



DESCRIPTION

PLCA110 is a 350V, 120mA, 35Ω 1-Form-A relay with surge protection. It is an ideal solution for many telecom applications.

FEATURES

- Small 8 Pin DIP Package
- 2mW Drive Power (Logic Compatible)
- No Moving Parts
- Loads up to 350V AC/DC and 120mA
- 3750V_{RMS} Input/Output Isolation
- Meets FCC Part 68
- VDE Compatible
- Inherent Surge Protection
- Repetitive Surges With No Degradation
- Board Space and Cost Savings
- Machine Insertable, Wave Solderable
- Current Limiting, Surface Mount and Tape & Reel Versions Available

APPLICATIONS

- Telecom Switching
- Tip/Ring Circuits
- Modem Switching (Laptop, Notebook, Pocket Size)
- Hookswitch
- Dial Pulsing
- Ground Start
- Ringer Injection
- Loop Detect
- Ring Detect

APPROVALS

- UL Recognized: File Number E76270
- CSA Certified: File Number LR 43639-10
- BSI Certified:
 - BS EN 60950:1992 (BS7002:1992) Certificate #:8029
 - BS EN 41003:1993 Certificate #:8029

OPTIONS / SUFFIXES

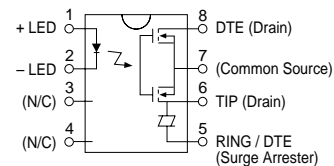
- S: Surface Mount Package
- TR: Tape & Reel

RATINGS (@ 25° C)

Parameter	Min	Typ	Max	Units
Total Package Dissipation	-	-	1 ¹	W
Isolation Voltage Input to Output	3750	-	-	V _{RMS}
Operational Temperature	-40	-	+85	°C
Storage Temperature	-40	-	+125	°C
Soldering Temperature DIP Package	-	-	+260	°C
Surface Mount Package (10 Seconds Max.)	-	-	+220	°C

¹ Above 25° derate linearly 1.67mw/°C

PLCA110 Pinout



INTEGRATED CIRCUITS

PLCA110

SPECIFICATIONS

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
Relay Ratings						
Output Characteristics @ 25°C						
Load Voltage (Peak)	-	V_L	-	-	350	V
Load Current (Continuous)	-	I_L	-	-	120	mA
Off-State Leakage Current	$V_L=350V$	I_{LEAK}	-	-	1	μA
On-Resistance	$I_L=120mA$	R_{ON}	-	23	35	Ω
Turn-on Time	$I_F=5mA, V_L=10V$	T_{ON}	-	-	3	ms
Turn-off Time	$I_F=5mA, V_L=10V$	T_{OFF}	-	-	2	ms
Output Capacitance	-	C_{OUT}	-	25	-	pF
Relay Ratings						
Input Characteristics @ 25°C						
Input Control Current	$I_L=120mA$	I_F	2	-	50	mA
Input Drop Out Voltage	-	V_F	0.8	-	-	V
Input Voltage Drop	$I_F=5mA$	V_F	0.9	1.2	1.4	V
Reverse Input Voltage	-	V_R	-	-	5	V
Reverse Input Current	$V_R=5V$	I_R	-	-	10	μA
Surge Arrester Ratings Absolute						
Maximum Ratings @ 25°C						
Non-Repetitive Surge	10/560 μs (FCC Part 68.302) _K	I_{TSP}	-	-	100	A_p
Non-Repetitive Surge	8/20 μs (ANSI Std. c.62) ^{1,2}	I_{TSP}	-	-	150	A_{PK}
Non-Repetitive Surge	50Hz On-State Current 0.7s ^{1,2}	I_{TSM}	-	-	10	A_{RMS}
Critical Rate of Rise	Initial Rate of Rise of On-State Control	di/dt	-	-	250	A/ μs
Junction Temperature	-	$T_{J(MAX)}$	-	-	150	°C
Surge Arrester Ratings						
Electrical Characteristics @ 25°C						
REF Zener Voltage	$I_Z=1mA$	V_Z	± 260	± 285	± 320	V
Breakover Voltage	-	V_{BO}	± 283	± 305	± 340	V
Breakover Current	-	I_{BO}	0.15	-	0.6	A
Holding Current	-	I_H	± 150	-	-	mA
Off-State Leakage	$V=50V$	I_D	-	-	10	μA
Off-State Capacitance	$V=0V, f=1kHz$	C_{OFF}	-	-	200	pF
Input to Output Capacitance	-	$C_{I/O}$	-	3	-	pF
Input to Output Isolation	-	$V_{I/O}$	3750	-	-	V_{RMS}

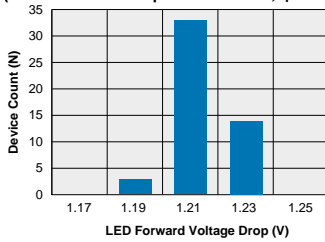
¹ Above 70°C derate linearly to zero at 150°C case temperature

² This value applies when the initial case temperature is at or below 70°C. The surge may be repeated after the device has returned to thermal equilibrium.

