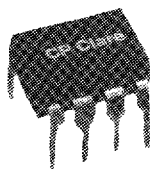


# OptoMOS®

## AC/DC Solid State Switches



| Engineering Specifications                                | LAA110 | LAA120 | LBA110 | LBA120 | LBB110 | LBB120 | LCC110 | LCC120 | OAA160 |
|-----------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Output Characteristics</b>                             |        |        |        |        |        |        |        |        |        |
| <b>Peak Blocking (V)</b>                                  | 350    | 250    | 350    | 250    | 350    | 250    | 350    | 250    | 250    |
| <b>Continuous Rated Load (mA)*</b>                        | 120    | 170    | 120    | 170    | 120    | 170    | 120    | 170    | 50     |
| <b>Peak Load/10msec (mA)</b>                              | 350    | 400    | 350    | 400    | 350    | 400    | 350    | 350    | 100    |
| <b>On Resistance (Ohms)</b>                               |        |        |        |        |        |        |        |        |        |
| Typical                                                   | 23     | 12     | 23     | 16     | 23     | 16     | 23     | 16     | 50     |
| Maximum                                                   | 35     | 20     | 35     | 20     | 35     | 20     | 35     | 20     | 100    |
| <b>Switching Time (Max)</b>                               |        |        |        |        |        |        |        |        |        |
| I <sub>CONTROL</sub> (mA)                                 | 5      | 5      | 5      | 5      | 5      | 5      | 8      | 10     | 10     |
| T <sub>ON</sub> (msec)                                    | 3      | 5      | 3      | 5      | 3      | 5      | 4      | 5      | .125   |
| T <sub>OFF</sub> (msec)                                   | 3      | 5      | 3      | 5      | 3      | 5      | 4      | 5      | .125   |
| <b>Off State Leakage (Max) at Full Rated Voltage (μA)</b> | 1      | 1      | 1      | 1      | 1      | 1      | 1      | 1      | .025   |
| <b>Typical Capacitance at 0 Volts f = 1MHz (pF)</b>       | 25     | 50     | 25     | 50     | 25     | 50     | 25     | 50     | 5      |

\*I<sub>LOAD</sub> derates to 80% if both poles are operated simultaneously.

|                                       |     |     |     |     |     |     |     |     |     |
|---------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>Input Characteristics</b>          |     |     |     |     |     |     |     |     |     |
| <b>Control Current (mA)*</b>          |     |     |     |     |     |     |     |     |     |
| Minimum                               | 5   | 5   | 5   | 5   | 5   | 5   | 8   | 10  | 10  |
| Maximum                               | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| <b>Voltage Drop (V)</b>               |     |     |     |     |     |     |     |     |     |
| Minimum                               | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| Maximum                               | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 |
| <b>Reverse Voltage (max V)</b>        | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   |
| <b>Reverse Leakage (max μA)</b>       | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  |
| <b>Input/Output (Capacitance, pF)</b> | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   |

\*I<sub>CONTROL</sub> represents the forward LED current used to activate the switch.

### Features:

- Rated to 350V AC or DC
- Load current to 170 mA
- Optical isolation to 3750V
- No EMI/RFI generation
- 100% dv/dt immunity
- Machine insertable/wave solderable
- SMD versions available
- UL recognized
- No minimum load voltage or current

### Absolute Maximum Ratings

| Parameter                                   | Min  | Max | Units            |
|---------------------------------------------|------|-----|------------------|
| Input/Output Isolation                      | 2500 | —   | V <sub>RMS</sub> |
| Optional "E" Suffix                         | 3750 | —   | V <sub>RMS</sub> |
| Operating Temperature                       | -40  | 85  | °C               |
| Storage Temperature                         | -40  | 125 | °C               |
| Soldering Temperature (10 seconds on leads) | —    | 260 | °C               |

When ordering CP Clare solid state switches, a suffix may be added to the part number to specify the following options:

| Suffix | Option                   |
|--------|--------------------------|
| E      | 3,750 Isolation Voltage  |
| S      | Gull-Wing Package*       |
| T/R    | Tape and Reel Package*   |
| L      | Current Limiting Version |

**Note:** Special part numbers are available on an application/request basis.

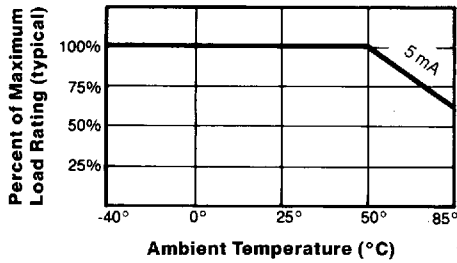
\*For a complete listing of CP Clare Solid State Products ask for our SSP15 catalog.

