



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

PRODUCT/PROCESS CHANGE NOTICE (PCN)

ATTACHMENT - PCN #: A-0305-02

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 Chip Array BGA package family. 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	SMT B1LV, SMTB1LAR, 7730L, Nitto HC100XJAA	Sumitomo EME-G770 series
Die attach material	QMI 596, Ablestik 2000	Ablestik 2300

The list of the effected products are as follows:

Package family	Package Nomenclature	Pin Count	Commercial Grade
Chip Array BGA	BC100	CABGA-100 ball	BC
	BC144	CABGA-144 ball	BC
	BC256	CABGA-256 ball	BC
	BE48	CABGA-48 ball	BE
	BF48	CAFPBA-48 ball	BF
	BF64	CAFPBA-64 ball	BF
	BF96	CAFPBA-96 ball	BF
	BF100	CAFPBA-100 ball	BF
	BF114	CAFPBA-114 ball	BF
	BF144	CAFPBA-144 ball	BF
	BF208	CAFPBA-208 ball	BF
	BQ165	CABGA-165 ball	BQ
	BV52	CABGA-52 ball	BV
	BV56	CABGA-56 ball	BV
	BZ108	CABGA-108 ball	BZ

**Note: For T & R (shipping method) "8" is added to the part number.
 For industrial grade, letter "I" is added to the part number.**

Conversion schedule (Estimated):

Please contact your local field sales representative for part number list, sample availability and production shipments.



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Qualification Plan #: P02-11-04
Test Vehicle: IDT71V416
Qualification Test Plan and Results:

Test Description	Test Method	Sample Size / # of Fails	Test Results Chip Array BGA IDT71V416 (SS / # of Fails)
* High Accelerated Stress Test (Biased, 130 °C/85% RH, 100 Hrs)	EIA/JESD22-A110	45/0	45/0
* Temperature Cycling (-65 °C to 150 °C, 500 cyc)	MIL-STD-883, M1010 JESD22-A104	45/0	44/0 note (b)
* Auto Clave (121 °C, 2 ATM, 168 Hrs)	EIA/JESD22-A102	45/0	45/0
High Temperature Life Test (125 °C, 1000 Hrs)	MIL-STD-883, M1005 JESD22-A108	77/0	77/0
High Temp Bake (150 °C, 1000 Hrs)	MIL-STD-883, M1008 JESD22-A103	77/0	77/0
Moisture Sensitivity Classification (Note a)	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 JESD22-B101	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 JESD22-B100	5/0	5/0
Die Shear Strength	MIL-STD-883, M2019	5/0	5/0

Notes: * Test requires moisture pre-conditioning sequence.
a. There is no change in moisture sensitivity level.
b. Mechanical reject.

SUMITOMO BAKELITE SUMIKON[®]

EME-G770

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

EME-G770

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	32
THERMAL EXPANSION α_1	SB-U-02-002	X 10 ⁻⁵ 1/°C	0.8
THERMAL EXPANSION α_2	SB-U-02-002	X 10 ⁻⁵ 1/°C	3.7
Tg	SB-U-02-002	°C	130
THERMAL CONDUCTIVITY	SB-U-02-004	W/m •°C	96x 10 ⁻²
FLEXURAL STRENGTH	SB-U-01-001	N/ mm ²	
(at 25°C)			170
(at 240°C)			17
FLEXURAL MODULUS	SB-U-01-002	X 10 ² N/mm ²	
(at 25°C)			260
(at 240°C)			6.0
SPECIFIC GRAVITY	SB-U-03-018	-----	2.01
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 x10 ⁵ Pa	70-120 x10 ⁵ 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.Feb. '03

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SUMITOMO BAKELITE CO., LTD.

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PILOT TECHNICAL DATA SHEET

ABLEBOND® 2300

ELECTRICALLY CONDUCTIVE ADHESIVE FOR PBGA

DESCRIPTION

Ablebond® 2300 electrically conductive die attach adhesive is designed for Pb-free PBGA and Array BGA packaging. The proprietary hybrid chemistry used in Ablebond® 2300 adhesive has high hot / wet adhesion, low stress and ultra-low moisture absorption allowing packages to withstand the high reflow temperatures necessary

for Pb-free solders (260°C) . It is suitable for die sizes up to 12.7 x 12.7 mm.