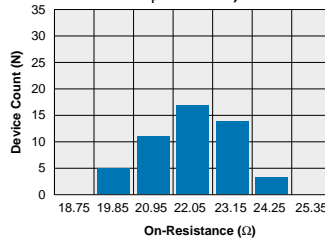
Note: For Mechanical Dimensions See Pages 408-415

PERFORMANCE DATA

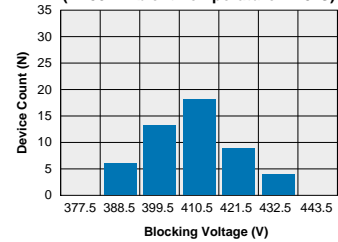
PLCA110
Typical LED Forward Voltage Drop
(N=50 Ambient Temperature = 25°C; I_F = 5mADC)



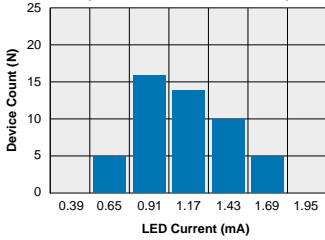
PLCA110
Typical On-Resistance Distribution
(N=50 Ambient Temperature = 25°C)
(Load: Voltage = 350VDC; Current = 120mADC;
I_F = 2mADC)



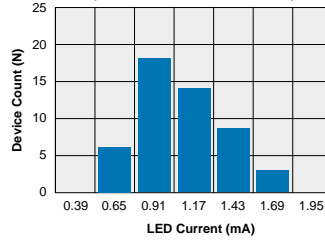
PLCA110
Typical Blocking Voltage Distribution
(N=50 Ambient Temperature = 25°C)



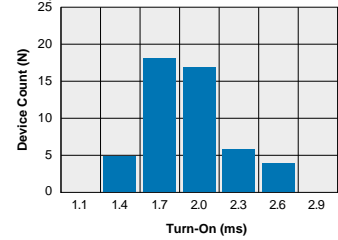
PLCA110
Typical I_F for Switch Operation
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC)



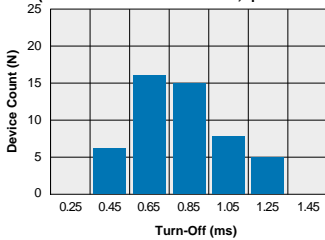
PLCA110
Typical I_F for Switch Dropout
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC)



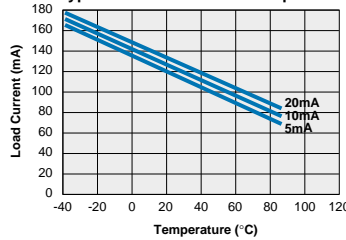
PLCA110
Typical Turn-On Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC; I_F = 2mADC)



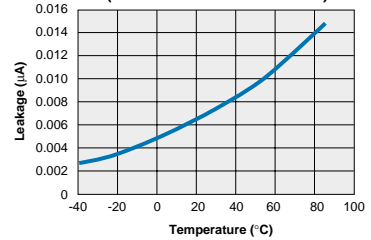
PLCA110
Typical Turn-Off Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 120mADC; I_F = 2mADC)



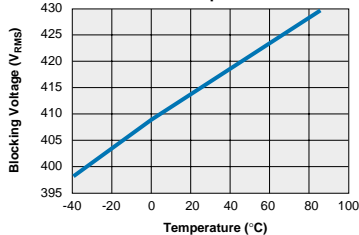
PLCA110
Typical Load Current vs. Temperature



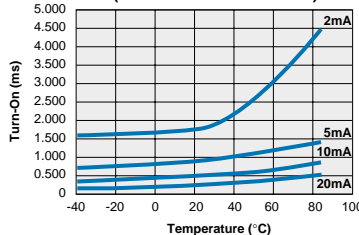
PLCA110
Typical Leakage vs. Temperature
(Measured across Pins 6 & 8)



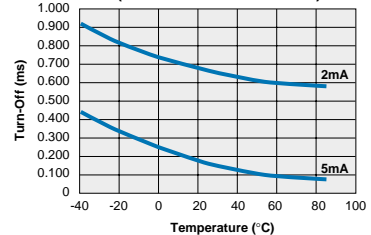
PLCA110
Typical Blocking Voltage vs. Temperature



PLCA110
Typical Turn-On vs. Temperature
(Load Current = 120mADC)



PLCA110
Typical Turn-Off vs. Temperature
(Load Current = 120mADC)



PERFORMANCE DATA

