



| Parameter | Rating | Units |
|-----------------------|--------|-------|
| Load Voltage | 350 | V |
| Load Current | 100 | mA |
| Max On-Resistance | 50 | Ω |
| Input Control Current | 5 | mA |

Features

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

Applications

- Telecommunications
 - Telecom Switching
 - Tip/Ring Circuits
 - Modem Switching (Laptop, Notebook, Pocket Size)
 - Hook Switch
 - Dial Pulsing
 - Ground Start
 - Ringing Injection
- Instrumentation
 - Multiplexers
 - Data Acquisition
 - Electronic Switching
 - I/O Subsystems
 - Utility Meters (gas, oil, electric and water)
- Medical Equipment-Patient/Equipment Isolation
- Security
- Aerospace
- Industrial Controls

Description

XBA170 comprises two independent 350V, 100mA, 50Ω solid state relays: one single-pole, normally open (1-Form-A) relay and one single-pole, normally closed (1-Form-B) relay.

Featuring low on-resistance combined with enhanced peak load current handling capabilities, XBA170 is designed to provide an ideal solution where a complementary Form-A/Form-B relay pair is required.

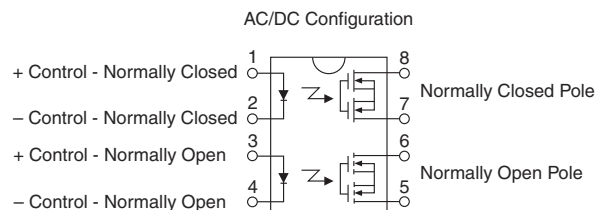
Approvals

- UL Recognized Component: File E76270
- CSA Certified Component: Certificate 1175739
- EN/IEC 60950-1 Compliant

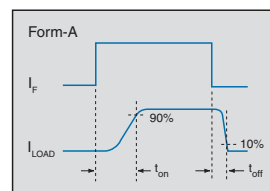
Ordering Information

| Part # | Description |
|-----------|---------------------------------|
| XBA170 | 8-Pin DIP (50/Tube) |
| XBA170P | 8-Pin Flatpack (50/Tube) |
| XBA170PTR | 8-Pin Flatpack (1000/Reel) |
| XBA170S | 8-Pin Surface Mount (50/Tube) |
| XBA170STR | 8-Pin Surface Mount (1000/Reel) |

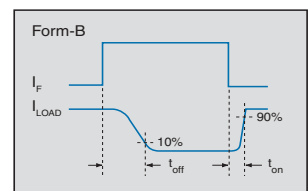
Pin Configuration



Switching Characteristics of Normally Open Devices



Switching Characteristics of Normally Closed Devices



Absolute Maximum Ratings @ 25°C

| Parameter | Ratings | Units |
|--------------------------------------|-------------|------------------|
| Blocking Voltage | 350 | V _P |
| Reverse Input Voltage | 5 | V |
| Input Control Current | 50 | mA |
| Peak (10ms) | 1 | A |
| Input Power Dissipation ¹ | 150 | mW |
| Total Power Dissipation ² | 800 | mW |
| Isolation Voltage, Input to Output | 3750 | V _{rms} |
| Operational Temperature | -40 to +85 | °C |
| Storage Temperature | -40 to +125 | °C |

