Integrated Device Technology, Inc.
2975 Stender Way, Santa Clara, CA - 95054

PRODUCT/PROCESS CHANGE NOTICE (PCN)

PCN #: **G-0303-01** DATE: 3/10/2003

Product Affected: 14x20 TQFP 100L package type
(see attachment for affected part #s)

Date Effective: 4/10/2003

MEANS OF DISTINGUISHING CHANGED DEVICES:
- ☐ Product Mark
- ☐ Back Mark
- ■ Date Code — Lot Number and or Date Code
- ☐ Other

Contact: Geoffrey Cortes
Title: Manager, Corporate Quality & Reliability
Phone #: (408) 492-8321
Fax #: (408) 727-2328
E-mail: Geoffrey.Cortes@idt.com

Attachment:: ■ Yes ☐ No

Samples: Available upon request

DESCRIPTION AND PURPOSE OF CHANGE:

- ☐ Die Technology
- ☐ Wafer Fabrication Process
- ☐ Assembly Process
- ☐ Equipment
- ■ Material
- ☐ Testing
- ☐ Manufacturing Site
- ☐ Data Sheet
- ☐ Other

IDT has qualified the 14x20 TQFP 100L package type using new mold compound Sumitomo EME-G700 series and a new die attach material Ablestik 3230. This notification is to advise our customer of adding these new assembly materials. The new mold compound and die attach material has an improved moisture performance at 260ºC. Please see attachment for qualification data and additional details.

RELIABILITY/QUALIFICATION SUMMARY:

Please see attached reliability qualification data.

CUSTOMER ACKNOWLEDGMENT OF RECEIPT:

IDT records indicate that you require written notification of this change. Please use the acknowledgement below or E-Mail to grant approval or request additional information. If IDT does not receive acknowledgement within 30 days of this notice it will be assumed that this change is acceptable.
IDT reserves the right to ship either version manufactured after the process change effective date until the inventory on the earlier version has been depleted.

Customer: _____ ☐ ***Approval for shipments prior to effective date.***

Name/Date: _____ E-Mail Address: _____

Title: _____ Phone# /Fax# : _____

CUSTOMER COMMENTS: _____

IDT ACKNOWLEDGMENT OF RECEIPT:

RECD. BY: _____ DATE: _____

Integrated Device Technology, Inc.
2975 Stender Way, Santa Clara, CA - 95054

PRODUCT/PROCESS CHANGE NOTICE (PCN)

ATTACHMENT - PCN #: G-0303-01

PCN Type: Assembly Material Change
Data Sheet Change: None
Detail Of Change: A new mold compound and a new die attach material has been qualified for 14x20 TQFP 100L package type. IDT will maintain the same moisture sensitivity level and package peak temperature please refer to shipping label for moisture sensitive level.
The details are as follow:

Description	Material	
	Existing	Add
Mold compound material	Shinetsu KMC 184, 7351LP	Sumitomo EME-G700 series
Die attach material	Ablestik 8340, 8390	Ablestik 3230

The list of the products effected are as follows:

Please see attached Appendix-1

Conversion schedule (Estimated):

Please contact your local field sales representative for sample availability and production shipments.

Integrated Device Technology, Inc.
2975 Stender Way, Santa Clara, CA - 95054

PRODUCT/PROCESS CHANGE NOTICE (PCN)

ATTACHMENT - PCN #: G-0303-01

Qualification Plan #: P02-08-01

Test Vehicle: IDT71T75602Z

Qualification Test Plan and Results:

Test Description	Test Method	Sample Size / # of Fails	Test Results 14x20 TQFP 100L 71T75602Z (SS / # of Fails)
* High Accelerated Stress Test (Biased, 130 °C/85% RH, 100 Hrs)	EIA/JESD22-A110	45/0	45/0
Life Test (Dynamic, 4.0V Vcc, TA = 135 °C, 750 Hrs)	MIL-STD-883, M1005	77/0	76/0 (a)
* Temperature Cycling (-65 °C to 150 °C, 500 cyc)	MIL-STD-883, M 1010	45/0	45/0
* Auto Clave (121 °C, 2 ATM, 168 Hrs)	EIA/JESD22-A102	45/0	45/0
High Temp Bake (150 °C, 1000 Hrs)	MIL-STD-883, M1008	77/0	77/0
Moisture Sensitivity Classification (Level 3)	JEDEC J-STD-020	90/0	90/0
Internal Visual Inspection	MIL-STD-883, M2010	5/0	5/0
External Visual Inspection	MIL-STD-883, M2009	25/0	25/0
X-ray Examination	Per IDT Specification	45/0	45/0
Bond Pull	MIL-STD-883, M2011	5/0	5/0
Bake & Ball Shear Strength	EIA/JESD22-B116	5/0	5/0
Physical Dimensions	MIL-STD-883, M2016	5/0	5/0
Resistance to Solvents	MIL-STD-883, M2015	3/0	3/0
Solderability	MIL-STD-883, M2003	5/0	5/0

Notes: * Test requires moisture pre-conditioning sequence and is done Level 3 at 260ºC.
There is no change in Moisture Sensitivity Level.
(a) 500 Hrs Life Test, one unit failed gross functional. The failure is not related to the mold compound qualification.

Integrated Device Technology, Inc.
2975 Stender Way, Santa Clara, CA - 95054

PRODUCT/PROCESS CHANGE NOTICE (PCN)

