Absolute Maximum Ratings T_A=25°C

Parameter	Symbol	Ratings	Units
Blocking Voltage	V_B	250	V_P
Reverse Input Voltage	V_R	5	V
Input Control Current	I_F	50	mA
Peak (10ms)		1	A
Input Power Dissipation [1]	P_I	150	mW
Total Power Dissipation [2]	P_D	800	mW
Isolation Voltage, Input to Output	V_{ISO}	3750	V_{rms}
Operational Temperature, Ambient	T_A	-40 to +85	°C
Storage Temperature	T_{STG}	-40 to +125	°C

[1] Derate linearly 1.33 mW / °C

[2] Derate output power linearly 6.67 mW / °C

Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at conditions beyond those indicated in the operational sections of this data sheet is not implied.

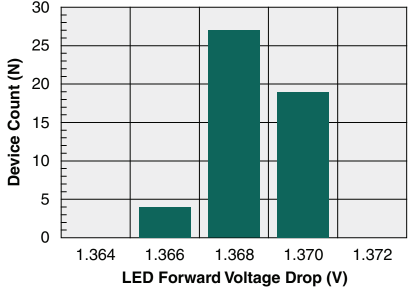
Typical values are characteristic of the device at +25°C, and are the result of engineering evaluations. They are provided for information purposes only, and are not part of the manufacturing testing requirements.

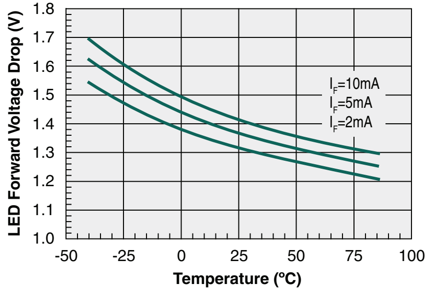
Electrical Characteristics T_A=25°C

Parameter	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics						
Blocking Voltage	I_L=1µA	V_{DRM}	250	-	-	V_P
Load Current						
Continuous [1]	-	I_L	-	-	150	mA_{rms} / mA_{DC}
Load Current Limiting (1-Form-A Only)	-	I_{CL}	±190	±235	±280	mA
On-Resistance	I_L=170mA	R_{ON}	-	21	25	Ω
Off-State Leakage Current	V_L=250V_P	I_{LEAK}	-	-	1	µA
Switching Speeds						
Turn-On	I_F=5mA, V_L=10V	t_{on}	-	-	5	ms
Turn-Off		t_{off}	-	-	5	
Output Capacitance	V_L=50V, f=1MHz	C_{OUT}	-	50	-	pF
Input Characteristics						
Input Control Current to Activate	I_L=120mA	I_F	-	-	5	mA
Input Control Current to Deactivate	-	I_F	0.4	0.7	-	mA
Input Voltage Drop	I_F=5mA	V_F	0.9	1.36	1.5	V
Reverse Input Current	V_R=5V	I_R	-	-	10	µA
Common Characteristics						
Input to Output Capacitance	V_{IO}=0V, f=1MHz	C_{IO}	-	3	-	pF

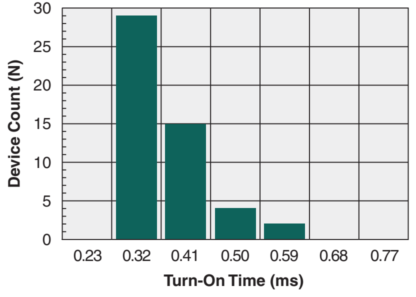
[1] If both poles operate, then the load current must be derated so as not to exceed the package's power dissipation rating.

