APPENDIX - H

SURFACE MOUNT CRITERIA

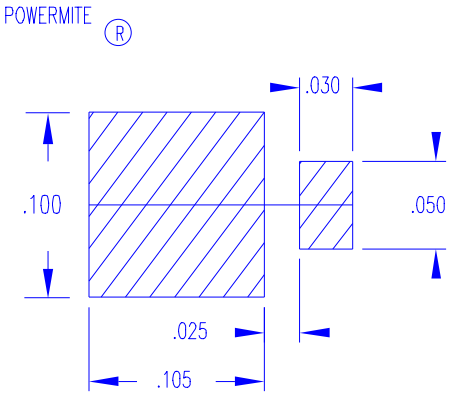
NOTES

SURFACE MOUNT DEVICE CIRCUIT BOARD MOUNTING

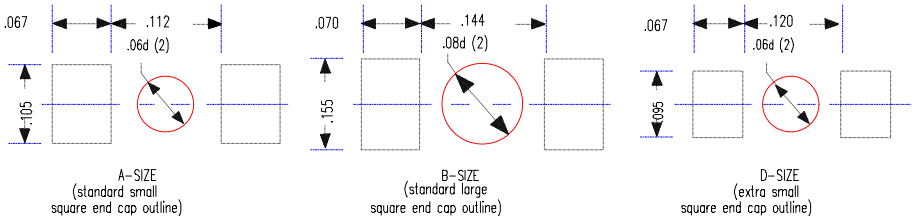
Surface mount technology has allowed a great reduction in the size of circuit designs. Many manufacturers are taking advantage of this technology due to the immense availability of SMT devices in the market place today. MSC offers a variety of surface mount packages and semiconductor devices for your designs. The MELF, ceramic F series, and the POWERMITE® packages all allow power diode applications to be surface mounted.

Common surface mounting processes used in the industry are accomplished by using convection or infra red belt furnace, or wave solder equipment. Microsemi surface mount devices may be mounted with any of these methods with one exception. The POWERMITE®, due to its design geometry, may not be mounted with the wave soldering technique, unless the wave is under the board and the POWERMITE® is on top of the board. All other packages may be affixed temporarily to the circuit board with fast curing adhesive systems to accommodate the wave solder technique.

Suggested circuit board trace outlines for MSC surface mount devices are shown below:

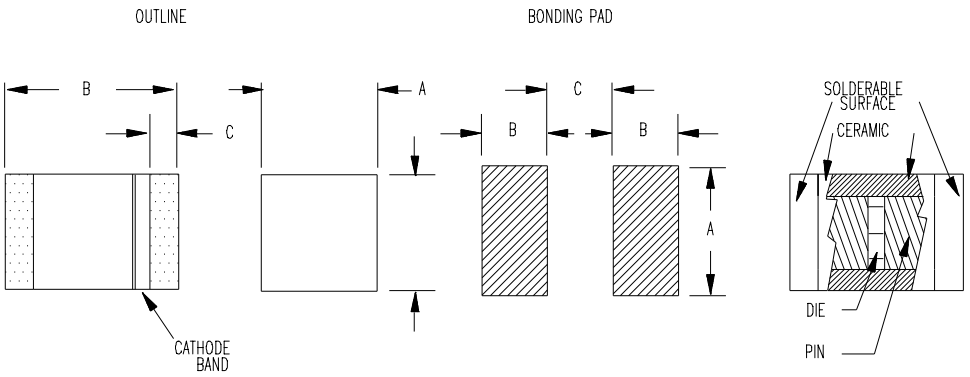


SUGGESTED MOUNTING PAD



NOTES:
1. These dimensions will match the terminals and provide for additional solder fillets at the outboard ends at least as wide as the terminals themselves, assuming accuracy of device placement within .005 inches.
2. If the mounting method chosen requires use of an adhesive separate from the solder compound, a round (or square) spot of cement as shown should be centrally located.
3. Dimensions shown are in inches.

CERAMIC F



	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	.078	.090	1.981	2.413
B	.110	.135	2.794	3.429
C	.008	.030	.203	.762

	INCHES	MILLIMETERS
A	.093	2.36
B	.050	1.27
C	.060	1.52

The most common solder systems used for attachment to boards are 63/37% Sn/Pb, 60/40% Sn/Pb, and 62/36/2% Sn/Pb/Ag. Flux systems vary, however, RMA flux and water soluble systems are in wide use. The RMA flux requires solvent cleaning processes. Water soluble flux systems meet environmental demands imposed on manufacturers.

Usual techniques used to dispense solder pastes are screen printed through stencils, and commercial solder dispensing systems. The tack which is present in most solder pastes is of great assistance in holding devices to the circuit board prior to reflowing the solder.

The reflow solder process is key to a successful surface mounting operation. The temperature profile parameters suggested to properly solder MSC surface mount devices are shown below. Other profiles may be used to accommodate higher mass boards or when using heat sensitive devices. These must be developed by the user for each case.

Temperature (^{o}C)	>200	>220	>240
Maximum Time (min.)	2.5	1	.33

Temperature Rate of Raise 33 ^{o}C/min. (maximum)

Expected Total Profile Time 12 to 20 minutes

Suggested Atmosphere Nitrogen, Forming gas, (Air is used by some manufacturers, however, flux charring can result.)