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Optical Communication Adhesive Guideline

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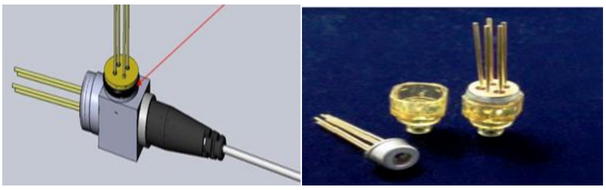
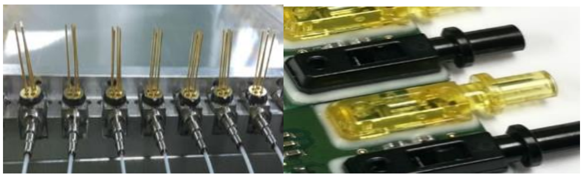


TO Assembly

Product	Viscosity cPs@25ºC	Hardness	Tg (ºC)	Linear Shrinkage （%）	Special Feature
UV566-20	6,500	D75	100	1.91	This UV + Heat Curable structural adhesive suitable for tacking and bonding of TO can to PEI lens. Fulfill UBDH 2000hrs reliability.
UV566-25	13,760	D82	108	1.92	This UV + Heat Curable structural adhesive suitable for tacking and bonding of S/S, PEI for OSA Receptacle. Fulfill UBDH 2000hrs reliability.
UV566-25A	7,913	D82	111	-	This UV + Heat Curable structural adhesive suitable for tacking and bonding of PEI, Nickel, Kovar, S/S, gold substrates OSA Receptacle. **Suitable for shadow curable** applications. Fulfill UBDH 2000hrs reliability.
EN418-15	27,500	D88	110	-	This is a heat curable **flowable adhesive**, low CTE, filler size <50um, low temperature curable, black color, high reliability, low shrinkage, high bonding strength to PCB, glass, gold, nickel, etc. Fulfill UBDH 2000hrs reliability.



LENS Bonding

Product	Viscosity cPs@25ºC	Hardness	Tg (ºC)	Linear Shrinkage （%）	Special Feature
GL616	25,000	D85	122	1.51	Heat curable structural adhesive, white color, high adhesion strength, suitable for bonding of lens to PCB. **Room temperature stable 1-part adhesive.** Fulfill UBDH 2000hrs.
GL168	45,085	D85	123	1.55	Heat curable structural adhesive, white color, high adhesion strength, suitable for bonding of lens to PCB. Fulfill UBDH 2000hrs.
GL158	35,000	D85	119	1.52	Heat curable structural adhesive, white color, high adhesion strength, suitable for bonding of lens to PCB. Fulfill UBDH 2000hrs.
EN418-2	21,000	D88	136	0.66	Heat curable structural adhesive, black color, high adhesion strength to gold, Nickel, Kovar, PCB, **low CTE and low shrinkage.** Fulfill UBDH 2000hrs.

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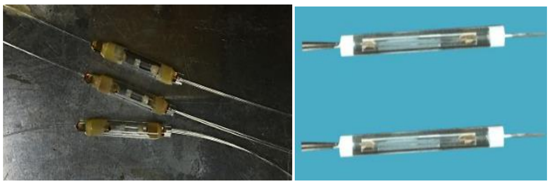
PLC Bonding，Front and End V-groove Bonding

Product	Viscosity cPs@25ºC	Hardness	Tg (ºC)	Linear Shrinkage（%）	Special Feature
UV773-6	378	D80	168	1.68	UV+heat Curable adhesive， **extremely high Tg**, low outgassing, bonding and active alignment under low UV intensity. Suitable for PCL and V-groove applications. Fulfill UBDH 2000hrs.
UV784-11	2,200	D40	37	-	UV+heat Curable adhesive， **flexible ad low modulus,** low outgassing, bonding for glass to fiber bonding and end-tail bonding. Fulfill UBDH 2000hrs.



Active Alignment and Bonding

Product	Viscosity cPs@25ºC	Hardness	Tg (ºC)	Linear Shrinkage（%）	Special Feature
UV788-2	22,800	D86	140	1.61	UV +heat Curable adhesive， **high Tg， low CTE,** low outgassing NASA, bonding and active alignment under low UV intensity. Suitable for glass bonding, PLC, WMD assembly. **Fulfill MSL3000hrs reliability.**
UV799-2	66,375	D85	120	1.51	UV +heat Curable adhesive， high viscosity, **high Tg, low CTE,** low outgassing NASA, bonding and active alignment under low UV intensity. Suitable for glass bonding, PLC, WMD assembly. Fulfill UBDH 2000hrs reliability.
UV788-6	28,870	D90	**208**	0.91	UV +heat Curable adhesive, **Extremely high Tg， low CTE, low shrinkage** low outgassing NASA., bonding and active alignment under low UV intensity. Suitable for glass, ceramic, gold nickel, kovar, S/S bonding and suitable for PLC, WMD, lidar assembly. Fulfill UBDH 2000hrs reliability.
UV799-3	19,200	D86	134	1.10	UV +heat Curable adhesive, **high Tg， low CTE,** low outgassing NASA sepc., bonding and active alignment under low UV intensity. Suitable for glass, ceramic, gold nickel, kovar, S/S bonding, PLC, WMD assembly. Fulfill UBDH 2000hrs reliability.
UV799-**4SW2**	28,870	D90	130	1.19	**Shadow curable version** for UV799-3, UV788-6, UV88-2. Heat curable at 80C only can still pass UBDH2000hrs.

