CLARE
MICRO CHIPS.
MACRO SOLUTIONS.

LBA126

DUAL POLE OptoMOS® Relay

	LBA126	Units
Load Voltage	250	V
Load Current	170	mA
Max R_{ON}	15	Ω

Description

LBA126 is 250V, 170mA, 15Ω independent 1-Form-A and 1-Form-B relays. It features lower on-resistance with enhanced peak load current handling capabilities.

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
- 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

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

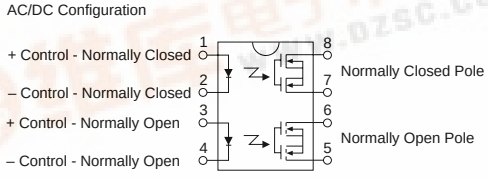
Ordering Information

Part #	Description
LBA126	8 Pin DIP (50/Tube)
LBA126P	8 Pin Flatpack (50/Tube)
LBA126PTR	8 Pin Flatpack (1000/Reel)
LBA126S	8 Pin Surface Mount (50/Tube)
LBA126STR	8 Pin Surface Mount (50/Reel)

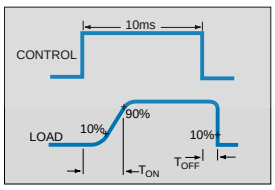
Pin Configuration

LBA126 Pinout

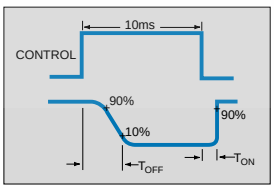
AC/DC Configuration



Switching Characteristics of Normally Open (Form A) Devices



Switching Characteristics of Normally Closed (Form B) Devices



Absolute Maximum 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
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

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 these or any other conditions beyond those indicated in the operational sections of this data sheet is not implied. Exposure of the device to the absolute maximum ratings for an extended period may degrade the device and effect its reliability.

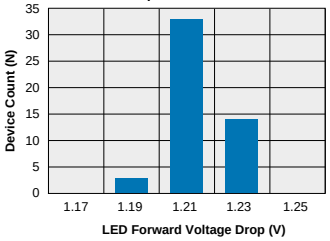
Electrical Characteristics

Parameter	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics @ 25°C						
Load Voltage (Peak)	-	V_{ON}	-	-	250	V
Load Current *(Continuous)						
AC/DC Configuration	-	I_{ON}			170	mA
Peak Load Current	10ms	I_{LPK}	-	-	-	mA
On-Resistance						
AC/DC Configuration	I_L=170mA	R_{ON}	-	10	15	Ω
Off-State Leakage Current	V_L=250V	I_{LEAK}	-	-	1	µA
Switching Speeds						
Turn-On	I_F=5mA, V_L=10V	T_{ON}	-	-	5	ms
Turn-Off	I_F=5mA, V_L=10V	T_{OFF}	-	-	5	ms
Output Capacitance	50V; f=1MHz	C_{OUT}	-	50	-	pF
Load Current Limiting		I_{CL}	-	-	-	mA
Capacitance Input to Output	-	-	-	3	-	pF
Input Characteristics @ 25°C						
Input Control Current	I_L=170mA	I_F	5	-	50	mA
Input Dropout Current	-	-	0.4	0.7	-	mA
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
Common Characteristics @ 25°C						
Input to Output Capacitance	-	$C_{I/O}$	-	3	-	pF
Input to Output Isolation	-	$V_{I/O}$	3750	-	-	V_{RMS}

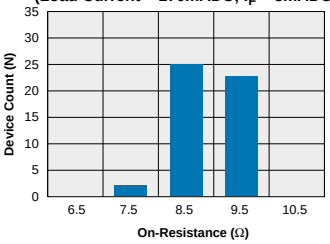
*NOTE: If both poles operate simultaneously load current must be derated so as not to exceed the package power dissipation value.