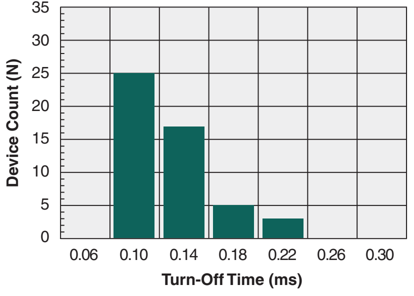
Form-A/Form-B PERFORMANCE DATA*

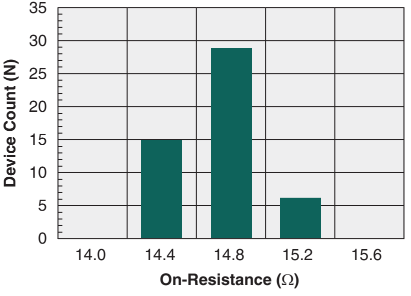

Typical LED Forward Voltage Drop
(N=50, I_F=5mA)

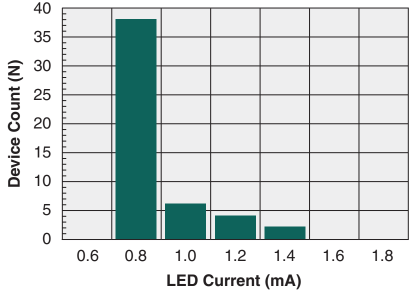

Typical LED Forward Voltage Drop
vs. Temperature

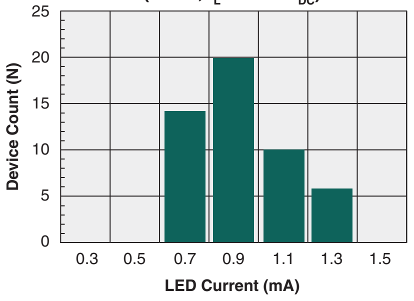
Form-A RELAY PERFORMANCE DATA*

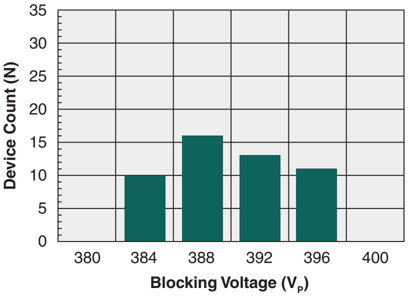

Form-A
Typical Turn-On Time
(N=50, I_F=5mA, I_L=170mA$_{DC}$)


Form-A
Typical Turn-Off Time
(N=50, I_F=5mA, I_L=170mA$_{DC}$)


Form-A
Typical On-Resistance Distribution
(N=50, I_F=5mA, I_L=170mA$_{DC}$)


Form-A
Typical I_F for Switch Operation
(N=50, I_L=170mA$_{DC}$)

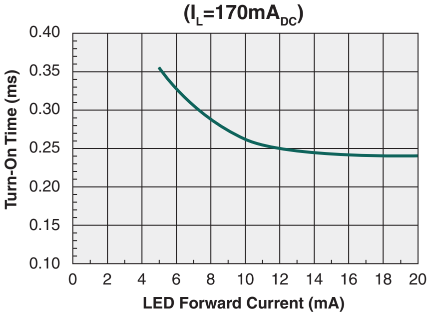

Form-A
Typical I_F for Switch Dropout
(N=50, I_L=170mA$_{DC}$)


Form-A
Typical Blocking Voltage Distribution
(N=50)

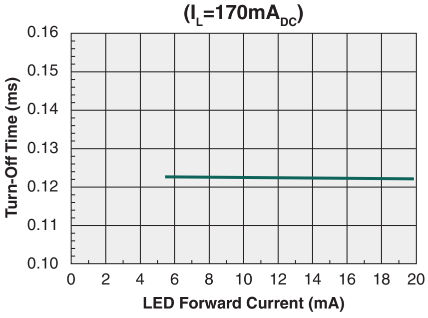
*Unless otherwise noted, data presented in these graphs is typical of device operation at 25ºC.