# OptoMOS®

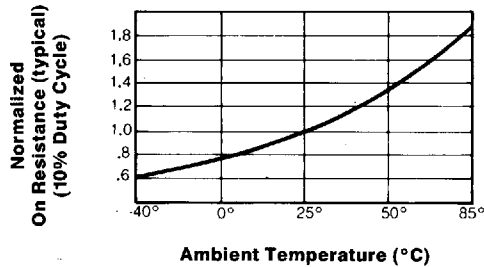
## AC/DC Operating Specifications

### Performance

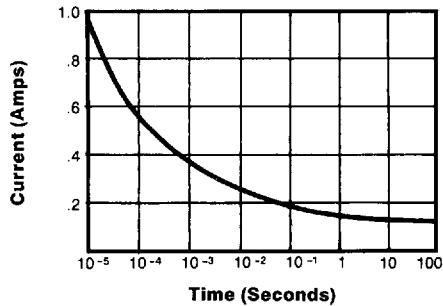
Load vs. Temperature



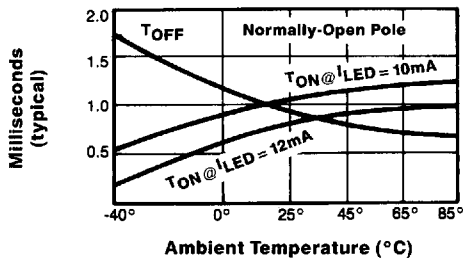
On Resistance vs. Temperature



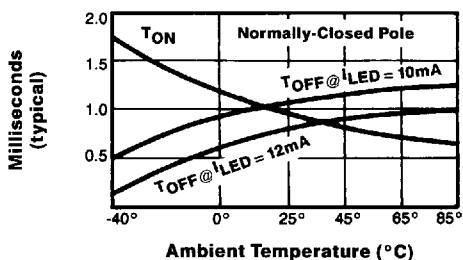
Energy Rating



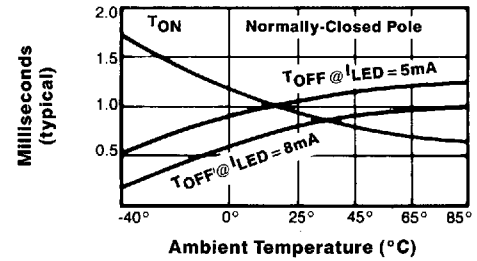
Switching Time vs. Temperature (LCC Series)



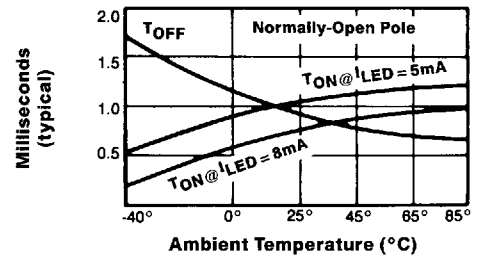
Switching Time vs. Temperature (LCC Series)



Switching Time vs. Temperature (LBA Series)



Switching Time vs. Temperature (LBA Series)



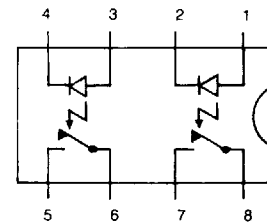
### Equivalent Circuit

#### LAA/OAA

LAA/OAA 110/120 PIN

CONNECTIONS:

- 1, 2 Control, Pole 1
- 3, 4 Control, Pole 2
- 5, 6 Normally-Open Pole 2
- 7, 8 Normally-Open Pole 1

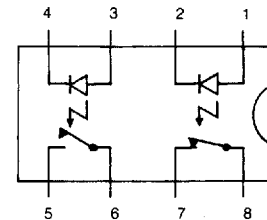


#### LBA

LBA 110/120 PIN

CONNECTIONS:

