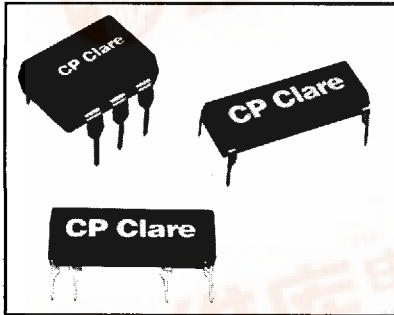


PowerDIP/PowerSIP/PowerMINI AC Solid State Switches



DESCRIPTION

CP Clare's PD/PS/PM series power switches employ patented waveguide coupling with dual power SCR outputs to produce an alternative to optocoupler and triac circuits. Superior noise immunity complying with NEMA ICS 2-230 "showering arc" test is provided along with advanced thermally efficient package design. Long life and environmental integrity make these devices suitable to control a variety of AC circuits including heaters, motors, solenoids, larger relays and contactors.

FEATURES

- Ratings to 600V, 3A¹ (600V, 0.5A_{RMS})
- 5mA sensitivity
- Zero-crossing detection
- DC control, AC output
- Optically isolated
- TTL and CMOS compatible
- Low EMI and RFI generation
- Inherent noise immunity
- 3750V_{RMS} input/output isolation available
- Machine insertable, wave solderable
- UL recognized file #: E69938
- CSA certified file #: LR 43639-8
- VDE compatible

¹Operation to 3A with heat sink.

APPLICATIONS

- Programmable controls
- Process control
- Power control panels
- Remote switching
- Gas pump electronics
- Contactors
- Large relays
- Solenoids
- Motors
- Heaters

RATINGS (@ 25°C)

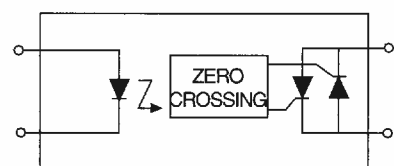
Parameter	Min	Typ	Max	Units
Input Power Dissipation	-	-	150 ¹	mW
Input Control Current	-	-	100	mA
Peak (10ms)	-	-	1	A
Reverse Input Voltage	-	-	5	V
Total Package Dissipation				
PM	-	-	500 ²	mW
PS/PD	-	-	1600 ³	mW
Capacitance				
Input to Output	-	3	-	pF
Isolation Voltage				
Input to Output	2500	-	-	V _{RMS}
"E" Suffix (optional)	3750	-	-	V _{RMS}
Operating Temperature	-40	-	+85	°C
Storage Temperature	-40	-	+125	°C
Soldering Temperature (10 Seconds Max)	-	-	+260	°C

¹Derate Linearly 1.33 mW/°C

²Derate Linearly 1.67 mW/°C

³Derate Linearly 16.6 mW/°C

EQUIVALENT CIRCUIT



Note: For Mechanical Dimensions see pages 46-49.