Form-A PERFORMANCE DATA*

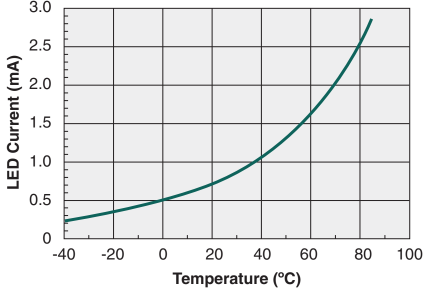
Form-A
Typical Turn-On Time
vs. LED Forward Current
(I_L=170mA$_{DC}$)



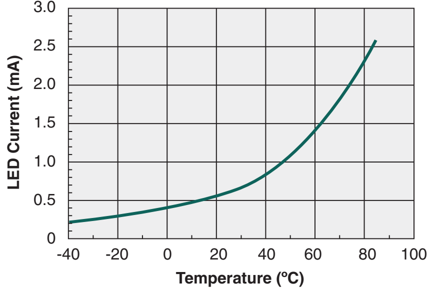
Form-A
Typical Turn-Off Time
vs. LED Forward Current
(I_L=170mA$_{DC}$)



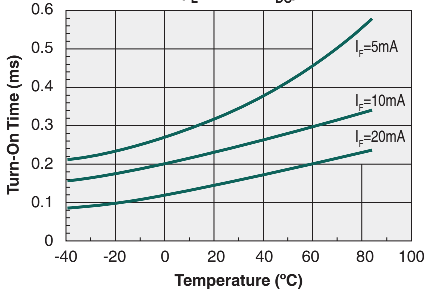
Form-A
Typical I_F for Switch Operation
vs. Temperature
(I_L=170mA$_{DC}$)



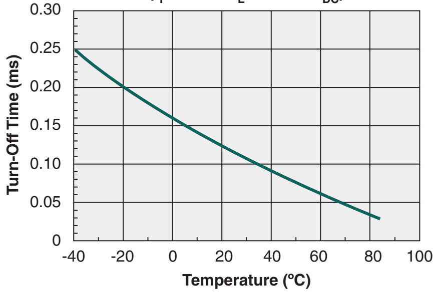
Form-A
Typical I_F for Switch Dropout
vs. Temperature
(I_L=170mA$_{DC}$)



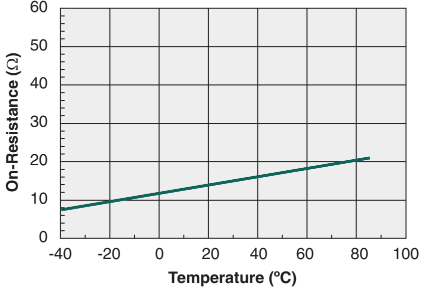
Form-A
Typical Turn-On Time
vs. Temperature
(I_L=170mA$_{DC}$)



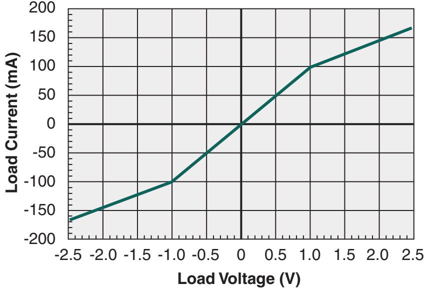
Form-A
Typical Turn-Off Time
vs. Temperature
(I_F=5mA, I_L=170mA$_{DC}$)



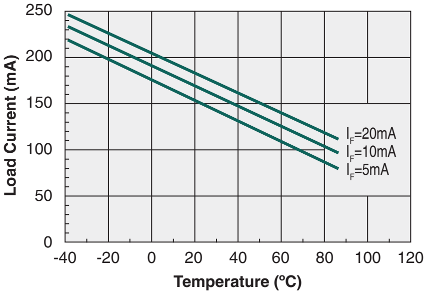
Form-A
Typical On-Resistance vs. Temperature
(I_F=5mA, I_L=170mA$_{DC}$)



