

MCL-E-679 Line-up

Mar.2006

Line up of High Tg FR-4 Copper Clad Laminate Products by Hitachi Chemical Co.,Ltd.

Table 1 MCL-E-679 Line up

Item	Application	Type	Nominal Thickness	Actual Thickness (mm)	Glass-cloth	Note	Dk (1GHz)	Df (1GHz)	Appv'd* Products
PKG	CSP 2-Metal BOC MAP FC BGA OMPAC Over 4L	W	0.06	0.07±0.01	#1080x1	-	3.9	0.0225	P
			0.08	0.09±0.01	#3313x1	-	4.1	0.0210	P
			0.1	0.10±0.01	#2116x1	-	4.3	0.0195	P
			0.11	0.10±0.01	#1080x2	-	4.2	0.0205	P
			0.13	0.13±0.013	#1504x1	-	4.4	0.0190	P
			0.15	0.15±0.015	#1501x1	-	4.3	0.0195	P
			0.2	0.20±0.02	#2116x2	-	4.3	0.0195	P
			0.25	0.25±0.025	#2116x1+#1080x1+#2116x1	-	4.3	0.0195	P
			0.3	0.30±0.03	#1501x2	Cost Performance	4.3	0.0195	P
			0.31	0.30±0.03	#2116x3	-	4.3	0.0195	P
			0.4	0.40±0.04	#2116x1+#7629x1+#2116x1	Cost Performance	4.3	0.0195	P
			0.41	0.40±0.04	#2116x4	-	4.3	0.0195	P
			0.61	0.60±0.06	#2116x6	-	4.3	0.0195	P
0.81	0.80±0.08	#2116x8	-	4.3	0.0195	P			
General PWB	Multi-layer mobile Pb free High-layer count PWB	W	0.06	0.07±0.01	#1080x1	-	3.9	0.0225	P
			0.08	0.09±0.01	#3313x1	-	4.1	0.0210	P
			0.1	0.10±0.01	#2116x1	-	4.3	0.0195	P
			0.11	0.11±0.011	#1080x2	-	4.2	0.0205	P
			0.125	0.125±0.012	#2116x1	-	4.0	0.0220	P
			0.13	0.13±0.013	#1504x1	-	4.4	0.0190	P
			Y0.14	0.14±0.014	#1080x2	-	3.9	0.0225	P
			0.15	0.15±0.015	#1501x1	-	4.3	0.0195	P
			0.2	0.20±0.02	#2116x2	-	4.3	0.0195	P
			0.25	0.25±0.025	#2116x1+#1080x1+#2116x1	-	4.3	0.0195	P
			0.3	0.30±0.03	#1501x2	Cost Performance	4.3	0.0195	P
			0.31	0.30±0.03	#2116x3	-	4.3	0.0195	P
			0.35	0.35±0.035	#2116x1+#1501x1+#2116x1	-	4.3	0.0195	P
0.4	0.40±0.04	#2116x1+#7629x1+#2116x1	Cost Performance	4.3	0.0195	P			
0.41	0.40±0.04	#2116x4	-	4.3	0.0195	P			

We have other thickness material between t0.5 to t1.6 for general PWB

*P:In Mass Production ,D:Under Development

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MCL-E-679B Line-up

Line up of High Tg FR-4 Copper Clad Laminate Products by Hitachi Chemical Co.,Ltd.