¹ Derate linearly 1.33 mW / °C

² Derate linearly 6.67 mW / °C

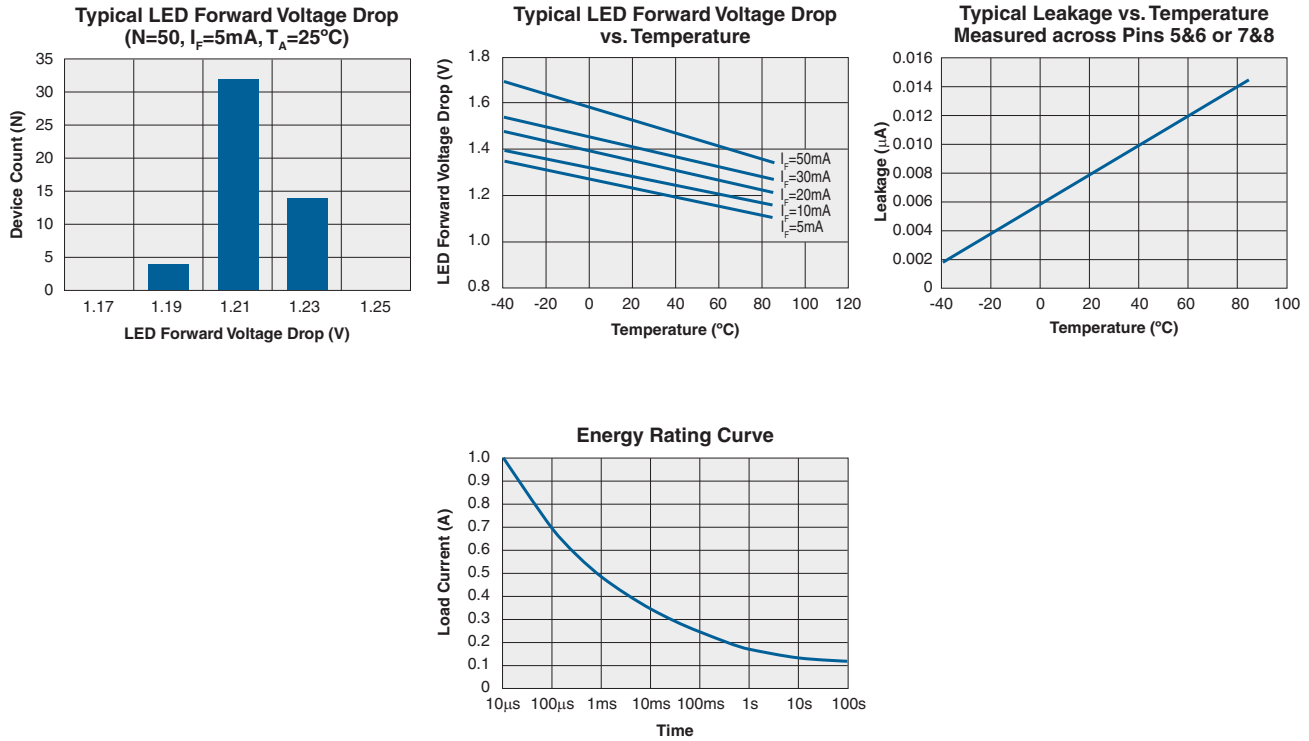
Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at conditions beyond those indicated in the operational sections of this data sheet is not implied.

Electrical Characteristics @ 25°C

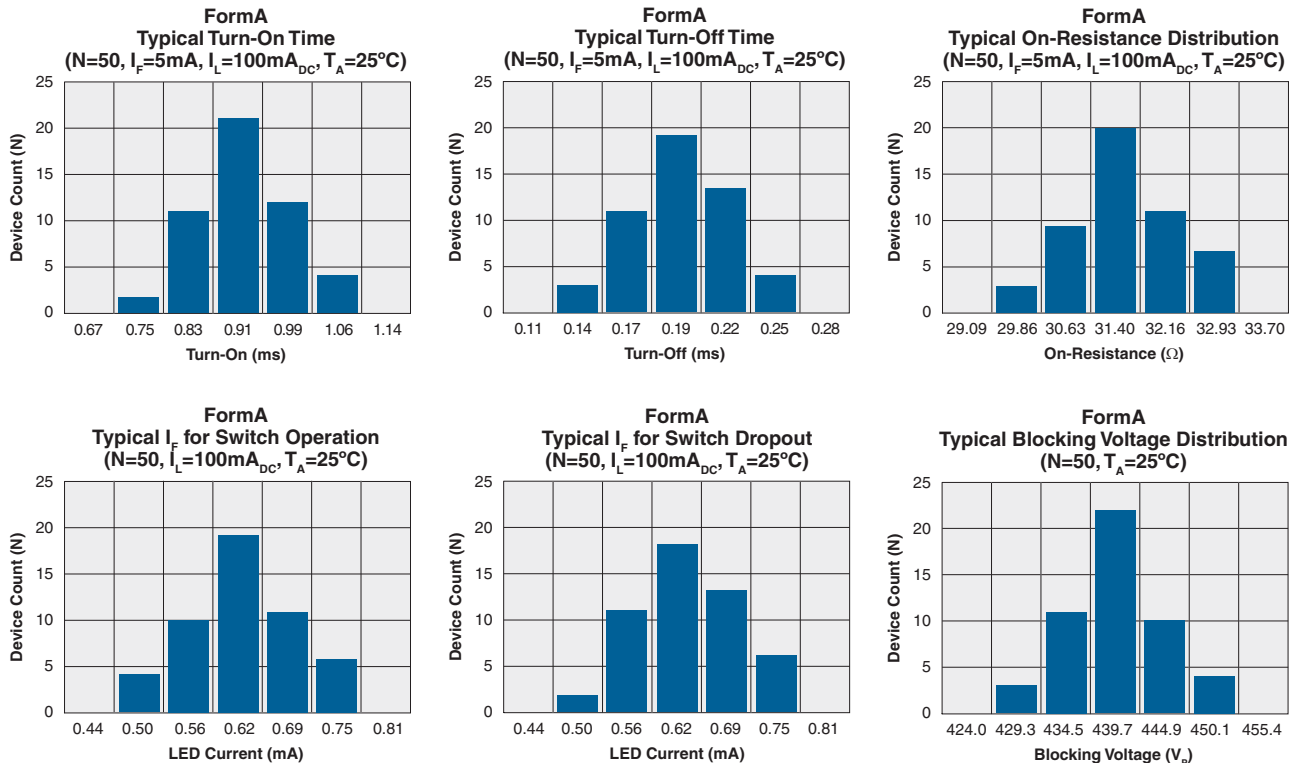
| Parameter | Conditions | Symbol | Min | Typ | Max | Units |
|------------------------------------|--|-------------------|-----|-----|-----|-------|
| Output Characteristics | | | | | | |
| Load Current | | | | | | |
| AC/DC Configuration, Continuous | - | I _L | - | - | 100 | mA |
| Peak | t=10ms | I _{LPK} | - | - | 350 | |
| On-Resistance, AC/DC Configuration | I _L =100mA | R _{ON} | - | 33 | 50 | Ω |
| Off-State Leakage Current | V _L =350V _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} | - | 25 | - | pF |
| Input Characteristics | | | | | | |
| Input Control Current | I _L =100mA | I _F | - | - | 2 | mA |
| Input Dropout Current | - | I _F | 0.4 | 0.7 | - | mA |
| Input Voltage Drop | I _F =5mA | V _F | 0.9 | 1.2 | 1.4 | V |
| Reverse Input Current | V _R =5V | I _R | - | - | 10 | μA |
| Common Characteristics | | | | | | |
| Capacitance, Input to Output | - | C _{I/O} | - | 3 | - | pF |

