SOLUTIONS FOR DEFECTS IN WAVE AND REFLOW SOLDERING

Hiflo®
Bonding Beyond Innovations

WAVE & REFLOW SOLUTIONS

EFFECTS

CAUSES		ASSEMBLY													ENGINEERING										LAYOUT										PROCESS																									
		BOARD CONTAMINATION	COMPONENT CONTAMINATION	COMPONENT LEADS TOO LONG	COMPONENT LEADS TOO SHORT	EXCESS SOLDER DEPOSITION	IMPROPER BOARD HANDLING	INSUFFICIENT SOLDER PASTE	MISALIGNED COMPONENT	OXIDIZED SOLDER PASTE	SCREEN/STENCIL CLOGGED	SOLDER PASTE OXIDATION	SOLDER PASTE VISCOCITY TOO LOW		BOARD CONTAMINATION	BOARD OXIDIZED	BOARD WARPED	COMPONENT CONTAMINATION	DEFECTIVE MASK MATERIAL	HOLE/PAD MISREGISTRATION	MASKING IN HOLES	MISREGISTRATION OF MASK	MOISTURE IN LAMINATE	ROUGH PLATED THROUGH HOLE		COMPONENT ORIENTATION	HOLE-TO-LEAD RATIO-LARGE	HOLE-TO-LEAD RATIO-SMALL	INTERNAL PLANE	LARGE PLANE ON COMPONENT SIDE	LARGE PLANE ON SOLDER SIDE	PAD SIZE MISMATCH	PALLET DESIGN	SIZE OF BOARD	WEIGHT DISTRIBUTION		BOARD NOT SEATED RIGHT	BOARD RERUN	CONVEYOR ANGLE HIGH	CONVEYOR ANGLE LOW	CONVEYOR SPEED HIGH	CONVEYOR SPEED LOW	CONVEYOR VIBRATION	DEFECTIVE FIXTURE	EARLY REMOVAL OF BOARD	EXCESSIVE HEATING RATE	EXCESSIVE REFLOW TEMP	EXCESSIVE SOLDER DROSS	FLUX BLOW-OFF EXCESSIVE	FLUX CONTAMINATED	FLUX FOAMHEAD LOW	FLUX NO LONGER ACTIVE	FLUX NOT MAKING CONTACT	FLUX SPECIFIC GRAVITY HIGH	FLUX SPECIFIC GRAVITY LOW	FLUXER UNEVEN	NO FLUX BLOW-OFF	PALLET TOO HOT	PREHEAT TEMP HIGH	PREHEAT TEMP LOW	REFLOW CYCLE TOO LONG	SOLDER CONTAMINATED	SOLDER TEMP HIGH	SOLDER TEMP LOW	SOLDER WAVE HEIGHT HIGH	SOLDER WAVE HEIGHT LOW	SOLDER WAVE UNEVEN
REFLOW PROCESS	BRIDGING	★	★			★			★						★			★																																													
	DISCOLORED JOIN	★	★									★																																																		
	GRAINY SOLDER	★	★												★			★																																												
	HALO EFFECT											★																																																	
	INCOMPLETE FILLET							★																																							★														
	LAMINATE DISCOLORATION																																															★											★			
	LEACHING																																															★											★			
	OPEN JOINT								★		★																																																		
	SOLDER BALLS									★			★																																		★											★			
	TOMBSTONING																																★															★														
WAVE SOLDERING	BLISTERING														★													★		★						★					★																	★			★			
	BRIDGING	★	★	★			★								★	★			★							★				★		★				★		★	★	★		★					★	★	★	★	★		★	★		★	★	★		★		★	★	★	★
	COLD SOLDER JOINT	★	★												★																								★	★	★		★													★		★	★	★	
	COMPONENTS LIFTED			★			★																									★			★		★				★	★	★				★															★		★
	DE-WETTING OR NON-WETTING	★	★				★								★	★																			★	★			★	★							★	★	★	★	★	★	★	★	★		★		★		★		★
	DISCLOSED SOLDER JOINT	★	★												★																								★	★															★	★		★	★			
	EXCESSIVE DROSS GENERATED	★	★				★								★	★																																					★			★		★	★		★	
	EXCESSIVE FLUX USED																																★																	★					★	★						
	EXCESSIVE SOLDER (BOTH SIDES)																																		★	★		★		★													★	★					★	★		★		★
	EXCESSIVE SOLDER (COMP SIDE)																★									★			★			★		★	★	★				★		★																			★	★	★		★
	EXCESSIVE SOLDER (SOLDER SIDE)																													★		★		★	★	★		★	★	★										★		★	★	★	★	★				★		★		★
	EXCESSIVE SOLDER DRAGOUT			★															★													★							★				★						★			★			★			★		★	★		
	FLOODING																★															★	★	★		★	★			★	★			★															★	★		★	★	★		★
	FLUX ENTRAPMENT																						★				★					★							★									★			★				★									
	GRAINY SOLDER	★													★																								★		★		★			★											★		★		★			
	ICICLES	★	★	★			★								★	★														★		★			★	★		★	★	★		★	★	★					★	★	★	★	★		★	★		★	★	★			★	★
	INSUFFICIENT SOLDER (SOLDER SIDE)	★	★		★		★								★	★	★			★	★	★				★		★	★	★		★		★		★		★		★		★						★	★	★	★	★	★		★	★	★				★	★		★	★
	INSUFFICIENT SOLDER FLOW-THRU	★	★				★								★	★	★			★	★	★	★	★		★	★	★	★	★		★		★		★	★	★		★		★						★	★	★	★	★	★	★	★	★	★	★		★		★		★	★
	MASKING FAILURE	★													★				★									★		★							★																					★				★				
	MEASLING														★				★									★		★							★																					★				★				
	ROUGH OR DISTURBED SOLDER																																★			★					★		★			★													★		★			★	★
	SKIPPED OR OMITTED SOLDER	★	★				★								★	★	★		★	★	★	★			★	★							★	★	★	★	★			★		★					★	★	★	★	★	★		★		★	★						★	★
	SOLDER BALLS & SPLATTER	★													★				★				★	★									★							★											★				★				★		★		★	
	SOLDER VOIDS OR OUTGASSING	★	★				★								★	★	★		★	★	★	★	★	★		★	★	★	★							★	★	★		★	★		★					★	★	★	★	★	★	★	★	★		★			★	★		★	★
	WARPAGE																★											★					★	★	★		★	★			★		★														★	★			★				
	WEBBING	★	★	★			★								★	★			★							★							★				★				★	★		★				★	★	★	★	★	★		★	★		★	★			★		★		★			