Specifications @ 25°C

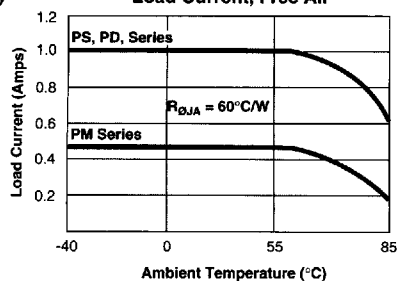
PART NUMBER		PS1201 ¹ PD1201	PS2401 ¹ PD2401	PS2601 ¹ PD2601	PM1204	PM1205	PM1206	UNITS
Peak Blocking Voltage		400	500	600	400	500	600	V
Continuous Load Current	Min Max	0.005 1	0.005 1	0.005 1	0.005 0.5	0.005 0.5	0.005 0.5	A _{RMS}
Off-State Leakage Current @ Rated Blocking Voltage	Max	1	1	1	1	1	1	mA
On-State Voltage Drop @ Continuous Voltage Current	Max	1.2	1.2	1.2	1.2	1.2	1.2	V _{RMS}
Critical Rate of Rise Voltage dv/dt	Min Typ	1000 1200	1000 1200	1000 1200	1000 1200	1000 1200	1000 1200	V/μs
Turn-on, Turn-off Time	Max	1/2	1/2	1/2	1/2	1/2	1/2	Cycle
Zero-Cross Turn-On Voltage	Typ	2	2	2	2	2	2	V
1st 1/2 Cycle	Max	5	5	5	5	5	5	
Sub. 1/2 Cycle	Max	1	1	1	1	1	1	
Operating Frequency ²		20 500	20 500	20 500	20 500	20 500	20 500	Hz
Load Power Factor for Guaranteed Turn-On ³		0.25	0.25	0.25	0.25	0.25	0.25	
Input Control Current	Typ	2	2	2	2	2	2	mA
I _{LED}	Max	5	5	5	5	5	5	
For High Noise Environment	Typ	3	3	3	3	3	3	
	Max	10	10	10	10	10	10	
Input Voltage Drop	Min	0.9	0.9	0.9	0.9	0.9	0.9	V
V _f @ 5mA	Typ	1.2	1.2	1.2	1.2	1.2	1.2	
	Max	1.4	1.4	1.4	1.4	1.4	1.4	
Input Drop-out Voltage	Min	0.8	0.8	0.8	0.8	0.8	0.8	V
Reverse Input Leakage Current @ 5V	Max	10	10	10	10	10	10	μA
Input/Output Capacitance	Max	3	3	3	3	3	3	pF
Input to Output Isolation		2500	2500	2500	2500	2500	2500	V _{RMS}
With "E" Suffix (optional)		3750	3750	3750	3750	3750	3750	

¹Operation to 3A with heat sink

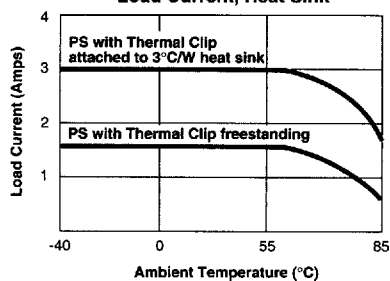
²Zero-cross 1st 1/2 cycle @ <100Hz

³Snubber circuits may be required at low power factors

1) Load Current, Free Air

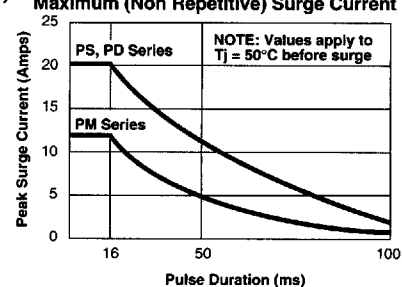


2) Load Current, Heat Sink

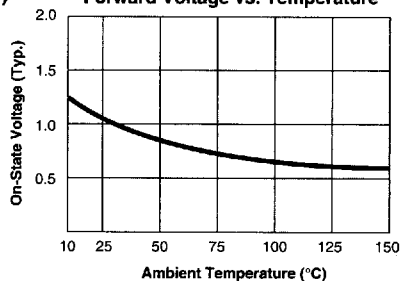


Dow Corning 340 or equivalent thermal heat sink compound necessary between Thermal Clip and case.

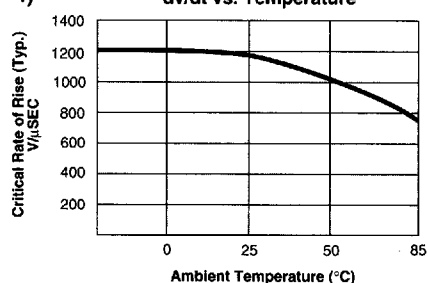
3) Maximum (Non Repetitive) Surge Current



