

APPENDIX A
DIE ATTACH PROCEDURE

DOCUMENT NUMBER : 12MRQ20213A
ISSUE : D

MOTOROLA MALAYSIA SDN BHD.

TITLE : SILVER GLASS DIE ATTACH PROCEDURE FOR ALPHASEM MODEL SL9006
FULLY-AUTOMATIC DIE BONDER

PRODUCT/PACKAGE : PGA/SIDEBRAZE/CQFP

OPERATION : DIE BOND

1.0 PURPOSE/SCOPE

THIS SPECIFICATION COVERS THE PROCEDURES FOR PERFORMING SILVER GLASS DIE ATTACH ON THE ALPHASEM MODEL SL9006 DIE BONDER.

2.0 RESPONSIBILITIES

PRODUCTION SUPERVISION SHOULD SEE THAT OPERATORS ARE ADEQUATELY TRAINED AND FOLLOWING THIS SPECIFICATION. MAINTENANCE SHOULD BE INFORMED OF ANY EQUIPMENT MALFUNCTIONS AND BE TO REPAIR THE EQUIPMENT. QUALITY ASSURANCE SHALL AUDIT THE PROCESS AND INFORM ENGINEERING AND PRODUCTION SUPERVISION IF ANY VARIANCES FROM THIS SPECIFICATIONS OBSERVED.

3.0 EQUIPMENT/MATERIALS

3.1 EQUIPMENT

3.1.1 ALPHASEM MODEL SL9006 DIE BONDER

3.1.2 "Z" BOATS

3.1.3 MAGAZINES

3.1.4 DRYING OVEN, AS REQUIRED

3.1.5 FIRING FURNACE, AS REQUIRED

3.2 MATERIALS

3.2.1 FINGER COTS

3.2.2 GROUND STRAPS

3.2.3 BASES (PER SHOP ORDER)

3.2.4 SILVER GLASS (PER SHOP ORDER)

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- 3.2.5 S2/S6
- 3.2.6 COTTON BUDS/LINT FREE CLOTH, AS REQUIRED
- 3.2.7 LOGBOOK OR PERSONNEL COMPUTER
- 4.0 SAFETY REQUIREMENTS
 - 4.1 THE SILVER GLASS PASTE SHOULD NOT BE TAKEN INTERNALLY OR LEFT IN CONTACT WITH EXPOSED SKIN FOR LONG PERIODS OF TIME.
 - 4.2 KEEP FRONT DOORS CLOSED AT ALL TIMES DURING MACHINE OPERATION.
 - 4.3 FOLLOW SHUTDOWN PROCEDURES PER ATTACHMENT I
 - 4.4 ONLY AUTHORISED AND QUALIFIED PERSONNEL IS ALLOWED TO CARRY OUT HIGH MAINTENANCE
 - 4.5 DEPRESS EMERGENCY SWITCH IN CASE OF EMERGENCY.
- 5.0 REFERENCE DOCUMENTS
 - 5.1 12MSH00224A SILVER GLASS DIE ATTACH PROCEDURES.
10ASM55154A SILVER MATERIAL SPEC.
12M54564J INTERNAL VISUAL CRITERIA.
12MRB05532A JAN INTERNAL VISUAL CRITERIA.
12MRM51958A DATA RETENTION
12MRM51930A ESD PRECAUTIONS
- 6.0 HANDLING PRECAUTIONS
 - 6.1 SILVER PASTE HANDLING
 - 6.2 CHECK THAT THE JAR/SYRINGE OF SILVER GLASS HAS NOT PASSED EXPIRATION DATE. IF IT HAS, INFORM ENGINEERING FOR MATERIAL DISPOSITION.
 - 6.3 ESD PRECAUTION MUST BE TAKEN AS PER SPEC. 12MRM51930A ESD PRECAUTIONS
- 7.0 OPERATION PROCEDURES
 - 7.1 POWER UP
 - 7.1.1 TURN ON MAIN POWER SWITCH AT THE RIGHT-HAND-SIDE CONTROL PANEL BEHIND OUTPUT ELEVATOR.

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- 7.1.2 RELEASE EMERGENCY SWITCH LOCATED ABOVE THE LEFT
DRAWER ; RED ' STAND-BY ' LIGHT WILL BLINK FOR ABOUT 10
SECONDS
- 7.1.3 INSERT A 3.5 " DISKETTE INTO THE FLOPPY DISK DRIVE ;
ENSURE ONLY THE PROPER DISK EXCLUSIVE TO THE MACHINE AND
PRODUCT IS USED.
IGNORE THIS STEP IF THE MACHINE HAS A HARD-DISK
INSTALLED
- 7.1.4 PRESS THE GREEN 'ON' SWITCH ONCE THE 'STAND-BY' LIGHT
HAS STOPPED BLINKING.
MACHINE WILL LOAD MENU FILES FROM DISKETTE AND RESET ALL
SUBSYSTEMS.
- 7.1.5 PRESS " ENTER " ON KEYBOARD TO PROCEED.
- 7.1.6 CHOOSE FROM THE PRODUCT LISTING IN THE MENU THE
DEVICE TO BE PROCESSED BY USING THE UP/DOWN
CURSOR KEYS PRESS " ENTER " WHEN THE DESIRED
DEVICE IS SELECTED.
PROCEED TO 7.3 WHEN DONE.
- 7.1.7 IF THE DEVICE TO BE PROCESSED IS NOT PRESENT IN
THE LISTING, SELECT FROM THE FILE A PRODUCT MOST SIMILAR TO
THE DEVICE INTENDED TO BE PROCESSED. (GUIDELINE : SELECT A
DEVICE OF THE SAME PACKAGE/LEADTYPE)
PROCEED TO 7.2 WHEN DONE.
- 7.1.8 PRESS " ENTER " TO INITIALISE ALL SUBSYSTEM WHEN
PROGRAM LOADING HAS BEEN COMPLETED.
- 7.2 **NEW DEVICE SET-UP**
- 7.2.1 LOAD WAFERS INTO CASSETTE WITH THE ACTIVE SURFACE FACING
THE FRONT OF THE MACHINE.
- THE 2 NOTCHES OF THE FILM FRAME MUST BE FACING
UPWARDS.
- 7.2.2 USING MODE " 8.0 MANUAL FUNCTION " LOAD A CASSETTE INTO THE
WAFER LOADER FOLLOWED BY LOADING A WAFER INTO THE WAFER-
TABLE.
- 7.2.3 AT MAIN MENU, PROCEED TO "4.2 EDIT PRODUCT SET-UP"
- 7.2.4 WAFER-TABLE SET UP PROCEDURES.

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- 7.2.4.1 SELECT " 4.2.2 WAFER TABLE " AND EDIT
 WAFER DIAMETER PER ATTACHMENT II ITEM 1.
- 7.2.4.2 LEAVE OTHER ITEMS IN THIS MENU AS FOLLOWS:
 - MAJOR DIRECTION : RIGHT
 - MINOR DIRECTION : UP
 - TEST DIE (H) : NO
 - TEST DIE (V) : NO
 - DISCARD LIMIT : 100
 - SQUARE WAFER : NO
- 7.2.5 **IPS SET UP PROCEDURES.**
- 7.2.5.1 SELECT " 4.2.4 IPS " FOLLOWED BY " 4.2.4.2 PICK
 POSITION " TO CARRY OUT PROGRAMMING OF THE IMAGE PROCESSING
 SYSTEM.
- 7.2.5.2 SELECT " 4.2.4.2.2 WAFER ALIGNMENT " TO ALIGN THE WAFER.
- 7.2.5.3 USE THE ROTATION FEATURE (" 4.2.4.2.2.3 THETA
 ALIGNMENT ") TO ALIGN THE WAFER TO THE REQUIRED ORIENTATION.

 PRESS " ENTER " WHEN THIS IS DONE.
- 7.2.5.4 SELECT " 4.2.4.2.2.1 ALIGN WAFER " TO
 AUTOMATICALLY ALIGN THE WAFER IN THE X-AXIS.
- 7.2.5.5 SELECT " 4.2.4.2.3 DIE MEASUREMENT " TO POSITION A DIE IN
 THE CENTER OF THE SCREEN AND ADJUST IT TO AN APPROPRIATE
 SIZE. FOLLOW INSTRUCTIONS ON THE SCREEN TO POSITION
 THE PATTERN-BOX ONTO THE INTERSECTION OF SAW-KERFS.
- 7.2.5.6 PROCEED TO ALIGN THE SIZE AND POSITION OF A BOX SUCH THAT
 IT COINCIDES WITH EDGES OF THE DIE ; THIS IS TAKEN AS THE
 DIE SIZE.
- 7.2.5.7 SELECT " 4.2.4.2.4 CHIP ALIGNMENT "
 FOLLOWED BY " 4.2.4.2.4.2 TEACH PATTERN ". ENTER
 THE NUMBER OF GREY LEVELS TO BE
 USED ; RECOMMENDED IS 16 (MAX. IS 64).

 - FOLLOW INSTRUCTIONS ON SCREEN TO PLACE THE
PATTERN BOX LOCATION/SIZE ON A
 UNIQUE PATTERN IN THE DIE.

 - CONTINUE BY PLACING THE BOX IN A DIE
 WHICH HAS ANOTHER GOOD DIE TO THE BOTTOM
 RIGHT OF IT.

 - PRESS " ENTER ".

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- 7.2.5.8 SELECT " 4.2.4.2.6 INKDOT CHECK " TO
PROGRAM INKDOT RECOGNITION CHECK.
TWO TEST AVAILABLE, HISTOGRAM AND PATTERN INKDOT CHECK.
HISTOGRAM CALCULATES AND EVALUATE THE GREY LEVEL
DISTRIBUTION. PATTERN USES IMAGE SUBSTRATION TO DETERMINE
WHETHER INKDOT PRESENT OR NOT.
HISTOGRAM WILL INCREASE THE SPEED SIGNIFICIANTLY BECAUSE
THE CHECK CAN BE PERFORMED WITHOUT ALIGNING THE CHIP.
- PATTERN INKDOT CHECK IS ALWAYS AVAILABLE, WHEREAS HISTOGRAM
CAN FAIL DUE TO WRONG SIZE OF 'INKDOT', BRIGHTNESS OF DIE
SURFACE, LIGHTING, COATING, ETC.
- A) SELECT " 4.2.4.2.6.1 TEACH INK DOT " AND
ENTER THE DOWNSAMPLING PARAMETER
PER ATTACHMENT II ITEM 2.
RECOMMENDED VALUE FOR THIS SETTING IS 2.
MOVE AN INKED DIE TO THE BOX DISPLAYED ON THE
SCREEN.
- B) PROCEED TO PLACE THE SIZE/LOCATION OF
THE INKDOT BOX APPROXIMATELY 1X THE
INKDOT SIZE ON EACH OF THE BOX WITH THE
DOT AT THE CENTER OF THE BOX.
- C) SELECT " 4.2.4.2.6.1 TEACH INK DOT "
AND POSITION THE DIE-SIZE BOX ON AN UNINKED
DIE.
PRESS " ENTER " FOR ALL OTHER INSTRUCTIONS IN
THIS MENU.
- D) IF HISTOGRAM SUCCESSFULLY TAUGHT, SELECT 4.2.2.6.6
STRATEGY HISTOGRAM ELSE CONTINUE WITH PATTERN.
- E) SELECT " 4.2.4.2.6.7 MORPHOLOGIC FILTER
ON/OFF " AND SET TO " ON " FOR VISUALLY
CLEAR INKDOT AND " OFF " FOR FAINT INKDOT.
- F) SELECT " 4.2.4.2.6.8 SENSITIVITY " AND MOVE AN INKED DIE
TO THE DIE SIZE BOX.
- USE THE UP/DOWN CURSORS TO INCREASE/DECREASE
THE VALUE OF SENSITIVITY IN RECOGNISING THE
INKDOT AS A WHITE ENHANCED AREA.
- WITH THIS VALUE FOR THE SENSITIVITY, THE WHITE
ENHANCED AREA MUST NOT EXCEED 3/4 THE SIZE OF
THE INKDOT.
- 7.2.5.9 SELECT " 4.2.4.2.7 CHIPPING CHECK " TO
PROGRAM CHIPPING RECOGNITION CHECK.

