XBA170

DUAL POLE OptoMOS® Relay



	XBA170	Units
Load Voltage	350	V
Load Current	100	mA
Max R_{ON}	50	Ω

Description

XBA170 is 350V, 100mA, 50Ω independent 1-Form-A and 1-Form-B relays. It provides an economical solution where cost is critical and high performance is not a necessity.

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

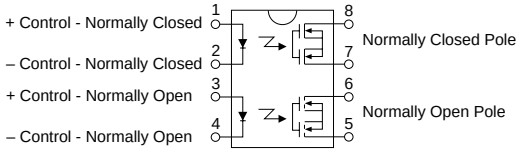
Ordering Information

Part #	Description
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)

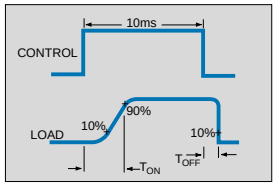
Pin Configuration

XBA170 Pinout

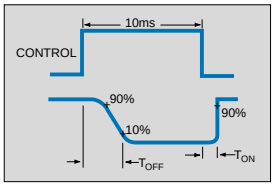
AC/DC Configuration



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
Surface Mount Package (10 Seconds Max.)	-	-	+220	°C

[1] Derate Linearly 1.33 mw/°C

[2] Derate Linearly 6.67 mw/°C

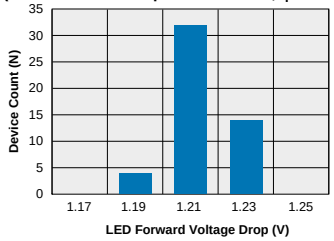
Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at these or any other conditions beyond those indicated in the operational sections of this data sheet is not implied. Exposure of the device to the absolute maximum ratings for an extended period may degrade the device and effect its reliability.

Electrical Characteristics

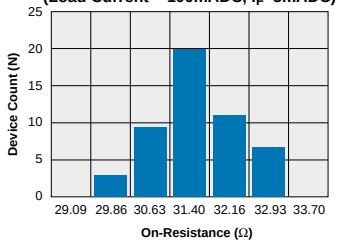
Parameter	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics @ 25°C						
Load Voltage (Peak)	-	V_L	-	-	350	V
Load Current* (Continuous)						
AC/DC Configuration	-	I_L	-	-	100	mA
Peak Load Current	10ms	I_{LPK}	-	-	350	mA
On-Resistance						
AC/DC Configuration	I_L=120mA	R_{ON}	-	33	50	Ω
Off-State Leakage Current	V_L=350V	I_{LEAK}	-	-	1	µA
Switching Speeds						
Turn-On	I_F=5mA, V_L=10V	T_{ON}	1	-	5	ms
Turn-Off	I_F=5mA, V_L=10V	T_{OFF}	1	-	5	ms
Output Capacitanmce	50V; f=1MHz	C_{OUT}	-	25	-	pF
Capacitance						
Input to Output	-	-	-	3	-	pF
Input Characteristics @ 25°C						
Input Control Current	I_L=Load Current	I_F	5	-	50	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 Voltage	-	V_R	-	-	5	V
Reverse Input Current	V_R=5V	I_R	-	-	10	µA
Input to Output Capacitance	-	$C_{I/O}$	-	3	-	pF
Input to Output Isolation	-	$V_{I/O}$	3750	-	-	V_{RMS}

PERFORMANCE DATA*

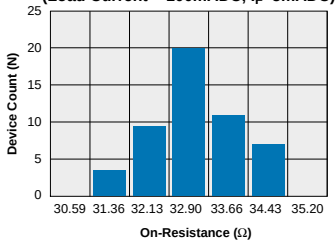
XBA170
Typical LED Forward Voltage Drop
(N=50 Ambient Temperature = 25°C; I_F = 5mADC)



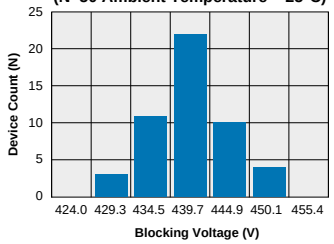
XBA170 - FormA
Typical On-Resistance Distribution
(N=50 Ambient Temperature = 25°C)
(Load Current = 100mADC, I_F=5mADC)



