



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

PRODUCT/PROCESS CHANGE NOTICE (PCN)

ATTACHMENT - PCN #: A-0401-01

PCN Type: Assembly Material Change

Data Sheet Change: None

Detail Of Change: A new mold compound material and a new die attach material has been qualified for SOIC (Small Outline Integrated Circuit) package family. The successful completion of this qualification has improved IDT's support of current and future production needs for components that meet 260°C peak reflow temperature. There is no change in Moisture Sensitive Level (MSL). Products will be shipped at the existing MSL and each shipment is labeled with the correct MSL. Please refer to the label on each shipment for MSL information.

Description	Material	
	Existing	Add
Mold Compound Material	Sumitomo EME-6300 series	Sumitomo EME-G600 series
Die Attach Material	Ablestik 8390, Ablestik 84-1LMISR4	Ablestik 8290

Please see attachment for affected part #s (Appendix - 1).

Samples are not built ahead of the change and are limited to selective devices. Please contact your local field sales representative for sample availability and additional information.



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Qualification Plan #: P02-11-05 / P02-11-11

Test Vehicle: IDT6116 / IDT72413

Qualification Test Plan and Results:

Test Description	Test Method	Test Results IDT6116 (SS / # of Fails)	Test Results IDT72413 (SS / # of Fails)
* High Accelerated Stress Test (Biased, 130 °C/85% RH, 100 Hrs)	JESD22-A110-B	45/0	45/0
* Temperature Cycling (-65 °C to 150 °C, 500 cycle)	JESD22-A104-B	45/0	45/0
* Auto Clave (121 °C, 2 ATM, 168 Hrs)	JESD22-A102-C	45/0	45/0
High Temperature Life Test (1000 Hrs @ 125 °C or equivalent)	JESD22-A108-B	77/0	77/0
High Temp Bake (1000 Hrs @ 150 °C)	JESD22-A103-B	77/0	77/0
Moisture Sensitivity Classification	J-STD-020B	90/0	90/0
Internal Visual Inspection	MIL-STD-883, M2010	5/0	5/0
External Visual Inspection	JESD22-B101	25/0	25/0
X-ray Examination	MIL-STD-883, M2015	45/0	45/0
Bond Pull Test	MIL-STD-883, M2011	5/0	5/0
Resistance to Solvents	JESD22-B107	3/0	3/0
Solderability Test	JESD22-B102-C J-STD-002	5/0	5/0
Bake & Ball Shear Strength	JESD22-B116	5/0	5/0
Physical Dimensions	JESD22-B100-B	5/0	5/0
Die Shear Strength	MIL-STD-883, M2019	5/0	5/0

Notes: * Test requires moisture pre-conditioning sequence per JESD22-A113C.