- 1, 2 Normally-Closed Control
- 3, 4 Normally-Open Control
- 5, 6 Normally-Open Pole
- 7, 8 Normally-Closed Pole

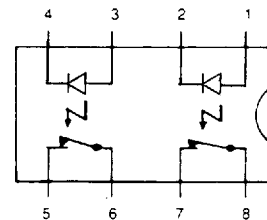


#### LBB

LBB 110/120 PIN

CONNECTIONS:

- 1, 2 Control, Pole 1
- 3, 4 Control, Pole 2
- 5, 6 Normally-Closed Pole 2
- 7, 8 Normally-Closed Pole 1

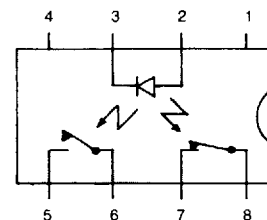


#### LCC

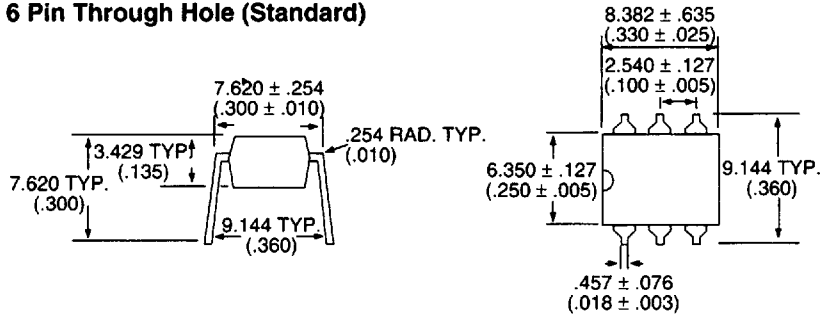
LCC 110/120 PIN

CONNECTIONS:

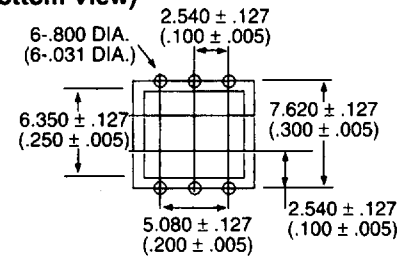
- 1 N/C
- 2 + Control
- 3 - Control
- 4 Do Not Use
- 5, 6 Normally-Open Pole
- 7, 8 Normally-Closed Pole



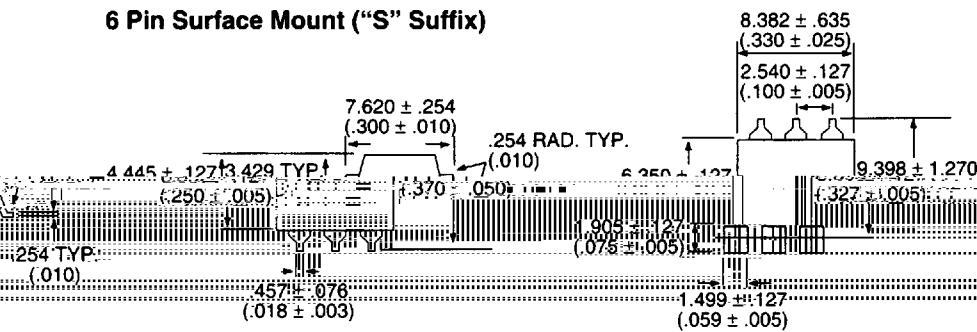
**6 Pin Through Hole (Standard)**



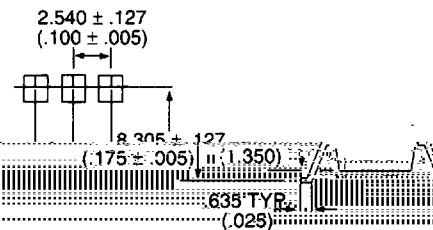
**6 Pin PC Board Pattern (Bottom View)**



