



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

PRODUCT/PROCESS CHANGE NOTICE (PCN)

PCN #: **A-0210-05** DATE: 11/4/2002
 Product Affected: TVSOP 80 package type
 (see attachment for affected part #s).
 Date Effective: 2/4/2003

MEANS OF DISTINGUISHING CHANGED DEVICES:
 Product Mark
 Back Mark
 Date Code
 Other

Contact: Geoffrey Cortes
 Title: Manager, Corporate Quality & Reliability
 Phone #: (408) 492-8321
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 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

To qualify new mold compound EME-G700 (Sumitomo) and die attach material 8290 manufactured by (Ablestik). Once qualified, IDT will add this material as an additional qualified material for TVSOP 80 package type.

RELIABILITY/QUALIFICATION SUMMARY:

Please see attached 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: _____
 Name/Date: _____
 Title: _____

Approval for shipments prior to effective date.
 E-Mail Address: _____
 Phone# /Fax# : _____

CUSTOMER COMMENTS: _____

IDT ACKNOWLEDGMENT OF RECEIPT:

RECD. BY: _____ DATE: _____



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ATTACHMENT - PCN #: A-0210-05

PCN Type: To qualify new mold compound and die attach material.

Data Sheet Change: No

Detail Of Change: A new mold compound and die attach material is being qualified for TVSOP 80 package type. The details are as follow:

Description	Material	
	Old	New
Die attach material	Ablestik 84-1LMISR4	Ablestik 8290
Mold Compound	Shinetsu KMC 184H	Sumitomo EME-G700

The affected device types are:

74ALVC16830	74ALVC162831
74ALVC16831	74ALVCH16282
74ALVCHS162830	74ALVCH162831
74ALVCH16830	74ALVCHG162280
74ALVCH16831	74ALVCHG162282
74ALVCH162830	

Conversion schedule (Estimated):

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



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Qualification Results: Following are the qualification results:

Test Vehicle: 74ALVCH162830

	Test Methods	Sample size /# of Fails	Test Results SS /# of Fails
Highly Accelerated Stress Test (HAST) (100 Hrs, @ 130°C/85%RH,Static Bias)	EIA/JESD22-A110	45/0	45/0
Temperature Cycling, (-65°C to +150°C, 500 cyc)	MIL-STD-883, Method 1010	45/0	45/0
Auto Clave (SPP), (168Hrs, @ 2ATM, 121°C)	EIA/JESD22-A102	45/0	45/0
Package Moisture Characterization L3 @240°C	JEDEC J-STD-20	22/0	22/0
Internal Visual Inspection	MIL-STD-883, Method 2010	5/0	5/0
External Visual Inspection	MIL-STD-883, Method 2009	25/0	25/0
X-ray Examination	Per IDT specification	45/0	45/0
Bond Pull Test	MIL-STD-883, Method 2011	5/0	5/0
Bake & Ball Shear Test	EIA/JESD22-B116	5/0	5/0

SUMITOMO BAKELITE SUMIKON[®]

EME-G700

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

EME-G700

TYPICAL PROPERTIES:

<u>ITEM</u>	<u>TEST METHOD</u>	<u>UNIT</u>	<u>VALUES</u>
SPIRAL FLOW	SB-U-03-003	cm	110
GEL TIME (at 175°C)	SB-U-03-005	sec	30
THERMAL EXPANSION α_1	SB-U-02-002	X 10 ⁻⁵ 1/°C	1.2
THERMAL EXPANSION α_2	SB-U-02-002	X 10 ⁻⁵ 1/°C	4.9
T _g	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:

	<u>STANDARD</u>	<u>RANGE</u>
TRANSFER PRESSURE	80 x 10 ⁶ Pa	70-120 x 10 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

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SUMITOMO BAKELITE CO., LTD.

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ABLEBOND® 8290

MEDIUM STRESS DIE ATTACH ADHESIVE

DESCRIPTION

Ablebond® 8290 medium stress die attach adhesive is designed for high reliability leadframe packaging applications. This

electrically conductive adhesive offers improved JEDEC performance and can be used in a variety of package sizes.