- A) SELECT " 4.2.4.2.7.1 TEACH "

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AND MOVE A CHIPPED EDGE DIE (FROM WAFER
EDGE) TO THE BOX; SELECT ONLY A DIE WITH
THE LEAST CHIPPING.
(IF NO SUCH DIE CAN BE FOUND, SELECT ANY DIE).

- B) ADJUST THE SIZE/POSITION OF THE OUTER-BOX TO
COINCIDE WITH THE SCRIBE LINE ON THE DIE;
SLIGHTLY INSIDE THE SCRIBE LINE MAY BE
ACCEPTABLE.
 - C) ADJUST THE SIZE/POSITION OF THE INNER-BOX
ABOUT 2 BOND-PAD SIZE SMALLER THAN THE
OUTER-BOX ON EACH SIDE.
 - D) SELECT " 4.2.4.2.7.1 TEACH CHIPPING "
AND MOVE AN UNCHIPPED DIE TO THE DIE-SIZE
BOX. PRESS " ENTER " FOR ALL OTHER
INSTRUCTIONS IN THIS MENU.
 - E) SELECT " 4.2.4.2.7.6 AREA " (%) AND SET
THE THRESHOLD VALUE FOR THE AREA TO BE
RECOGNISED AS CHIP; RECOMMENDED VALUE IS 10%
 - F) SELECT " 4.2.4.2.7.7 SENSITIVITY " AND MOVE
THE CHIPPED DIE SELECTED IN 4.2.5.9(A) TO
THE BOX.
- USE THE UP/DOWN CURSORS TO SET THE
VALUE OF SENSITIVITY IN RECOGNISING
THE CHIPPED EDGE AS AN ENHANCED WHITE AREA.
- PRESS " ENTER " TO UPDATE THIS PARAMETER.

7.2.5.10 SELECT " 4.2.4.2.7 FIND 1ST DIE " TO POSITION THE FIRST
DIE ON THE WAFER FOR IPS SCANNING.

**7.2.6 FEEDSYSTEM SET UP & PASTE DISPENSER SET UP (VERY
IMPORTANT/CRITICAL SECTION)**

- A) FIRST SELECT THE TYPE OF DISPENSER TO BE USED ;
I.E TIME/PRESSURE OR VOLUMETRIC DISPENSER
SYSTEM.THEN UNPLUG SYRINGE AIR HOSE CONNECTOR AND
REMOVE THE SYRINGE FROM THE DISPENSER ;
THEN UNPLUG CONNECTORS # 1, # 2 AND # 3.
- B) DISENGAGE THE DISPENSER BY LOOSENING THE THUMB
SCREW LOCATED BEHIND THE ASSEMBLY.BRING THE
ASSEMBLY TO THE FRONT FOR EASIER ACCESS.
- C) LOOSEN THE SECURING SCREW AND REMOVE THE CHAMBER
FROM THE ASSEMBLY.
WIPE CLEAN THE CHAMBER OR IWASHITA ADAPTOR.

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REPLACE THE RUBBER MEMBRANE (1X / SHIFT) IF YOU ARE
USING CHAMBER.

NOTE : RUBBER MEMBRANE WITH CHAMBER USED ONLY
FOR THE VOLUMETRIC DISPENSER SYSTEM. FOR
IWASHITA DISPENSER SYSTEM, THERE IS NO RUBBER
MEMBRANE USED. FOR IWASHITA DISPENSER SYSTEM,
PLEASE USE IWASHITA ADAPTOR INSTEAD OF CHAMBER
WITH RUBBER MEMBRANE.

- D) REMOVE THE NOZZLE FROM THE CHAMBER OR IWASHITA
ADAPTOR IF IT IS NOT MEANT FOR THE DEVICE TO BE
SET UP ; WIPE CLEAN THE CHAMBER OR IWASHITA
ADAPTOR AND AND REPLACE THE O-RING (1X / DAY).
- E) MOUNT THE CHAMBER OR IWASHITA ADAPTOR ONTO THE
DISPENSER AND TIGHTEN THE SECURING SCREW ; ENSURE
THE CHAMBER OR IWASHITA ADAPTOR SITS PROPERLY IN THE
GUIDE PINS.
- F) REPLACE THE NOZZLE WITH THE CORRECT SIZE ; ROTATE
THE NOZZLE TO THE RIGHT ORIENTATION BEFORE
TIGHTENING THE SET SCREW.
- G) ENGAGE THE DISPENSER ASSEMBLY ONTO THE MACHINE
AND TIGHTEN THE THUMB SCREW.
- H) INSERT A SYRINGE INTO THE CHAMBER OR IWASHITA
ADAPTOR HEAD; ROTATE THE SYRINGE ABOUT 2 TURNS
CLOCKWISE UNTIL TIGHTNESS CAN BE FELT ; LATCH THE
SYRINGE GRIPPER.
- I) ENGAGE CONNECTORS #1,#2 AND #3 ACCORDINGLY FIRST;
ENSURE THAT THE 3 CONNECTORS ARE SECURELY
FASTENED TO THEIR RESPECTIVE SOCKETS BEFORE THE
SYRINGE AIR HOSE IS PLUGGED IN.
- J) PLUG IN THE SYRINGE AIR HOSE CONNECTOR ; CHECK
THAT NO EPOXY LEAKS OUT FROM THE SYRINGE. UNPLUG
THE SYRINGE AIR HOSE CONNECTOR IMMEDIATELY IF SUCH LEAKAGE
HAPPENS ; RETIGHTEN/REPLACE SYRINGE AND REPEAT THE ABOVE
PROCEDURES ACCORDINGLY.
- K) WITH A PIECE OF LINT-FREE CLOTH PLACED UNDERNEATH
THE NOZZLE, SELECT "4.2.7.6.5 CHANGE
SYRINGE/TOOL",PRESS F1 UNTIL ADHESIVE IS SEEN
APPEARING AT THE NOZZLE CLEAN THE NOZZLE TIP WITH
THE LINT-FREE CLOTH.
- L) SELECT " 4.2.7 FEEDSYSTEM " FOLLOWED BY TO SELECT
THE BOAT TYPE, DISPENSER ENABLE/DISABLE,
CENTERING ENABLE/DISABLE, ETC.

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- M) SELECT " 4.2.7.6 DISPENSER SETUP ". SELECTION OF THIS MENU WILL ALLOW THE USER ACCESS TO ONE OF THE THREE DISPENSE CYCLES AVAILABLE.
- N) SELECT "4.2.7.6.1 SELECT DISPENSE CYCLE ".
SELECT "4.2.7.6.1.2 3 PISTON DISPENSE CYCLE ".
* STANDARD TIME/PRESSURE STANDARD OR
* VOLUMETRIC CYCLE OR
* VOLUMETRIC DOUBLE SHOT.
- O) SELECT " 4.2.7.6.2 SELECT DISPENCE PARAMETER ".
THIS MENU POINT ALLOWS THE USER TO SELECT, FROM A STANDARD LIBRARY OF LISTED MATERIAL TYPES, THE NAME OF THE SPECIFIC DISPENSE TO BE USED. THIS WILL AUTOMATICALLY ENTERED A SET OF PRE-PROGRAMMED PARAMETERS WITH THE MATERIAL TYPE, THUS MINIMISING USER INPUT DURING PRODUCT SETUP. DEPENDING UPON SPECIFIED BOND ACCURACY, HOWEVER, A SERIES OF TEST DISPENCE RUNS MAY BE NECESSARY TO ACHIEVE DESIRED RESULT.
- P) SELECT "4.2.7.6.3 DISPENSE POSITION XY OFFSET ". SELECT " 4.2.7.6.3.3 MOVE INDIVIDUAL ". THE OFFSET CAN BE ENTERED BY MEANS OF A FUNCTION KEY OR WITH THE RESPECTIVE ARROW KEY.
- P) SELECT "4.2.7.6.4 CUSTOMISE DISPENSE PARAMETER".
SELECT " 4.2.7.6.4.2 MODIFY CUSTOM PARAMETER SETUP ".
UDC TIMING - DISPENSE TIME (1 - 500MS)
- FILING TIME (0 - 1000MS)
- POST DISPENSE DELAY (0 - 1000MS)
- TAIL BREAKING TIME (0 - 1000MS)

UDC SPEED - STANDARD SPEED (1 - 127)
- TAIL BREAKING SPEED (1 - 127)

UDC POSITION - TEACH PACKAGE HEIGHT(
MIN: -1000, MAX:25300) REC:0UM.
- WAITING HEIGHT ABOVE PACKAGE
(0 - 2530UM) REC:10K-21K
- TAIL BREAKING POSITION
(0 - 2530UM) REC:6K - 20K
- MAXIMUM HEIGHT ABOVE PACKAGE
(0 - 2530UM) REC:10K-21K
- T) SELECT " 4.2.7.6.5 CHANGE SYRINGE/TOOL ". MOVES UDC TO PARK POSITION SO THAT THE USER CAN CHANGE THE SYRINGE AND/OR DISPENSE TOOL.
- U) SELECT " 4.2.7.6.6 TEST DISPENSE ". INITIAL SETUP OF THE NOZZLE, VERIFY THE DISPENSED PATTERN ON DIE ATTACH PAD CAVITY AFTER AT LEAST 10 PRINTS.

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- 1) IF REQUIRED, ADJUSTMENT OF XY POSITION OFFSET -
"SELECT 4.2.7.6.3.3 MOVE INDIVIDUAL", SO THAT THE NOZZLE IS
POSITIONED INSIDE/CENTERED TO THE CAVITY OF THE PACKAGE.
- 2) CLOSE THE CYLINDER # 2 MICROMETER.SLOWLY INCREASE THE
AMOUNT OF MATERIAL BY TURNING CCW (VIEWED FROM FRONT OF
MACHINE), 3 DIVISIONS (0.06 MM) TO INCREASE THE MATERIAL OF
THE DISPENSED PATTERN. "SELECT 4.2.7.6.6 TEST DISPENSE".
DISPENSE AT LEAST 5 TIMES FOR EACH MICROMETER ADJUSTMENT.