ATTACHMENT - PCN #: G-0303-01

Appendix - 1

IDT71T75602S100PF	IDT71V2556S100PF	IDT71V2578S150PFI	IDT71V35751S200PF	IDT71V547S100PF	IDT71V65903S80PF	IDT82V1074PF
IDT71T75602S100PFI	IDT71V2556S100PFI	IDT71V2579S75PF	IDT71V3575S133PF	IDT71V547S100PFI	IDT71V65903S80PFI	
IDT71T75602S133PF	IDT71V2556S133PF	IDT71V2579S80PF	IDT71V3575S150PF	IDT71V547S80PF	IDT71V65903S85PF	
IDT71T75602S133PFI	IDT71V2556S133PFI	IDT71V2579S80PFI	IDT71V35761S166PF	IDT71V547S90PF	IDT71V65903S85PFI	
IDT71T75602S150PF	IDT71V2556S166PF	IDT71V2579S85PF	IDT71V35761S166PFI	IDT71V547S90PFI	IDT71V67602S133PF	
IDT71T75602S150PFI	IDT71V2556S166PFI	IDT71V2579S85PFI	IDT71V35761S183PF	IDT71V632S5PF	IDT71V67602S133PFI	
IDT71T75602S166PF	IDT71V2556S200PF	IDT71V3548S100PF	IDT71V35761S183PFI	IDT71V632S5PFI	IDT71V67602S150PF	
IDT71T75602S166PFI	IDT71V2557S75PF	IDT71V3548S100PFI	IDT71V35761S200PF	IDT71V632S6PF	IDT71V67602S150PFI	
IDT71T75602S200PF	IDT71V2557S80PF	IDT71V3548S133PF	IDT71V35761S200PFI	IDT71V632S6PFI	IDT71V67602S166PF	
IDT71T75602S200PFI	IDT71V2557S80PFI	IDT71V3548S133PFI	IDT71V3576S133PF	IDT71V632S7PF	IDT71V67603S133PF	
IDT71T75602S225PF	IDT71V2557S85PF	IDT71V3548S150PF	IDT71V3576S133PFI	IDT71V632S7PFI	IDT71V67603S133PFI	
IDT71T75602S225PFI	IDT71V2557S85PFI	IDT71V3556S100PF	IDT71V3576S150PF	IDT71V632S8PF	IDT71V67603S150PF	
IDT71T75702S75PF	IDT71V2558S100PF	IDT71V3556S100PFI	IDT71V3576S150PFI	IDT71V632SA4PF	IDT71V67603S150PFI	
IDT71T75702S75PFI	IDT71V2558S100PFI	IDT71V3556S133PF	IDT71V3577S75PF	IDT71V633S11PF	IDT71V67603S166PF	
IDT71T75702S80PF	IDT71V2558S133PF	IDT71V3556S133PFI	IDT71V3577S75PFI	IDT71V633S12PF	IDT71V67702S75PF	
IDT71T75702S80PFI	IDT71V2558S133PFI	IDT71V3556S150PF	IDT71V3577S80PF	IDT71V633S12PFI	IDT71V67702S75PFI	
IDT71T75702S85PF	IDT71V2558S166PF	IDT71V3556S166PF	IDT71V3577S80PFI	IDT71V65602S100PF	IDT71V67702S80PF	
IDT71T75702S85PFI	IDT71V2558S166PFI	IDT71V3556S166PFI	IDT71V3577S85PF	IDT71V65602S133PF	IDT71V67702S80PFI	
IDT71T75802S100PF	IDT71V2558S200PF	IDT71V3556S200PF	IDT71V3577S85PFI	IDT71V65602S150PF	IDT71V67702S85PF	
IDT71T75802S100PFI	IDT71V2559S75PF	IDT71V3557S75PF	IDT71V35781S166PF	IDT71V65602S150PFI	IDT71V67702S85PFI	
IDT71T75802S133PF	IDT71V2559S80PF	IDT71V3557S80PF	IDT71V35781S166PFI	IDT71V65603S100PF	IDT71V67703S75PF	
IDT71T75802S133PFI	IDT71V2559S80PFI	IDT71V3557S80PFI	IDT71V35781S183PF	IDT71V65603S100PFI	IDT71V67703S75PFI	
IDT71T75802S150PF	IDT71V2559S85PF	IDT71V3557S85PF	IDT71V35781S183PFI	IDT71V65603S133PF	IDT71V67703S80PF	
IDT71T75802S150PFI	IDT71V2559S85PFI	IDT71V3557S85PFI	IDT71V35781S200PF	IDT71V65603S133PFI	IDT71V67703S80PFI	
IDT71T75802S166PF	IDT71V25761S166PF	IDT71V3558S100PF	IDT71V3578S133PF	IDT71V65603S150PF	IDT71V67703S85PF	
IDT71T75802S166PFI	IDT71V25761S166PFI	IDT71V3558S100PFI	IDT71V3578S133PFI	IDT71V65702S75PF	IDT71V67703S85PFI	
IDT71T75802S200PF	IDT71V25761S183PF	IDT71V3558S133PF	IDT71V3578S150PF	IDT71V65702S80PF	IDT71V67802S133PF	
IDT71T75802S200PFI	IDT71V25761S183PFI	IDT71V3558S133PFI	IDT71V3578S150PFI	IDT71V65702S85PF	IDT71V67802S133PFI	
IDT71T75802S225PF	IDT71V25761S200PF	IDT71V3558S166PF	IDT71V3579S75PF	IDT71V65703S75PF	IDT71V67802S150PF	
IDT71T75802S225PFI	IDT71V2576S133PF	IDT71V3558S166PFI	IDT71V3579S80PF	IDT71V65703S80PF	IDT71V67802S150PFI	
IDT71T75902S75PF	IDT71V2576S133PFI	IDT71V3558S200PF	IDT71V3579S80PFI	IDT71V65703S80PFI	IDT71V67802S166PF	
IDT71T75902S75PFI	IDT71V2576S150PF	IDT71V3559S75PF	IDT71V3579S85PF	IDT71V65703S85PF	IDT71V67803S133PF	
IDT71T75902S80PF	IDT71V2576S150PFI	IDT71V3559S75PFI	IDT71V3579S85PFI	IDT71V65703S85PFI	IDT71V67803S133PFI	
IDT71T75902S80PFI	IDT71V2577S75PF	IDT71V3559S80PF	IDT71V432S10PF	IDT71V65802S100PF	IDT71V67803S150PF	
IDT71T75902S85PF	IDT71V2577S75PFI	IDT71V3559S80PFI	IDT71V432S5PF	IDT71V65802S133PF	IDT71V67803S166PF	
IDT71T75902S85PFI	IDT71V2577S80PF	IDT71V3559S85PF	IDT71V432S5PFI	IDT71V65802S150PF	IDT71V67902S75PF	
IDT71V2546S100PF	IDT71V2577S80PFI	IDT71V3559S85PFI	IDT71V432S6PF	IDT71V65803S100PF	IDT71V67902S75PFI	
IDT71V2546S100PFI	IDT71V2577S85PF	IDT71V35741S166PF	IDT71V432S6PFI	IDT71V65803S100PFI	IDT71V67902S80PF	
IDT71V2546S133PF	IDT71V2577S85PFI	IDT71V35741S166PFI	IDT71V432S7PF	IDT71V65803S133PF	IDT71V67902S80PFI	
IDT71V2546S133PFI	IDT71V25781S166PF	IDT71V35741S183PF	IDT71V432S7PFI	IDT71V65803S133PFI	IDT71V67902S85PF	
IDT71V2546S150PF	IDT71V25781S166PFI	IDT71V35741S183PFI	IDT71V432S8PF	IDT71V65803S150PF	IDT71V67902S85PFI	
IDT71V2548S100PF	IDT71V25781S183PF	IDT71V35741S200PF	IDT71V433S11PF	IDT71V65803S150PFI	IDT71V67903S75PF	
IDT71V2548S100PFI	IDT71V25781S183PFI	IDT71V3574S133PF	IDT71V433S11PFI	IDT71V65902S75PF	IDT71V67903S75PFI	
IDT71V2548S133PF	IDT71V25781S200PF	IDT71V3574S150PF	IDT71V546S100PF	IDT71V65902S80PF	IDT71V67903S80PF	
IDT71V2548S133PFI	IDT71V2578S133PF	IDT71V3574S166PF	IDT71V546S100PFI	IDT71V65902S85PF	IDT71V67903S80PFI	
IDT71V2548S150PF	IDT71V2578S133PFI	IDT71V35751S166PF	IDT71V546S133PF	IDT71V65903S75PF	IDT71V67903S85PF	
IDT71V2548S150PFI	IDT71V2578S150PF	IDT71V35751S183PF	IDT71V546S133PFI	IDT71V65903S75PFI	IDT71V67903S85PFI	