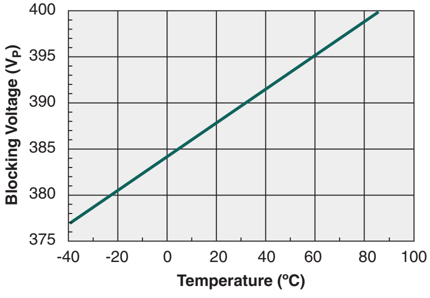
Form-A
Typical Load Current vs. Load Voltage
(I_F=5mA)



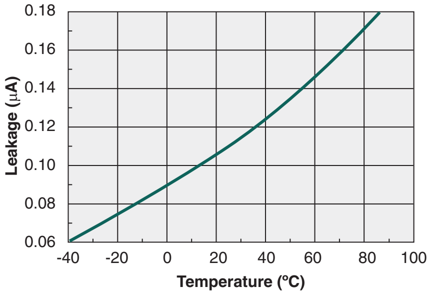
Form-A
Maximum Load Current vs. Temperature



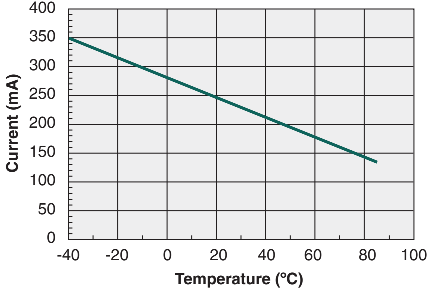
Form-A
Typical Blocking Voltage
vs. Temperature



Form-A
Typical Leakage vs. Temperature
(Measured across Pins 5&6)



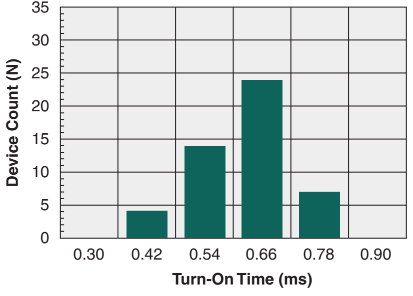
Typical Current Limiting vs. Temperature
(I_F=5mA)



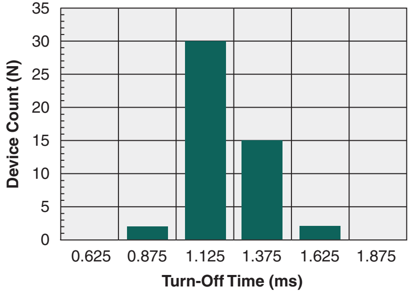
*Unless otherwise noted, data presented in these graphs is typical of device operation at 25ºC.

Form-B PERFORMANCE DATA*

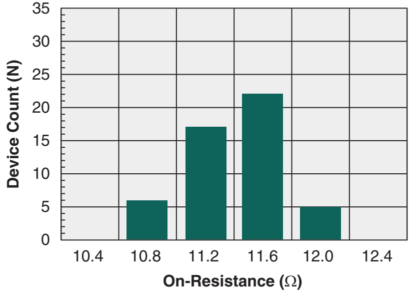
Form-B
Typical Turn-On Time
(N=50, I_F=5mA, I_L=170mA$_{DC}$)



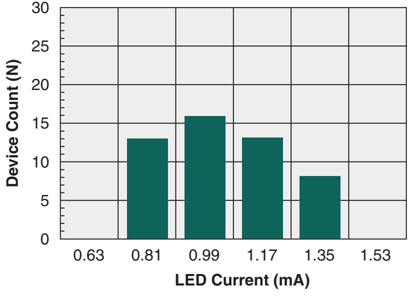
Form-B
Typical Turn-Off Time
(N=50, I_F=5mA, I_L=170mA$_{DC}$)



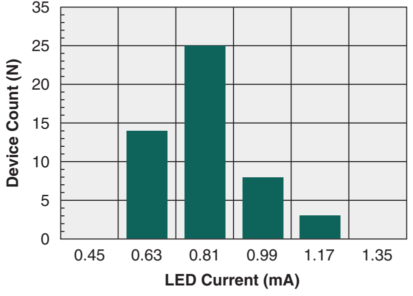
Form-B
Typical On-Resistance Distribution
(N=50, I_L=170mA$_{DC}$)