- 3) REPEAT STEPS (A) TO (B) UNTIL A GOOD DISPENSED
PATTERN IS ACHIEVED. CONTINUE TO DISPENSE ANOTHER 10 TIMES
TO CONFIRM THE PATTERN CONSISTENCY.

NOTE :EXCESSIVE STRINGING AND TAILING OF PATTERN IS DUE TO TOO MUCH
MATERIAL; SELECT 4.2.7.6.4.2", CHANGE TAIL BREAKING SPEED OR TAIL
BREAKING POSITION OR TURN THE MICROMETER CLOCKWISE TO REDUCE AMOUNT OF
MATERIAL AND START THE DISPENSING SETUP AGAIN. INCOMPLETE DOT OR
PATTERN IS DUE TO INSUFFICIENT ADHESIVE.

7.2.6.1 PROCEED TO DIE ATTACH AS PER THE DIE BOND TCM.

7.2.6.2 IF THE MACHINE HAS BEEN IDLE FOLLOW PROCEDURE IN THE DIE
BOND TCM TO ENSURE PROPER FLOW OF PASTE.

7.2.6.3 DUMMY UNITS PREPARATION

7.2.6.4 SELECT FROM " 4.2.8.3 PICK INKDOT EN/DIS "
TO PICK INKED DIE FROM THE WAFER.

7.2.6.5 USE " 2.4 PICK AND PLACE " TO DIE ATTACH
INKED DIE (1 UNIT AT A TIME) ONTO THE
PACKAGE UNTIL 1 BOAT HAS BEEN COMPLETED.

7.2.6.6 VISUAL THE UNITS UNDER THE LOW POWER SCOPE
TO CHECK FOR DIE ATTACH DEFECTS.
TO RECTIFY ANY DEFECTS IF NECESSARY.

7.2.6.7 ONCE THE VISUALLED CRITERIA HAVE BEEN MET,
SELECT FROM THE MENU " 4.2.8.3 PICK INKDOT
EN/DIS " TO DISABLE PICKING INKED DIE.

7.2.6.8 THE MACHINE IS NOW READY FOR PRODUCTION.

7.2.6.9 SELECT " 4.2.9 FILE HANDLING " TO SAVE ALL
PARAMETERS UNDER THIS NEW DEVICE NAME.

7.2.6.10 SELECT " 4.2.9.2 SAVE PRODUCT SET UP".

7.2.6.11 WHEN A LISTING OF CURRENT DEVICES
IS SHOWN, USE THE UP/DOWN CURSORS

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TO POSITION AT ` TEMPORARY '.

7.2.6.12 HIT THE RIGHT (--->) CURSOR ONCE
TO START SETTING THE NEW DEVICE NAME.

7.2.6.13 USE THE UP/DOWN CURSORS FOR SETTING
ALPHANUMERIC CHARACTERS ; USE THE
LEFT/RIGHT CURSORS FOR POSITION SHIFTING.

7.2.6.14 PRESS " ENTER " WHEN DONE.

7.2.6.15 PRESS " MAIN MENU " FOLLOWED BY MOVING
THE CURSOR TO ANY PRODUCT NAME OTHER THAN
'TEMPORARY' ON THE PRODUCT LISTING TABLE.
PRESS " ENTER " FOLLOWED BY " ESC " TO
EXIT FROM THE PRODUCT SET UP ROUTINES.

7.2.7 CYCLE CONFIGURATION SET UP

7.2.7.1 SELECT " 4.2.8 CYCLE CONFIGURATION " TO
CONFIGURE THE MACHINE TO THE PROCESS
REQUIREMENTS AS FOLLOWS :

- " 4.2.8.3 INKDOT CHECK EN/DIS "
- " 4.2.8.4 PICK INKDOT EN/DIS "
- " 4.2.8.5 CHIPPING CHECK EN/DIS "

7.2.7.2 IF ONLY INKED DICE WILL BE PROCESSED FIRST
BEFORE RUNNING ACTUAL PRODUCTION, SET
" 4.2.8.4 PICK INKDOT ENABLE/DISABLE " TO `ENABLE'

7.2.7.3 IF THE WAFER / DEVICE IN PROCESS HAS NO
EDGE DIE, SET " 4.2.8.5 CHIPPING CHECK
EN/DIS " TO `DISABLE'.

7.2.8.1 SELECT " 4.2.5 PICK " FOLLOWED BY " 4.2.5.2.
CHIP THICKNESS ".

7.2.8.2 USING FUNCTION KEY F1 AND THE CURSORS, MOVE
THE XZ-TABLE TO A POSITION SUCH THAT AN
INKED DIE IS AT THE CENTER OF THE SCREEN.

7.2.8.3 USING F3, MOVE THE PICK-UP TOOL TO THE
" PICK " POSITION BY SELECTING THE " RIGHT (PICK) CURSOR.

7.2.8.4 USING F1, MOVE THE PICK-UP TOOL IN THE Y+ DIRECTION
UNTIL THE IMPACT LED ON THE TRANSFER ARM IS LIGHTED.

A) NOTE THE `Y' READING ON THE SCREEN.

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- B) USING THE `DOWN' CURSOR, MOVE THE TOOL
IN THE Y-DIRECTION UNTIL THE Y-READING
IS REDUCED BY ABOUT 2000 COUNTS.
- C) PRESS " ENTER " AND THE PICK-TOOL WILL
MOVE TO MAKE CONTACT WITH THE DIE SURFACE.

7.2.8.5 USING F1, MOVE THE PICKUP TOOL IN THE
Y-DIRECTION BY 4000 COUNTS AND PRESS " ENTER ".
THE CHIP THICKNESS PARAMETER WILL THEN BE
SHOWN UPDATED IN THIS MENU.

7.2.8.6 SET THE FOLLOWING PICK PARAMETERS PER ATTACHMENT II ITEM 3
:

- EJECT HEIGHT
- PICK FORCE
- PICK TIME
- PICK SPEED
- VACUUM TIME

7.2.8.7 EXIT FROM PRODUCT SET UP MENU BY REPEATING
THE PROCEDURES IN 7.2.6.3.

7.2.9 BOND SET UP

7.2.9.1 SELECT " 9.1.1 STEPWISE PICK " FROM THE MAIN MENU.

- A) FOLLOW THE DISPLAYED INSTRUCTIONS,
REPEATEDLY PRESS `ENTER' TO PICK A DIE FROM THE WAFER.
PRESS `ESC' WHEN THE DIE IS BROUGHT TO
THE READY-TO-BOND POSITION ABOVE THE PACKAGE.

B) LEAVE THE DIE WITH THE PICK UP TOOL.

7.2.9.2 SELECT " 4.2.6 BOND SET UP " FOLLOWED BY " 4.2.6.6 TEACH
BOND POSITION " TO EDIT THE BOND POSITION.

- A) SELECT " 4.2.6.6.3 TEACH SELECTED BOND
POSITION MANUAL " TO PROGRAM X-Y DIE
PLACEMENT AS FOLLOWS :

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- B) WHEN PROMPTED BY THE QUESTION " MOVE NEXT PACKAGE TO BOND POSITION " PRESS `ESC' TO KEEP THE PACKAGE UNINDEXED.
- C) SELECT F2 AND NOTE THE Z-POSITION OF THE BONDHEAD AS INDICATED BY THE NUMERICAL VALUE `Z:XXXX' ON THE SCREEN.
- D) USING F2 AND THE `DOWN' (Z-) CURSOR, MOVE THE PICKUP TOOL (WITH THE DIE) IN THE Z-DIRECTION UNTIL THE DIE IS AS CLOSE TO THE CAVITY AS POSSIBLE BUT NOT TOUCHING.
- E) USING F1 AND THE XY-CURSORS, ALIGN THE DIE PLACEMENT WITH RESPECT TO THE CAVITY ACCORDING TO THE REQUIREMENT ILLUSTRATED ON THE BOND DIAGRAM.

NOTE : 1) BONDHEAD IS MASTER AND UDC DISPENSE HEAD IS IT'S SLAVE. ANY CHANGES MADE IN XY DIRECTION OF THE BONDHEAD MADE THE UDC POSITION CHANGED RELATIVELY.

2) THIS STEP IS NORMALLY NOT NEEDED TO BE PERFORMED IF THE CENTER POSITION OF THE DIE PLACEMENT OF THIS DEVICE IS THE SAME AS THE PREVIOUS ONE.

- F) USING F2 AND THE Z+ CURSOR, RAISE THE PICKUP TOOL AND DIE TO THE Z-POSITION AS INDICATED BY THE NUMBER `Z:XXXX' NOTED IN 4.2.9.2 (C).
AT THIS POINT, THE PICK UP TOOL AND DIE MUST BE ABLE TO CLEAR PACKAGE PINS DURING INDEXING.

NOTE : IF A VERIFICATION NEEDS TO BE DONE TO CHECK THIS CLEARANCE, THEN USE THE F3 FUNCTION KEY TO ROTATE THE TRANSFER ARM BACKWARDS; INCREASE THE Z-HEIGHT USING F2 IF NECESSARY.

- G) PRESS ` ENTER ' .
- H) SELECT " 4.2.6.6.2 BOND HEIGHT " TO PROGRAM THE Z DIE PALCEMENT AS FOLLOWS :
- I) PRESS ` ENTER ' WHEN " DON'T PROCEED UNLESS CHIP ON TOOL " MESSAGE IS DISPLAYED.
(THE DIE PICKED UP EARLIER HAS TO REMAIN ON THE PICKUP TOOL).
- J) PRESS ` ESC ' TO KEEP THE PACKAGE UNINDEXED ;

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THE PICKUP TOOL WITH THE DIE WILL
AUTOMATICALLY PROGRAM ITS Z-HEIGHT.

- K) MANUALLY REMOVE THE DIE FROM THE PICK-UP
TOOL WHEN DONE TAKING CARE NOT TO DISLodge
THE RUBBER TOOL FROM THE HOLDER.

7.2.10 BOND POSITION ALIGNMENT (BPA) SET UP

7.2.10.1 ENSURE THE FOLLOWING HAS BEEN TAUGHT AND
FUNCTIONING BEFORE TEACHING THE BPA :-

- A) FEEDSYSTEM : INDEX TO BRING PACKAGE TO BOND POSITION.
B) PICK : PICK SPEEDS AND POSITIONS.
C) IPS : TAUGHT AND WORKING AT PICK POSITION.
D) WAFER TABLE : INITIALISED AND WITH A WAFER LOADED.

7.2.10.2 ENABLE 5.3.5.6 BOND OPTICS UNDER MACHINE SETUP.

7.2.10.3 AT " 4.2.6.6.4 BOND POSITION ALIGNMENT ",
SELECT 1 PATTERN OR 2 PATTERN OPTION AND PRESS " ENTER " .

7.2.10.4 ADJUST ZOOM TO MAKE CAVITY OR BOND PAD AS LARGE AS POSSIBLE
IN THE BOX. ADJUST FOCUS TO THE HEIGHT OF THE PACKAGE.
PRESS " ENTER " .