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

FORM-A / FORM-B COMMON PERFORMANCE DATA*

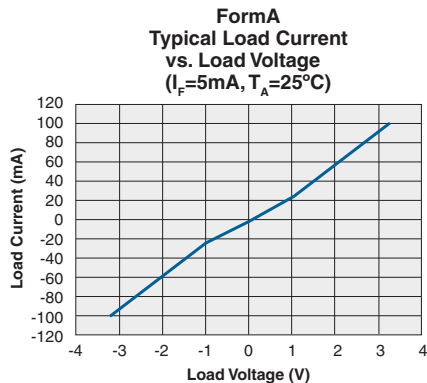
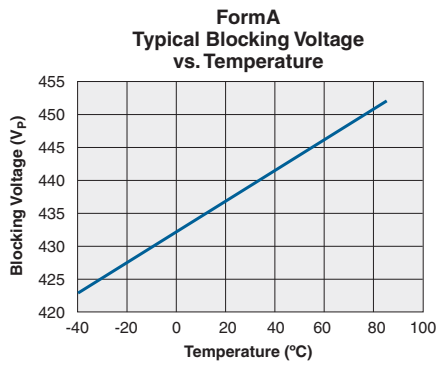
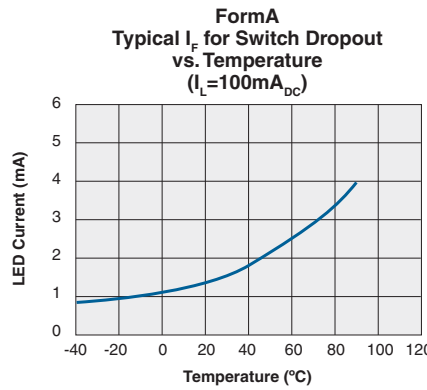
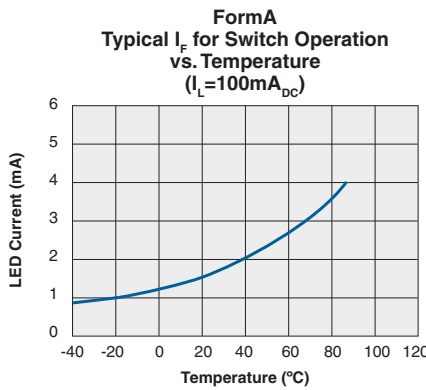
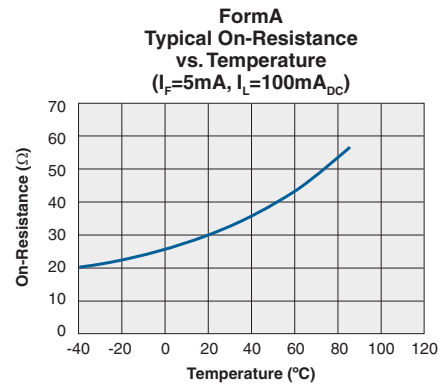
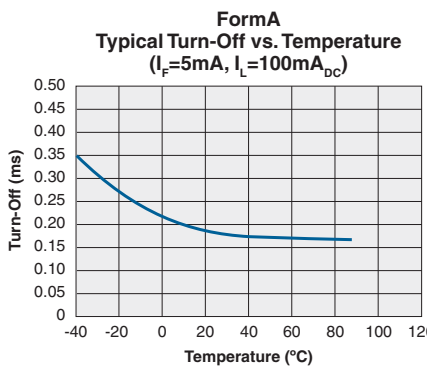
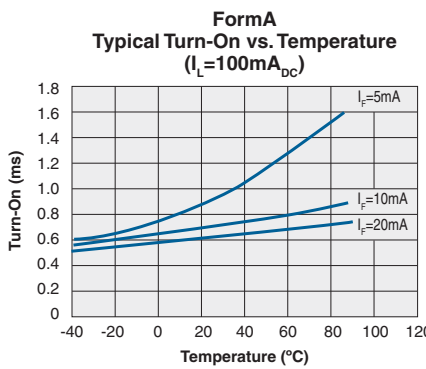
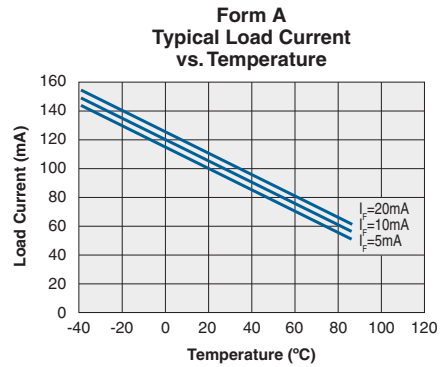
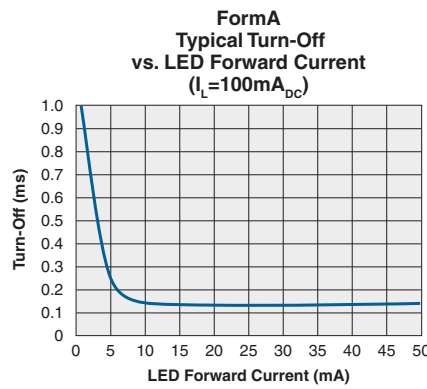
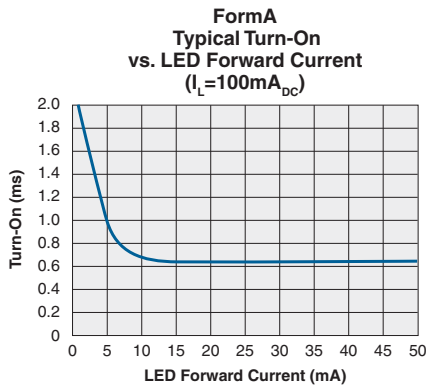