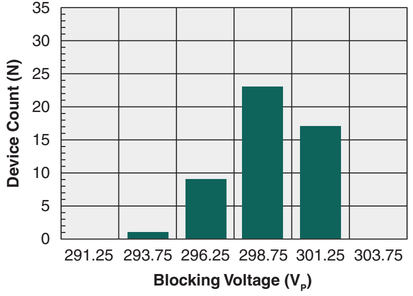
Form-B
Typical I_F for Switch Operation
(N=50, I_L=170mA$_{DC}$)



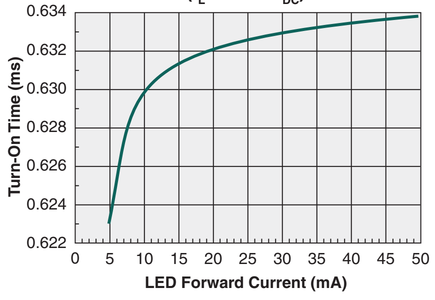
Form-B
Typical I_F for Switch Dropout
(N=50, I_L=170mA$_{DC}$)



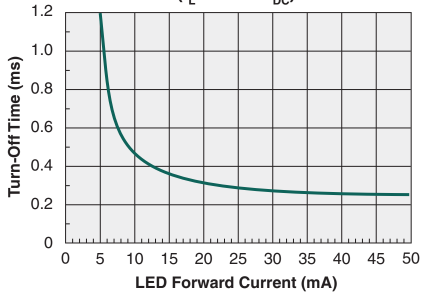
Form-B
Typical Blocking Voltage Distribution
(N=50, I_F=5mA)



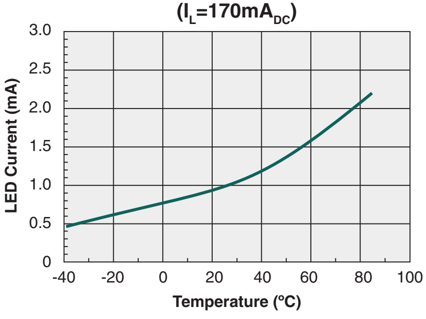
Form-B
Typical Turn-On Time
vs. LED Forward Current
(I_L=170mA$_{DC}$)



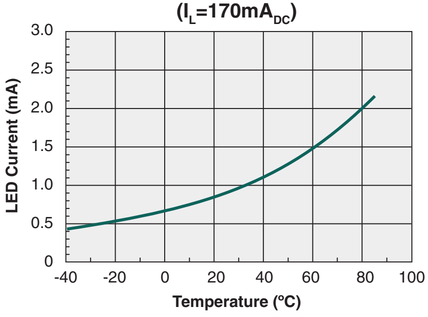
Form-B
Typical Turn-Off Time
vs. LED Forward Current
(I_L=170mA$_{DC}$)



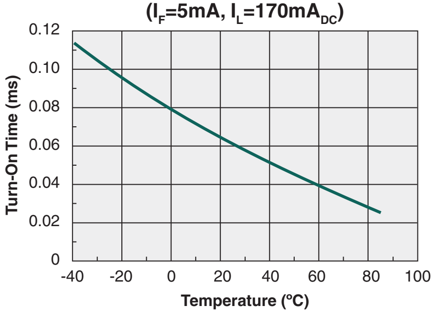
Form-B
Typical I_F for Switch Operation
vs. Temperature
(I_L=170mA$_{DC}$)



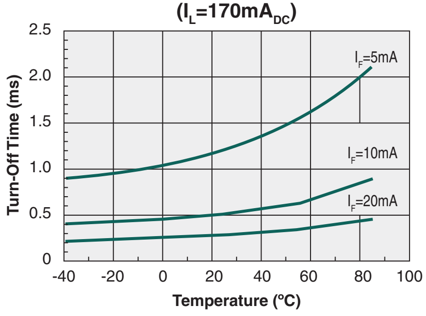
Form-B
Typical I_F for Switch Dropout
vs. Temperature
(I_L=170mA$_{DC}$)