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Appendix - 1

IDT2305-1DC	IDT23S09E-1DC	IDT6116SA15SO	IDT72115L50SO	IDT74FCT2240ATSO
IDT2305-1DCI	IDT23S09E-1DCI	IDT6116SA20SO	IDT72125L25SO	IDT74FCT2240CTSO
IDT2305-1HDC	IDT23S09T-1DC	IDT6116SA20SOI	IDT72125L50SO	IDT74FCT2244ATSO
IDT2305-1HDCI	IDT29FCT2052ATSO	IDT6116SA25SO	IDT72401L10SO	IDT74FCT2244CTSO
IDT2308-1DC	IDT29FCT2052BTSO	IDT6116SA25SOI	IDT72401L15SO	IDT74FCT2245ATSO
IDT2308-1DCI	IDT29FCT2052CTSO	IDT6116SA35SO	IDT72401L25SO	IDT74FCT2245CTSO
IDT2308-1HDC	IDT29FCT520ATSO	IDT6116SA35SOI	IDT72401L35SO	IDT74FCT2257ATSO
IDT2308-1HDCI	IDT29FCT520BTSO	IDT6116SA45SO	IDT72401L45SO	IDT74FCT2257CTSO
IDT2308-2DC	IDT29FCT520CTSO	IDT6116SA45SOI	IDT72402L10SO	IDT74FCT2373ATSO
IDT2308-2DCI	IDT29FCT52ATSO	IDT7200L12SO	IDT72402L15SO	IDT74FCT2373CTSO
IDT2308-2HDC	IDT29FCT52BTSO	IDT7200L15SO	IDT72402L25SO	IDT74FCT2374ATSO
IDT2308-2HDCI	IDT29FCT52CTSO	IDT7200L15SOI	IDT72402L35SO	IDT74FCT2374CTSO
IDT2308-3DC	IDT29FCT52DTSO	IDT7200L20SO	IDT72402L45SO	IDT74FCT240ASO
IDT2308-3DCI	IDT49FCT3805ASO	IDT7200L25SO	IDT72403L10SO	IDT74FCT240ATSO
IDT2308-4DC	IDT49FCT3805ASOI	IDT7200L25SOI	IDT72403L15SO	IDT74FCT240CSO
IDT2308-4DCI	IDT49FCT3805SO	IDT7200L35SO	IDT72403L25SO	IDT74FCT240CTSO
IDT2308-5HDC	IDT49FCT3805SOI	IDT7200L50SO	IDT72403L35SO	IDT74FCT244ASO
IDT2308-5HDCI	IDT49FCT805ASO	IDT7201LA12SO	IDT72403L45SO	IDT74FCT244ATSO
IDT2309-1DC	IDT49FCT805ASOI	IDT7201LA15SO	IDT72404L10SO	IDT74FCT244CSO
IDT2309-1DCI	IDT49FCT805BTSO	IDT7201LA15SOI	IDT72404L15SO	IDT74FCT244CTSO
IDT2309-1HDC	IDT49FCT805CTSO	IDT7201LA20SO	IDT72404L25SO	IDT74FCT244TSO
IDT2309-1HDCI	IDT49FCT805SO	IDT7201LA25SO	IDT72404L35SO	IDT74FCT245ASO
