



Parameter	Ratings	Units
Blocking Voltage	250	V _P
Load Current	150	mA
Max R _{ON}	15	Ω

Features

- Current Limited 1-Form-A Relay
- Small 8-Pin DIP Package
- Low Drive Power Requirements (TTL/CMOS Compatible)
- 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, 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
 - Meters (Watt-Hour, Water, Gas)
- Medical Equipment-Patient/Equipment Isolation
- Security
- Aerospace
- Industrial Controls

Description

LBA127L comprises two independent 250V, 150mA, 15Ω solid state relays: one current-limited, single-pole, normally open (1-Form-A), relay and one single-pole, normally closed (1-Form-B) relay.

The relay outputs are constructed with efficient MOSFET switches and photovoltaic die that use Clare's patented OptoMOS architecture, while the inputs, highly efficient GaAIAs infrared LEDs, provide the optically coupled control.

LBA127L is designed to provide an ideal solution where a complementary Form-A/Form-B relay pair is required in a space-saving single package.

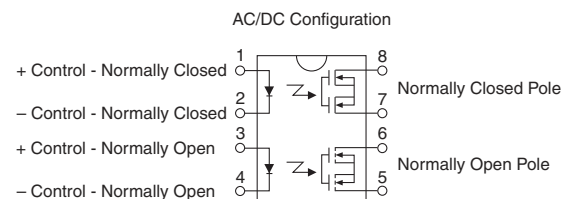
Approvals

- UL Recognized Component: File # E76270
- CSA Certified Component: Certificate # 1172007
- Certified to:
 - IEC 60950-1: 2005
 - EN 60950-1: 2006
 - TUV Certificate # B 09 07 49410 004

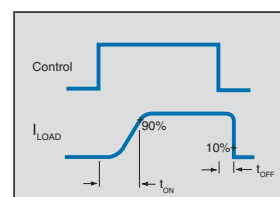
Ordering Information

Part #	Description
LBA127L	8-Pin DIP (50/Tube)
LBA127LS	8-Pin Surface Mount (50/Tube)
LBA127LSTR	8-Pin Surface Mount (1,000/Reel)

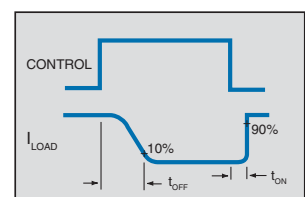
Pin Configuration



Switching Characteristics of Normally Open (Form A) Devices



Switching Characteristics of Normally Closed (Form B) Devices



Absolute Maximum Ratings

Parameter	Ratings	Units
Blocking Voltage	250	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

Electrical absolute maximum ratings are at 25°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

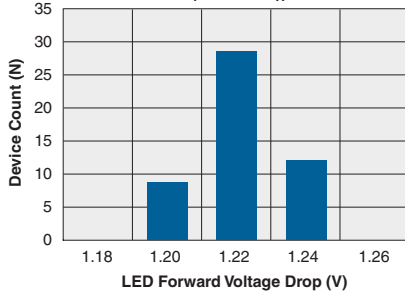
Parameter	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics @ 25°C						
Load Current						
Continuous ¹	-	I_L	-	-	150	mA
Peak (Form-B Only)	t = 10ms	I_{LPK}	-	-	400	
On-Resistance ²	$I_L=150mA$	R_{ON}	-	6.8	15	Ω
Off-State Leakage Current	$V_L=250V$	I_{LEAK}	-	-	1	μA
Switching Speeds						
Turn-On	$I_F=5mA, V_L=10V$	t_{ON}	-	-	5	ms
Turn-Off		t_{OFF}	-	-	5	
Output Capacitance	50V, f=1MHz	C_{OUT}	-	110	-	pF
Load Current Limiting (Form-A Only)	$I_F=5mA, V_L=8V$	I_{CL}	190	200	280	mA
Input Characteristics @ 25°C						
Input Control Current	$I_L=150mA$	I_F	-	-	5	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 Current	$V_R=5V$	I_R	-	-	10	μA
Common Characteristics @ 25°C						
Input to Output Capacitance	-	C_{IO}	-	3	-	pF

¹ If both poles operate the load current must be derated so as not to exceed the package power dissipation value.