FORM-A RELAY PERFORMANCE DATA*



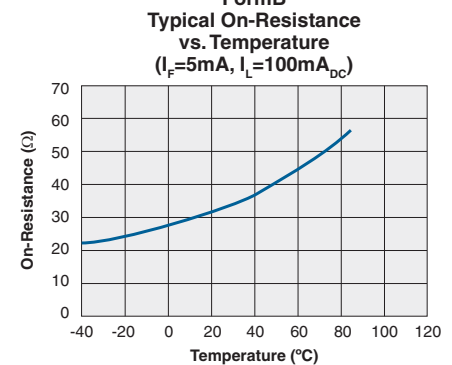
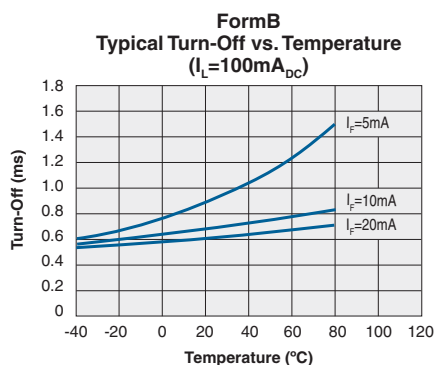
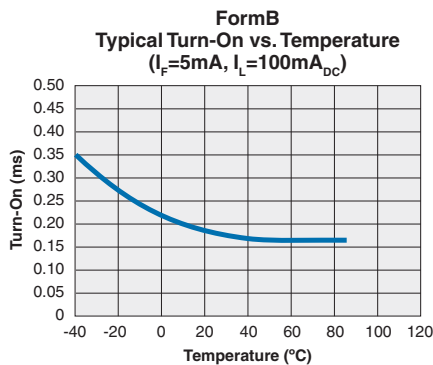
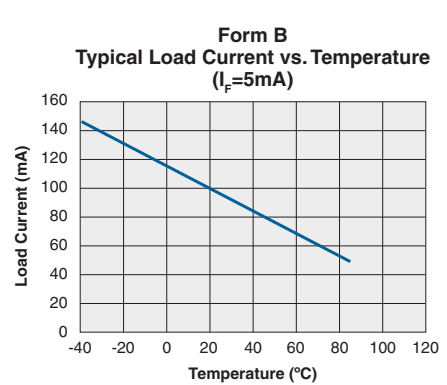
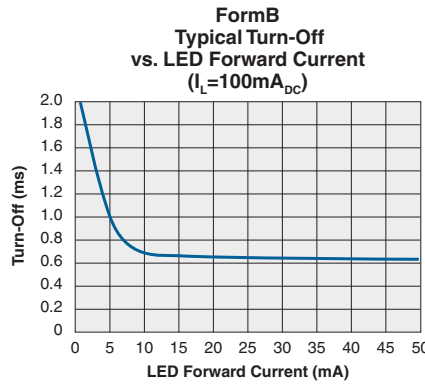
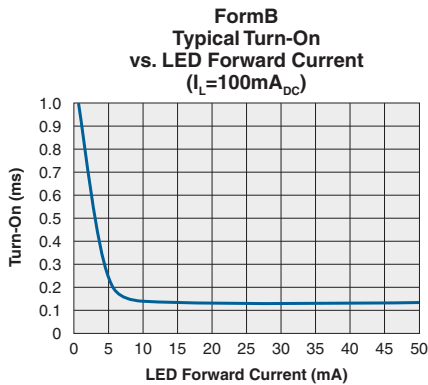
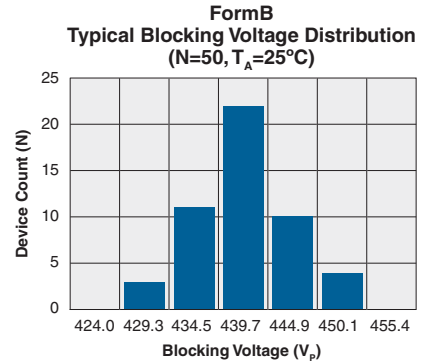
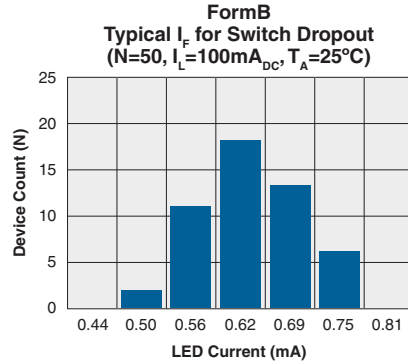
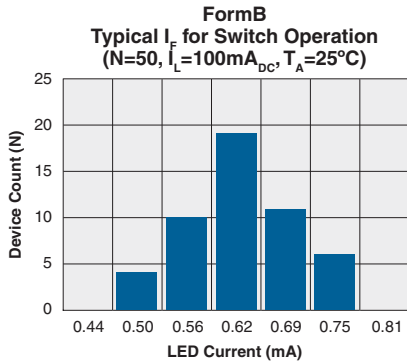
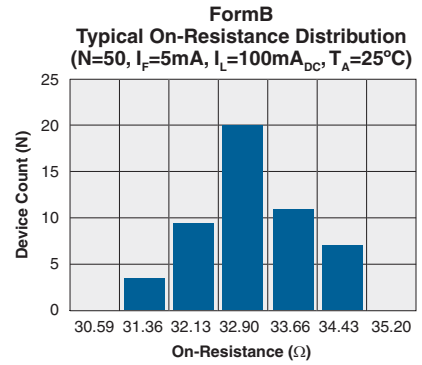
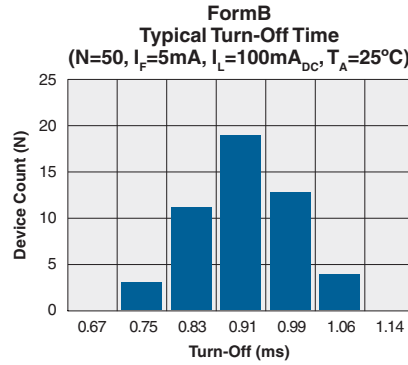
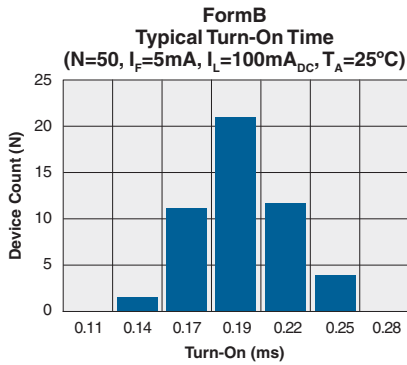
*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