Table 1 MCL-E-679 B Line up

Item	Application	Type	Nominal Thickness	Actual Thickness (mm)	Glass-cloth	Note	Dk (1GHz)	Df (1GHz)	Appv'd* Products
PKG	CSP 2-Metal BOC MAP FC BGA OMPAC Over 4L	R	0.06	0.07±0.01	#1080x1	-	3.9	0.0225	P
			0.1	0.10±0.01	#2116x1	-	4.3	0.0195	P
			0.11	0.10±0.01	#1080x2	-	4.2	0.0205	P
			0.13	0.13±0.013	#1504x1	-	4.3	0.0195	P
			0.15	0.15±0.015	#1504x1	-	4.2	0.0205	P
			0.2	0.20±0.02	#2116x2	-	4.3	0.0195	P
			0.22	0.22±0.022	#2116x2	R.C. UP	4.2	0.0205	P
			0.25	0.25±0.025	#2116x1+#1080x1+#2116x1	-	4.3	0.0195	P
			0.3	0.30±0.03	#2116x3	-	4.3	0.0195	P
			0.35	0.35±0.035	#2116x1+#1501x1+#2116x1	-	4.3	0.0195	P
			0.4	0.40±0.04	#2116x1+#7629x1+#2116x1	Cost Performance	4.3	0.0195	P
			0.41	0.40±0.04	#2116x4	-	4.3	0.0195	P
			0.43	0.42±0.042	#2116x4	R.C. UP	4.2	0.0205	P
			0.45	0.45±0.045	#1504x1+#1501x1+#1504x1	-	4.3	0.0195	P
			0.51	0.50±0.05	#2116x5	-	4.3	0.0195	P
			0.6	0.60±0.06	#2116x1+#7629x2+#2116x1	Cost Performance	4.3	0.0195	P
			0.61	0.60±0.06	#2116x6	-	4.3	0.0195	P
0.7	0.70±0.07	#1504x1+#7629x2+#1504x1	-	4.3	0.0195	P			
0.8	0.80±0.08	#2116x1+#7629x3+#2116x1	-	4.3	0.0195	P			

*P:In Mass Production ,D:Under Development

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GEA-679N Line-up

Line up of High Tg FR-4 Prepreg Products by Hitachi Chemical Co.,Ltd.

Table 1 GEA-679N Line up

Item	Nominal Thickness	Type name	Cured Thickness(um)	Resin Content (%)	Glass -Cloth	Note	Dk (1GHz)	Df (1GHz)	CTE 1 (ppm)	Appv'd* Products
Multi-layer	0.03	WOPE	45-55	66-70	#106	-	3.7	0.0245	-	P
		WORE	57-69	72-76	#106	-	3.7	0.0245	-	P
		WZPE	45-55	66-70	#1037	Laser	3.7	0.0245	-	P
	0.06	WULE	67-76	60-64	#1080	-	3.9	0.0230	-	P
		WUME	74-86	63-67	#1080	-	3.8	0.0240	-	P
		WRKE	59-68	56-60	#1078	Laser	4.0	0.0220	-	P
	0.08	WGGE	86-97	50-54	#3313	-	4.1	0.0210	68(64-72)	P
	0.1	WSGE	111-124	50-54	#2116	-	4.1	0.0210	68(64-72)	P
		WSJE	123-139	54-58	#2116	-	4.0	0.0220	78(72-84)	P
		WCGE	114-127	54-54	#2117	-	4.0	0.0220	68(64-72)	P
		WCGN	114-127	50-54	#2117	For PKG	4.1	0.0210	68(64-72)	P
		WCJE	127-144	54-58	#2117	-	4.0	0.0220	78(72-84)	P
		WCJP	127-144	54-58	#2117	For PKG	4.0	0.0220	78(72-84)	P
		WCJQ	124-139	52.5-56.5	#2117	For PKG	4.0	0.0220	-	P
		VSGN	114-127	50-54	#2117	For PKG	4.1	0.0210	68(64-72)	P
		VSJP	127-144	54-58	#2117	For PKG	4.0	0.0220	78(72-84)	P
		VSJQ	124-139	52.5-56.5	#2117	For PKG	4.0	0.0220	-	P
	0.13	WEEE	145-161	46-50	#1504	-	4.2	0.0205	62(60-64)	P
	0.15	WQEE	167-179	46-50	#1501	-	4.2	0.0205	62(60-64)	P

Type name:(W) UV Block Type
:(V) Normal Type

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MCL-E-679F Line-up

Line up of High Tg FR-4 Copper Clad Laminate Products by Hitachi Chemical Co.,Ltd.