Form-B
Typical Turn-On Time
vs. Temperature
(I_F=5mA, I_L=170mA$_{DC}$)

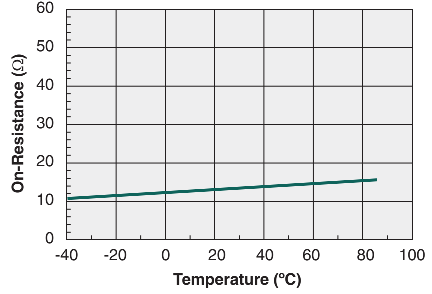


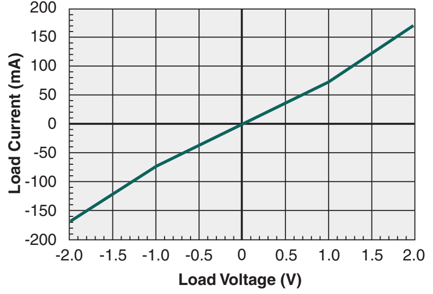
Form-B
Typical Turn-Off Time
vs. Temperature
(I_L=170mA$_{DC}$)

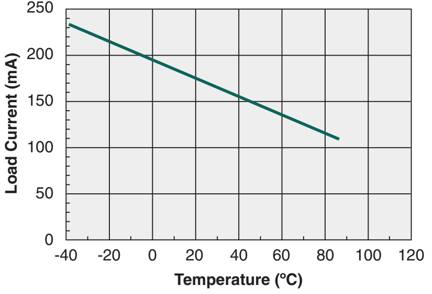


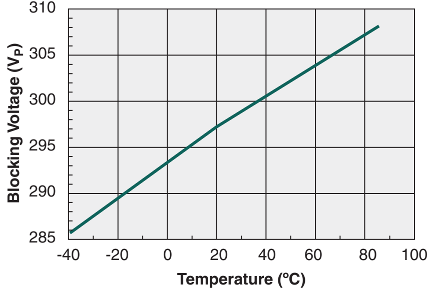
*Unless otherwise noted, data presented in these graphs is typical of device operation at 25°C.

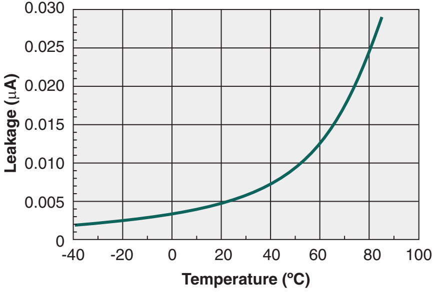
Form-B PERFORMANCE DATA*

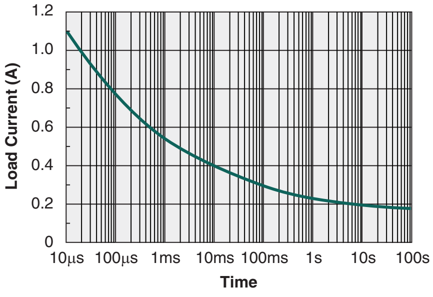

Form-B
Typical On-Resistance vs. Temperature
(I_F=0mA, I_L=170mA$_{DC}$)


Form-B
Typical Load Current vs. Load Voltage
(I_F=0mA)


Form-B
Maximum Load Current vs. Temperature
(I_F=0mA)


Form-B
Typical Blocking Voltage
vs. Temperature
(I_F=5mA)


Form-B
Typical Leakage vs. Temperature
Measured across Pins 7&8
(I_F=5mA)


Energy Rating Curve

*Unless otherwise noted, data presented in these graphs is typical of device operation at 25ºC.