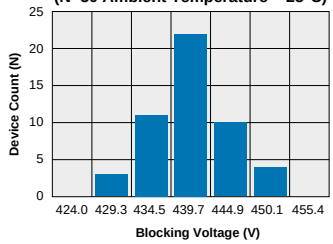
XBA170 - FormB
Typical On-Resistance Distribution
(N=50 Ambient Temperature = 25°C)
(Load Current = 100mADC, I_F=5mADC)



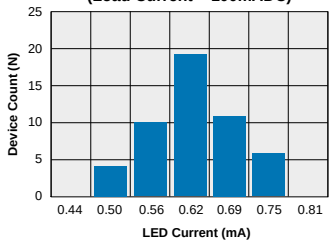
XBA170 - FormA
Typical Blocking Voltage Distribution
(N=50 Ambient Temperature = 25°C)



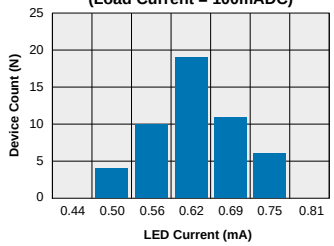
XBA170 - FormB
Typical Blocking Voltage Distribution
(N=50 Ambient Temperature = 25°C)



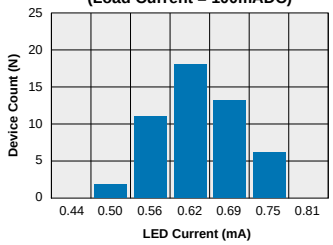
XBA170 - FormA
Typical I_F for Switch Operation
(N=50 Ambient Temperature = 25°C)
(Load Current = 100mADC)



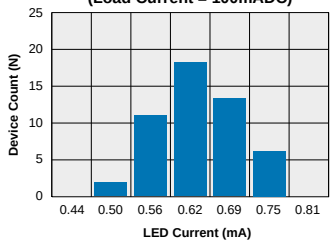
XBA170 - FormB
Typical I_F for Switch Operation
(N=50 Ambient Temperature = 25°C)
(Load Current = 100mADC)



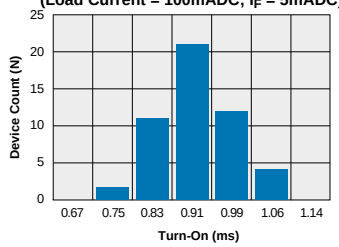
XBA170 - FormA
Typical I_F for Switch Dropout
(N=50 Ambient Temperature = 25°C)
(Load Current = 100mADC)



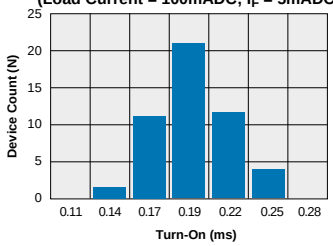
XBA170 - FormB
Typical I_F for Switch Dropout
(N=50 Ambient Temperature = 25°C)
(Load Current = 100mADC)



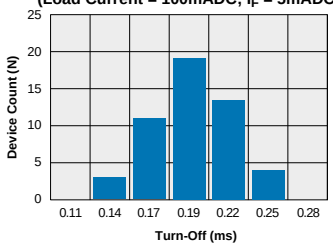
XBA170 - FormA
Typical Turn-On Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 100mADC; I_F = 5mADC)



XBA170 - FormB
Typical Turn-On Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 100mADC; I_F = 5mADC)



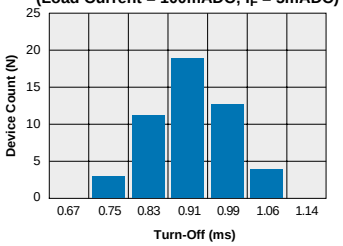
XBA170 - FormA
Typical Turn-Off Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 100mADC; I_F = 5mADC)