7.2.10.5 ALIGN PACKAGE TO GRID BY ADJUSTING THE CENTERING STATIONS
(BY LINE ENGINEER) IF NECESSARY PRESS " ENTER " WHEN
DONE.

7.2.10.6 MOVE BOX TO FIRST POSITION. ADJUST PATTERN BOX BY PLACING
BOX IN AN AREA OF THE PACKAGE WITH GOOD X AND Y COMPONENT.
PRESS " ENTER " .

7.2.10.7 MOVE BOX TO SECOND POSITION IF 2 PATTERN HAD BEEN SELECTED
IN 4.2.10.3 ABOVE; THIS BOX SHOULD BE AS FAR AWAY FROM THE
FIRST BOX AS POSSIBLE ; PRESS " ENTER " WHEN DONE.

7.2.10.8 WAIT UNTIL THE LIGHTING SETUP WHICH IS AUTOMATICALLY
PERFORMED IS COMPLETED.THE PATTERN(S) WILL BE DISPLAYED ON
THE SCREEN.

7.3 EXISTING DEVICE SET UP

DOCUMENT NUMBER : 12MRQ20213A
ISSUE : D

- 7.3.1 USING " 8.0 MANUAL FUNCTION ", LOAD A CASSETTE WAFER LOADER ("8.2.6") FOLLOWED BY LOADING A WAFER INTO THE WAFER TABLE ("8.2.1".)
- 7.3.2 AT MAIN MENU, PROCEED TO " 4.1 LOAD PRODUCT SET-UP " TO AN EXISTING PROGRAM FOR THIS DEVICE.
- 7.3.3 WHEN A LIST OF EXISTING DEVICES IS SHOWN, USE THE UP/DOWN CURSORS TO SELECT THE PRODUCT INTERESTED.
- 7.3.4 PRESS " ENTER " TO LOAD THE PROGRAM INTO THE MACHINE; ONCE PROMPTED, INITIALISE ALL SUBSYSTEMS.
- 7.3.5 REPEAT THE IPS SET-UP PROCEDURES TO EDIT THE INKDOT POSITION OF THE DIE.
- 7.3.6 WHEREVER AND WHENEVER NECESSARY, REPEAT THE `NEW DEVICE SET-UP " PROCEDURES TO SET UP THE MACHINE FOR THIS DEVICE.
- 7.4 **OPERATING PROCEDURE**
- 7.4.1 RETURN MACHINE TO " MAIN MENU " AFTER INITIALISATION.
- 7.4.2 LOAD 2 MAGAZINE OF PACKAGES INTO THE INPUT ELEVATOR. NOTE THE BOAT ORIENTATION.
- 7.4.3 LOAD EMPTY MAGAZINES AT THE OUTPUT ELEVATOR ; MAXIMUM OF 3 MAGAZINES CAN BE LOADED AT ANY ONE TIME.
- 7.4.4 USE THE CORRECT CASSETTE FOR THE WAFERS TO BE PROCESSED. CHECK FILM-FRAME ORIENTATION OR DIE-ORIENTATION AS REQUIRED IN SECTION 4.2.
- 7.4.5 LOAD THE WAFER CASSETTE INTO THE LEFT DRAWER SUCH THAT THE FRAME-CENTERING JIG ON THE CASSETTE IS AT THE BOTTOM AND THE WAFERS ARE FACING THE OPERATOR ; FLUSH THE LEFT EDGE OF THE CASSETTE TO THE POSITIONING PLATE ON THE TRANSPORTER.
- 7.4.6 PUSH IN THE LEFT DRAWER FULLY.
- 7.4.7 PERFORM THE NECESSARY SET-UP PROCEDURES AS SPECIFIED IN SECTION 7.2 ONWARDS PRIOR TO STARTING PRODUCTION.
- 7.4.8 SELECT " 1.0 AUTOMODE " TO START AUTOMATIC DIE ATTACH.
- 7.4.9 **REWORKING SKIPPED DIE**

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(NOTE : PRIOR TO CARRYING OUT THE FOLLOWING REWORK PROCEDURES, LINE TECHNICIAN/ENGINEER HAS TO BE INFORMED IMMEDIATELY OF ANY GOOD DIE BEING SKIPPED.THIS FUNCTION SHOULD NOT NORMALLY BE PERFORMED !!)

- 7.4.9.1 SELECT " 2.2 INDEXWISE MOVEMENT " FROM THE
 MAIN MENU AND USE THE CURSORS TO SCAN FOR GOOD DIE.
- 7.4.9.2 WHEN A GOOD DIE IS FOUND, PRESS ` ESC '
 AND SELECT " 2.4 PICK AND PLACE " TO BOND THE DIE.
- 7.4.9.3 REPEAT 7.4.9.1 THROUGH 7.4.9.2 UNTIL ALL
 SKIPPED GOOD DICE ON THE WAFER HAVE BEEN BONDED.
- 7.4.10 WHILE IN AUTOMODE, LOAD PACKAGES AND EMPTY MAGAZINES
 PER PROCEDURES DESCRIBED IN 4.4.2 THROUGH 4.4.3.
- 7.4.11 LOAD WAFERS IN CASSETTES (SAME ALT LOT) INTO THE LEFT
 DRAWER ANYTIME DURING AUTOMODE.
- 7.4.12 UNLOAD WAFER CASSETTE FROM THE RIGHT DRAWER ANYTIME
 THERE IS ONE PRESENT DURING AUTOMODE.
- 7.4.13 STOP MACHINE BY PRESSING ` ESC ' ANYTIME DURING AUTOMODE.
- 7.4.14 RELOAD ADHESIVE ONCE THE LEVEL IS SEEN ABOUT 1/8 INCH
 AWAY FROM THE BASE OF THE SYRINGE.
- 7.4.14.1 SELECT " 2.7 FLUSH FEEDSYSTEM WITH BOND "
 TO COMPLETE DIE ATTACH OF ALL PACKAGES IN THE FEEDSYSTEM.
- 7.4.14.2 UNPLUG SYRINGE AIR HOSE CONNECTOR AND
 REPLACE WITH A NEW SYRINGE.
- 7.4.14.3 LATCH THE SYRINGE GRIPPER AND PLUG IN THE
 SYRINGE AIR-HOSE CONNECTOR.
- 7.4.14.4 REPEAT THE PROCEDURES SPECIFIED IN
 7.2.11.11 AND 7.2.11.12 ABOVE TO GET RID
 OF AIR FROM THE CHAMBER OR IWASHITA ADAPTOR.
- 7.4.14.5 WIPE CLEAN THE NOZZLE TIP AND TEST RUN 4
 UNITS WITH INKED DICE PRIOR TO RUNNING
 PRODUCTION UNITS.
- 8.0 DATA RETENTION FOR SPEC. NUMBER : 12MRM51958A

ATTACHMENT I

SHUTDOWN PROCEDURES

DOCUMENT NUMBER : 12MRQ20213A

ISSUE : D

1. SHORT SHUTDOWN (< 8 HOURS)
 - 1.1 FLUSH THE FEEDSYSTEM USING " 2.6 FLUSH FEEDSYSTEM " OR " 2.7 FLUSH FEEDSYSTEM WITH BOND " IF THE MACHINE WILL BE LEFT UNATTENDED FOR MORE THAN 5 MINUTES.
 - 1.2 CONNECT THE AIR HOSE FOR THE SYRINGE.
 - 1.3 RETURN TO MAIN MENU BEFORE LEAVING THE MACHINE.
2. LONG SHUTDOWN (> 8 HOURS < 16 HOURS)
 - 2.1 COMPLETE ALL THE WAFERS TO BE PROCESSED PRIOR TO SHUTDOWN.
 - 2.2 CLEAR FEEDSYSTEM AND INPUT/OUTPUT SYSTEMS.
 - 2.3 RESET ALL SUBSYSTEMS EXCEPT IPS USING "3.8 RESET SUBSYSTEM".
 - 2.4 POWER DOWN THE MACHINE BY LATCHING EMERGENCY STOP BUTTON AND TURN OFF MAIN-POWER SWITCH IF SHUTDOWN > 16 HOURS.
 - 2.5 REMOVE DISPENSE CHAMBER AND NOZZLE FROM THE DISPENSING SYSTEM AND WASH THEM WITH S2/S6 OR EQUIVALENT USING THE ULTRASONIC CLEANER ; WIPE DRY THESE ITEMS AND STORE IN THE DESIGNATED SPACE.
3. MAINTENANCE
 - 3.1 ALWAYS REFER TO THE ALPHASEM 9006 MAINTENANCE MANUAL FOR ALL TROUBLE-SHOOTING GUIDES.
 - 3.2 CHANGE PICK-UP TOOL (COLLET) WHEN TOOL IS CONTAMINATED.
 - 3.2.1 SELECT " 9.1.1 STEPWISE PICK " FROM MAIN MENU AND USE THE CURSOR KEYS TO BRING THE TRANSFER ARM TO A POSITON BETWEEN THE PICK AND THE BOND LOCATION. PRESS ` ESC ' WHEN DONE.
 - 3.2.2 USE A TWEEZER TO MANUALLY REMOVE THE RUBBER TIP OF THE PICK-UP TOOL FROM THE SHANK AND DISCARD.
 - 3.2.3 INSPECT A NEW TIP UNDER 10X - 30X MICROSCOPE FOR THE FOLLOWING :
 - FOREIGN MATERIALS
 - BURRS
 - SURFACE FLATNESS / SMOOTHNESS
 - SURFACE SCRATCHES