Table 1 MCL-E-679 F Line up

Item	Application	Type	Nominal thickness	Actual thickness (mm)	Glass-cloth	Note	Dk (1GHz)	Df (1GHz)	Appv'd* Products
PKG	CSP 2-Metal BOC MAP FC	M type	M0.04**	0.05±0.01	#1037x1	Laser	3.9	0.0150	D
			M0.05	0.06±0.01	#1078x1	Laser	4.5	0.0110	P
			MT0.06**	0.07±0.01	#1037x2	Laser,high stiffness	4.4	0.0115	D
			M0.06	0.07±0.01	#1078x1	Laser	4.4	0.0115	P
			M0.11	0.11±0.01	#1078x2	Laser,high stiffness	4.5	0.0110	P
			M0.15	0.17±0.015	#1078x3	Laser,high stiffness	4.5	0.0110	P
	BGA OMPAC Over 4L	-	0.1	0.11±0.01	#2116x1	-	4.6	0.0110	P
			0.15	0.16±0.015	#1501x1	-	4.7	0.0115	P
			0.2	0.21±0.02	#2116x2	-	4.6	0.0110	P
			0.3	0.32±0.03	#1501x2	Cost performance	4.7	0.0115	P
			0.31	0.32±0.03	#2116x3	-	4.6	0.0110	P
			0.35	0.37±0.03	#2116x1+#1501x1+#2116x1	-	4.6	0.0110	P
			0.4	0.41±0.04	#2116x1+#7629x1+#2116x1	Cost performance	4.6	0.0110	P
			0.41	0.42±0.04	#2116x4	-	4.6	0.0110	P
			0.61	0.63±0.06	#2116x6	-	4.6	0.0110	P
0.81	0.84±0.08	#2116x8	-	4.6	0.0110	P			
General PWB	Multi-layer mobile Pb free High layer-count PWB	M type	M0.05	0.06±0.01	#1078x1	-	4.5	0.0110	P
			M0.06	0.07±0.01	#1078x1	-	4.4	0.0115	P
		-	0.1	0.11±0.01	#2116x1	-	4.6	0.0110	P
			0.15	0.16±0.015	#1501x1	-	4.7	0.0115	P
			0.2	0.21±0.02	#2116x2	-	4.6	0.0110	P
			0.3	0.32±0.03	#1501x2	-	4.7	0.0115	P
0.4	0.41±0.04	#2116x1+#7629x1+#2116x1	-	4.6	0.0110	P			

We have other thickness material between t0.5 to t1.6 for general PWB

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MCL-E-679FB Line-up

Line up of High Tg FR-4 Copper Clad Laminate Products by Hitachi Chemical Co.,Ltd.

Table 1 MCL-E-679FB Line up

Item	Application	Type	Nominal thickness	Actual thickness (mm)	Glass-cloth	Note	Dk (1GHz)	Df (1GHz)	Appv'd* Products
PKG	CSP 2-Metal BOC MAP FC	M type	M0.04**	0.05±0.01	#1037x1	Laser	3.9	0.0150	D
			M0.05	0.06±0.01	#1078x1	Laser	4.5	0.0110	P
			MT0.06**	0.07±0.01	#1037x2	Laser,high stiffness	4.4	0.0115	D
			M0.06	0.07±0.01	#1078x1	Laser	4.4	0.0115	P
			M0.11	0.11±0.01	#1078x2	Laser,high stiffness	4.5	0.0110	P
			M0.15	0.17±0.015	#1078x3	Laser,high stiffness	4.5	0.0110	P
			M0.22	0.22±0.02	#1078x4	Laser,high stiffness	4.5	0.0110	P
	BGA OMPAC Over 4L	-	0.1	0.11±0.01	#2116x1	-	4.6	0.0110	P
			0.15	0.16±0.015	#1501x1	-	4.7	0.0115	P
			0.2	0.21±0.02	#2116x2	-	4.6	0.0110	P
			0.3	0.32±0.03	#1501x2	Cost performance	4.7	0.0115	P
			0.31	0.32±0.03	#2116x3	-	4.6	0.0110	P
			0.35	0.37±0.03	#2116x1+#1501x1+#2116x1	-	4.6	0.0110	P
			0.4	0.41±0.04	#2116x1+#7629x1+#2116x1	Cost performance	4.6	0.0110	P
			0.41	0.42±0.04	#2116x4	-	4.6	0.0110	P
			0.61	0.63±0.06	#2116x6	-	4.6	0.0110	P
			0.81	0.84±0.08	#2116x8	-	4.6	0.0110	P
			General PWB	Multi-layer mobile Pb free High layer-count PWB	M type	M0.05	0.06±0.01	#1078x1	-
M0.06	0.07±0.01	#1078x1				-	4.4	0.0115	P
-	0.1	0.11±0.01			#2116x1	-	4.6	0.0110	P
	0.15	0.16±0.015			#1501x1	-	4.7	0.0115	P
	0.2	0.21±0.02			#2116x2	-	4.6	0.0110	P
	0.3	0.32±0.03			#1501x2	-	4.7	0.0115	P
	0.4	0.41±0.04			#2116x1+#7629x1+#2116x1	-	4.6	0.0110	P

We have other thickness material between t0.5 to t1.6 for general PWB

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MCL-E-679FG Line-up

Line up of High Tg halogen-free Copper Clad Laminate Products by Hitachi Chemical Co.,Ltd.