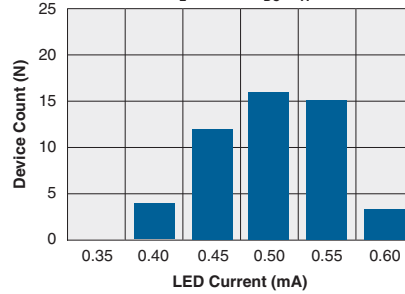
² Measurement taken within 1 second of on-time.

COMMON PERFORMANCE DATA*

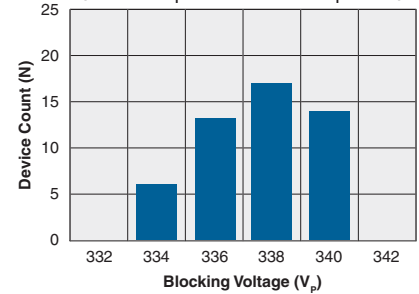
Typical LED Forward Voltage Drop
(N=50, $I_F=5\text{mA}$, $T_A=25^\circ\text{C}$)



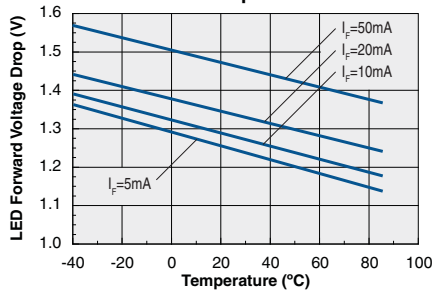
Typical I_F for Switch Operation
(N=50, $I_L=150\text{mA}_{\text{DC}}$, $T_A=25^\circ\text{C}$)



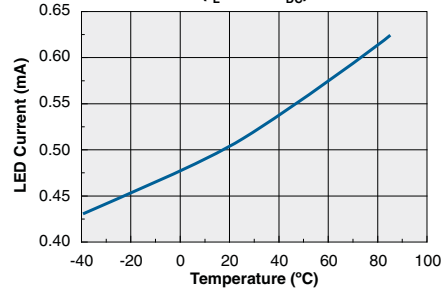
Typical Blocking Voltage Distribution
(N=50, $T_A=25^\circ\text{C}$)
(Form-A: $I_F=0\text{mA}$, Form-B: $I_F=5\text{mA}$)



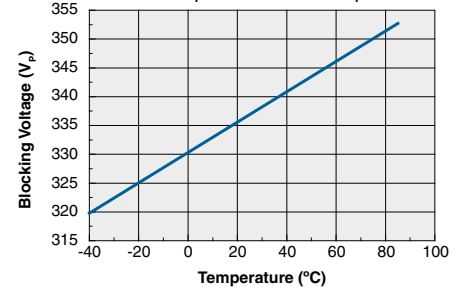
Typical LED Forward Voltage Drop vs. Temperature



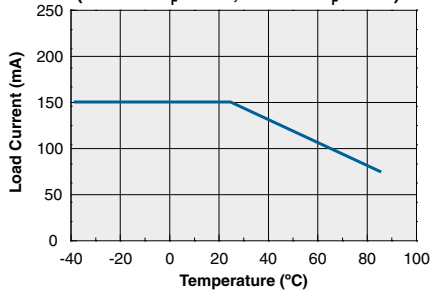
Typical I_F for Switch Operation vs. Temperature
($I_L=75\text{mA}_{\text{DC}}$)



Typical Blocking Voltage vs. Temperature
(Form-A: $I_F=0\text{mA}$, Form-B: $I_F=5\text{mA}$)