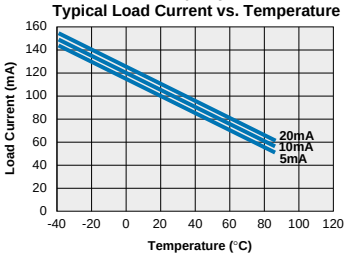
The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

PERFORMANCE DATA*

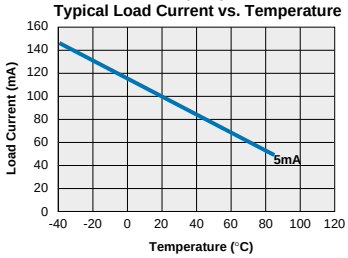
XBA170 - FormB
Typical Turn-Off Time
(N=50 Ambient Temperature = 25°C)
(Load Current = 100mADC; I_F = 5mADC)



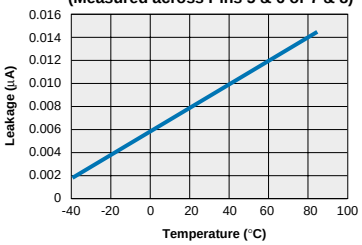
XBA170 - Form A
Typical Load Current vs. Temperature



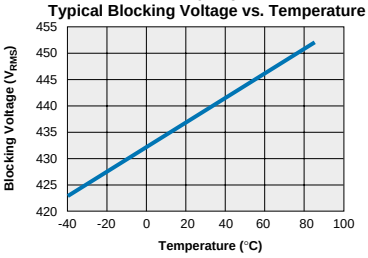
XBA170 - Form B
Typical Load Current vs. Temperature



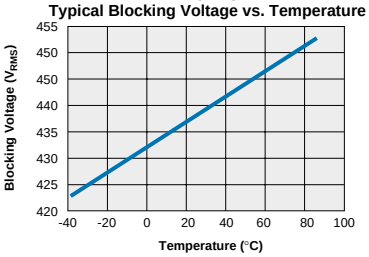
XBA170
Typical Leakage vs. Temperature
(Measured across Pins 5 & 6 or 7 & 8)



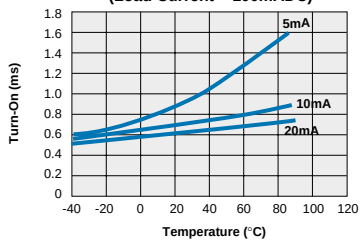
XBA170 - FormA
Typical Blocking Voltage vs. Temperature



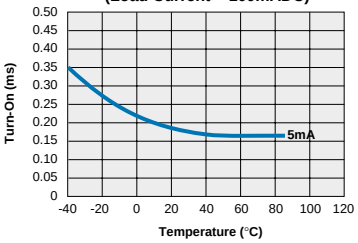
XBA170 - FormB
Typical Blocking Voltage vs. Temperature



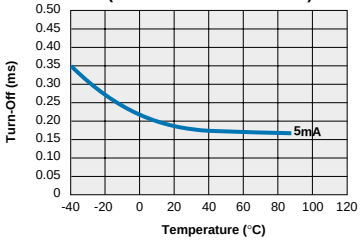
XBA170 - FormA
Typical Turn-On vs. Temperature
(Load Current = 100mADC)



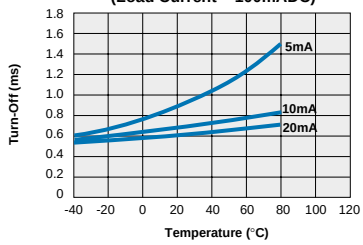
XBA170 - FormB
Typical Turn-On vs. Temperature
(Load Current = 100mADC)



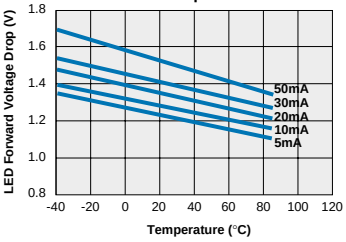
XBA170 - FormA
Typical Turn-Off vs. Temperature
(Load Current = 100mADC)