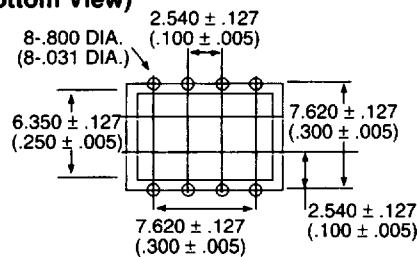
**6 Pin Surface Mount ("S" Suffix)**



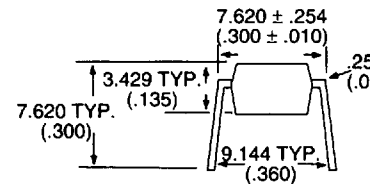
**6 Pin Mounting Pad (Top View)**



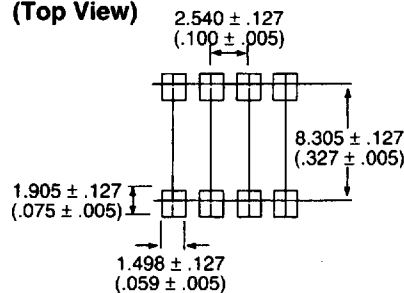
**8 Pin PC Board Pattern (Bottom View)**



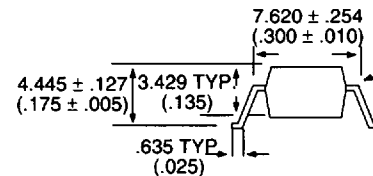
**8 Pin Through Hole (Standard)**



**8 Pin Mounting Pad (Top View)**

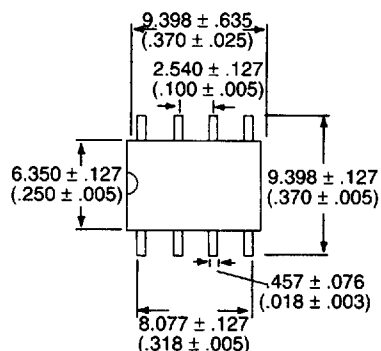
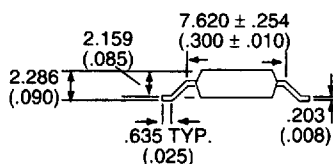


**8 Pin Surface Mount ("S" Suffix)**

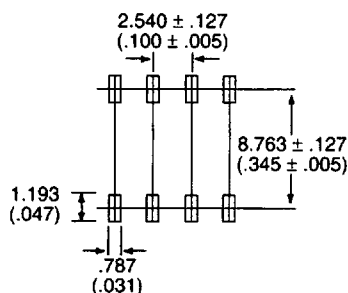


**DIMENSIONS**  
mm  
(Inches)

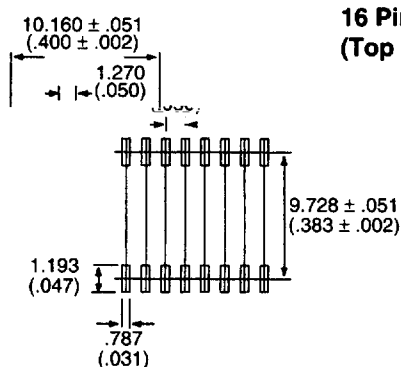
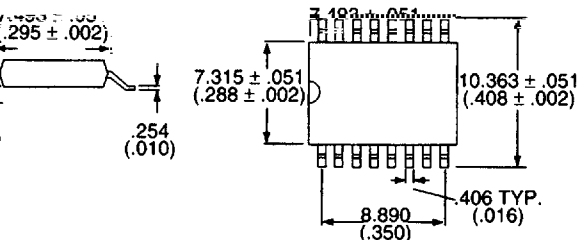
**8 Pin Flatpack ("P" Suffix)**