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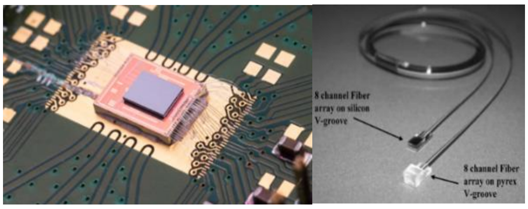
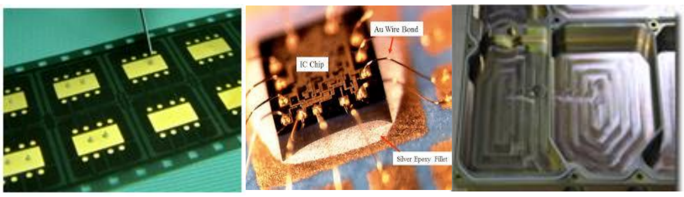


RI Matching and Fill Protection

Product	Viscosity cPs@25ºC	Hardness	Tg (ºC)	RI 589nm	Special Feature
UV773-6	378	D80	168	1.506	UV +heat Curable adhesive, high Tg, low outgassing, Suitable for active alignment, gap filling, RI Matching application. **Curable at low UV intensity.** Fulfill UBDH 2000hrs.
UV781-2	6,225	D73	53	1.410	**Low RI UV +heat Curable adhesive**, low outgassing, Suitable for RI Matching application. Fulfill UBDH 2000hrs.
OP993-11	3,942	gel	-97	1.429	Low RI heat Curable adhesive, **ultra-low outgassing**, Suitable for **RI Matching and gap filling** application. Fulfill UBDH 2000hrs.
EN893-2	4,300	00 53	-98	1.429	Low RI Heat Curable adhesive, **ultra-low outgassing**, Suitable for **gold wire protection** and gap filling application. Fulfill UBDH 2000hrs.



EMI Shielding and Silver Epoxy

Product	Viscosity cPs@25ºC	Hardness	Special Feature
EM 120-1	5,500,000	A35-40	**80dm** shielding for up-to **400G product** application. Fulfill UBDH 2000hrs.
EM 122	539,000	A46	**100dm** shielding for up-to **800G and above** product application. Fulfill UBDH 2000hrs.
AG824	7,000	D77	Low viscosity silver epoxy, high Tg, high adhesion and low volume resistivity. Fulfill UBDH 2000hrs.

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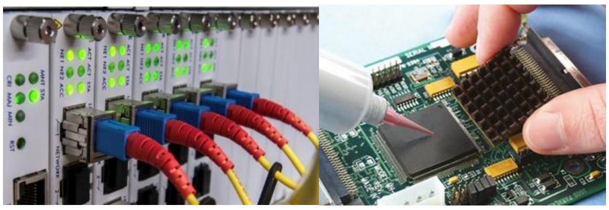

Thermal Management Material

Product	Type	Hardness	Thermal Conductivity W/mK	Special Feature
Dispensable Thermal Putty				
TH280-1	Non-Silicone	-	4	Automatic Dispensable, medium thermal conductivity, low outgassing, UL 94 V0 and ultra-low bleed. Fulfill UBDH2000hrs.
TH855-1	Non-Silicone	-	7.5	Automatic Dispensable, high thermal conductivity, low outgassing, UL 94 V0 and low bleed. Fulfill UBDH 2000hrs.
TH855-3	Non-Silicone	-	7.5	Automatic Dispensable, high thermal conductivity, low outgassing, UL 94 V0 and ultra-low bleed. Fulfill UBDH 2000hrs.
TH949-1	Silicone	-	12	Dispensable, high thermal conductivity, low outgassing, UL 94 V0 and ultra-low bleed. Fulfill UBDH 2000hrs.
Non-electrically Conductive Thermal Pad				
TH221-3	Non-Silicone	40-50	1.5	Low thermal conductivity, low outgassing, UL 94 V0. Fulfill MSL 2000hrs.
TH223-1	Non-Silicone	60-70	7	Medium thermal conductivity, low outgassing, UL 94 V0. Fulfill MSL 2000hrs.
TH228	Non-Silicone	60-70	8	Medium thermal conductivity, low outgassing, UL 94 V0. Fulfill MSL 2000hrs.
New 17W/mk	Silicone	70-80	17	Extreme high thermal conductivity, low outgassing, UL 94 V0.