- 3.2.4 WITH THE GUIDE OF A TWEEZER, INSERT THE INSPECTED PICK-UP TIP INTO THE SHANK.
- 3.2.5 PERFORM 'PICK SET-UP' AND 'BOND SET-UP' USING THE PROCEDURES DESCRIBED IN SECTION 4.2.8 AND 4.2.9.
- 3.3 REPLACE RUBBER MEMBRANE AND O-RING ONCE PER SHIFT PER THE PROCEDURES SPECIFIED IN SECTION 7.2.11.
- 3.4 CHECK AT THE BACK OF THE DIE DURING THE SETUP OF THE FIRST LOT OF THE SHIFT OR IF EJECTOR PIN IS CHANGED UNDER 100X MAGNIFICATION. IF DIE IS IN ANYWAY DAMAGED DUE TO THE PICKUP, CHECK FOR DEFORMATION OF THE ROUNDED TIP OF THE NEEDLE UNDER 30X OR IF NEEDLE IS BROKEN AND REPLACE THE NEEDLE. IF ONLY ONE NEEDLE IS DEFORMED OR BROKEN, ALL FOUR NEEDLES ARE TO BE CHANGED.
- 3.4.1 LOOSEN THE LOCKING THUMB SCREW ON THE EJECTOR PLATFORM AND REMOVE THE EJECTOR ASSEMBLY.
(CAUTION : CARE MUST BE TAKEN NOT TO DROP THE THUMB SCREW AS WELL AS NOT TO HIT THE CAMERA OPTICS WHEN REMOVING THE EJECTOR ASSEMBLY).
- 3.4.2 UNPLUG THE VACUUM CHUCK FROM THE EJECTOR ASSEMBLY TO REMOVE THE NEEDLE HOLDER.
- 3.4.3 INSPECT THE NEEDLE TIP CONDITIONS UNDER 30X LOW-POWER SCOPE. REMOVE ANY DEFORMED EJECTOR NEEDLES FOR THE NEEDLE HOLDER BY LOOSENING THE LOCKING SET-SCREW.
- 3.4.4 REPLACE WITH GOOD NEEDLES AND PERFORM NEEDLE COPLANARITY ALIGNMENT USING THE ALIGNMENT GAUGE AND PLATE.
- 3.4.5 REPLACE THE NEEDLE HOLDER AND SET UP THE EJECTOR ASSEMBLY BY PLUGGING BACK THE VACUUM CHUCK.
- 3.4.6 REPLACE THE EJECTOR ASSEMBLY ONTO THE PLATFORM AND TIGHTEN THE THUMB SCREW.
- 3.4.7 SELECT " 5.1.3 CALIBRATE NEEDLE HEIGHT " TO PERFORM NEEDLE HEIGHT CALIBRATION.
- 3.4.7.1 PLACE THUMB ON THE SURFACE OF THE VACUUM CHUCK AND SELECT F2.
- 3.4.7.2 PRESS THE LEFT (N+) CURSOR TO MOVE THE EJECTOR NEEDLES FORWARD TO THE THUMB.
STOP WHEN THE NEEDLES CAN BE FELT BY THE THUMB.
- 3.4.7.3 USE THE LEFT (N+) AND THE RIGHT (N-) CURSORS TO MOVE THE NEEDLES UNTIL THEY CAN BE FELT TO BE FLUSHED WITH THE SURFACE OF THE VACUUM CHUCK.
- 3.4.7.4 PRESS ' ENTER ' WHEN DONE.

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- 3.5 CALIBRATE INITIAL BOND FORCE (IBF)
- 3.5.1 SET PICK UP TOOL AT THE ' BOND ' POSITION.
- 3.5.2 USING A 250GM GRAM GAUGE, PLACE THE LEVER ON THE SOCKET OF THE SOCKER-HEAD CAP SCREW WHICH LOCKS THE SHAFT OF THE PICK-UP TOOL.
- 3.5.3 RAISE THE LEVER SLOWLY UNTIL THE IMPACT LED ON THE TRANSFER-ARM IS LIGHTED.
NOTE THE GRAM GAUGE READING.
- 3.5.4 COMPARE READING WITH THE REQUIREMENT IN ATTACHMENT II ITEM 3.
- 3.5.4.1 LOOSEN LOCK-NUT SECURING THE SET SCREW OF THE SPRING FORCE ADJUSTMENT.
- 3.5.4.2 TURN THE SET SCREW CW OR CCW (LOOKING FROM TOP) TO INCREASE OR DECREASE THE SPRING FORCE RESPECTIVELY.
- 3.5.5 REPEAT THE CALIBRATION PROCEDURES ABOVE UNTIL THE REQUIRED IBF IS OBTAINED. TIGHTEN THE LOCK-NUT AND RECALIBRATE TO CONFIRM.

ATTACHMENT IIITEM NO.

1. KEY PARAMETERS FOR WAFER LOADER
 - 1.1 WAFER DIAMETER :
 - 4 " WAFER : 102 +/- 5MM,
 - 5 " WAFER : 125 +/- 5MM
 - 6 " WAFER : 152 +/- 5MM
 - 8 " WAFER : 195 +/- 5MM
2. KEY PARAMETERS FOR IPS
 - 2.1 INKDOT CHECK :
 - 2.1.1 DOWNSAMPLING : 1 TO 8 (RECOMMENDED 2)
 - 2.1.2 AREA (%) : 1 TO 100
 - 2.1.3 SENSITIVITY : 1 TO 255
3. KEY PARAMETERS FOR PICK-HEAD
 - 3.1 EJECT HEIGHT : 1000 TO 1800 UM
(DEPENDING ON WAFER STICKINESS)
 - 3.2 PICK FORCE : 0 TO 3500
 - 3.3 PICK TIME : 0 TO 1000 MS
 - 3.4 PICK SPEED : 1 TO 127
 - 3.5 VACUUM TIME : 0 TO 1000 MS

DOCUMENT NUMBER : 12MRQ20213A
ISSUE : D

ATTACHMENT III

ITEM NO.

1. KEY PARAMETERS FOR BOND-HEAD

1.1 CALIBRATED LEAF SPRING BOND FORCE

0 MM	:	50	+/-	10 GM
1 MM	:	110	+/-	10 GM
1.5 MM	:	230	+/-	10 GM
2 MM	:	410	+/-	10 GM
3 MM	:	760	+/-	10 GM

1.2 BOND FORCE : -300 TO 2500 UM

1.3 BOND TIME : 0 TO 800 MS

2. KEY PARAMETERS FOR SILVER GLASS PASTE DISPENSER

CHAMBER TYPE (DIE AREA)

` C ' (50000 TO 280000 SQ. MILS)

2.1 SYRINGE PRESSURE 0.5 TO 3.0 (BAR)

2.2 CYLINDER PRESSURE 3.0 +/- 1.0 (BAR)

3. KEY PARAMETERS FOR FEED-SYSTEM INDEXER

3.1 Z - WAIT HEIGHT ABOVE REF. 0 - 999 (RECOMMENDED 0)

3.2 Z - BOND HEIGHT ABOVE REF. 0 - 999

APPENDIX B
SAMPLE DATALOG REPORT

DATALOG REPORT

Tue Feb 18 16:12:04 1997

Job Name : head1-360.wspdb@mc360_qfp
Job Path : /home/prod/360_engg/360
Title : MC68EN360FE33C Final RoomC
Operator : Supervisor :
Test System : 82 Node Name : sys211
Mode Code : ENGINEERING Test Mode : final
User Mode : 0
Process ID :
Test Code : Room

Station head1_sites
Sites : h1 0
Peripheral ID:
Lot ID : 123456
Lot Number : 0

file_flowtable_Template: main_sequence

360 Device Test Program Sequence

Continuity Test With The Pin PMU

1.-0.5965 V	2.-0.5945 V	3.-0.5900 V	4.-0.5905 V
5.-0.5930 V	6.-0.5950 V	7.-0.5920 V	8.-0.5915 V
9.-0.5950 V	10.-0.5920 V	11.-0.5905 V	12.-0.5945 V
13.-0.5900 V	14.-0.5910 V	15.-0.5945 V	16.-0.5960 V
17.-0.5950 V	18.-0.5920 V	19.-0.5890 V	20.-0.5900 V
21.-0.5895 V	22.-0.5895 V	23.-0.5890 V	24.-0.5915 V
25.-0.5905 V	26.-0.5890 V	27.-0.5895 V	28.-0.5900 V
29.-0.5890 V	30.-0.5905 V	31.-0.5905 V	32.-0.5955 V
33.-0.5930 V	34.-0.5955 V	35.-0.5920 V	36.-0.5910 V
37.-0.5920 V	38.-0.5950 V	39.-0.5915 V	40.-0.5920 V
41.-0.5950 V	42.-0.5915 V	43.-0.5935 V	44.-0.5950 V
45.-0.5915 V	46.-0.5930 V	47.-0.5965 V	48.-0.5965 V
49.-0.5970 V	50.-0.5965 V	51.-0.5935 V	52.-0.5915 V
53.-0.5920 V	54.-0.5920 V	55.-0.5960 V	56.-0.5920 V
57.-0.5925 V	58.-0.5980 V	59.-0.5975 V	60.-0.5970 V
61.-0.5925 V	62.-0.5925 V	63.-0.5915 V	64.-0.5925 V
65.-0.5955 V	66.-0.5920 V	67.-0.5925 V	68.-0.5955 V
69.-0.5935 V	70.-0.5940 V	71.-0.5930 V	72.-0.5930 V
73.-0.5970 V	74.-0.5970 V	75.-0.5930 V	76.-0.5940 V
77.-0.5970 V	78.-0.5975 V	79.-0.5925 V	80.-0.5930 V
81.-0.5965 V	82.-0.5970 V	83.-0.5940 V	84.-0.5935 V
85.-0.5970 V	86.-0.5960 V	87.-0.5930 V	88.-0.5930 V
89.-0.5970 V	90.-0.5970 V	91.-0.5920 V	92.-0.5930 V
93.-0.5975 V	94.-0.5975 V	95.-0.5930 V	96.-0.5930 V
97.-0.5980 V	98.-0.5985 V	99.-0.5995 V	100.-0.5990 V
101.-0.6000 V	102.-0.5985 V	103.-0.5950 V	104.-0.5940 V
105.-0.5985 V	106.-0.5975 V	107.-0.5945 V	108.-0.5955 V
109.-0.5990 V	110.-0.5985 V	111.-0.5945 V	112.-0.5945 V
113.-0.5975 V	114.-0.5980 V	115.-0.5900 V	116.-0.5900 V
117.-0.5845 V	118.-0.5895 V	119.-0.5955 V	120.-0.5940 V
121.-0.5935 V	122.-0.5890 V	123.-0.5885 V	124.-0.5930 V
125.-0.5890 V	126.-0.5865 V	127.-0.5965 V	128.-0.5915 V
129.-0.5880 V	130.-0.5870 V	131.-0.5865 V	132.-0.5920 V
133.-0.5920 V	134.-0.5895 V	135.-0.5935 V	136.-0.5905 V
137.-0.5920 V	138.-0.5930 V	139.-0.5850 V	140.-0.5940 V
141.-0.5975 V	142.-0.5930 V	143.-0.5940 V	144.-0.5920 V
145.-0.5900 V	146.-0.5915 V	147.-0.5950 V	148.-0.5940 V
149.-0.5970 V	150.-0.5920 V	151.-0.5945 V	152.-0.5970 V
153.-0.5935 V	154.-0.5945 V	155.-0.5955 V	156.-0.5935 V
157.-0.5960 V	158.-0.5930 V	159.-0.5955 V	160.-0.5865 V

161.-0.5940 V	162.-0.5915 V	163.-0.5940 V	164.-0.5940 V
165.-0.5950 V	166.-0.5980 V	167.-0.5935 V	168.-0.5240 V
169.-0.5230 V	170.-0.5240 V	171.-0.5940 V	172.-0.5960 V
173.-0.5925 V	174.-0.5925 V	175.-0.5940 V	

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Dynamic icc Test Using The Current Monitor
53471. 0.0090 A