FEATURES

- Low stress
- Improved JEDEC performance
- Use for a variety of die sizes

TYPICAL UNCURED PROPERTIES		TEST DESCRIPTION	TEST METHOD
Filler Type	Silver	Brookfield CP-51 @ 5 rpm Viscosity @ 0.5 rpm/Viscosity @ 5 rpm 25% increase in viscosity @ RT	PT-42 PT-61 PT-59 PT-13
Viscosity @ 25°C	9,000 cps		
Thixotropic Index	5.9		
Estimated Work Life @ 25°C	24 hours		
Estimated Storage Life @ -40°C	1 year		
CURE PROCESS DATA			
Weight Loss on Cure	2.5%	10mm ² Si die glass slide	PT-80
Recommended Cure Condition	Ramp 20 minutes to 175°C and hold 10 minutes		
Alternate Cure Condition ¹	Ramp 30 minutes to 175°C and hold 15 minutes		
¹ Alternate cure recommended for larer die sizes for void minimization.			

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

PHYSIOCHEMICAL PROPERTIES - POST CURE		TEST DESCRIPTION	TEST METHOD
Ionics Chloride Sodium Potassium	19 ppm 12 ppm 1 ppm	Teflon flask 5 gm sample 20-40 mesh 50 gm DI water 100°C for 24 hours	CT-13
Glass Transition Temperature	38°C	TMA penetration mode TMA expansion mode	MT-14 MT-9
Coefficient of Thermal Expansion Below Tg Above Tg	81 ppm/°C 181 ppm/°C	Dynamic mechanical thermal analysis using <0.5mm thick sample	MT-12
Dynamic Tensile Modulus @ 25°C @ 150°C @ 250°C	3100 MPa (440 Kpsi) 140 MPa (20 Kpsi) 120 MPa (17 Kpsi)	Dynamic vapor sorption after 85°C/85% RH exposure	PT-65
Moisture Absorption @ Saturation	0.71%		
THERMAL ELECTRICAL PROPERTIES - POST CURE			
Thermal Conductivity	1.6 W/mK	Laser Flash	PT-96
Volume Resistivity	0.008 ohm-cm	4-point probe	PT-46
MECHANICAL PROPERTIES - POST CURE			
Die Shear Strength @ 25°C	15 kg _f /die	2x2mm Si die Ag/Cu LF (80 x 80 mil)	MT-4
Chip Warpage vs. Post Cure Thermal Process <i>Post Cure</i> + <i>Post Mold Bake</i> (4 hours @ 175°C) 18 µm 32 µm		12.7 x 12.7 x 0.38 mm Si die (500 x 500 x 15mil) on 0.2mm thick leadframe	MT-15

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

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. Freezethaw 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.

ABLEBOND® 8290

MEDIUM STRESS DIE ATTACH ADHESIVE

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 refrozen.

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 worklife of 24 hours. Silver-resin separation may occur if the adhesive is left out at ambient beyond the recommended worklife.

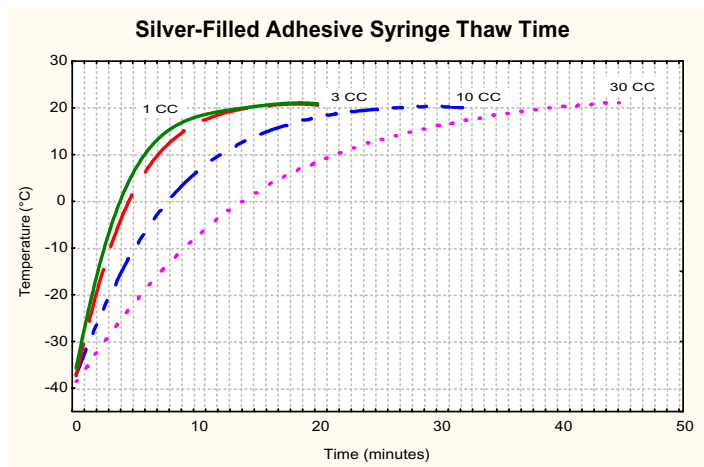
Apply enough adhesive to achieve a 25-50 μm (1-2 mil) wet bondline thickness, dispensed with approximately 25% - 50% filleting on all sides of the die. Alternate dispense amounts may be used depending on the application requirements. Star or cross-shaped dispense patterns will yield fewer bondline voids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

CURE

Ablebond 8290 adhesive can be cured in conventional box ovens per the recommended cure condition. Refer to the Cure Process Data section of the Technical Data Sheet for the recommended cure cycles.

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.

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