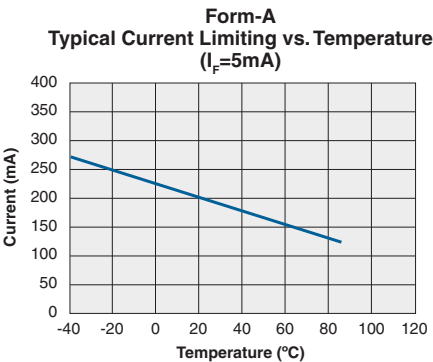
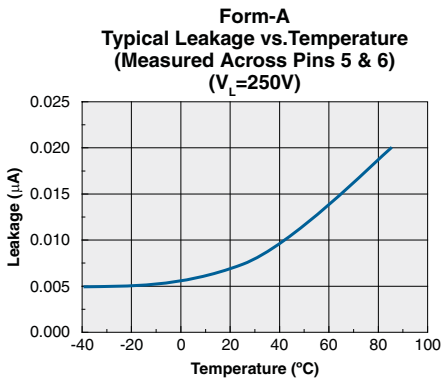
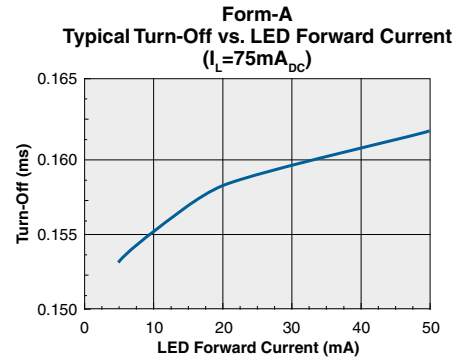
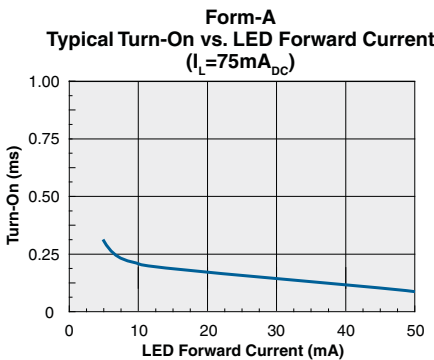
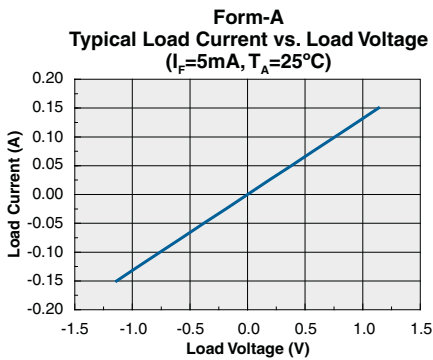
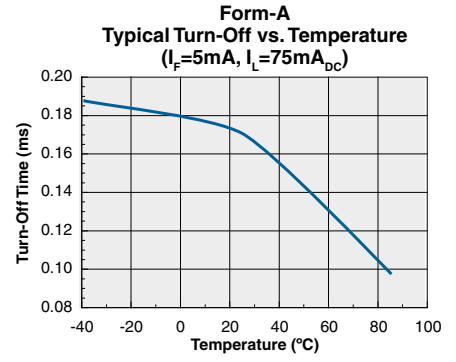
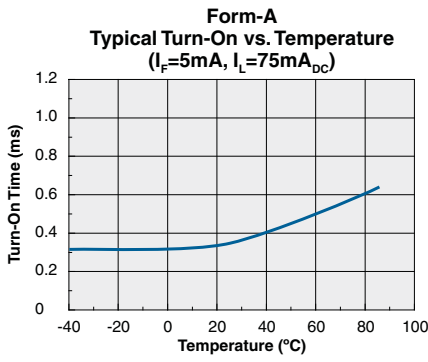
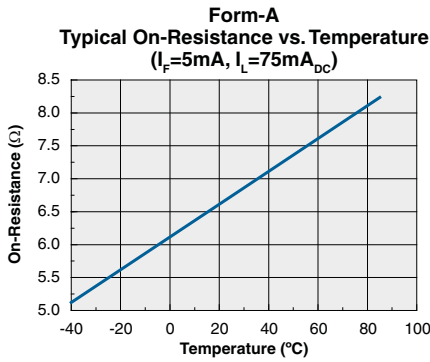
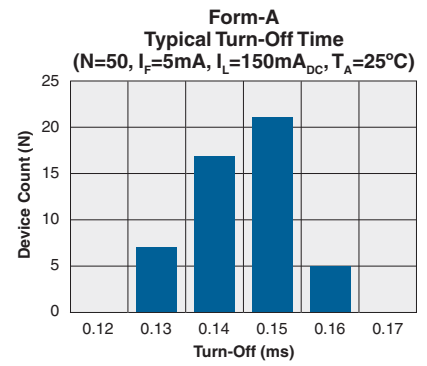
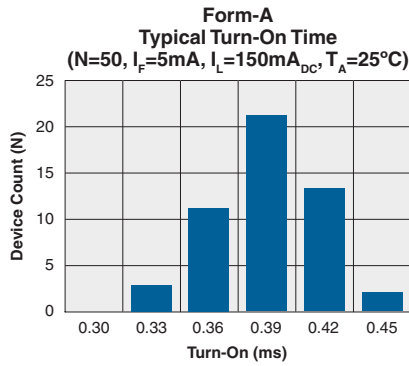
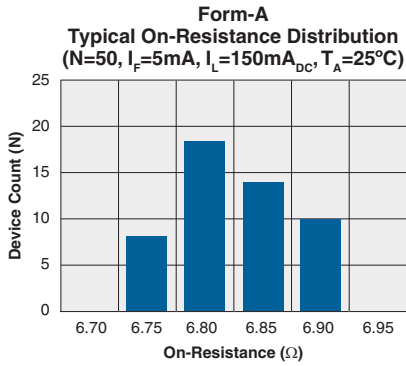