Manufacturing Information

Moisture Sensitivity

All plastic encapsulated semiconductor packages are susceptible to moisture ingression. IXYS Integrated Circuits classifies its plastic encapsulated devices for moisture sensitivity according to the latest version of the joint industry standard, **IPC/JEDEC J-STD-020**, in force at the time of product evaluation. We test all of our products to the maximum conditions set forth in the standard, and guarantee proper operation of our devices when handled according to the limitations and information in that standard as well as to any limitations set forth in the information or standards referenced below.

Failure to adhere to the warnings or limitations as established by the listed specifications could result in reduced product performance, reduction of operable life, and/or reduction of overall reliability.

This product carries a **Moisture Sensitivity Level (MSL)** classification as shown below, and should be handled according to the requirements of the latest version of the joint industry standard **IPC/JEDEC J-STD-033**.

Device	Moisture Sensitivity Level (MSL) Classification
LBA120LS	MSL 1

ESD Sensitivity

This product is ESD Sensitive, and should be handled according to the industry standard **JESD-625**.

Soldering Profile

Provided in the table below is the **IPC/JEDEC J-STD-020** Classification Temperature (T_C) and the maximum dwell time the body temperature of these surface mount devices may be (T_C - 5)°C or greater. The Classification Temperature sets the Maximum Body Temperature allowed for these devices during reflow soldering processes.

Device	Classification Temperature (T_c)	Dwell Time (t_p)	Max Reflow Cycles
LBA120LS	250°C	30 seconds	3

For through-hole devices, the maximum pin temperature and maximum dwell time through all solder waves is provided in the table below. Dwell time is the interval beginning when the pins are initially immersed into the solder wave until they exit the solder wave. For multiple waves, the dwell time is from entering the first wave until exiting the last wave. During this time, pin temperatures must not exceed the maximum temperature given in the table below. Body temperature of the device must not exceed the limit shown in the table below at any time during the soldering process.

Device	Maximum Pin Temperature	Maximum Body Temperature	Maximum Dwell Time	Wave Cycles
LBA120L	260°C	250°C	10 seconds*	1

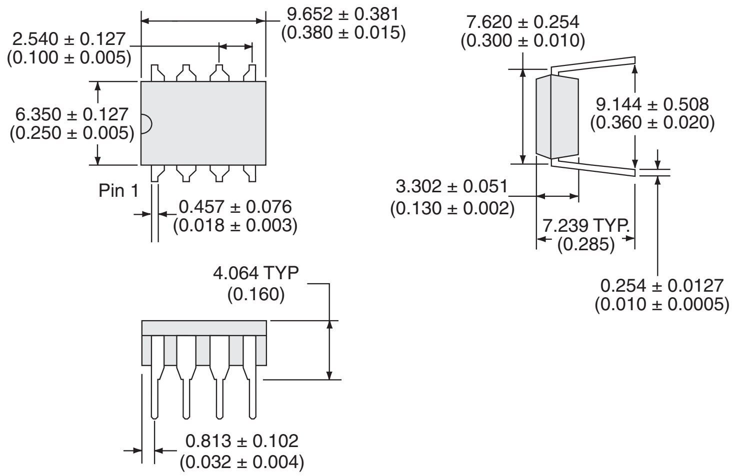
*Total cumulative duration of all waves.

Board Wash

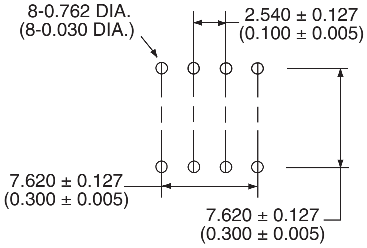
IXYS Integrated Circuits recommends the use of no-clean flux formulations. Board washing to reduce or remove flux residue following the solder reflow process is acceptable provided proper precautions are taken to prevent damage to the device. These precautions include but are not limited to: using a low pressure wash and providing a follow up bake cycle sufficient to remove any moisture trapped within the device due to the washing process. Due to the variability of the wash parameters used to clean the board, determination of the bake temperature and duration necessary to remove the moisture trapped within the package is the responsibility of the user (assembler). Cleaning or drying methods that employ ultrasonic energy may damage the device and should not be used. Additionally, the device must not be exposed to halide flux or solvents.