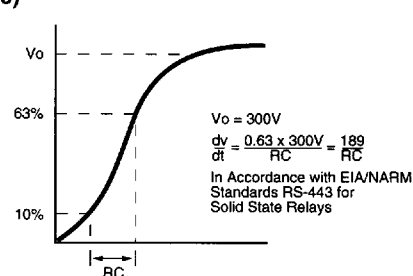
3) Forward Voltage vs. Temperature



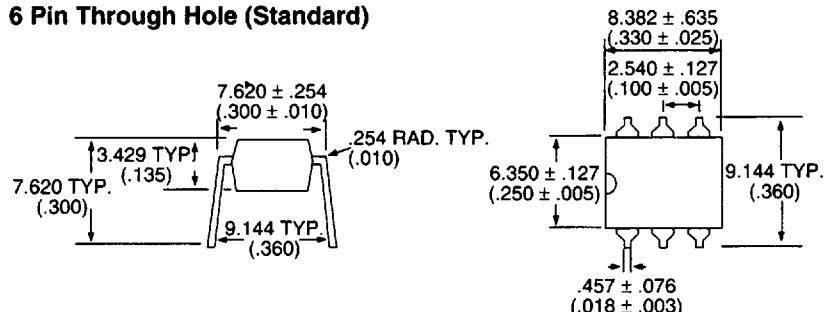
4) dv/dt vs. Temperature



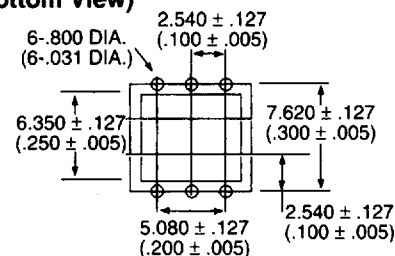
5)



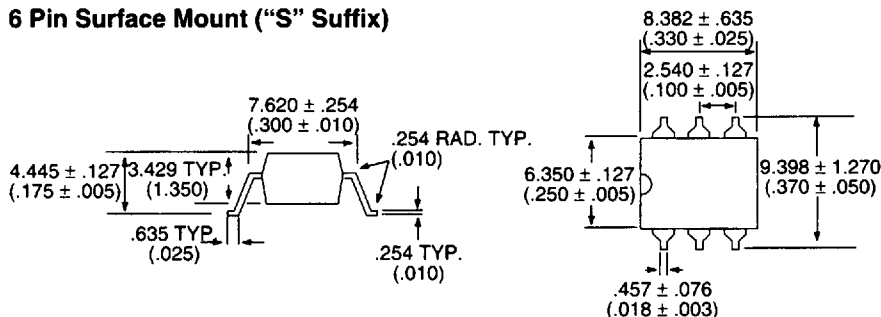
6 Pin Through Hole (Standard)



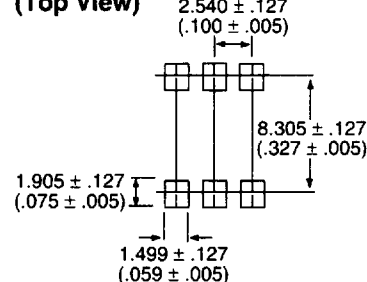
6 Pin PC Board Pattern (Bottom View)



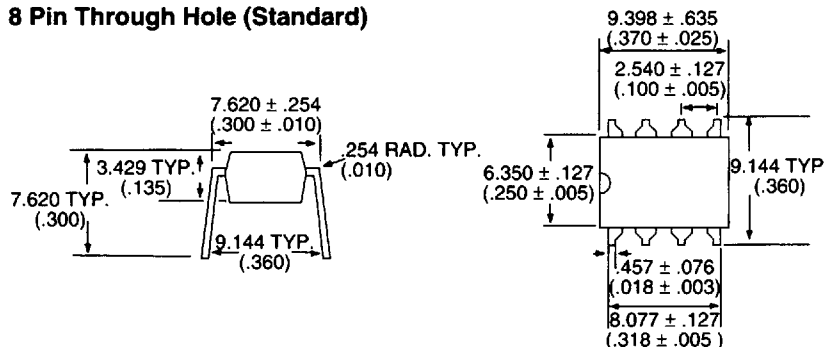
6 Pin Surface Mount ("S" Suffix)