Load Current vs. Load Temperature
(Form-A: $I_F=5\text{mA}$, Form-B: $I_F=0\text{mA}$)



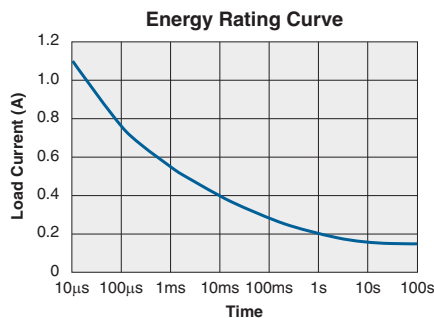
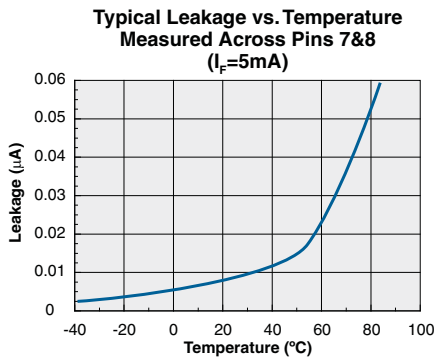
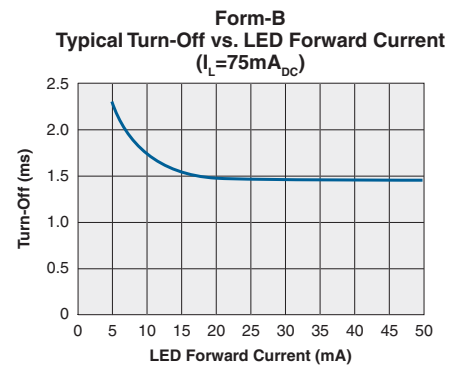
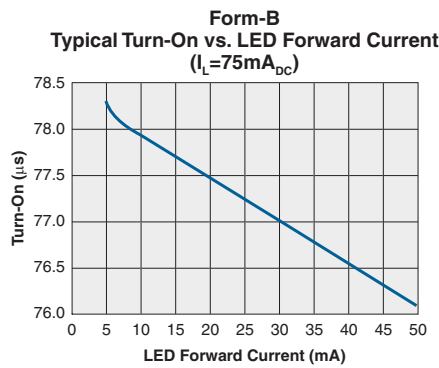
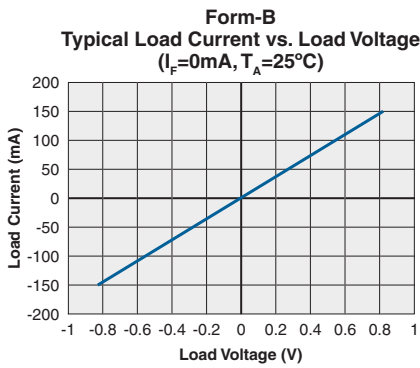
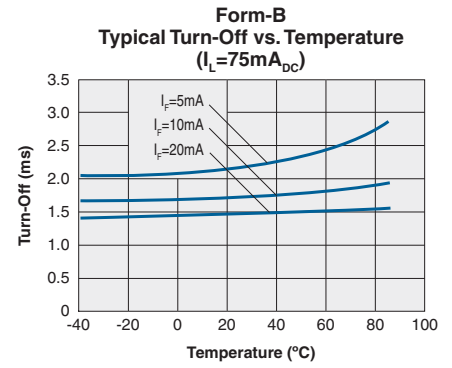
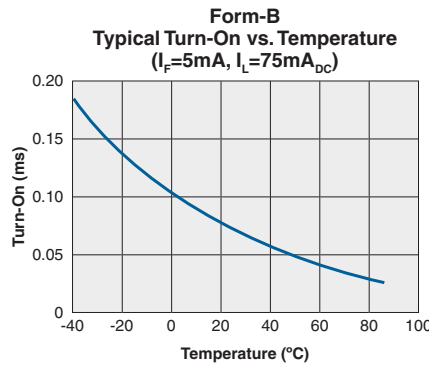
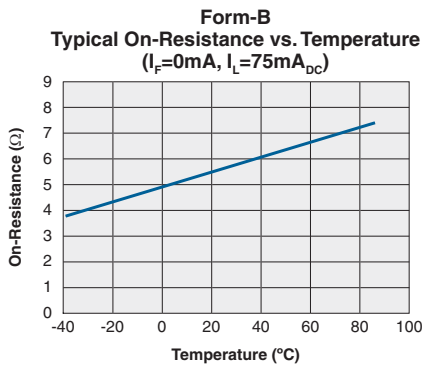
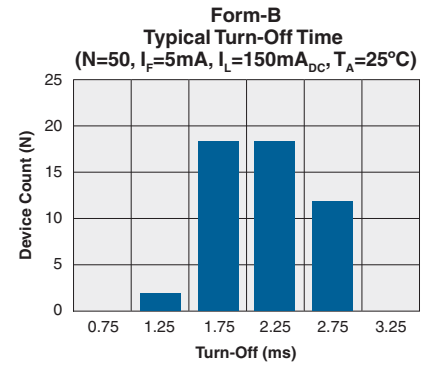
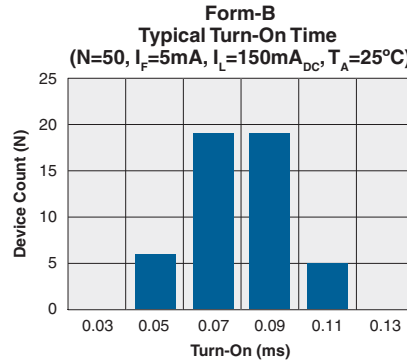
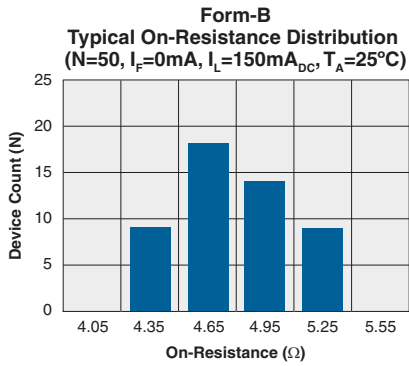
*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