PERFORMANCE DATA*

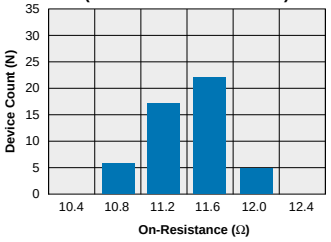
LBA126
Typical LED Forward Voltage Drop
(N=50 Ambient Temperature = 25°C)
I_F = 5mADC



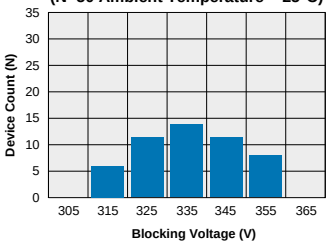
LBA126 - Form A
Typical On-Resistance Distribution
(N=50 Ambient Temperature = 25°C)
(Load Current = 170mADC; I_F = 5mADC)



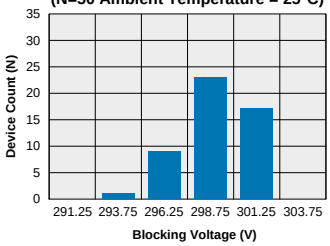
LBA126 - Form B
Typical On-Resistance Distribution
(N=50 Ambient Temperature = 25°C)
(Load Current = 170mADC)



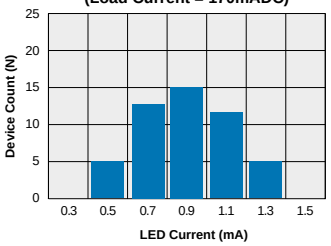
LBA126 - Form A
Typical Blocking Voltage Distribution
(N=50 Ambient Temperature = 25°C)



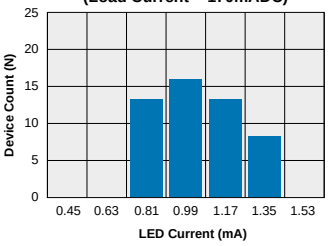
LBA126 - Form B
Typical Blocking Voltage Distribution
(N=50 Ambient Temperature = 25°C)



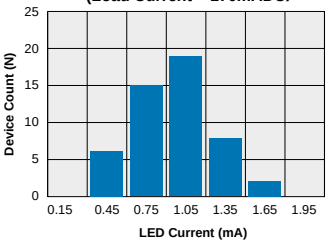
LBA126 - Form A
Typical I_F for Switch Operation
(N=50 Ambient Temperature = 25°C)
(Load Current = 170mADC)



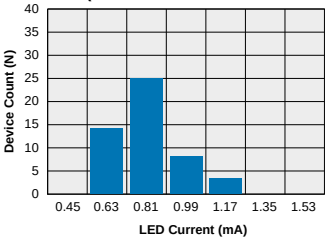
LBA126 - Form B
Typical I_F for Switch Operation
(N=50 Ambient Temperature = 25°C)
(Load Current = 170mADC)



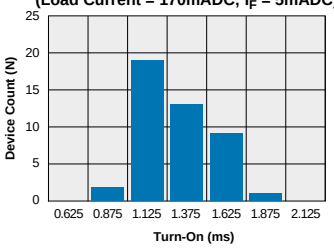
LBA126 - Form A
Typical I_F for Switch Dropout
(N=50 Ambient Temperature = 25°C)
(Load Current = 170mADC)



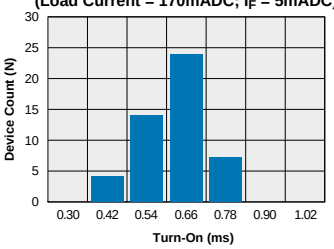
LBA126 - Form B
Typical I_F for Switch Dropout
(N=50 Ambient Temperature = 25°C)
(Load Current = 170mADC)



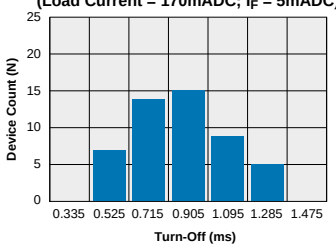
LBA126 - Form A
Typical Turn-On Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 170mADC; I_F = 5mADC)



LBA126 - Form B
Typical Turn-On Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 170mADC; I_F = 5mADC)