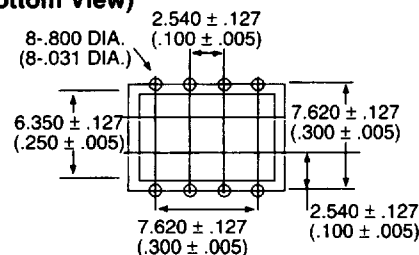
6 Pin Mounting Pad (Top View)



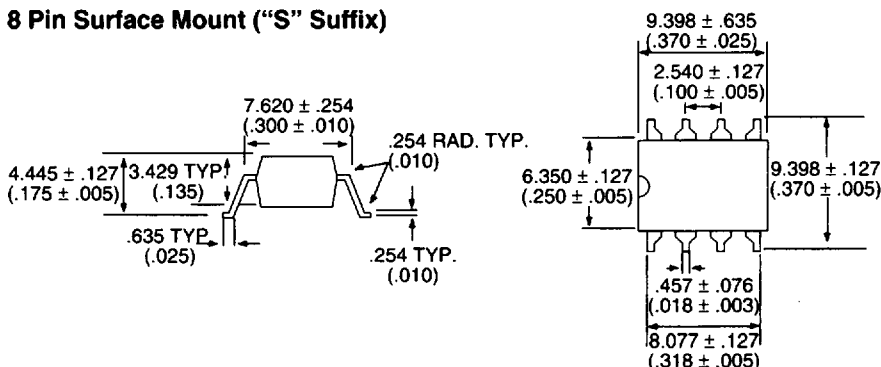
8 Pin Through Hole (Standard)



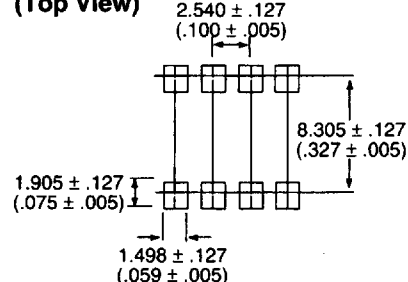
8 Pin PC Board Pattern (Bottom View)



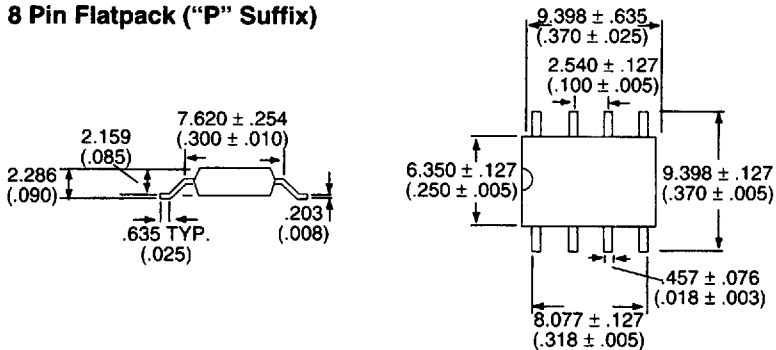
8 Pin Surface Mount ("S" Suffix)



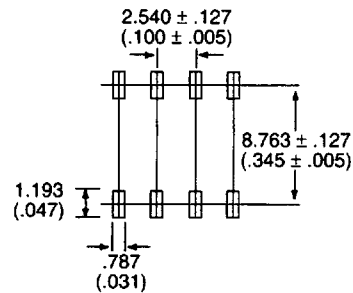
8 Pin Mounting Pad (Top View)