ABLEBOND® 3230

LOW STRESS CONDUCTIVE DIE ATTACH ADHESIVE

DESCRIPTION

ABLEBOND® 3230 low stress, electrically conductive die attach adhesive is designed for high reliability packaging applications. This electrically conductive adhesive offers improved JEDEC performance, fast oven cure, and excellent adhesion to copper. It can be used in various package sizes.

FEATURES

- **Low stress**
- **Improved JEDEC performance**
- **Fast oven cure**
- **Excellent adhesion to copper**

TYPICAL UNCURED PROPERTIES		TEST DESCRIPTION	TEST METHOD
Filler Type	Silver		
Viscosity @ 25°C	9,000 cps	Brookfield CP-51 @ 5 rpm	PT-42
Thixotropic Index	5.6	Viscosity @ 0.5/Viscosity @ 5 rpm	PT-61
Estimated Work Life @ 25°C	24 hours	25% increase in viscosity @ RT	PT-59
Estimated Storage Life @ -40°C	1 year		PT-13
CURE PROCESS DATA			
Weight Loss on cure	3.9%	10 x 10 mm Si die on glass slide	PT-80
Recommended Cure Condition	30 minute ramp to 175°C; hold at 175°C for 15 minutes		

Typical properties are not intended to be used as specification limits. If you need to write a specification, please request our Standard Release Specification.

07/01

PHYSIOCHEMICAL PROPERTIES - POST CURE			TEST DESCRIPTION	TEST METHOD
Ionics	Chloride	5 ppm	Teflon flask 5 gm sample/ 20-40 mesh 50 gm DI water 100°C for 24 hours	CT-13
	Sodium	5 ppm		
	Potassium	1 ppm		
Glass Transition Temperature (Tg)		37°C	TMA penetration mode	MT-14
Coefficient of Thermal Expansion			TMA expansion mode	MT-9
	Below Tg	80 ppm/°C		
	Above Tg	205 ppm/°C		
Dynamic Tensile Modulus			Dynamic mechanical thermal analysis using <0.5 mm thick sample	MT-12
	@ -65°C	3500 MPa (510 Kpsi)		
	@ 25°C	2900 MPa (430 Kpsi)		
	@ 150°C	69 MPa (10 Kpsi)		
	@ 250°C	90 MPa (13 Kpsi)		
Moisture Absorption @ Saturation		0.29%	Dynamic vapor sorption after 85°C/85% RH exposure	PT-65
THERMAL/ELECTRICAL PROPERTIES - POST CURE				
Thermal Conductivity		0.6 W/mK	Laser flash	PT-96
Volume Resistivity		0.05 ohm-cm	4-point probe	PT-46
MECHANICAL PROPERTIES - POST CURE				
Die Shear Strength @ 25°C		15 kg_f/die	2 x 2 mm Si die on Ag/Cu LF	MT-4