MECHANICAL DIMENSIONS

LBA120L

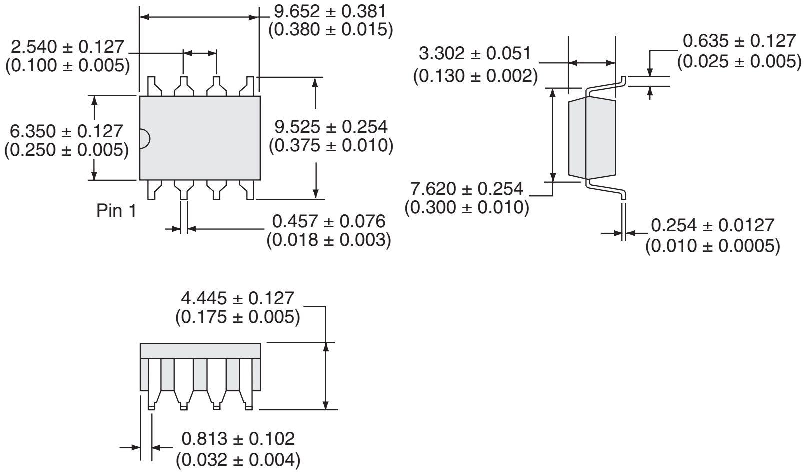


PCB Hole Pattern

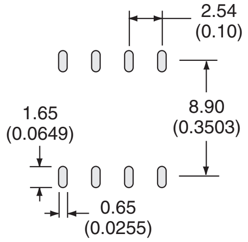


Dimensions
mm
(inches)

LBA120LS

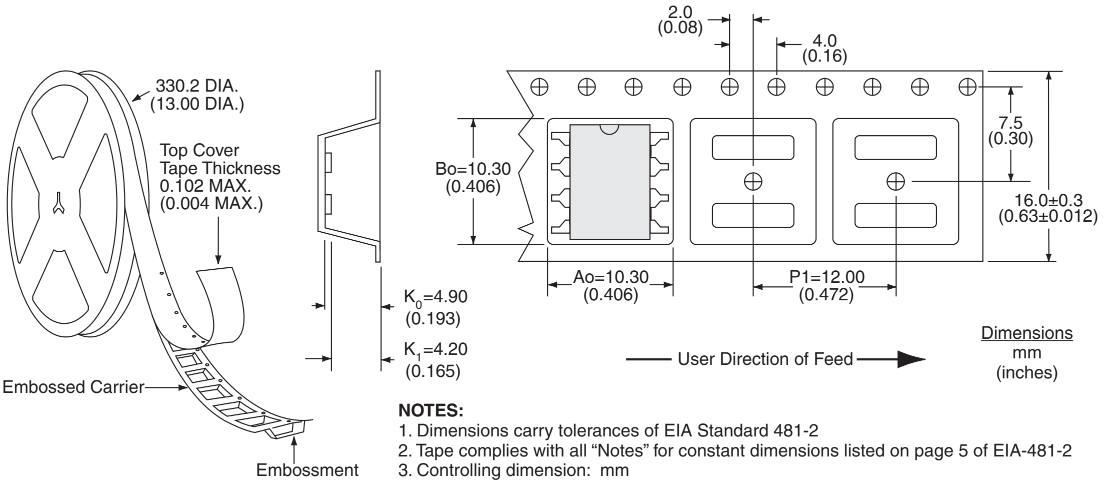


PCB Land Pattern



Dimensions
mm
(inches)

LBA120LSTR Tape & Reel



NOTES:
1. Dimensions carry tolerances of EIA Standard 481-2
2. Tape complies with all “Notes” for constant dimensions listed on page 5 of EIA-481-2
3. Controlling dimension: mm

For additional information please visit our website at: https://www.ixysic.com

Specification: DS-LBA120L-R07

10/25/2021