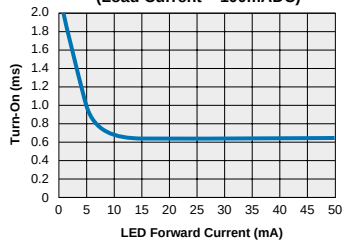
XBA170 - FormB
Typical Turn-Off vs. Temperature
(Load Current = 100mADC)



XBA170
Typical LED Forward Voltage Drop
vs. Temperature



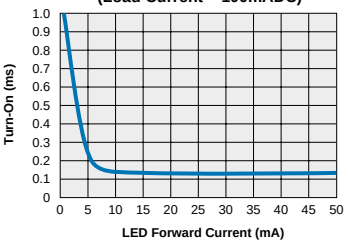
XBA170 - FormA
Typical Turn-On vs. LED Forward Current
(Load Current = 100mADC)



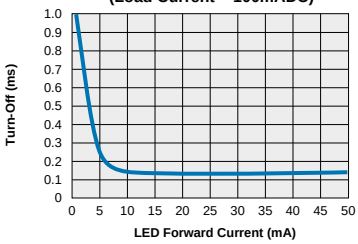
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PERFORMANCE DATA*

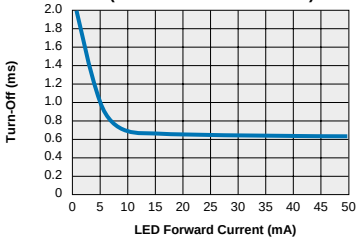
XBA170 - FormB
Typical Turn-On vs. LED Forward Current
(Load Current = 100mADC)



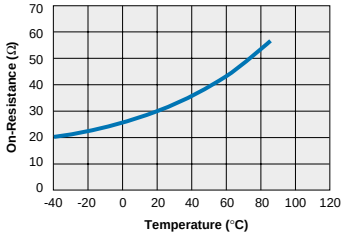
XBA170 - FormA
Typical Turn-Off vs. LED Forward Current
(Load Current = 100mADC)



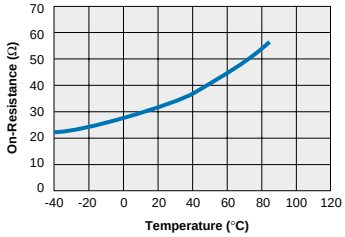
XBA170 - FormB
Typical Turn-Off vs. LED Forward Current
(Load Current = 100mADC)



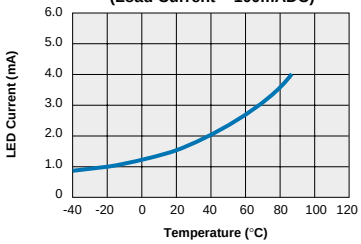
XBA170 - FormA
Typical On-Resistance vs. Temperature
(Load Current = 100mADC; I_F = 5mADC)



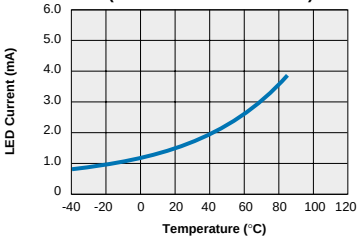
XBA170 - FormB
Typical On-Resistance vs. Temperature
(Load Current = 100mADC; I_F = 5mADC)



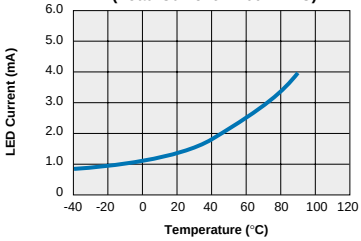
XBA170 - FormA
Typical I_F for Switch Operation vs. Temperature
(Load Current = 100mADC)



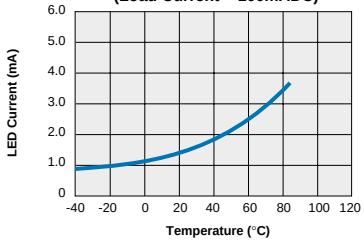
XBA170 - FormB
Typical I_F for Switch Operation vs. Temperature
(Load Current = 100mADC)