Table 1 MCL-E-679 FG Line up

Item	Application	Type	Nominal thickness	Actual thickness (mm)	Glass-cloth	Note	Dk (1GHz)	Df (1GHz)	Appv'd* Products	
PKG	CSP 2-Metal BOC MAP FC	M type	M0.05	0.06±0.01	#1078x1	Laser	4.8	0.0125	P	
			M0.06	0.07±0.01	#1078x1	Laser	4.7	0.0135	P	
			MT0.06	0.07±0.01	#1037x2	Laser	4.7	0.0135	P	
			M0.11	0.11±0.01	#1078x2	Laser,high stiffness	4.8	0.0125	P	
			M0.15	0.17±0.015	#1078x3	Laser,high stiffness	4.8	0.0125	P	
			M0.22	0.22±0.02	#1078x4	Laser,high stiffness	4.8	0.0125	P	
	BGA OMPAC Over 4L	-	-	0.1	0.11±0.01	#2116x1	-	4.8	0.0125	P
				0.15	0.16±0.015	#1501x1	-	4.9	0.0120	P
				0.2	0.21±0.02	#2116x2	-	4.8	0.0125	P
				0.3	0.32±0.03	#1501x2	Cost performance	4.9	0.0120	P
				0.31	0.32±0.03	#2116x3	-	4.8	0.0125	P
				0.35	0.37±0.03	#2116x1+#1501x1+#2116x1	-	4.8	0.0125	P
				0.4	0.41±0.04	#2116x1+#7629x1+#2116x1	Cost performance	4.8	0.0125	P
				0.41	0.42±0.04	#2116x4	-	4.8	0.0125	P
				0.61	0.63±0.06	#2116x6	-	4.8	0.0125	P
0.81	0.84±0.08	#2116x8	-	4.8	0.0125	P				
General PWB	Multi-layer mobile Pb free High layer -count PWB	M type	M0.05	0.06±0.01	#1078x1	-	4.8	0.0125	P	
			M0.06	0.07±0.01	#1078x1	-	4.7	0.0135	P	
		-	-	0.1	0.11±0.01	#2116x1	-	4.8	0.0125	P
				0.15	0.16±0.015	#1501x1	-	4.9	0.0120	P
				0.2	0.21±0.02	#2116x2	-	4.8	0.0125	P
				0.3	0.32±0.03	#1501x2	-	4.9	0.0120	P
0.4	0.41±0.04	#2116x1+#7629x1+#2116x1	-	4.8	0.0125	P				

We have other thickness material between t0.5 to t1.6 for general PWB

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MCL-E-679FGB Line-up

Line up of High Tg halogen-free Copper Clad Laminate Products by Hitachi Chemical Co.,Ltd.

Table 1 MCL-E-679FGB Line up

Item	Application	Type	Nominal thickness	Actual thickness (mm)	Glass-cloth	Note	Dk (1GHz)	Df (1GHz)	Appv'd* Products
PKG	CSP 2-Metal BOC MAP FC	M type	M0.05	0.06±0.01	#1078x1	Laser	4.8	0.0125	P
			M0.06	0.07±0.01	#1078x1	Laser	4.7	0.0135	P
			MT0.06	0.07±0.01	#1037x2	Laser	4.7	0.0135	P
			M0.11	0.11±0.01	#1078x2	Laser,high stiffness	4.8	0.0125	P
			Y0.15	0.16±0.015	#1078x3	Laser,high stiffness	4.8	0.0125	P
			M0.15	0.17±0.015	#1078x3	Laser,high stiffness	4.8	0.0125	P
			M0.22	0.22±0.02	#1078x4	Laser,high stiffness	4.8	0.0125	P
	BGA OMPAC Over 4L	-	0.1	0.11±0.01	#2116x1	-	4.8	0.0125	P
			0.15	0.16±0.015	#1501x1	-	4.9	0.0120	P
			0.2	0.21±0.02	#2116x2	-	4.8	0.0125	P
			0.3	0.32±0.03	#1501x2	Cost performance	4.9	0.0120	P
			0.31	0.32±0.03	#2116x3	-	4.8	0.0125	P
			0.35	0.37±0.03	#2116x1+#1501x1+#2116x1	-	4.8	0.0125	P
			0.4	0.41±0.04	#2116x1+#7629x1+#2116x1	Cost performance	4.8	0.0125	P
			0.41	0.42±0.04	#2116x4	-	4.8	0.0125	P
Gener al PWB	Multi-layer mobile Pb free High layer -count PWB	M type	M0.05	0.06±0.01	#1078x1	-	4.8	0.0125	P
			M0.06	0.07±0.01	#1078x1	-	4.7	0.0135	P
		-	0.1	0.11±0.01	#2116x1	-	4.8	0.0125	P
			0.15	0.16±0.015	#1501x1	-	4.9	0.0120	P
			0.2	0.21±0.02	#2116x2	-	4.8	0.0125	P
			0.3	0.32±0.03	#1501x2	-	4.9	0.0120	P
			0.4	0.41±0.04	#2116x1+#7629x1+#2116x1	-	4.8	0.0125	P