PERFORMANCE DATA for 1-Form-A Relay*



*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 for 1-Form-B Relay*



*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.

MANUFACTURING INFORMATION

Soldering

For proper assembly, the component must be processed in accordance with the current revision of IPC/JEDEC standard J-STD-020. Failure to follow the recommended guidelines may cause permanent damage to the device resulting in impaired performance and/or a reduced lifetime expectancy.

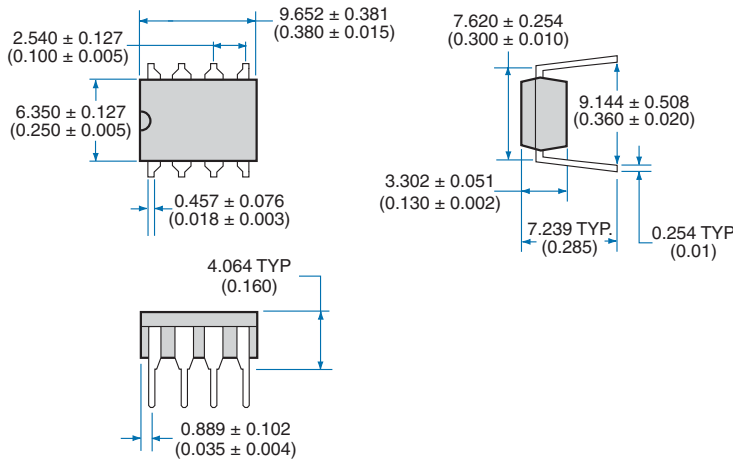
Washing

Clare does not recommend ultrasonic cleaning or the use of chlorinated solvents.