Dynamic icc Test Using The Current Monitor
53472. 0.2497 A

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Vih/Vil Test at Vdd Min
53473. PASS

fast_func_Template: v5_fast_func_25_min_serial_e68c

52601. PASS
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52664. PASS

fast_func_Template: v5_fast_func_dc_vih_max

Vih/Vil Test at Vdd Max
52665. PASS

fast_func_Template: v5_fast_func_25_max_serial_e68c

52701. PASS
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 52763. PASS
 52764. PASS

fast_func_Template: v5_basic_func_rom_1e68c
 60001. PASS

Tri Leakage at 2.4V Using Pin PMU Seq

250. 0.000 uA	251. 0.003 uA	252. 0.000 uA	253. 0.000 uA
254. -0.001 uA	255. 0.000 uA	256. -0.001 uA	257. 0.006 uA
258. 0.000 uA	259. 0.023 uA	260. 0.002 uA	261. -0.003 uA
262. -0.002 uA	263. 0.000 uA	264. 0.000 uA	265. -0.001 uA
266. -0.002 uA	267. -0.003 uA	268. 0.001 uA	269. -0.005 uA
270. 0.003 uA	271. -0.001 uA	272. 0.002 uA	273. 0.000 uA
274. 0.000 uA	275. 0.002 uA	276. 0.000 uA	277. -0.001 uA
278. -0.001 uA	279. -0.003 uA	280. 0.003 uA	281. -0.002 uA
282. -0.002 uA	283. -0.002 uA	284. -0.002 uA	285. 0.000 uA
286. 0.000 uA	287. 0.001 uA	288. -0.001 uA	289. 0.001 uA
290. 0.000 uA	291. -0.005 uA	292. -0.003 uA	293. 0.000 uA
294. -0.006 uA	295. -0.001 uA	296. -0.004 uA	297. 0.011 uA
298. -0.002 uA	299. 0.005 uA	300. -0.005 uA	301. 0.002 uA
302. 0.008 uA	303. -0.004 uA	304. 0.022 uA	305. -0.004 uA
306. 0.003 uA	307. 0.001 uA	308. -0.003 uA	309. -0.001 uA
310. -0.001 uA	311. 0.000 uA	312. 0.009 uA	313. -0.004 uA
314. 0.008 uA	315. 0.000 uA	316. 0.001 uA	317. -0.002 uA
318. 0.001 uA	319. -0.001 uA	320. 0.000 uA	321. -0.001 uA
322. 0.000 uA	323. -0.001 uA	324. -0.004 uA	325. -0.001 uA
326. 0.000 uA	327. -0.004 uA	328. -0.001 uA	329. 0.000 uA
330. 0.000 uA	331. -0.004 uA	332. 0.000 uA	333. 0.003 uA
334. 0.000 uA	335. -0.003 uA	336. 0.000 uA	337. 0.001 uA
338. -0.001 uA	339. 0.000 uA	340. -0.004 uA	341. -0.001 uA
342. -0.002 uA	343. -0.003 uA	344. -0.004 uA	345. -0.006 uA
346. 0.002 uA	347. 0.001 uA	348. 0.000 uA	349. 0.001 uA
350. -0.004 uA	351. 0.004 uA	352. 0.003 uA	353. 0.000 uA
354. 0.013 uA	355. -0.001 uA	356. -0.001 uA	357. -0.002 uA
358. -0.001 uA	359. 0.007 uA	360. 0.000 uA	361. 0.002 uA
362. -0.006 uA	363. -0.002 uA	364. 0.000 uA	365. 0.002 uA
366. 0.003 uA	367. 0.007 uA	368. 0.001 uA	369. -0.001 uA
370. 0.002 uA	371. 0.003 uA	372. 0.001 uA	373. 0.002 uA
374. -0.002 uA	375. 0.000 uA	376. 0.009 uA	377. 0.000 uA
378. -0.002 uA	379. -0.001 uA	380. 0.000 uA	381. 0.000 uA
382. 0.001 uA	383. -0.004 uA	384. -0.002 uA	385. -0.004 uA
386. 0.001 uA	387. -0.003 uA	388. 0.002 uA	389. 0.000 uA
390. -0.001 uA	391. 0.003 uA	392. -0.005 uA	393. 0.000 uA
394. -0.003 uA	395. 0.005 uA	396. 0.000 uA	397. 0.002 uA
398. 0.006 uA	399. -0.006 uA	400. 0.002 uA	401. 0.002 uA

fast_func_Template: v5_fast_func_dc_vol_max
15000. PASS

fast_func_Template: v5_fast_func_33_min_sp11_1
1101. PASS

fast_func_Template: v5_fast_func_33_min_sp17_1
1701. PASS

fast_func_Template: v5_fast_func_33_min_sp22_1
2201. FAIL LVM = 938966, 70, in
"/home/prod/360_engg/main/mc68360_a101_1ws_sp22_pat.lvmdb"
Chan: 14 Phys. Name: 191 Func. Name: rw

fast_func_Template: v5_fast_func_33_min_sp22_2
2202. PASS
Head1/Site 0

Sort 1
Bin 1
Part id 1

‘Bin 1’ means the unit passed
all functional testing.

DATALOG REPORT
Tue Feb 18 15:37:38 1997

Job Name : head1-360.wspdb@mc360_qfp
Job Path : /home/prod/360_engg/360
Title : MC68EN360FE33C Final RoomC
Operator : Supervisor :
Test System : 82 Node Name : sys211
Mode Code : ENGINEERING Test Mode : final
User Mode : 0
Process ID :
Test Code : Room

Station head1_sites
Sites : h1 0
Peripheral ID:
Lot ID : 123456
Lot Number : 0

file_flowtable_Template: main_sequence

360 Device Test Program Sequence

Continuity Test With The Pin PMU

1.-0.0065 V F 2.-0.4100 V 3.-0.4080 V 4.-0.0075 V F
5.-0.4085 V 6.-0.4090 V 7.-0.0000 V F 8.-0.4090 V
9.-0.4085 V 10.-0.0095 V F 11.-0.0015 V F 12.-0.4100 V
13.-0.4085 V 14.-0.0005 V F 15.-0.4080 V 16.-0.4090 V
17.-0.3845 V 18.-0.0105 V F 19.-0.0015 V F 20.-0.3830 V
21.-0.4085 V 22. 0.0000 V F 23.-0.4095 V 24.-0.4105 V
25.-0.4075 V 26.-0.4080 V 27.-0.0075 V F 28. 0.0000 V F
29.-0.4080 V 30.-0.4080 V 31.-0.0005 V F 32.-0.4075 V
33.-0.4090 V 34.-0.4085 V 35.-0.4095 V 36. 0.0000 V F
37.-0.4090 V 38.-0.0010 V F 39.-0.0070 V F 40.-0.4095 V
41.-0.4090 V 42.-0.4085 V 43.-0.4095 V 44.-0.0015 V F
45.-0.0110 V F 46.-0.4085 V 47.-0.4080 V 48.-0.4080 V
49.-0.0135 V F 50.-0.4080 V 51.-0.4075 V 52.-0.4085 V
53.-0.4090 V 54. 0.0000 V F 55.-0.4095 V 56.-0.0150 V F
57.-0.4090 V 58.-0.4065 V 59.-0.4065 V 60.-0.4070 V
61.-0.4060 V 62.-0.0175 V F 63.-0.4060 V 64.-0.4090 V
65. 0.0000 V F 66.-0.4055 V 67.-0.4060 V 68.-0.0030 V F

This means that
the unit failed
this test at these
functional ‘pin’
locations

69.-0.0175 V F 70. 0.0000 V F 71.-0.4070 V 72.-0.4060 V
73.-0.4065 V 74.-0.0030 V F 75.-0.0175 V F 76.-0.4075 V
77.-0.4075 V 78.-0.0015 V F 79.-0.4070 V 80.-0.4060 V
81.-0.0035 V F 82. 0.0000 V F 83.-0.0185 V F 84.-0.4070 V
85. 0.0005 V F 86.-0.4065 V 87.-0.4065 V 88.-0.0030 V F
89. 0.0000 V F 90.-0.0170 V F 91.-0.3830 V 92.-0.4070 V
93. 0.0000 V F 94.-0.4115 V 95.-0.4110 V 96.-0.4110 V
97. 0.0000 V F 98.-0.4060 V 99.-0.4060 V 100.-0.4080 V
101.-0.0045 V F 102.-0.0010 V F 103.-0.0125 V F 104.-0.4080 V
105.-0.4080 V 106. 0.0000 V F 107.-0.4075 V 108.-0.4070 V
109.-0.0035 V F 110. 0.0000 V F 111.-0.0080 V F 112.-0.4060 V
113.-0.4060 V 114. 0.0000 V F 115. 0.0000 V F 116.-0.0025 V F
117.-0.4070 V 118.-0.4075 V 119.-0.0050 V F 120.-0.0010 V F
121.-0.0005 V F 122.-0.4080 V 123.-0.0010 V F 124.-0.4075 V
125.-0.4065 V 126.-0.4070 V 127.-0.4105 V 128.-0.4085 V
129.-0.4070 V 130.-0.0030 V F 131.-0.4075 V 132.-0.4050 V
133.-0.4055 V 134.-0.4050 V 135.-0.4050 V 136.-0.4040 V
137.-0.4050 V 138.-0.4055 V 139.-0.4050 V 140.-0.4050 V
141.-0.4065 V 142.-0.4050 V 143.-0.0005 V F 144.-0.4065 V
145.-0.4060 V 146.-0.4055 V 147.-0.4055 V 148.-0.4045 V
149.-0.0040 V F 150.-0.4060 V 151.-0.0030 V F 152.-0.4070 V
153.-0.4060 V 154.-0.4065 V 155.-0.4080 V 156.-0.4050 V
157.-0.4060 V 158.-0.4065 V 159.-0.4050 V 160. 0.0000 V F
161.-0.4060 V 162.-0.4060 V 163.-0.4060 V 164.-0.0010 V F
165.-0.0035 V F 166.-0.4050 V 167.-0.4060 V 168.-0.4095 V
169.-0.4095 V 170. 0.0000 V F 171.-0.4095 V 172.-0.0085 V F
173.-0.4080 V 174.-0.4080 V 175.-0.0005 V F

Head1/Site	0
Sort	7
Bin	7
Part id	13

'Bin 7' is one of the reject bins.
This bin is specifically for units
that fail continuity test.