IDT2309NZ-1HDC	IDT49FCT805SOI	IDT7201LA25SOI	IDT72404L45SO	IDT74FCT245ATSO
IDT2309NZ-1HDCI	IDT49FCT806ASO	IDT7201LA35SO	IDT72413L25SO	IDT74FCT245CSO
IDT23S05-1DC	IDT49FCT806BTSO	IDT7201LA50SO	IDT72413L35SO	IDT74FCT245CTSO
IDT23S05-1DCI	IDT49FCT806CTSO	IDT7202LA12SO	IDT72413L45SO	IDT74FCT245TSO
IDT23S05E-1DC	IDT49FCT806SO	IDT7202LA15SO	IDT74ALVC04DC	IDT74FCT2541ATSO
IDT23S05E-1DCI	IDT59910A-2SO	IDT7202LA15SOI	IDT74ALVC08DC	IDT74FCT2541CTSO
IDT23S05T-1DC	IDT59910A-5SOI	IDT7202LA20SO	IDT74ALVC125DC	IDT74FCT2543ATSO
IDT23S08-1HDC	IDT59910A-7SOI	IDT7202LA25SO	IDT74ALVC244SO	IDT74FCT2543CTSO
IDT23S08-1HDCI	IDT59920A-2SO	IDT7202LA25SOI	IDT74ALVC245SO	IDT74FCT2573ATSO
IDT23S08-2DC	IDT59920A-5SOI	IDT7202LA35SO	IDT74FCT138ATSO	IDT74FCT2573CTSO
IDT23S08-2DCI	IDT59920A-7SOI	IDT7202LA50SO	IDT74FCT138CTSO	IDT74FCT2574ATSO
IDT23S08-4DC	IDT5V9910A-2SO	IDT7204L12SO	IDT74FCT139ATSO	IDT74FCT2574CTSO
IDT23S08-4DCI	IDT5V9910A-5SOI	IDT7204L15SO	IDT74FCT139CTSO	IDT74FCT257ATSO
IDT23S08E-1HDC	IDT5V9910A-7SOI	IDT7204L15SOI	IDT74FCT151ATSO	IDT74FCT257CTSO
IDT23S08E-1HDCI	IDT6116LA20SO	IDT7204L20SO	IDT74FCT151CTSO	IDT74FCT257DTSO
IDT23S08E-2DC	IDT6116LA20SOI	IDT7204L25SO	IDT74FCT157ATSO	IDT74FCT257TSO
IDT23S08E-2DCI	IDT6116LA25SO	IDT7204L25SOI	IDT74FCT157CTSO	IDT74FCT2646ATSO
IDT23S08E-4DC	IDT6116LA25SOI	IDT7204L35SO	IDT74FCT157DTSO	IDT74FCT2646CTSO
IDT23S08E-4DCI	IDT6116LA35SO	IDT7204L50SO	IDT74FCT161ATSO	IDT74FCT2652ATSO
IDT23S08T-1DC	IDT6116LA35SOI	IDT72105L25SO	IDT74FCT161CTSO	IDT74FCT2652CTSO
IDT23S09-1DC	IDT6116LA45SO	IDT72105L50SO	IDT74FCT163ATSO	IDT74FCT273ATSO
IDT23S09-1DCI	IDT6116LA45SOI	IDT72115L25SO	IDT74FCT163CTSO	IDT74FCT273CTSO