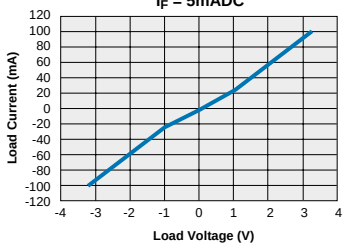
XBA170 - FormA
Typical I_F for Switch Dropout vs. Temperature
(Load Current = 100mADC)



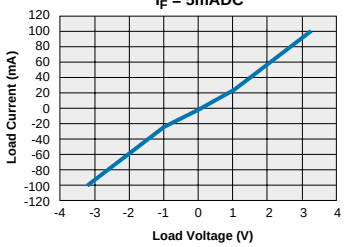
XBA170 - FormB
Typical I_F for Switch Dropout vs. Temperature
(Load Current = 100mADC)



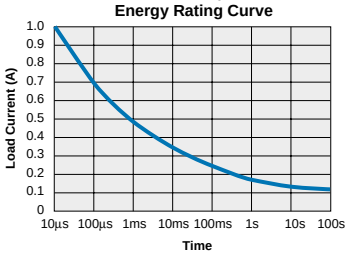
XBA170 - FormA
Typical Load Current vs. Load Voltage
(Ambient Temperature = 25°C)
I_F = 5mADC



XBA170 - FormB
Typical Load Current vs. Load Voltage
(Ambient Temperature = 25°C)
I_F = 5mADC



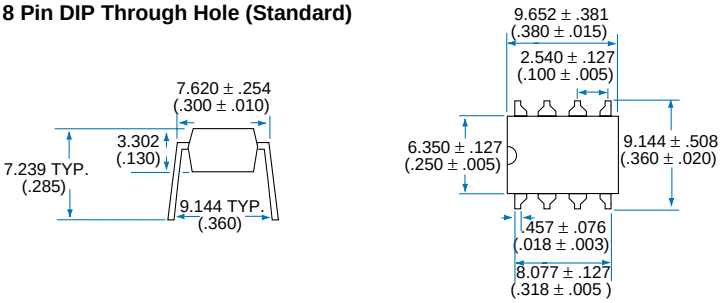
XBA170
Energy Rating Curve



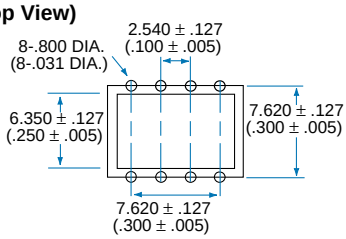
*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

Mechanical Dimensions

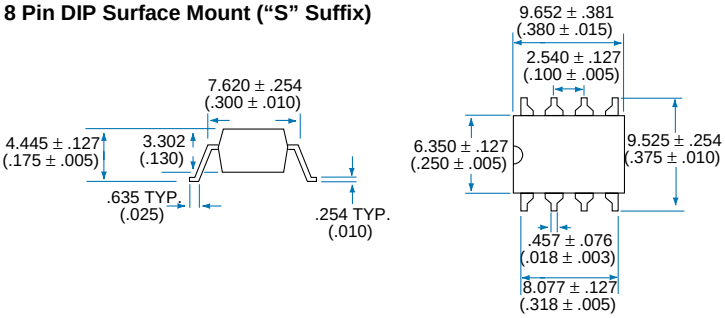
8 Pin DIP Through Hole (Standard)



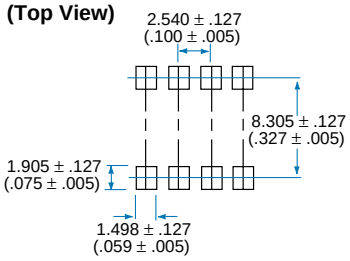
PC Board Pattern (Top View)