Ablebond® 2300 adhesive has also been designed for ease of manufacture with excellent dispensing characteristics, fast cure capability and low bleed on solder mask surfaces.

FEATURES

- Ultra-low moisture absorption
- High hot / wet adhesion
- Low stress
- Fast cure with no voids
- Minimal resin bleed

UNCURED PROPERTIES		TEST DESCRIPTION	TEST METHOD
Filler Type	Silver	Brookfield CP51 @ 5 rpm Viscosity @ 0.5/Viscosity @ 5 rpm 25% increase in viscosity @ RT	ATM-0018
Viscosity @ 25°C	9,000 cP		ATM-0089
Thixotropic Index	5.9		ATM-0087
Estimated Work Life @ 25°C	> 24 hours		ATM-0068
Estimated Storage Life @ -40°C	6 months		
CURE PROCESS DATA			
Weight loss on cure	1.2%	10 x 10 mm Si die on glass slide	ATM-0031
Recommended Cure Condition	15 minutes @ 175°C		

Typical properties are not intended for use as specification limits. If you need to write a specification, ask for our Standard Release Specification. This is a Pilot product that has been converted to high volume manufacturing and is being monitored for process stability. During this monitoring period, certain properties may be adjusted slightly.

PHYSIOCHEMICAL PROPERTIES- POST CURE	TEST DESCRIPTION	TEST METHOD
Ionics Chloride 2 ppm Sodium 2 ppm Potassium < 1 ppm	Teflon flask 5 gm sample / 20-40 mesh 50 gm DI water 100°C for 24 hours	ATM-0007
Weight Loss @ 300°C 1.22%	Thermogravimetric Analysis	ATM-0073
Coefficient of Thermal Expansion Below Tg 60 ppm/°C Above Tg 129 ppm/°C	TMA expansion mode	ATM-0055
Dynamic Tensile Modulus @ 25°C 1800 MPa (260,400 psi) @ 250°C 240 MPa (34,350 psi)	Dynamic mechanical thermal analysis using < 0.5mm thick sample	ATM-0112
Moisture Absorption @ Saturation 0.22%	Dynamic vapor sorption after 85°C/85% RH exposure	ATM-0093
THERMAL/ELECTRICAL PROPERTIES - POST CURE		
Thermal Conductivity 0.6 W/mK Volume Resistivity 0.5 ohm-cm	Laser Flash 4-point probe	ATM-0116 ATM-0020

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ABLEBOND® 2300

ELECTRICALLY CONDUCTIVE ADHESIVE FOR PBGA

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 on the next page 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.

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.

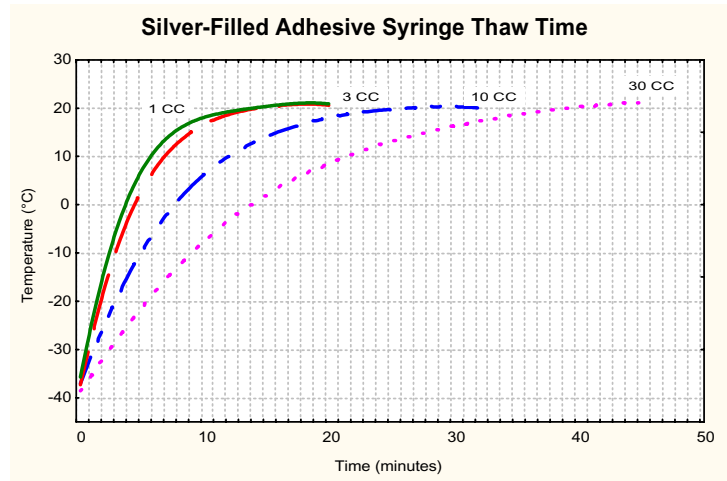
Contact Ablestik Technical Service Department for detailed recommendation on adhesive application, including dispensing.

CURE

Ablebond® 2300 adhesive can be cured in box ovens. See the cure process data on page 1.

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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