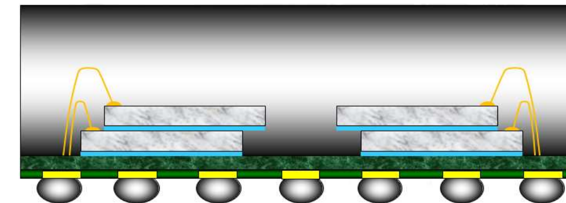
Material Declaration Sheet



Device Code : **AS4C1G32MD4V-046BIN**
Device Description : **32Gb LPDDR4x**
Package Type : **FBGA 200B 10.0 x 15.0 mm**
Weight (Unit : mg) : **260.5**

Material	Vendor	Model	Substances	Purpose	CAS No.	Weight (mg)	Element wt (%)	wt % of Total unit wt	PPM (mg/kg)
Silicon Chip (1st~4th)	SEC	8Gb	Silicon (Si)	Circuit	-	20.956	100.00%	8.04%	80,445
Substrate	GTS	FBJS20005S 3H SU R0	Thermosetting resin (Including filler)	Core material (GHPL-830NSF)	Trade secret	23.400	70.00%	8.98%	89,827
			Glass cloth	Core material (GHPL-830NSF)	65997-17-3	10.029	30.00%	3.85%	38,497
							100.00%		
			Aluminate (Al(OH)63-), (OC-6-11)-, magnesium carbonatehydroxide (2:6:1:4) (ALUMINIUM, WATER-SOLUBLE SALTS)	Solder mask (PSR-800 AUS SR1)	11097-59-9	0.641	3.40%	0.25%	2,461
			Epoxy compounds	Solder mask (PSR-800 AUS SR1)	Trade secret	0.641	3.40%	0.25%	2,461
			Methanone, (diphenylphosphinyl)(2,4,6-trimethylphenyl)-	Solder mask (PSR-800 AUS SR1)	75980-60-8	0.641	3.40%	0.25%	2,461
			1,3,5-Triazine-2,4,6-triamine	Solder mask (PSR-800 AUS SR1)	108-78-1	0.26400	1.40%	0.10%	1,013
			Copper, [29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]-, (SP-4-1)-	Solder mask (PSR-800 AUS SR1)	147-14-8	0.16971	0.90%	0.07%	651
			Other components below reportable levels	Solder mask (PSR-800 AUS SR1)	Trade secret	16.50000	87.50%	6.33%	63,340
							100.00%		
			Copper	Copper Foil	7440-50-8	17.131	99.93%	6.58%	65,761
			Zinc	Copper Foil	7440-66-6	0.007	0.04%	0.00%	26
			Chromium	Copper Foil	7440-47-3	0.002	0.01%	0.00%	7
			Nickel	Copper Foil	7440-02-0	0.003	0.02%	0.00%	13
							100.00%		
			Copper Oxide	Copper plating	1317-38-0	0.849	99.10%	0.33%	3,261
			Others	Copper plating	-	0.008	0.90%	0.00%	30
							100.00%		
			Gold Potassium Cyanide	Metal plating	13967-50-5	1.143	100.00%	0.44%	4,387
			Nickel Sulfamate Tetrahydrate	Metal plating	124594-15-6	14.286	100.00%	5.48%	54,840
Die Attach Material (1st~4th), (Tape)	RESONAC Corporation	FH7221ST	Epoxy resin	Adhesive materials for die to die, die to sub UV Cure type dicing tape	Trade secret	0.309	11.00%	0.12%	1,187
			Phenol resin		Trade secret	0.309	11.00%	0.12%	1,187
			SiO2 Filler		Trade secret	0.197	7.00%	0.08%	756
			(Meta)Acrylic Copolymer		Trade secret	1.997	71.00%	0.77%	7,664
							100.00%		
Wire	LT Metal	HS-G3 0.7mil	Gold	Balance Material	7440-57-5	1.228	80.05%	0.47%	4,714
			Silver	Enhance mechanical strength	7440-22-4	0.291	19.00%	0.11%	1,119
			Palladium	Enhance reliability	7440-05-3	0.014	0.94%	0.01%	55
			Others	-	-	0.00014	0.01%	0.00%	1
							100.00%		
Mold Compound			Silica, vitreous	Filler	60676-86-0	109.381	85.00%	41.99%	419,889
			Silicon dioxide	Resin	7631-86-9	5.147	4.00%	1.98%	19,759
			4,4'-Bis(2,3-epoxypropoxy)-3,3',5,5'-tetramethyl(1,1'-biphenyl)	Resin	85954-11-6	5.147	4.00%	1.98%	19,759

Mold Compound	**KCC**	KTMC-5900GPL	Phenol polymer with 1,4-bis(methoxymethyl)benzene	Hardner	26834-02-6	3.861	3.00%	1.48%	14,820
			Siloxanes and silicones, di-Me, Me3-(oxiranylmethoxy)propyl polymerswith Ph silsesquioxanes, hydroxy terminated	Hardner	532413-06-2	3.861	3.00%	1.48%	14,820
			Phenol polymer with formaldehyde	Hardner	9003-35-4	0.643	0.50%	0.25%	2,470
			Carbon black	Colorant	1333-86-4	0.643	0.50%	0.25%	2,470
							100.00%		
Solder Ball	**Duksan**	0.3mm(Sn/3.0Ag/0.5Cu)	Tin	Remain	7440-31-5	20.072	96.50%	7.71%	77,052
			Silver	Conductivity Improvement	7440-22-4	0.624	3.00%	0.24%	2,395
			Copper	Heat resistance improvement	7440-50-8	0.104	0.50%	0.04%	399
							100.00%		
					Total	260.500		100.0%	1,000,000

Alliance Memory Inc. 12815 NE 124th Street Suite D Kirkland, WA 98034 Tel: 425-898-4456
Fax: 425-896-8628 Alliance Memory Inc. reserves the right to change products or specification without notice