FORM-A RELAY PERFORMANCE DATA (CONT.)*



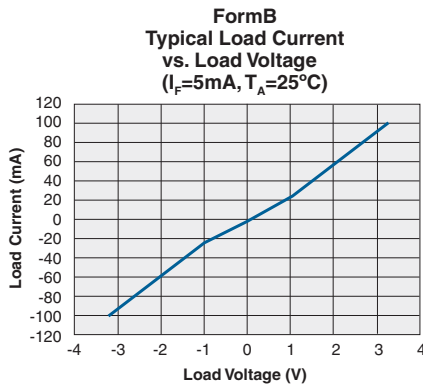
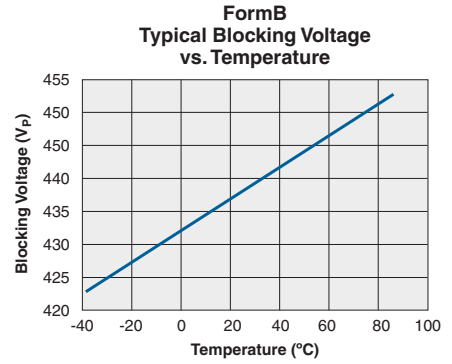
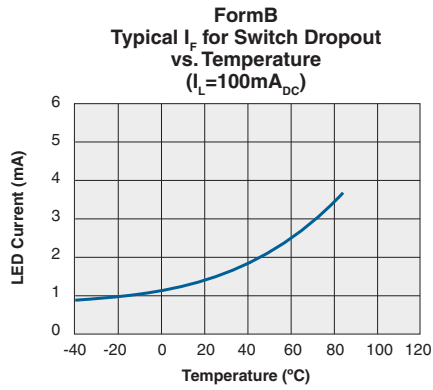
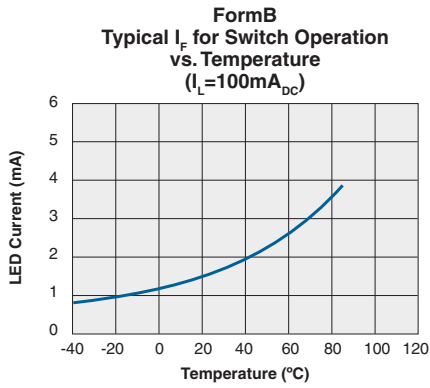
*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

FORM-B RELAY PERFORMANCE DATA*



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FORM-B RELAY PERFORMANCE DATA (CONT.)*



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Manufacturing Information

Moisture Sensitivity



All plastic encapsulated semiconductor packages are susceptible to moisture ingress. Clare classified all of 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) rating** 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) Rating |
|----------------------------|---|
| XBA170 / XBA170S / XBA170P | MSL 1 |

ESD Sensitivity



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

Reflow Profile

This product has a maximum body temperature and time rating as shown below. All other guidelines of **J-STD-020** must be observed.

| Device | Maximum Temperature x Time |
|------------------|----------------------------|
| XBA170 / XBA170S | 250°C for 30 seconds |
| XBA170P | 260°C for 30 seconds |