Typical properties are not intended to be used as specification limits. If you need to write a specification, please request our Standard Release Specification.

ABLEBOND® 3230

LOW STRESS CONDUCTIVE DIE ATTACH ADHESIVE

APPLICATION GUIDELINES

SHIPMENT

This Ablestik product is packed and shipped in dry ice at -80°C. Inside every dry ice shipment of Ablestik's products is a small packet containing the ABLECUBE. This is a small blue cube which retains its shape at -40°C. If the ABLECUBE is exposed to temperatures higher than -40°C, the cube will melt.

Please check the state of the ABLECUBE to ensure the integrity of the shipment. If the ABLECUBE has melted upon Receiving Inspection, place the entire shipment in a -40°C freezer and contact your Ablestik Customer Service or Sales Representative.

UNPACKING

Transfer the syringes from the dry ice to a -40°C freezer without ANY delays. Freeze-thaw voids will form in the syringes if the syringes are repeatedly thawed and refrozen.

STORAGE

This Ablestik product must be stored at -40°C. The shelf life of the material is only valid when the material has been stored at the specified storage condition. Incorrect storage conditions will degrade the performance of the material in both handling (e.g. dispensing or screen printing) and final cured properties.

THAWING

Allow the container to reach room temperature before use. After removing from the freezer, set the syringes to stand vertically while thawing. Refer to Syringe Thaw Time chart below for the thaw time recommendation.

DO NOT open the container before contents reach ambient temperature. Any moisture that collects on the thawed container should be removed prior to opening the container.

DO NOT re-freeze. Once thawed to room temperature, the adhesive should not be re-frozen.

ADHESIVE APPLICATION

Thawed adhesive should be immediately placed on dispense equipment for use. If the adhesive is transferred to a final dispensing reservoir, care must be exercised to avoid entrapment of contaminants and/or air into the adhesive. Adhesive must be completely used within the product's recommended work life of 24 hours.

Apply enough adhesive to achieve a 25-50 µm (1-2 mil) wet bondline thickness, dispensed with approximately 25% - 50% filleting on all sides of the die. Alternate dispense amounts may be used depending on the application requirements. Star or cross shaped dispense patterns will yield fewer bondline voids than the matrix style of dispense pattern.

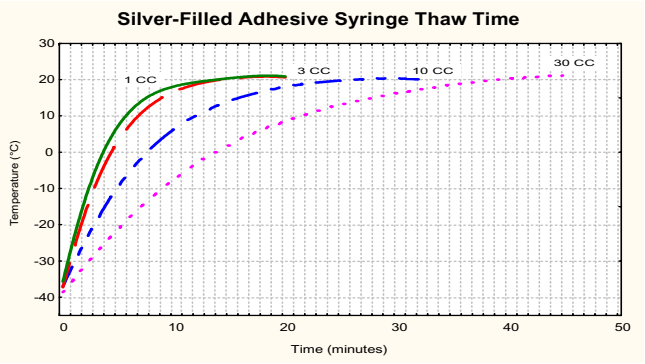
Contact Ablestik Technical Service Department for detailed recommendation on adhesive application, including dispensing.

CURE

This adhesive may be cured in box ovens. Refer to the recommended cure profile on this technical data sheet.

AVAILABILITY

Ablebond® adhesives are packaged in syringes or jars per customer specification. Available package sizes range from 1cc to 30cc and 1 ounce to 1 pound. For details, refer to the Ablestik Standard Package Data Set, or contact your Customer Service Representative.