We have other thickness material between t0.5 to t1.6 for general PWB

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GEA-679F/GEA-679FG Line-up

Line up of High Tg Prepreg by Hitachi Chemical Co.,Ltd.

Table 1 GEA-679F Line up

Item	Nominal Thickness	Type name	Cured Thickness(um)	Resin Content (%)	Glass-Cloth	Note	Dk (1GHz)	Df (1GHz)	CTE1 (ppm)	Appv'd* Products
Multi-layer PKG	0.03	FBPE	35-40	71-75	#1027	Laser	3.9	0.0150	-	D(Sample)
	0.03	FBSE	43-47	75-81	#1027	Laser	3.8	0.0160	-	D(Sample)
	0.04	FZPE	45-55	71-75	#1037	Laser	3.9	0.0150	-	P
	0.06	FUOE	71-86	66-70	#1080	-	4.0	0.0130	-	P
	0.06	FROE	71-86	66-70	#1078	Laser	4.0	0.0130	-	P
	0.08	FGKE	91-102	56-60	#3313	-	4.4	0.0120	-	P
	0.1	FSKE	115-130	56-60	#2116	-	4.4	0.0120	40(38-42)	P
	0.1	FSME	130-145	60-64	#2116	-	4.3	0.0120	42(40-44)	P
0.15	FEGE	145-160	49-53	#1504	-	4.6	0.0110	-	P	

*P:In Mass Production ,D:Under Development

Table 2 GEA-679FG

Item	Nominal Thickness	Type name	Cured Thickness(mm)	Resin Content (%)	Glass-Cloth	Note	Dk (1GHz)	Df (1GHz)	CTE1 (ppm)	Appv'd* Products
Multi-layer PKG	0.03	GBPE	35-40	71-75	#1027	Laser	4.5	0.0150		D(Sample)
	0.03	GBSE	43-47	75-81	#1027	Laser	4.4	0.0160		D(Sample)
	0.04	GZPE	45-55	71-75	#1037	Laser	4.5	0.0150		P
	0.06	GUOE	71-86	66-70	#1080	-	4.0	0.0130		P
	0.06	GROE	71-86	66-70	#1078	Laser	4.0	0.0130		P
	0.1	GSKE	115-130	56-60	#2116	-	4.4	0.0120	31(29-33)	P
	0.1	GSME	133-148	61-65	#2116	-	4.3	0.0120	36(34-38)	P
	0.15	GEGE	145-160	49-53	#1504	-	4.6	0.0110		P

*P:In Mass Production ,D:Under Development

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MCL-E-679F(R)Line-up

Line up of High Tg halogen-free Copper Clad Laminate Products by Hitachi Chemical Co.,Ltd.

Table 1 MCL-E-679 F(R) Line up

Item	Application	Type	Nominal thickness	Actual thickness (mm)	Glass-cloth	Note	Dk (1GHz)	Df (1GHz)	Appv'd* Products
PKG	BGA OMPAC Over 4L	R	R0.1	0.11±0.01	#2116x1	-	4.8	0.0125	P
			R0.15	0.16±0.015	#1501x1	-	4.9	0.0120	P
			R0.2	0.21±0.02	#2116x2	-	4.8	0.0125	P
			R0.3	0.32±0.03	#1501x2	Cost performance	4.9	0.0120	P
			R0.31	0.32±0.03	#2116x3	-	4.8	0.0125	P
			R0.4	0.41±0.04	#2116x1+#7629x1+#2116x1	Cost performance	4.8	0.0125	P
			RY0.41	0.40±0.04	#2116x4	-	4.8	0.0125	P
			RY0.61	0.60±0.06	#2116x6	-	4.8	0.0125	P
			RY0.81	0.80±0.08	#2116x8	-	4.8	0.0125	P

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MCL-E-679FG(R) Line-up

Line up of High Tg halogen-free Copper Clad Laminate Products by Hitachi Chemical Co.,Ltd.