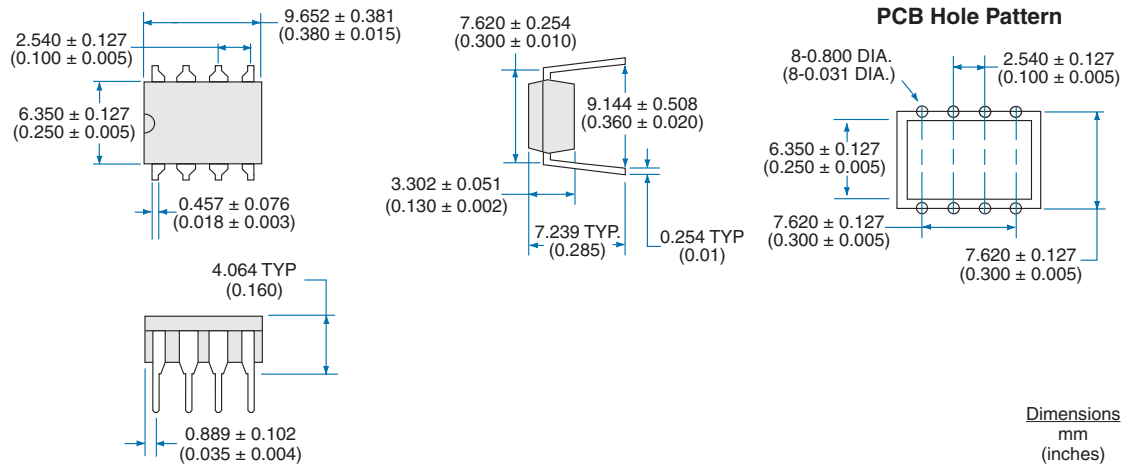
Board Wash

Clare recommends the use of no-clean flux formulations. However, board washing to remove flux residue is acceptable. Since Clare employs the use of silicone coating as an optical waveguide in many of its optically isolated products, the use of a short drying bake could be necessary if a wash is used after solder reflow processes. Chlorine-based or Fluorine-based solvents or fluxes should not be used. Cleaning methods that employ ultrasonic energy should not be used.