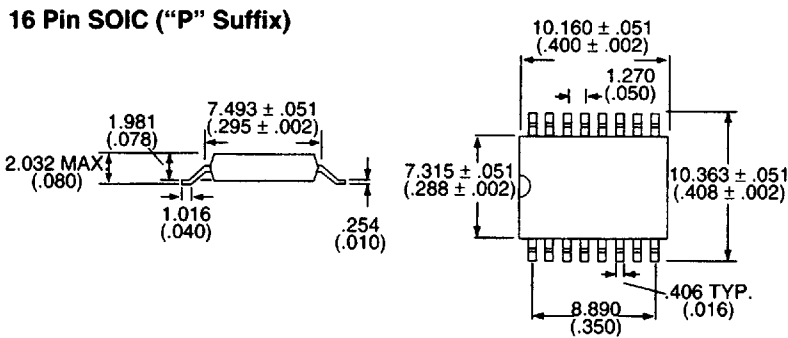
8 Pin Flatpack ("P" Suffix)



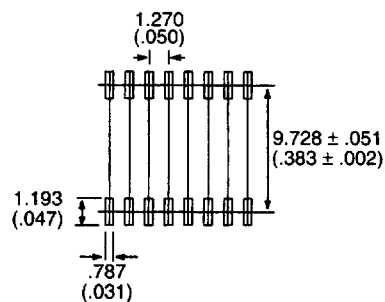
8 Pin Flatpack Mounting Pad (Top View)



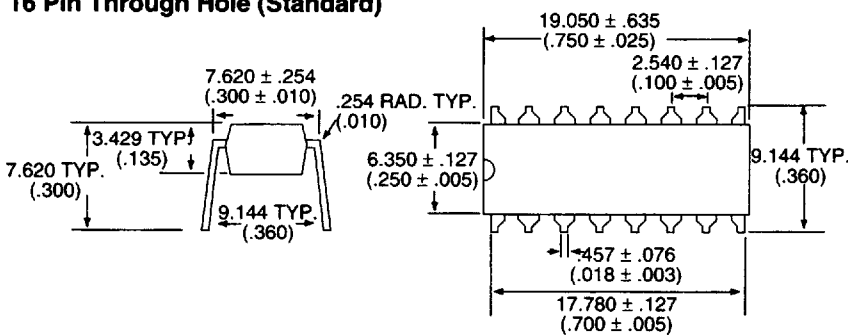
16 Pin SOIC ("P" Suffix)



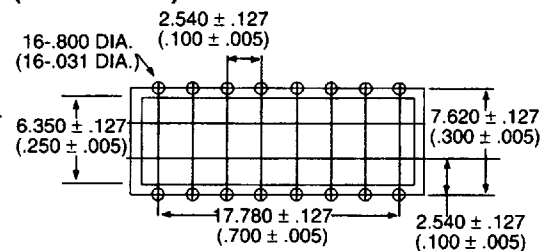
16 Pin SOIC Mounting Pad (Top View)



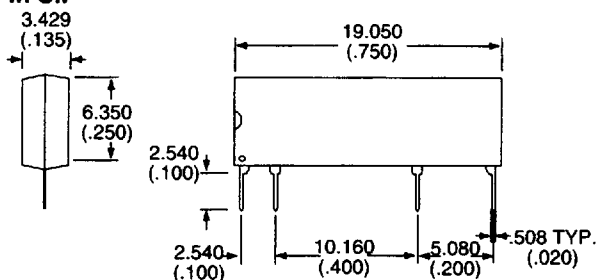
16 Pin Through Hole (Standard)



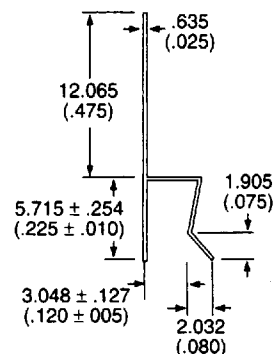
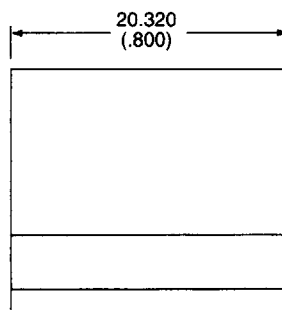
16 Pin PC Board Pattern (Bottom View)