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



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Appendix - 1

IDT74FCT2827ATSO	IDT74FCT543ATSO	IDT74FCT863ASO	IDTQS3306AS1	IDTQS74FCT2827BTSO
IDT74FCT2827CTSO	IDT74FCT543CSO	IDT74FCT863BSO	IDTQS3383SO	IDTQS74FCT2827CTSO
IDT74FCT299ASO	IDT74FCT543CTSO	IDT74LVC07ADC	IDTQS3384SO	IDTQS74FCT2841ATSO
IDT74FCT299ATSO	IDT74FCT543DTSO	IDT74LVC08ADC	IDTQS3388SO	IDTQS74FCT2841BTSO
IDT74FCT299CTSO	IDT74FCT573ASO	IDT74LVC11ADC	IDTQS3389SO	IDTQS74FCT2841CTSO
IDT74FCT3244ASO	IDT74FCT573ATSO	IDT74LVC125ADC	IDTQS3390SO	
IDT74FCT3244SO	IDT74FCT573CSO	IDT74LVC138ADC	IDTQS33861SO	
IDT74FCT3245ASO	IDT74FCT573CTSO	IDT74LVC157ADC	IDTQS3L384SO	
IDT74FCT3245SO	IDT74FCT574ASO	IDT74LVC161ADC	IDTQS3R245SO	
IDT74FCT3573ASO	IDT74FCT574ATSO	IDT74LVC2244ASO	IDTQS3R861SO	
IDT74FCT3573SO	IDT74FCT574CSO	IDT74LVC2245ASO	IDTQS3R862SO	
IDT74FCT3574ASO	IDT74FCT574CTSO	IDT74LVC244ASO	IDTQS3V245SO	
IDT74FCT3574SO	IDT74FCT621ATSO	IDT74LVC245ASO	IDTQS3VH125S1	
IDT74FCT373ASO	IDT74FCT621TSO	IDT74LVC257ADC	IDTQS3VH126S1	
IDT74FCT373ATSO	IDT74FCT646ATSO	IDT74LVC273ASO	IDTQS3VH2245SO	
IDT74FCT373CSO	IDT74FCT646CTSO	IDT74LVC32ADC	IDTQS3VH245SO	
IDT74FCT373CTSO	IDT74FCT648ATSO	IDT74LVC373ASO	IDTQS3VH257S1	
IDT74FCT374ASO	IDT74FCT648CTSO	IDT74LVC374ASO	IDTQS3VH383SO	
IDT74FCT374ATSO	IDT74FCT652ATSO	IDT74LVC377ASO	IDTQS74FCT153ATSO	
IDT74FCT374CSO	IDT74FCT652CTSO	IDT74LVC4245ASO	IDTQS74FCT2157ATS1	
IDT74FCT374CTSO	IDT74FCT807BTSO	IDT74LVC541ASO	IDTQS74FCT2240ATSO	
IDT74FCT374TSO	IDT74FCT807BTSOI	IDT74LVC573ASO	IDTQS74FCT2240CTSO	
IDT74FCT377ATSO	IDT74FCT807CTSO	IDT74LVC574ASO	IDTQS74FCT2240TSO	
IDT74FCT377CTSO	IDT74FCT807CTSOI	IDT74LVC74ADC	IDTQS74FCT2244ATSO	
IDT74FCT377DTSO	IDT74FCT810BTSO	IDT74LVC827ASO	IDTQS74FCT2244CTSO	
IDT74FCT3807ASO	IDT74FCT810CTSO	IDT74LVCC3245ASO	IDTQS74FCT2244TSO	
IDT74FCT3807ASOI	IDT74FCT821ASO	IDT74LVCH244ASO	IDTQS74FCT2245ATSO	
IDT74FCT3807SO	IDT74FCT821ATSO	IDT74LVCH245ASO	IDTQS74FCT2245CTSO	
IDT74FCT3807SOI	IDT74FCT821BSO	IDT74LVCR2245ASO	IDTQS74FCT2245TSO	
IDT74FCT3827ASO	IDT74FCT821CTSO	IDTNW6005AS	IDTQS74FCT2257ATS1	
IDT74FCT3827BSO	IDT74FCT823ASO	IDTNW6006AS	IDTQS74FCT2257ATSO	
IDT74FCT521ASO	IDT74FCT823ATSO	IDTQS3125S1	IDTQS74FCT2257CTS1	
IDT74FCT521ATSO	IDT74FCT823BSO	IDTQS3126S1	IDTQS74FCT2257CTSO	
IDT74FCT521CSO	IDT74FCT823CTSO	IDTQS32245SO	IDTQS74FCT2257TS1	
IDT74FCT521CTSO	IDT74FCT827ASO	IDTQS32257S1	IDTQS74FCT2374ATSO	
IDT74FCT534ATSO	IDT74FCT827ATSO	IDTQS32384SO	IDTQS74FCT2374CTSO	
IDT74FCT534CTSO	IDT74FCT827BSO	IDTQS3244SO	IDTQS74FCT2374TSO	
IDT74FCT540ATSO	IDT74FCT827CTSO	IDTQS3245SO	IDTQS74FCT251ATSO	
IDT74FCT540CTSO	IDT74FCT833ASO	IDTQS3251S1	IDTQS74FCT253ATS1	
IDT74FCT541ASO	IDT74FCT833BSO	IDTQS3253S1	IDTQS74FCT253ATSO	
IDT74FCT541ATSO	IDT74FCT841ASO	IDTQS3253SO	IDTQS74FCT2821ATSO	
IDT74FCT541CSO	IDT74FCT841ATSO	IDTQS3257S1	IDTQS74FCT2821BTSO	
IDT74FCT541CTSO	IDT74FCT841BSO	IDTQS3257SO	IDTQS74FCT2821CTSO	
IDT74FCT543ASO	IDT74FCT841CTSO	IDTQS32861SO	IDTQS74FCT2827ATSO	

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SUMITOMO BAKELITE SUMIKON[®]

EME-G600

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

EME-G600

TYPICAL PROPERTIES:

<u>ITEM</u>	<u>TEST METHOD</u>	<u>UNIT</u>	<u>VALUES</u>
SPIRAL FLOW	SB-U-03-003	cm	80
GEL TIME (at 175°C)	SB-U-03-005	sec	27
THERMAL EXPANSION α_1	SB-U-02-002	$\times 10^{-5} 1/^\circ\text{C}$	1.0
THERMAL EXPANSION α_2	SB-U-02-002	$\times 10^{-5} 1/^\circ\text{C}$	3.9
T _g	SB-U-02-002	°C	135
THERMAL CONDUCTIVITY	SB-U-02-004	W/m •°C	92x 10 ⁻²
FLEXURAL STRENGTH	SB-U-01-001	N/ mm ²	
(at 25°C)			185
(at 240°C)			21
FLEXURAL MODULUS	SB-U-01-002	$\times 10^2 \text{ N/mm}^2$	
(at 25°C)			240
(at 240°C)			7.2
SPECIFIC GRAVITY	SB-U-03-018	-----	1.98
VOLUME RESISTIVITY	SB-U-00-004	$\Omega \cdot \text{cm}$	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	0.13
(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 ⁵ Pa	70-120 x 10 ⁵ Pa
MOLD TEMPERATURE	180°C	175-185°C
CURE TIME (C or A) [#]	C/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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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 cP		
Thixotropic Index	5.9		
Work Life @ 25°C	24 hours		
Estimated Storage Life @ -40°C	1 year		
CURE PROCESS DATA			
Weight Loss on Cure	2.5%	10mm x 10mm Si die on glass slide	PT-80
Recommended Cure Condition	Ramp 30 minutes to 175°C and hold 15 minutes		
Alternate Cure Condition ¹	Ramp 30 minutes to 175°C and hold 60 minutes		
¹ Alternate cure recommended for larger 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
Ionic Chloride	16 ppm	Teflon flask 5 gm sample 20-40 mesh 50 gm DI water 100°C for 24 hours TMA penetration mode TMA expansion mode	CT-13	
Sodium	12 ppm			
Potassium	1 ppm			
Glass Transition Temperature	38°C			
Coefficient of Thermal Expansion		Dynamic mechanical thermal analysis using <0.5mm thick sample	MT-14 MT-9	
Below Tg	81 ppm/°C			
Above Tg	181 ppm/°C			
Dynamic Tensile Modulus		Dynamic vapor sorption after 85°C/85% RH exposure	MT-12	
@ 25°C	3100 MPa (440 Kpsi)			
@ 150°C	140 MPa (20 Kpsi)			
@ 250°C	120 MPa (17 Kpsi)	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		12.7 x 12.7 x 0.38 mm Si die (500 x 500 x 15mil) on 0.2mm thick leadframe	MT-15	
<u>Post Cure</u>	<u>+ Post Mold Bake</u> (4 hours @ 175°C)			
18 μm	32 μm			

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. 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.

ABLEBOND® 8290

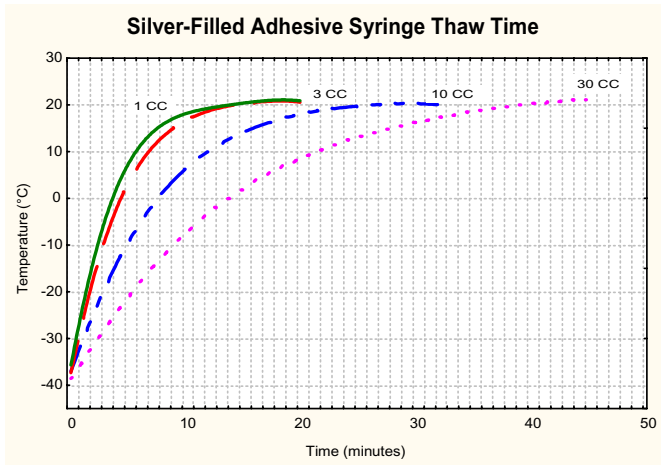
MEDIUM STRESS DIE ATTACH ADHESIVE

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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