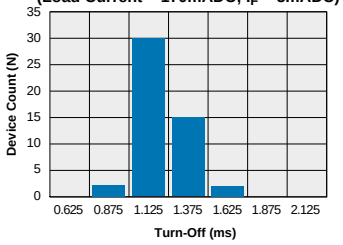
LBA126 - Form A
Typical Turn-Off Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 170mADC; I_F = 5mADC)



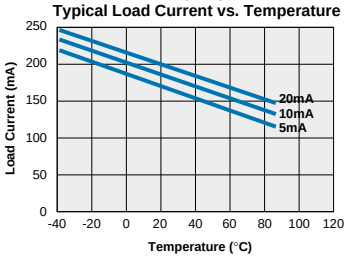
The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

PERFORMANCE DATA*

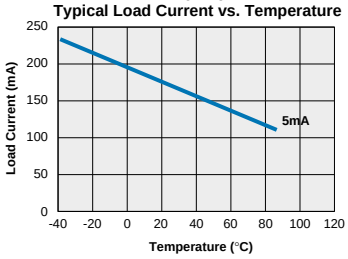
LBA126 - Form B
Typical Turn-Off Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 170mADC; I_F = 5mADC)



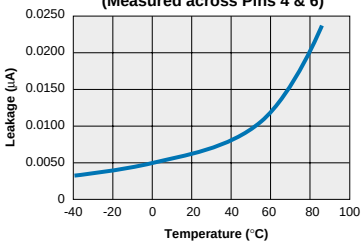
LBA126 - Form A
Typical Load Current vs. Temperature



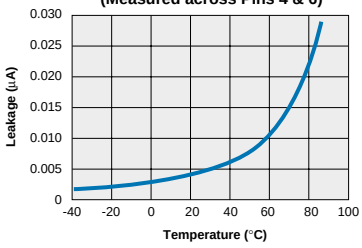
LBA126 - Form B
Typical Load Current vs. Temperature



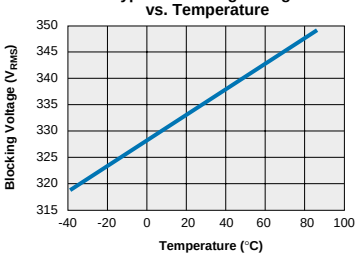
LBA126 - Form A
Typical Leakage vs. Temperature
(Measured across Pins 4 & 6)



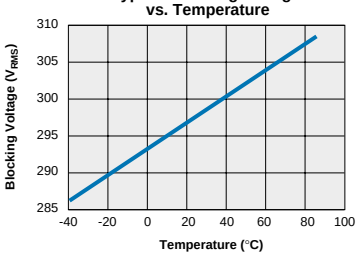
LBA126 - Form B
Typical Leakage vs. Temperature
(Measured across Pins 4 & 6)



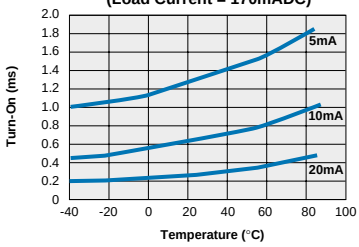
LBA126 - Form A
Typical Blocking Voltage
vs. Temperature



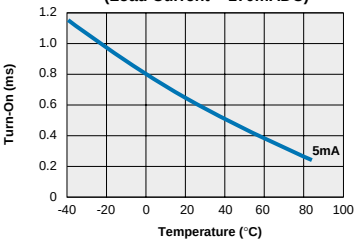
LBA126 - Form B
Typical Blocking Voltage
vs. Temperature



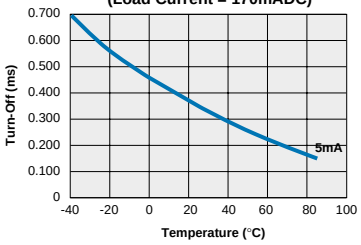
LBA126 - Form A
Typical Turn-On vs. Temperature
(Load Current = 170mADC)