CAUTION This product may cause skin irritation in sensitive persons. Avoid skin contact. If contact does occur, wash area immediately with soap and water. Please refer to Material Safety Data Sheet (OSHA) for more details.

NATIONAL STARCH MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESSED OR IMPLIED, CONCERNING THE SUITABILITY OF THESE MATERIALS FOR USE IN IMPLANTATION IN THE HUMAN BODY OR FOR ANY OTHER USE. These materials are not designed or manufactured for use in implantation in the human body. National Starch has not performed clinical testing of these materials for implantation. National Starch has neither sought, nor received, approval from the FDA for the use of these materials in implantation in the human body.

Ablestik
a National Starch & Chemical Company
20021 Susana Road, Rancho Dominguez, CA 90221
(310) 764-4600 Fax 310-764-2545 CUSTOMER SERVICE FAX 310-764-1783

DISCLAIMER: All statements, technical informa- tion and recommendations contained herein are based on tests we believe to be accurate, but the accuracy or completeness thereof is not guaranteed, and the following is made in lieu of warranty express or implied. Seller and manufacturer's obligation shall be to replace such quantity of the product proved to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct or consequential, arise from the use or inability to use the product. Before using, user shall determine the suitability of the product to his intended use, and user assumes all risk and liability whatsoever in connection therewith. No statement or recommendation not contained herein shall have any force or effect unless in an agreement signed by officers of seller and manufacturer.

SUMITOMO BAKELITE

SUMIKON®

EME-G700

MULTI-AROMATIC RESIN
Br/Sb FREE
FOR Pb FREE PKG
LOW WATER ABSORPTION

EME-G700

TYPICAL PROPERTIES:

ITEM	TEST METHOD	UNIT	VALUES
SPIRAL FLOW	SB-U-03-003	cm	110
GEL TIME (at 175°C)	SB-U-03-005	sec	30
THERMAL EXPANSION ∝1	SB-U-02-002	X 10^{-5} 1/°C	1.2
THERMAL EXPANSION ∝2	SB-U-02-002	X 10^{-5} 1/°C	4.9
Tg	SB-U-02-002	°C	130
THERMAL CONDUCTIVITY	SB-U-02-004	W/m •°C	88x 10^{-2}
FLEXURAL STRENGTH	SB-U-01-001	N/ mm^2	
(at 25°C)			170
(at 240°C)			21
FLEXURAL MODULUS	SB-U-01-002	X 10^2 N/mm^2	
(at 25°c)			190
(at 240°C)			6.0
SPECIFIC GRAVITY	SB-U-03-018	----------	1.95
VOLUME RESISTIVITY	SB-U-00-004	Ω - cm	1 x 10^{12}
(at 150°c)			
UL FLAME CLASS	SB-U-03-003	UL-94	V-0
WATER ABSORPTION	SB-U-03-002	% weight gain	0.15
(boiling, 24 h)			
EXTRACTED Na^+	SB-U-04-043	ppm	1
EXTRACTED Cl^-	SB-U-04-043	ppm	5

TYPICAL, NOT GUARANTEED PROPERTIES

MOLDING AND POST MOLD CURE CONDITIONS:

	STANDARD	RANGE
TRANSFER PRESSURE	80 x10^6 Pa	70-120 x10^6 Pa
MOLD TEMPERATURE	180°C	175-185°C
CURE TIME (C or A)#	A/90 sec	70-120 sec
POST-MOLD CURE TEMP	175°C	170-180°C
POST-MOLD CURE TIME	6 h	4-8 h

#Conventional or Auto

rev. Nov.'00

The information contained herein is true and accurate to our best knowledge. Sumitomo Bakelite Co., makes no warranty or guarantee of results and assumes no obligation or liabilities from the use of any products mentioned herein. This publication is not to be taken as license to operate under or recommendations to infringe upon any patents.

SUMITOMO BAKELITE CO., LTD.
Tennoz Parkside Building, 5-8 Higashi-Shinagawa, 2-Chome Shinagawa-ku, Tokyo 140, Japan