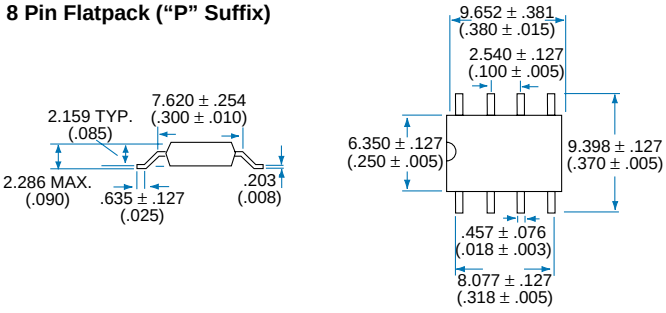
8 Pin DIP Surface Mount ("S" Suffix)



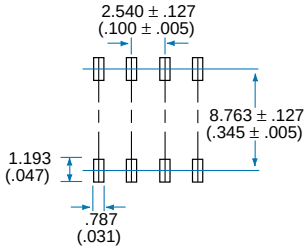
PC Board Pattern (Top View)



8 Pin Flatpack ("P" Suffix)



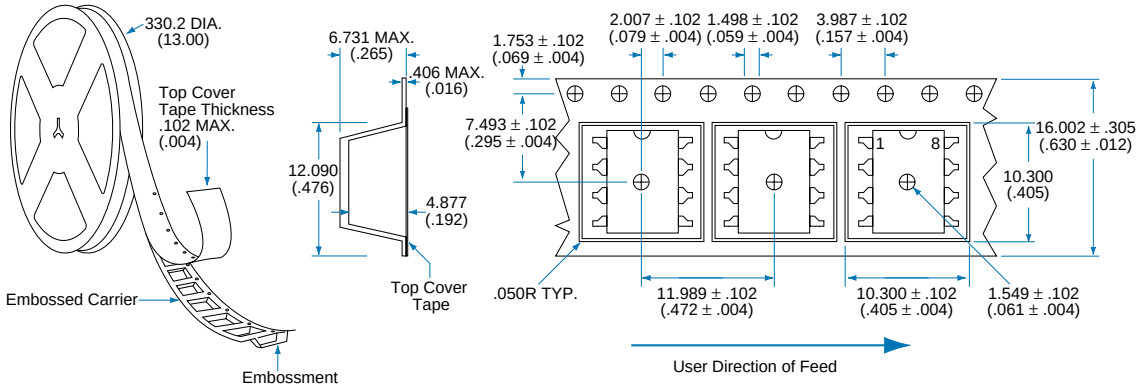
PC Board Pattern (Top View)



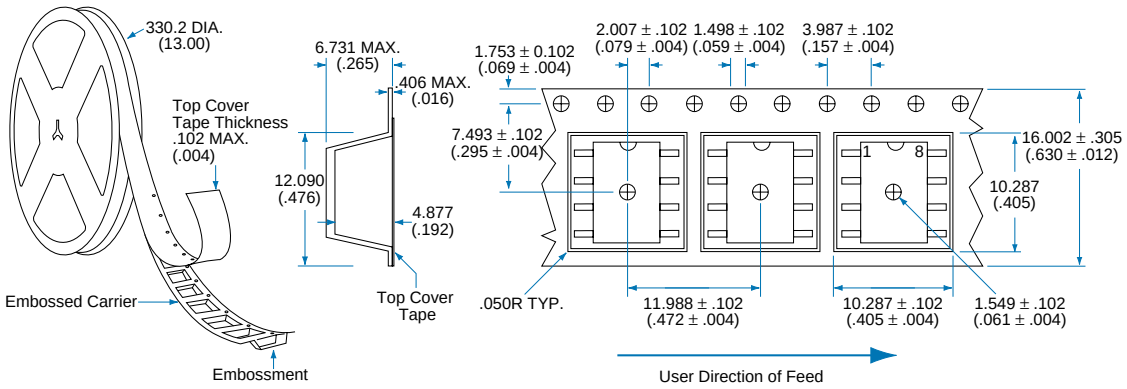
Dimensions
mm
(inches)

Mechanical Dimensions

Tape and Reel Packaging for 8 Pin Surface Mount Package



Tape and Reel Packaging for 8 Pin Flatpack Package



Dimensions
mm
(inches)

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