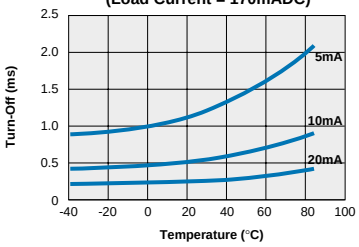
LBA126 - Form B
Typical Turn-On vs. Temperature
(Load Current = 170mADC)



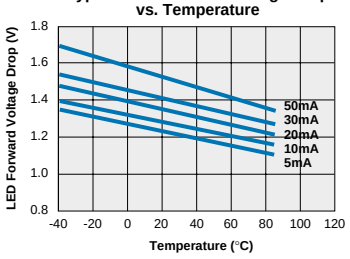
LBA126 - Form A
Typical Turn-Off vs. Temperature
(Load Current = 170mADC)



LBA126 - Form B
Typical Turn-Off vs. Temperature
(Load Current = 170mADC)



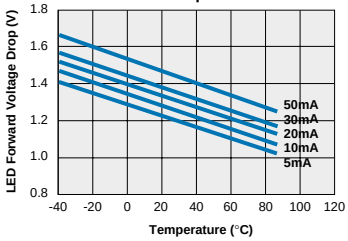
LBA126 - Form A
Typical LED Forward Voltage Drop
vs. Temperature



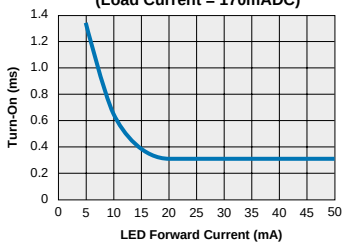
*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

PERFORMANCE DATA*

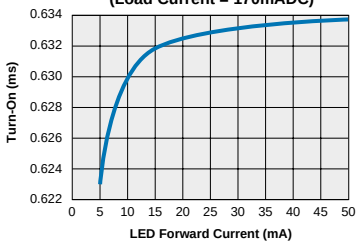
LBA126 - Form B
Typical LED Forward Voltage Drop vs. Temperature



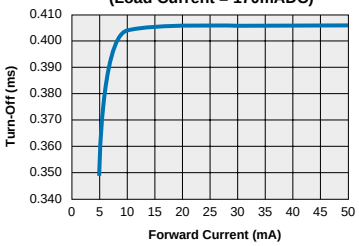
LBA126 - Form A
Typical Turn-On vs. LED Forward Current (Load Current = 170mADC)



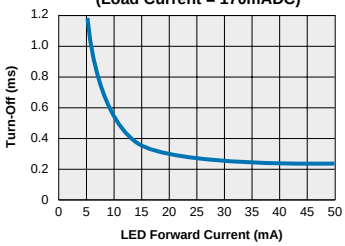
LBA126 - Form B
Typical Turn-On vs. LED Forward Current (Load Current = 170mADC)



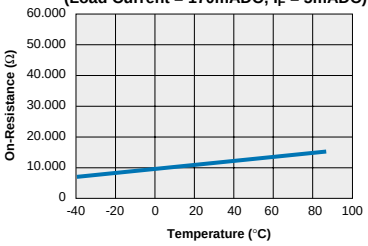
LBA126 - Form A
Typical Turn-Off vs. LED Forward Current (Load Current = 170mADC)



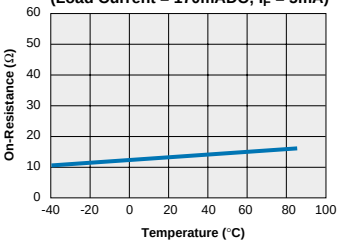
LBA126 - Form B
Typical Turn-Off vs. LED Forward Current (Load Current = 170mADC)



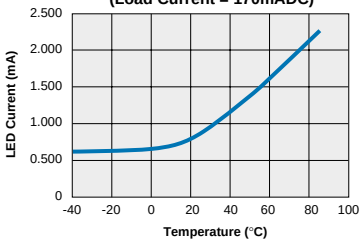
LBA126 - Form A
Typical On-Resistance vs. Temperature (Load Current = 170mADC; I_F = 5mADC)