DATALOG REPORT
Tue Feb 18 15:40:03 1997

Job Name : head1-360.wspdb@mc360_qfp
Job Path : /home/prod/360_engg/360
Title : MC68EN360FE33C Final RoomC
Operator : Supervisor :
Test System : 82 Node Name : sys211
Mode Code : ENGINEERING Test Mode : final
User Mode : 0
Process ID :
Test Code : Room

Station head1_sites
Sites : h1 0
Peripheral ID:
Lot ID : 123456
Lot Number : 0

file_flowtable_Template: main_sequence

360 Device Test Program Sequence

Continuity Test With The Pin PMU
1.-0.5945 V 2.-0.5905 V 3.-0.5890 V 4.-0.5885 V
5.-0.5920 V 6.-0.5940 V 7.-0.5905 V 8.-0.5895 V
9.-0.5925 V 10.-0.5905 V 11.-0.5895 V 12.-0.5935 V
13.-0.5890 V 14.-0.5905 V 15.-0.5935 V 16.-0.5955 V

17.-0.5935 V	18.-0.5895 V	19.-0.5885 V	20.-0.5880 V
21.-0.5880 V	22.-0.5885 V	23.-0.5890 V	24.-0.5900 V
25.-0.5900 V	26.-0.5880 V	27.-0.5875 V	28.-0.5890 V
29.-0.5880 V	30.-0.5885 V	31.-0.5905 V	32.-0.5950 V
33.-0.5915 V	34.-0.5935 V	35.-0.5900 V	36.-0.5910 V
37.-0.5910 V	38.-0.5930 V	39.-0.5900 V	40.-0.5910 V
41.-0.5940 V	42.-0.5900 V	43.-0.5915 V	44.-0.5935 V
45.-0.5900 V	46.-0.5915 V	47.-0.5945 V	48.-0.5950 V
49.-0.5950 V	50.-0.5950 V	51.-0.5915 V	52.-0.5895 V
53.-0.5905 V	54.-0.5905 V	55.-0.5950 V	56.-0.5900 V
57.-0.5920 V	58.-0.5955 V	59.-0.5960 V	60.-0.5960 V
61.-0.5915 V	62.-0.5895 V	63.-0.5900 V	64.-0.5910 V
65.-0.5945 V	66.-0.5905 V	67.-0.5900 V	68.-0.5930 V
69.-0.5920 V	70.-0.5920 V	71.-0.5920 V	72.-0.5925 V
73.-0.5955 V	74.-0.5960 V	75.-0.5915 V	76.-0.5920 V
77.-0.5960 V	78.-0.5960 V	79.-0.5910 V	80.-0.5910 V
81.-0.5945 V	82.-0.5955 V	83.-0.5920 V	84.-0.5915 V
85.-0.5950 V	86.-0.5950 V	87.-0.5910 V	88.-0.5915 V
89.-0.5960 V	90.-0.5960 V	91.-0.5905 V	92.-0.5915 V
93.-0.5965 V	94.-0.5965 V	95.-0.5905 V	96.-0.5920 V
97.-0.5960 V	98.-0.5975 V	99.-0.5975 V	100.-0.5985 V
101.-0.5985 V	102.-0.5965 V	103.-0.5935 V	104.-0.5920 V
105.-0.5970 V	106.-0.5970 V	107.-0.5930 V	108.-0.5930 V
109.-0.5970 V	110.-0.5975 V	111.-0.5930 V	112.-0.5930 V
113.-0.5960 V	114.-0.5965 V	115.-0.5875 V	116.-0.5885 V
117.-0.5835 V	118.-0.5875 V	119.-0.5930 V	120.-0.5930 V
121.-0.5925 V	122.-0.5875 V	123.-0.5875 V	124.-0.5910 V
125.-0.5885 V	126.-0.5855 V	127.-0.5950 V	128.-0.5895 V
129.-0.5865 V	130.-0.5855 V	131.-0.5855 V	132.-0.5900 V
133.-0.5915 V	134.-0.5870 V	135.-0.5885 V	136.-0.5890 V
137.-0.5910 V	138.-0.5925 V	139.-0.5840 V	140.-0.5930 V
141.-0.5965 V	142.-0.5920 V	143.-0.5925 V	144.-0.5900 V
145.-0.5890 V	146.-0.5895 V	147.-0.5960 V	148.-0.5920 V
149.-0.5960 V	150.-0.5920 V	151.-0.5920 V	152.-0.5960 V
153.-0.5930 V	154.-0.5925 V	155.-0.5945 V	156.-8.1660 V F
157.-0.5945 V	158.-0.5915 V	159.-0.5940 V	160.-0.5845 V
161.-0.5925 V	162.-0.5890 V	163.-0.5905 V	164.-0.5915 V
165.-0.5920 V	166.-0.5970 V	167.-0.5910 V	168.-0.5255 V
169.-0.5245 V	170.-0.5260 V	171.-0.5920 V	172.-0.5950 V
173.-0.5910 V	174.-0.5910 V	175.-0.5925 V	

Head1/Site 0

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Sort      7
Bin       7
Part id   14

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DATALOG REPORT

Tue Feb 18 15:41:16 1997

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Job Name   : head1-360.wspdb@mc360_qfp
Job Path   : /home/prod/360_engg/360
Title      : MC68EN360FE33C Final RoomC
Operator   :                               Supervisor :
Test System : 82                           Node Name   : sys211
Mode Code  : ENGINEERING                    Test Mode    : final
User Mode   : 0
Process ID  :
Test Code   : Room

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Station head1_sites
Sites       : h1 0
Peripheral ID:

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Lot ID : 123456
 Lot Number : 0

file_flowtable_Template: main_sequence

360 Device Test Program Sequence

Continuity Test With The Pin PMU

1.-0.5980 V	2.-0.5965 V	3.-0.5920 V	4.-0.5930 V
5.-0.5950 V	6.-0.5970 V	7.-0.5975 V	8.-0.5930 V
9.-0.5960 V	10.-0.5935 V	11.-0.5940 V	12.-0.5955 V
13.-0.5925 V	14.-0.5940 V	15.-0.5970 V	16.-0.6045 V
17.-0.5960 V	18.-0.5935 V	19.-0.5925 V	20.-0.5920 V
21.-0.5905 V	22.-0.5920 V	23.-0.5925 V	24.-0.5940 V
25.-0.5935 V	26.-0.5925 V	27.-0.5920 V	28.-0.5935 V
29.-0.5915 V	30.-0.5955 V	31.-0.5935 V	32.-0.5975 V
33.-0.5930 V	34.-0.5965 V	35.-0.5930 V	36.-0.5935 V
37.-0.5935 V	38.-0.5960 V	39.-0.5930 V	40.-0.5920 V
41.-0.5955 V	42.-0.5920 V	43.-0.5940 V	44.-0.5960 V
45.-0.5925 V	46.-0.5935 V	47.-0.5965 V	48.-0.5975 V
49.-0.5965 V	50.-0.5970 V	51.-0.5935 V	52.-0.5920 V
53.-0.5940 V	54.-0.5930 V	55.-0.5975 V	56.-0.5920 V
57.-0.5935 V	58.-0.5990 V	59.-0.5980 V	60.-0.5980 V
61.-0.5930 V	62.-0.5925 V	63.-0.5920 V	64.-0.5940 V
65.-0.5960 V	66.-0.5920 V	67.-0.5935 V	68.-0.5950 V
69.-0.5935 V	70.-0.5935 V	71.-0.5940 V	72.-0.5940 V
73.-0.5970 V	74.-0.5970 V	75.-0.5935 V	76.-0.5945 V
77.-0.5975 V	78.-0.5980 V	79.-0.5930 V	80.-0.5935 V
81.-0.5965 V	82.-0.5975 V	83.-0.5940 V	84.-0.5930 V
85.-0.5970 V	86.-0.5965 V	87.-0.5930 V	88.-0.5930 V
89.-0.5970 V	90.-0.5970 V	91.-0.5930 V	92.-0.5945 V
93.-0.5980 V	94.-0.5980 V	95.-0.5935 V	96.-0.5945 V
97.-0.5985 V	98.-0.5995 V	99.-0.5990 V	100.-0.5990 V
101.-0.6000 V	102.-0.5985 V	103.-0.5955 V	104.-0.5945 V
105.-0.5980 V	106.-0.5990 V	107.-0.5950 V	108.-0.5950 V
109.-0.6000 V	110.-0.5990 V	111.-0.5955 V	112.-0.5950 V
113.-0.5985 V	114.-0.5980 V	115.-0.5915 V	116.-0.5910 V
117.-0.5865 V	118.-0.5905 V	119.-0.5965 V	120.-0.5955 V
121.-0.5955 V	122.-0.5910 V	123.-0.5910 V	124.-0.5950 V
125.-0.5915 V	126.-0.5895 V	127.-0.5975 V	128.-0.5930 V
129.-0.5890 V	130.-0.5890 V	131.-0.5890 V	132.-0.5925 V
133.-0.5935 V	134.-0.5905 V	135.-0.5945 V	136.-0.5915 V
137.-0.5930 V	138.-0.5935 V	139.-0.5885 V	140.-0.5960 V
141.-0.5985 V	142.-0.5945 V	143.-0.5960 V	144.-0.5955 V
145.-0.5905 V	146.-0.5920 V	147.-0.5960 V	148.-0.5955 V
149.-0.5975 V	150.-0.5935 V	151.-0.5945 V	152.-0.5985 V
153.-0.5945 V	154.-0.5955 V	155.-0.5980 V	156.-0.5940 V
157.-0.5970 V	158.-0.5945 V	159.-0.5955 V	160.-0.5875 V
161.-0.5950 V	162.-0.5915 V	163.-0.5930 V	164.-0.5935 V
165.-0.5945 V	166.-0.6000 V	167.-0.5955 V	168.-0.5275 V
169.-0.5260 V	170.-0.5265 V	171.-0.5960 V	172.-0.5975 V
173.-0.5935 V	174.-0.5930 V	175.-0.5955 V	

fast_func_Template: v5_fast_func_33_min_ramp_e68c
 53000. PASS

fast_func_Template: v5_fast_func_33_min_cpu_e68c
 53001. PASS
 53002. PASS
 53003. PASS
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fast_func_Template: v5_fast_func_33_min_main_e68c

53064. PASS
53065. PASS
53066. PASS
53067. PASS
53068. PASS

53069. PASS
53070. PASS
53071. PASS
53072. PASS

fast_func_Template: v5_fast_func_33_min_dma_e68c

53073. PASS
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53101. PASS
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53110. PASS
53111. PASS
53112. PASS
53113. PASS
53114. PASS
53115. PASS

fast_func_Template: v5_fast_func_33_min_sd_regs_e68c

53116. PASS
53117. PASS
53118. PASS
53119. PASS
53120. PASS
53121. PASS
53122. PASS
53123. PASS
53124. PASS
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53138. PASS

fast_func_Template: v5_fast_func_33_min_pio

53139. PASS
53140. PASS
53141. PASS
53142. PASS

fast_func_Template: v5_fast_func_33_min_timer

53143. PASS
53144. PASS
53145. PASS
53146. PASS

fast_func_Template: v5_fast_func_33_min_sim_e68c

53147. PASS
53148. PASS
53149. PASS
53150. PASS
53151. PASS
53152. PASS

fast_func_Template: v5_fast_func_33_min_brg_cplic

53153. PASS
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53158. PASS
53159. PASS
53160. PASS
53161. PASS
53162. PASS
53163. PASS

fast_func_Template: v5_fast_func_33_min_ram_e68c

53164. PASS
53165. PASS
53166. PASS
53167. PASS
53168. PASS
53169. PASS
53170. PASS

fast_func_Template: v5_fast_func_33_max_cpu_e68c

53301. PASS
53302. PASS
53303. PASS
53304. PASS
53305. PASS
53306. PASS
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53310. PASS

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fast_func_Template: v5_fast_func_33_max_main_e68c