**8 Pin Flatpack Mounting Pad (Top View)**

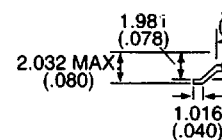


**16 Pin SOIC ("P" Suffix)**

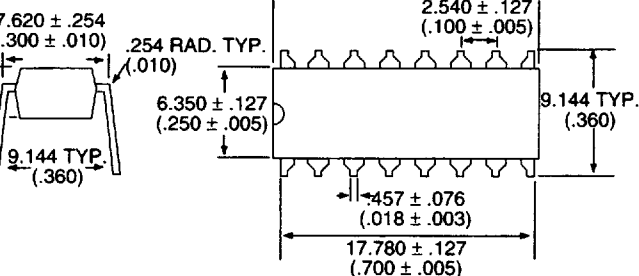


**16 Pin SOIC Mounting Pad (Top View)**

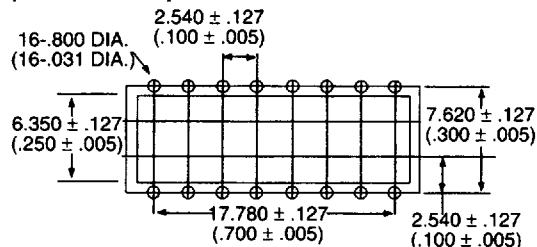
1.270  
(.050)



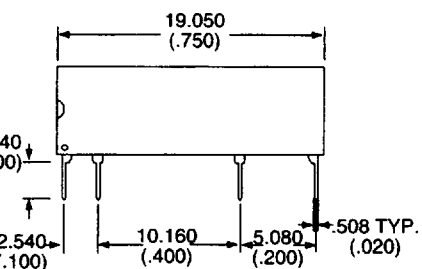
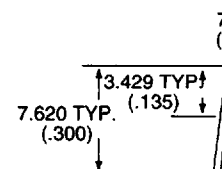
**16 Pin SOIC (Standard)**



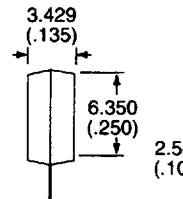
**16 Pin PC Board Pattern (Bottom View)**