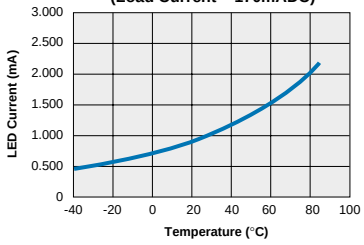
LBA126 - Form B
Typical On-Resistance vs. Temperature (Load Current = 170mADC; I_F = 5mA)



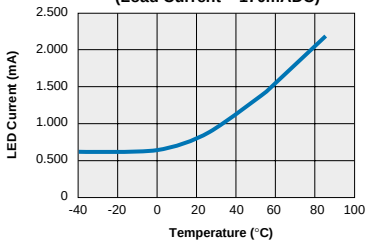
LBA126 - Form A
Typical I_F for Switch Operation vs. Temperature (Load Current = 170mADC)



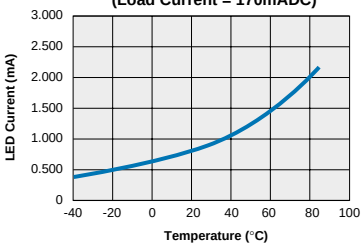
LBA126 - Form B
Typical I_F for Switch Operation vs. Temperature (Load Current = 170mADC)



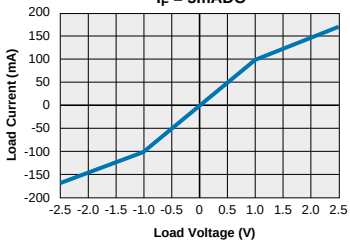
LBA126 - Form A
Typical I_F for Switch Dropout vs. Temperature (Load Current = 170mADC)



LBA126 - Form B
Typical I_F for Switch Dropout vs. Temperature (Load Current = 170mADC)



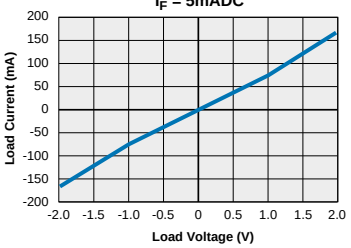
LBA126 - Form A
Typical Load Current vs. Load Voltage (Ambient Temperature = 25°C) I_F = 5mADC



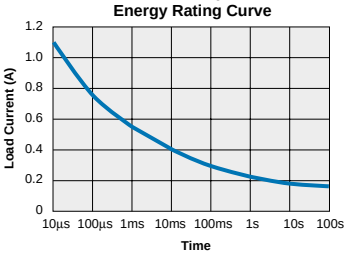
*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

PERFORMANCE DATA*

LBA126 - Form B
Typical Load Voltage vs. Load Current
(Ambient Temperature = 25°C)
I_F = 5mADC



LBA126
Energy Rating Curve



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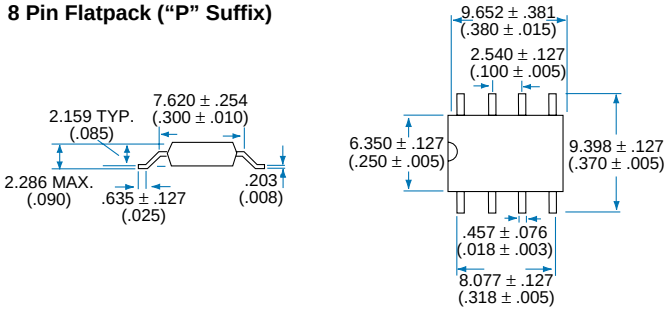
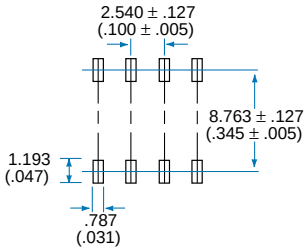
Mechanical Dimensions