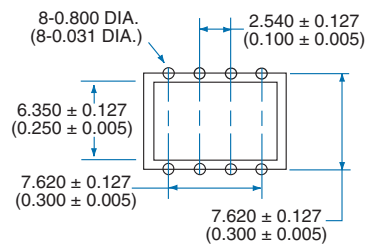


MECHANICAL DIMENSIONS

8-Pin DIP Through-Hole Package

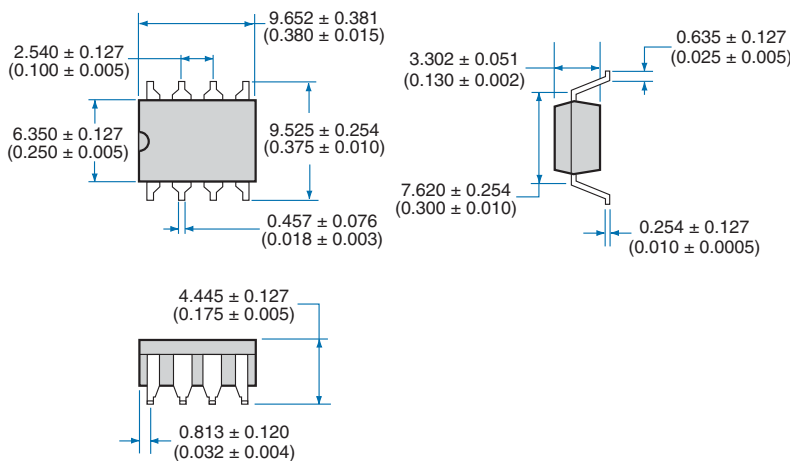


PC Board Pattern

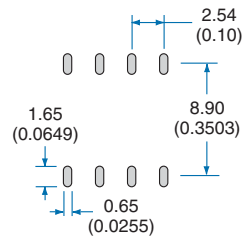


Dimensions
mm
(inches)

8-Pin Surface Mount Package



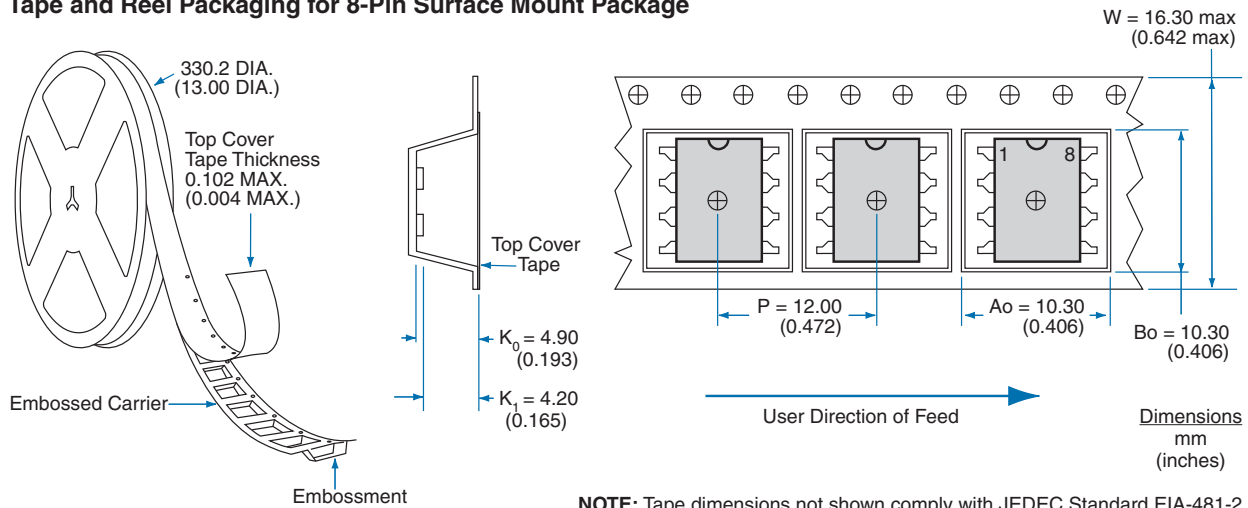
Recommended PCB Land Pattern



Dimensions
mm
(inches)

MECHANICAL DIMENSIONS

Tape and Reel Packaging for 8-Pin Surface Mount Package



NOTE: Tape dimensions not shown comply with JEDEC Standard EIA-481-2

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