**16 Pin Through Hole**

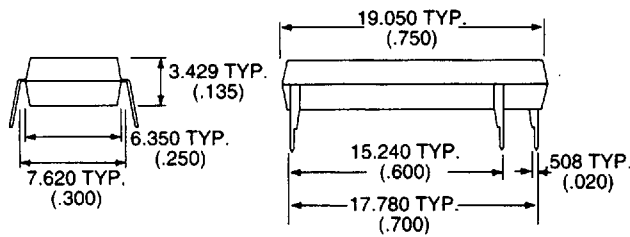


**8 Pin SIP**

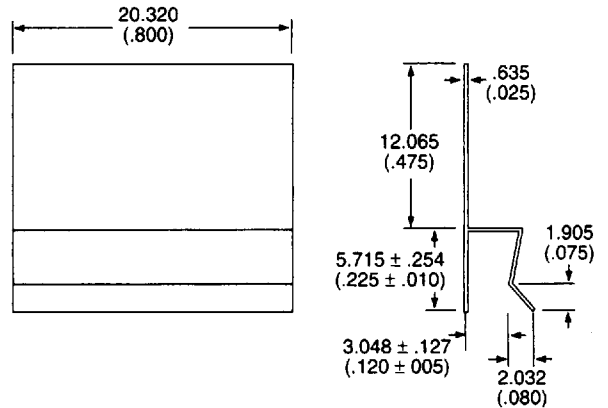


**DIMENSIONS**  
mm  
(Inches)

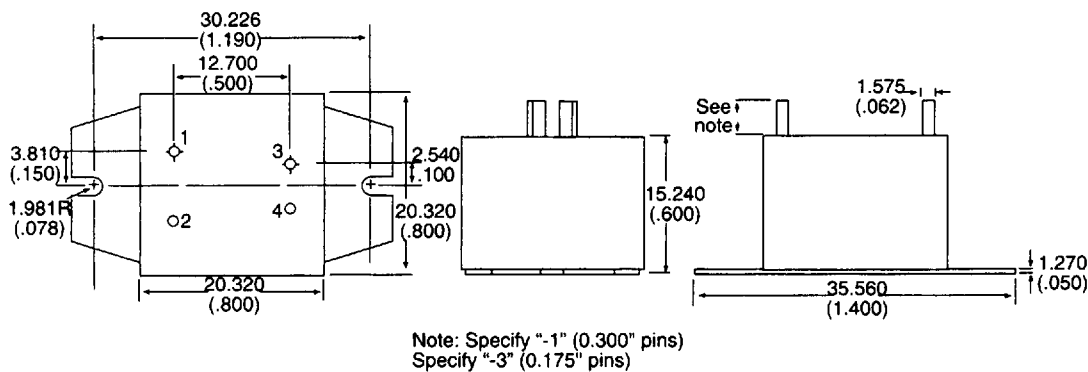
**16 Pin DIP**



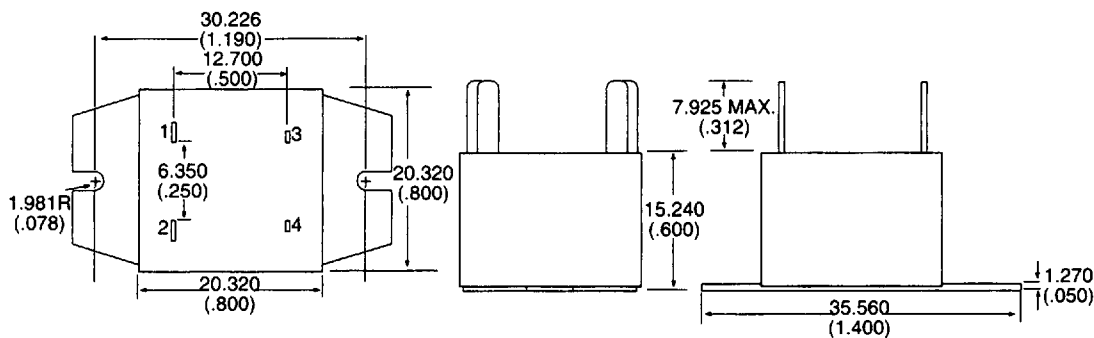
**Thermal Clip**



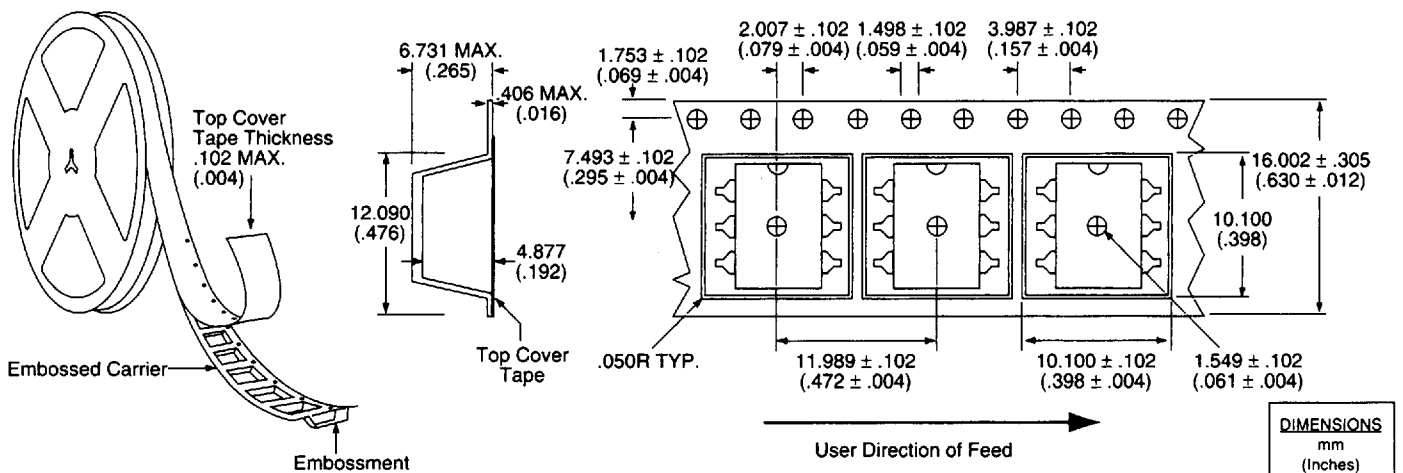
**OptoFILM® 10A Series, Pins**



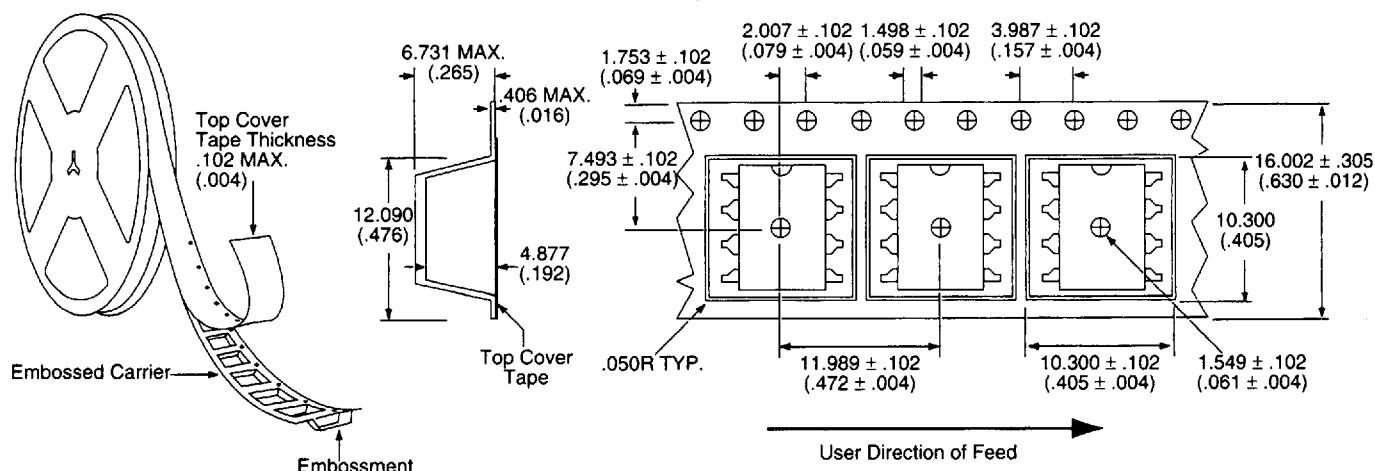