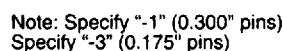
8 Pin SIP



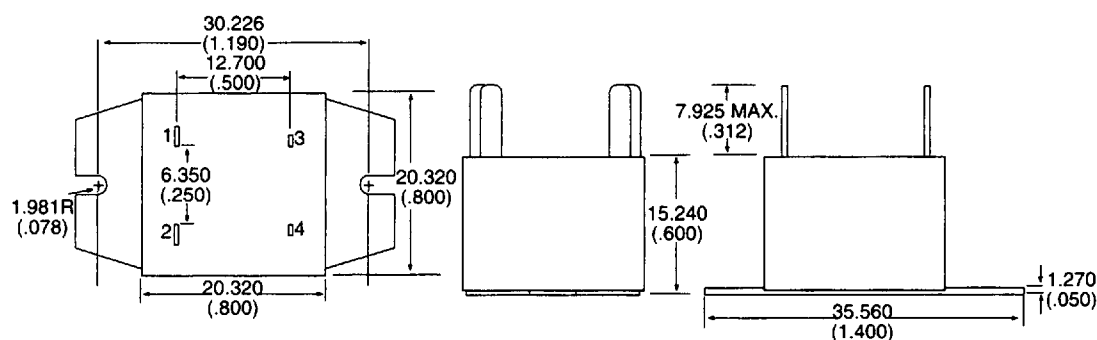
Thermal Clip



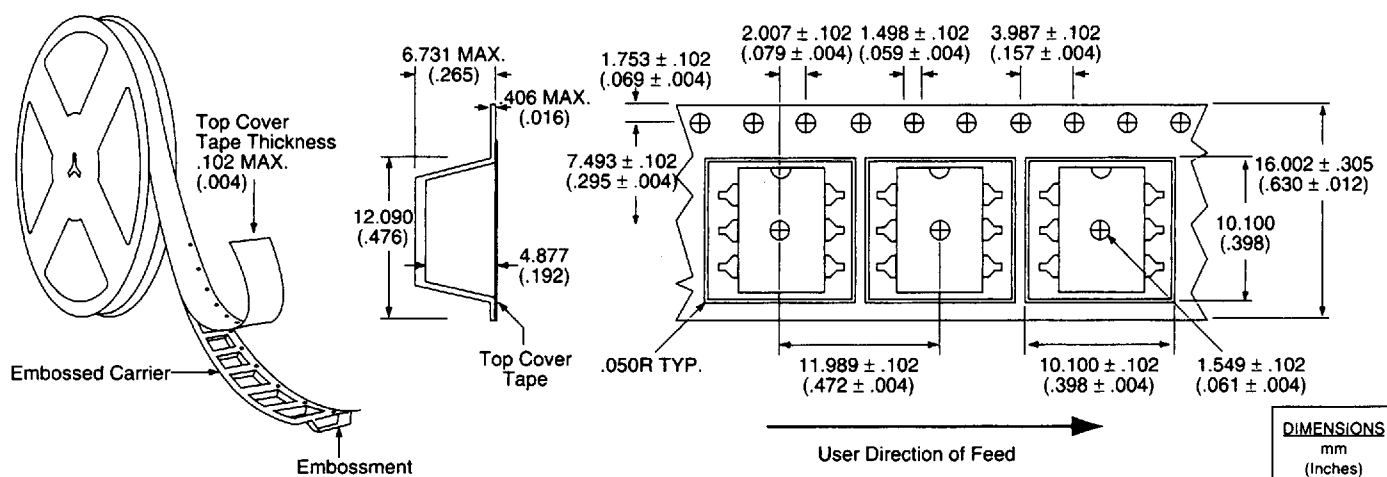
OptoFILM® 10A Series, Pins



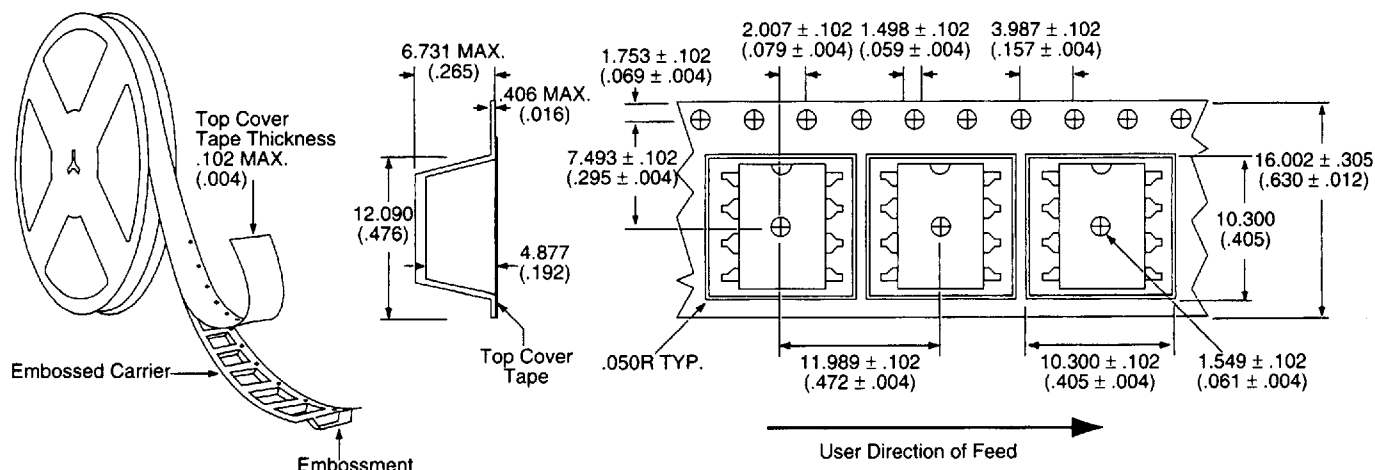