Table 1 MCL-E-679 FG(R) Line up

Item	Application	Type	Nominal thickness	Actual thickness (mm)	Glass-cloth	Note	Dk (1GHz)	Df (1GHz)	Appv'd* Products
PKG	BGA OMPAC Over 4L	R	R0.1	0.11±0.01	#2116x1	-	4.8	0.0125	P
			R0.15	0.16±0.015	#1501x1	-	4.9	0.0120	P
			R0.2	0.21±0.02	#2116x2	-	4.8	0.0125	P
			R0.3	0.32±0.03	#1501x2	Cost performance	4.9	0.0120	P
			R0.31	0.32±0.03	#2116x3	-	4.8	0.0125	P
			R0.4	0.41±0.04	#2116x1+#7629x1+#2116x1	Cost performance	4.8	0.0125	P
			R0.41	0.40±0.04	#2116x4	-	4.8	0.0125	P
			RM0.41	0.40±0.04	#2319x4	-	4.8	0.0125	P
			R0.61	0.60±0.06	#2116x6	-	4.8	0.0125	P
			R0.81	0.80±0.08	#2116x8	-	4.8	0.0125	P
			RM0.81	0.80±0.08	#2319x8	-	4.8	0.0125	P

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MCL-E-679FG(S)/E-679FGB(S) Line-up

Line up of High Tg halogen-free Copper Clad Laminate Products by Hitachi Chemical Co.,Ltd.

Table 1 MCL-E-679FG(S)/E-679FGB(S) Line up

Item	Application	Type	Nominal thickness	Actual thickness (mm)	Glass-cloth	Note	Dk* (1GHz)	Df* (1GHz)	Appv'd** Products
PKG	CSP 2-Metal BOC MAP FC	M type	M0.05	0.06±0.01	#1078x1	Laser	4.8	0.0125	D
			M0.06	0.07±0.01	#1078x1	Laser	4.7	0.0135	D
			M0.11	0.11±0.01	#1078x2	Laser,high stiffness	4.8	0.0125	D
			M0.15	0.16±0.015	#1078x3	Laser,high stiffness	4.8	0.0125	D
			M0.21	0.21±0.02	#1078x4	Laser,high stiffness	4.8	0.0125	D
	BGA OMPAC Over 4L	-	0.1	0.11±0.01	#2116x1	-	4.8	0.0125	D
			0.15	0.16±0.015	#1501x1	-	4.9	0.0120	D
			0.2	0.21±0.02	#2116x2	-	4.8	0.0125	D
			0.3	0.31±0.03	#1501x2	Cost performance	4.9	0.0120	D
			0.31	0.31±0.03	#2116x3	-	4.8	0.0125	D
			0.35	0.37±0.03	#2116x1+#1501x1+#2116x1	-	4.8	0.0125	D
General PWB	Multi-layer mobile Pb free High layer -count PWB	M type	M0.05	0.06±0.01	#1078x1	-	4.8	0.0125	D
			M0.06	0.07±0.01	#1078x1	-	4.7	0.0135	D
		-	0.1	0.11±0.01	#2116x1	-	4.8	0.0125	D
			0.15	0.16±0.015	#1501x1	-	4.9	0.0120	D
			0.2	0.21±0.02	#2116x2	-	4.8	0.0125	D
			0.3	0.31±0.03	#1501x2	-	4.9	0.0120	D

Table 2 GEA-679FG(S) Line up (Provisional)

Item	Nominal Thickness	Type name	Cured Thickness(mm)	Resin Content (%)	Glass-Cloth	Note	Dk (1GHz)	Df (1GHz)	CTE1 (ppm)	Appv'd* Products
PKG	0.06	GSROE	71-86	66-70	#1078	Laser	4.0	0.0130	-	D
	0.1	GSSKE	115-130	56-60	#2116	-	4.4	0.0120	31(29-33)	D
Multi-layer	0.1	GSSME	133-148	61-65	#2116	-	4.3	0.0120	36(34-38)	D

* These number is guess

* * P:In Mass Production ,D:Under Development

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