**OptoFILM® 10A Series, Quick Connect**



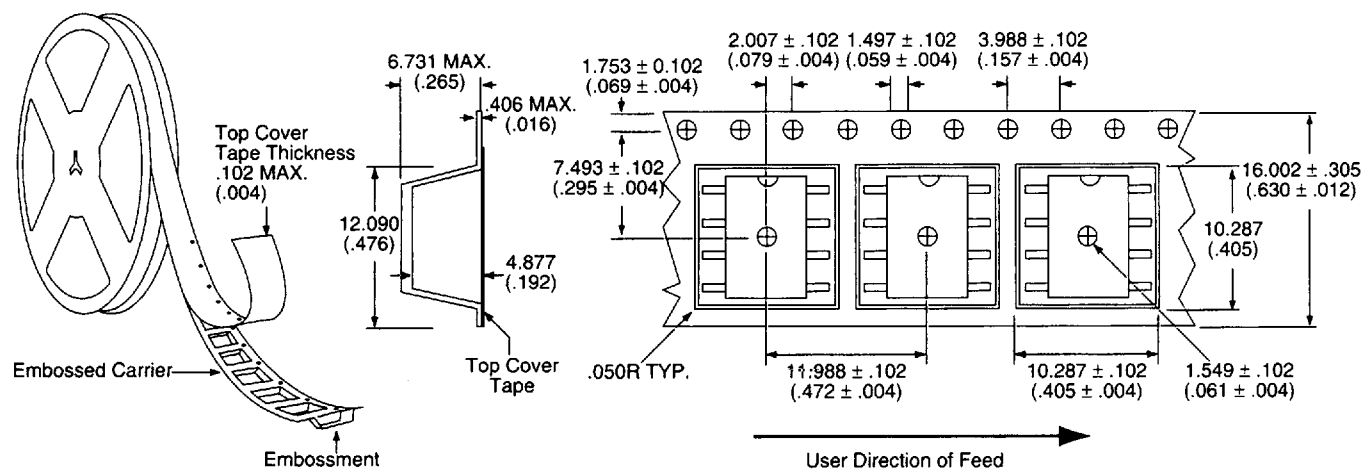
**Tape and Reel Packaging for 6 Pin Surface Mount Package**



**Tape and Reel Packaging for 8 Pin Surface Mount Package**



**Tape and Reel Packaging for 8 Pin Flatpack Package**



**Tape and Reel Packaging for 16 Pin SOIC Package**