53364. PASS
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53371. PASS
53372. PASS

fast_func_Template: v5_fast_func_33_max_dma_e68c

53373. PASS
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53401. PASS
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53415. PASS

fast_func_Template: v5_fast_func_33_max_sd_regs_e68c

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fast_func_Template: v5_fast_func_33_max_pio
53439. PASS
53440. PASS
53441. PASS
53442. PASS

fast_func_Template: v5_fast_func_33_max_timer
53443. PASS
53444. PASS
53445. PASS
53446. PASS

fast_func_Template: v5_fast_func_33_max_sim_e68c
53447. PASS
53448. PASS
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53450. PASS
53451. PASS
53452. PASS

fast_func_Template: v5_fast_func_33_max_brg_cplic
53453. PASS
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53462. PASS
53463. PASS

fast_func_Template: v5_fast_func_33_max_ram_e68c
53464. PASS
53465. PASS
53466. PASS
53467. PASS
53468. PASS
53469. PASS
53470. PASS

ivs_Template: v5_lpstop_icc

Dynamic icc Test Using The Current Monitor
53471. 0.0090 A

Dynamic icc Test Using The Current Monitor
53472. 0.2452 A

fast_func_Template: v5_fast_func_dc_vih_min

Vih/Vil Test at Vdd Min
53473. PASS

fast_func_Template: v5_fast_func_25_min_serial_e68c
52601. PASS

52602. PASS
52603. PASS
52604. PASS
52605. PASS
52606. PASS
52607. PASS
52608. PASS
52609. PASS
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52663. PASS
52664. PASS

fast_func_Template: v5_fast_func_dc_vih_max

Vih/Vil Test at Vdd Max

52665. PASS

fast_func_Template: v5_fast_func_25_max_serial_e68c

52701. PASS

52702. PASS

52703. PASS

52704. PASS

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 52760. PASS
 52761. PASS
 52762. PASS
 52763. PASS
 52764. PASS

fast_func_Template: v5_basic_func_rom_1e68c
 60001. PASS

Tri Leakage at 2.4V Using Pin PMU Seq

250. 0.000 uA	251. 0.003 uA	252. 0.000 uA	253. 0.000 uA
254. -0.001 uA	255. 0.000 uA	256. 0.000 uA	257. 0.008 uA
258. 0.001 uA	259. 0.030 uA	260. 0.001 uA	261. -0.003 uA
262. -0.001 uA	263. 0.003 uA	264. -0.001 uA	265. -0.003 uA
266. 0.000 uA	267. -0.003 uA	268. 0.002 uA	269. -0.002 uA
270. 0.003 uA	271. -0.002 uA	272. 0.002 uA	273. 0.002 uA
274. 0.002 uA	275. 0.004 uA	276. 0.001 uA	277. -0.001 uA
278. 0.000 uA	279. -0.003 uA	280. 0.005 uA	281. -0.003 uA
282. -0.002 uA	283. -0.001 uA	284. -0.002 uA	285. -0.001 uA
286. 0.000 uA	287. 0.002 uA	288. -0.001 uA	289. 0.003 uA
290. 0.000 uA	291. -0.005 uA	292. -0.002 uA	293. 0.000 uA
294. -0.007 uA	295. -0.001 uA	296. -0.003 uA	297. 0.016 uA
298. -0.002 uA	299. 0.009 uA	300. -0.003 uA	301. 0.003 uA
302. 0.009 uA	303. -0.004 uA	304. 0.027 uA	305. -0.003 uA
306. 0.007 uA	307. 0.002 uA	308. -0.004 uA	309. -0.001 uA
310. -0.001 uA	311. 0.000 uA	312. 0.010 uA	313. -0.005 uA
314. 0.009 uA	315. 0.001 uA	316. 0.002 uA	317. -0.001 uA
318. 0.003 uA	319. 0.000 uA	320. 0.000 uA	321. -0.001 uA
322. -0.001 uA	323. 0.000 uA	324. -0.004 uA	325. -0.001 uA
326. 0.000 uA	327. -0.004 uA	328. -0.001 uA	329. 0.002 uA
330. 0.001 uA	331. -0.003 uA	332. -0.001 uA	333. 0.005 uA
334. 0.003 uA	335. -0.003 uA	336. 0.008 uA	337. 0.003 uA
338. 0.000 uA	339. 0.000 uA	340. -0.004 uA	341. -0.002 uA
342. -0.002 uA	343. -0.004 uA	344. -0.001 uA	345. -0.007 uA
346. 0.002 uA	347. 0.001 uA	348. 0.001 uA	349. 0.001 uA
350. -0.003 uA	351. 0.006 uA	352. 0.003 uA	353. 0.001 uA
354. 0.016 uA	355. -0.001 uA	356. -0.002 uA	357. -0.002 uA
358. 0.000 uA	359. 0.008 uA	360. 0.000 uA	361. 0.005 uA
362. -0.007 uA	363. -0.001 uA	364. 0.000 uA	365. 0.006 uA
366. 0.004 uA	367. 0.011 uA	368. 0.001 uA	369. -0.001 uA
370. 0.004 uA	371. 0.004 uA	372. 0.002 uA	373. 0.005 uA
374. 0.000 uA	375. -0.001 uA	376. 0.015 uA	377. 0.000 uA
378. -0.001 uA	379. 0.000 uA	380. 0.000 uA	381. 0.004 uA
382. 0.003 uA	383. -0.003 uA	384. -0.002 uA	385. -0.005 uA
386. 0.002 uA	387. -0.004 uA	388. 0.005 uA	389. 0.001 uA
390. 0.000 uA	391. 0.003 uA	392. -0.004 uA	393. 0.001 uA
394. -0.002 uA	395. 0.006 uA	396. 0.003 uA	397. 0.004 uA
398. 0.005 uA	399. -0.004 uA	400. 0.002 uA	401. 0.004 uA
402. 0.009 uA	403. -0.003 uA	404. 0.008 uA	405. 0.002 uA
406. 0.000 uA	407. 0.001 uA	408. 0.003 uA	409. 0.001 uA
410. 0.006 uA	411. 0.000 uA	412. -0.002 uA	413. -0.001 uA
414. -0.001 uA	415. -0.001 uA	416. 0.009 uA	417. -0.004 uA
418. 0.001 uA			

Tri Pin Leakage at 0.5V Using Pin PMU Seq

419. 0.001 uA	420. -0.001 uA	421. 0.000 uA	
422. 0.000 uA	423. 0.000 uA	424. -0.001 uA	425. -0.002 uA
426. -0.001 uA	427. -0.002 uA	428. 0.000 uA	429. 0.004 uA
430. 0.000 uA	431. -0.001 uA	432. 0.000 uA	433. 0.000 uA
434. 0.000 uA	435. -0.001 uA	436. -0.001 uA	437. 0.001 uA
438. -0.004 uA	439. 0.001 uA	440. 0.000 uA	441. 0.000 uA
442. -0.002 uA	443. 0.000 uA	444. 0.000 uA	445. -0.001 uA
446. 0.000 uA	447. 0.000 uA	448. -0.001 uA	449. 0.001 uA

450. -0.001 uA	451. -0.001 uA	452. -0.001 uA	453. 0.000 uA
454. 0.000 uA	455. 0.000 uA	456. 0.000 uA	457. 0.000 uA
458. 0.000 uA	459. 0.000 uA	460. -0.001 uA	461. -0.003 uA
462. 0.000 uA	463. -0.003 uA	464. -0.001 uA	465. -0.001 uA
466. -0.004 uA	467. -0.002 uA	468. 0.000 uA	469. -0.004 uA
470. 0.000 uA	471. -0.001 uA	472. -0.002 uA	473. -0.009 uA
474. -0.003 uA	475. -0.001 uA	476. 0.000 uA	477. 0.000 uA
478. 0.000 uA	479. -0.001 uA	480. -0.001 uA	481. -0.004 uA
482. -0.001 uA	483. -0.002 uA	484. 0.000 uA	485. 0.000 uA
486. 0.000 uA	487. 0.002 uA	488. 0.000 uA	489. -0.001 uA
490. -0.001 uA	491. 0.001 uA	492. 0.001 uA	493. -0.002 uA
494. -0.001 uA	495. 0.000 uA	496. 0.000 uA	497. -0.002 uA
498. -0.001 uA	499. 0.000 uA	500. -0.001 uA	501. -0.002 uA
502. 0.002 uA	503. -0.002 uA	504. -0.003 uA	505. -0.002 uA
506. 0.000 uA	507. 0.000 uA	508. 0.000 uA	509. -0.002 uA
510. 0.000 uA	511. -0.001 uA	512. -0.001 uA	513. -0.002 uA
514. -0.002 uA	515. 0.001 uA	516. -0.001 uA	517. -0.001 uA
518. 0.000 uA	519. 0.000 uA	520. -0.001 uA	521. -0.001 uA
522. 0.000 uA	523. -0.006 uA	524. -0.002 uA	525. 0.000 uA
526. -0.004 uA	527. -0.001 uA	528. -0.001 uA	529. 0.000 uA
530. -0.003 uA	531. -0.001 uA	532. -0.003 uA	533. 0.000 uA
534. -0.003 uA	535. -0.001 uA	536. -0.001 uA	537. 0.000 uA
538. -0.001 uA	539. -0.001 uA	540. -0.002 uA	541. -0.002 uA
542. -0.004 uA	543. -0.002 uA	544. -0.002 uA	545. -0.001 uA
546. 0.000 uA	547. 0.000 uA	548. 0.000 uA	549. -0.001 uA
550. 0.000 uA	551. -0.003 uA	552. -0.002 uA	553. -0.002 uA
554. -0.001 uA	555. -0.006 uA	556. -0.001 uA	557. 0.000 uA
558. 0.000 uA	559. 0.000 uA	560. 0.000 uA	561. 0.000 uA
562. -0.001 uA	563. -0.001 uA	564. 0.000 uA	565. -0.005 uA
566. -0.001 uA	567. 0.000 uA	568. -0.002 uA	569. -0.001 uA
570. -0.001 uA	571. -0.005 uA	572. 0.000 uA	573. -0.003 uA
574. -0.001 uA	575. -0.006 uA	576. -0.002 uA	577. 0.000 uA
578. 0.000 uA	579. -0.004 uA	580. 0.000 uA	581. 0.000 uA
582. -0.001 uA	583. 0.000 uA	584. -0.002 uA	585. -0.004 uA
586. -0.001 uA	587. -0.001 uA		

trileak2_seq_prod_2 at 2.4V Using Pin PMU2 Seq

600. 0.001 uA 601. 0.000 uA
602. 0.353 uA

trileak2_seq_prod_2 at 0.5V Using Pin PMU2 Seq

603. 0.000 uA 604. -0.003 uA 605. 0.339 uA

Tri Leakage at 2.0V Using Pin PMU Seq

607.-0.2007 mA 608.-0.2018 mA 609.-0.2026 mA

Tri Pin Leakage at 0.8V Using Pin PMU Seq

610.-0.2144 mA
611.-0.2156 mA 612.-0.2160 mA

fast_func_Template: v5_fast_func_dc_vol_max

15000. PASS

fast_func_Template: v5_fast_func_33_min_sp11_1

1101. PASS

fast_func_Template: v5_fast_func_33_min_sp17_1

1701. PASS

fast_func_Template: v5_fast_func_33_min_sp22_1

2201. FAIL LVM = 938966, 70, in
"/home/prod/360_engg/main/mc68360_a101_1ws_sp22_pat.lvmdb"
Chan: 14 Phys. Name: 191 Func. Name: rw

fast_func_Template: v5_fast_func_33_min_sp22_2

2202, PASS

Head1/Site 0

Sort	1
Bin	1
Part id	15