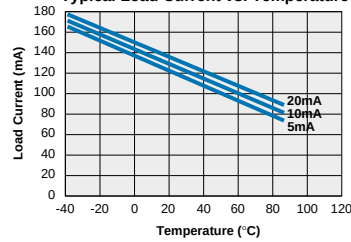
LAA110L
Typical Turn-On Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC; $I_F = 5\text{mADC}$)



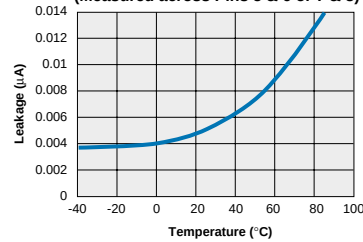
LAA110L
Typical Turn-Off Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC; $I_F = 5\text{mADC}$)



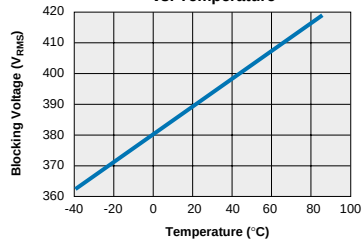
LAA110L
Typical Load Current vs. Temperature



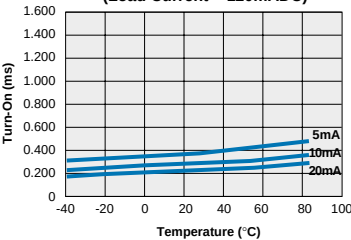
LAA110L
Typical Leakage vs. Temperature
(Measured across Pins 5 & 6 or 7 & 8)



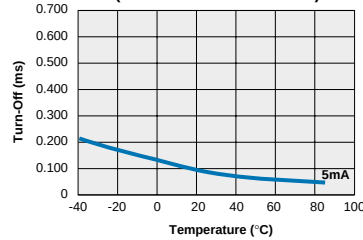
LAA110L
Typical Blocking Voltage vs. Temperature



LAA110L
Typical Turn-On vs. Temperature
(Load Current = 120mADC)



LAA110L
Typical Turn-Off vs. Temperature
(Load Current = 120mADC)



PERFORMANCE DATA