OptoFILM® 10A Series, Quick Connect



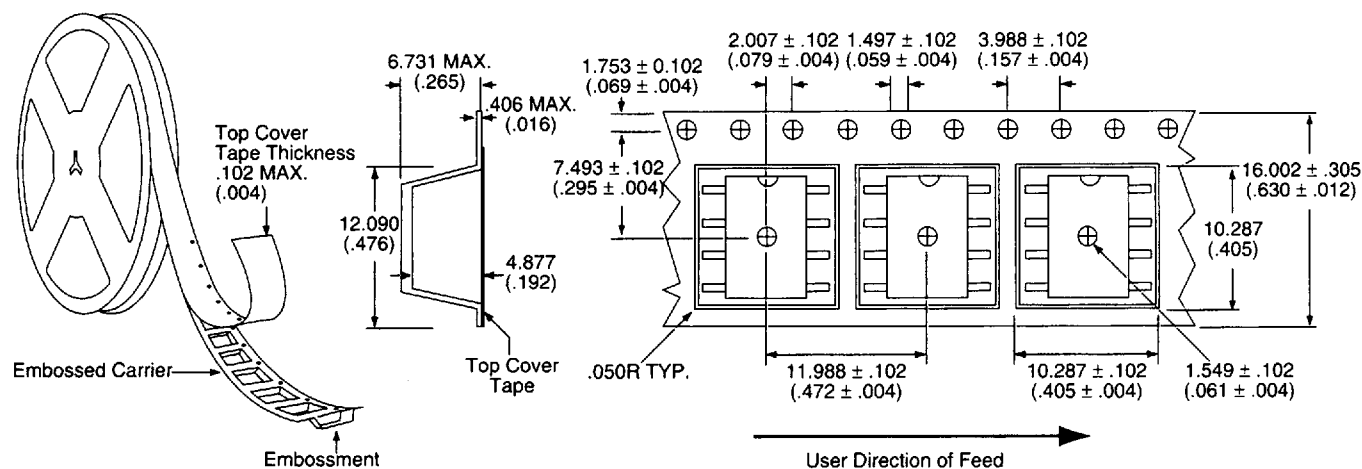
Tape and Reel Packaging for 6 Pin Surface Mount Package



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