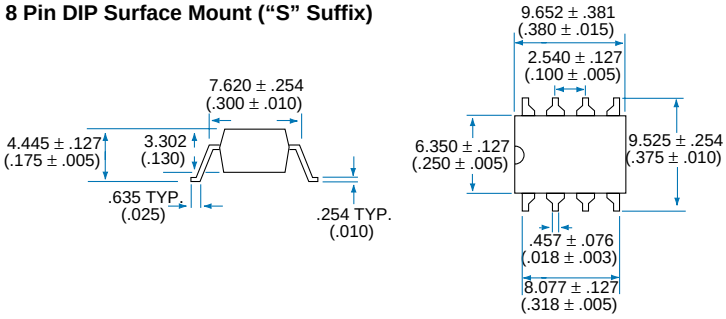
8 Pin Flatpack (“P” Suffix)



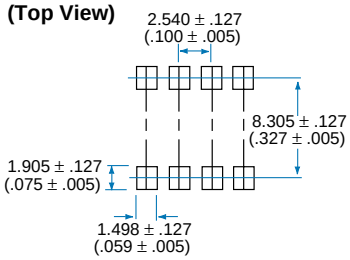
PC Board Pattern (Top View)



8 Pin DIP Surface Mount (“S” Suffix)



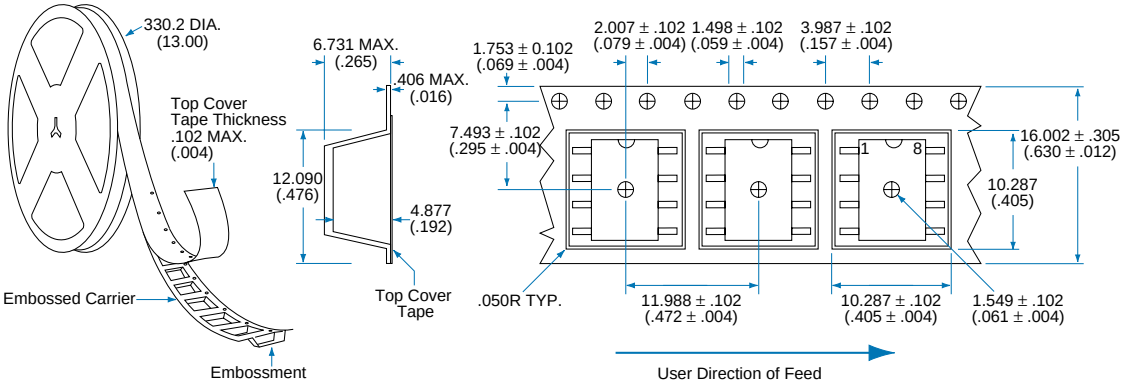
PC Board Pattern (Top View)



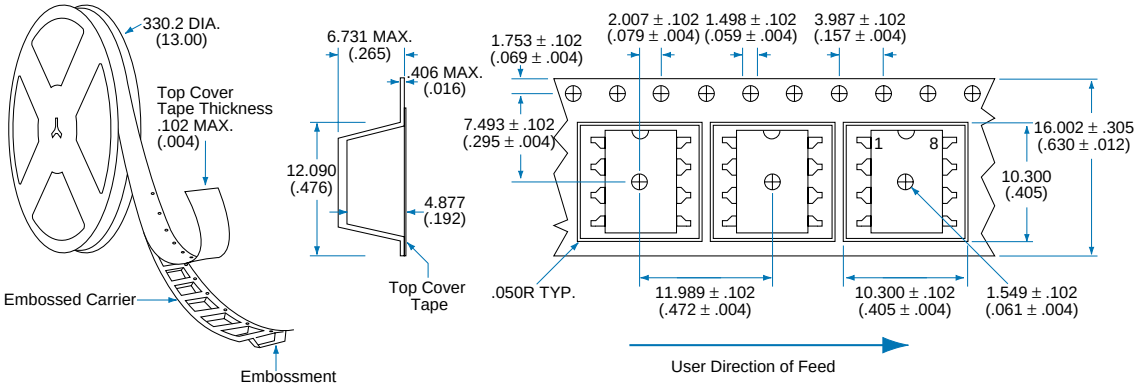
Dimensions
mm
(inches)

Mechanical Dimensions

Tape and Reel Packaging for 8 Pin Flatpack Package



Tape and Reel Packaging for 8 Pin Surface Mount Package



Dimensions
mm
(inches)

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2/1/01