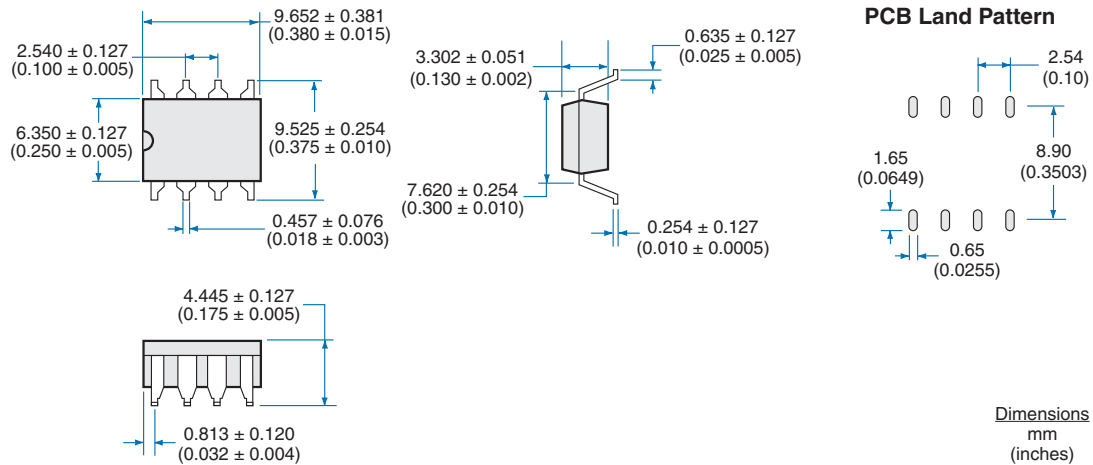


MECHANICAL DIMENSIONS

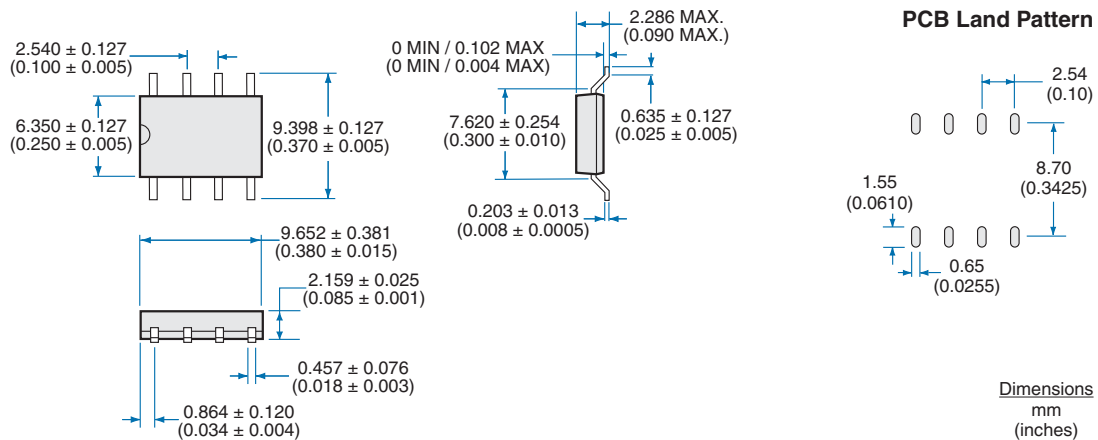
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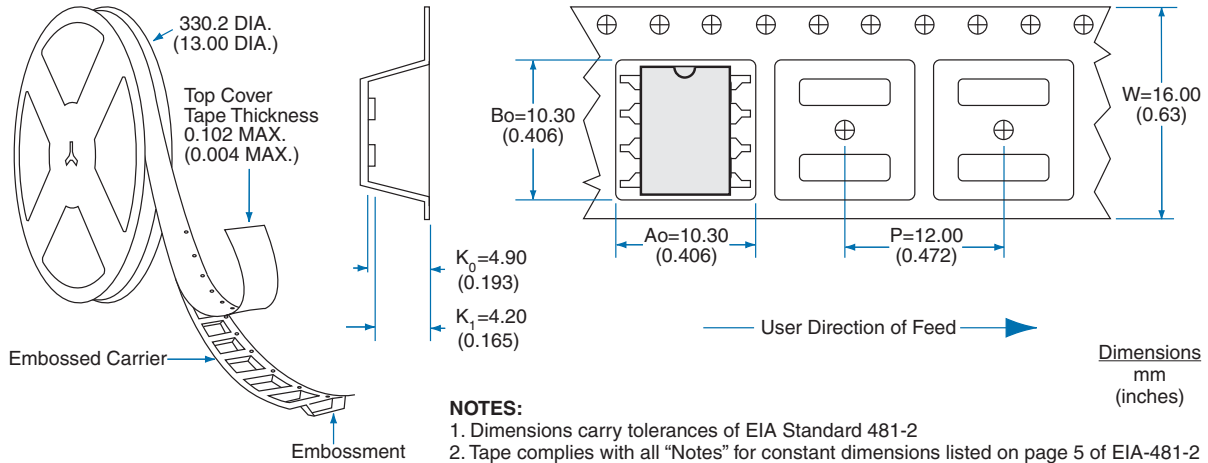
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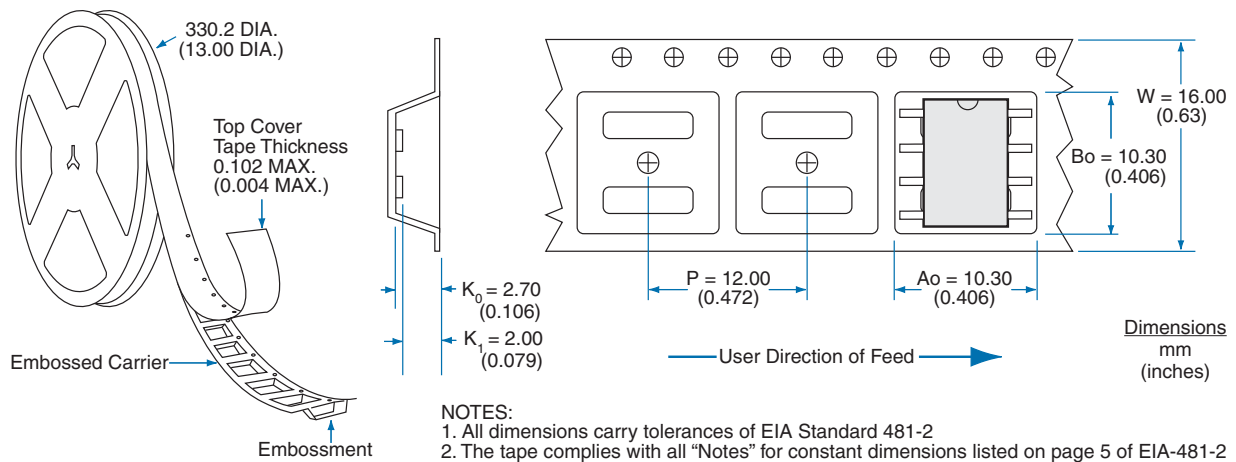
XBA170P



XBA170S Tape & Reel



XBA170P Tape & Reel



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