

< - (2) ()>

“ ”

93 (Lead Frame) 2340 , 278 2618
 28.5% 가
 90 1636 10.5% 91 3.3%
 92 2037 28.8% , 90 가 가
 90 36.3% 45% , 90 63.7% 55%

Lead Frame (: 100 , %)					
	1991	1992	1993	1994	
Stamped DIP IC	380	342	330	315	7.2
Stamped SMT IC	314	370	443	566	21.5
Etched IC	226	270	305	345	17.0
Stamped Discrete	310	331	353	377	6.7
	1,239	1,313	1,431	1,603	9.0
Etched Frame	16.2	20.6	21.3	21.5	

Etched Lead Frame (: 100 , %)	
DAI NIPPON PRINTING()	45(20)
TOPPAN PRINTING()	40(17)
MITSU HIGH-TELN()	35(15)
QUALITY PLATERS LTD(HK)	30(13)
SUMITOMO()	25(11)
) () , 91	

Lead Frame (: , %,)					
	1991	1992	1993	1994	
	1,480	1,402	1,814	2,340	17.7
	156	180	223	278	21.3
	1,636	1,582	2,037	2,618	18.0
	693	822	1,040	1,313	23.8
	943	760	997	1,305	14.2
	1,636	1,582	2,037	2,618	18.0
	36.3	45.8	45.0	44.2	-
	10.5	3.3	28.8	28.5	-

(Bonding wire)					
		1991	1992	1993	1994
	100	334	354	385	431
	km	0.2	0.21	0.23	0.26
	100 km	258	322.5	387	464
		0.2	0.25	0.3	0.36

Lead Frame				
				MAKER
CU	A194, A151 MAKER 가 ()	· 가 · ·	60%(가)	· OLIN · MITSUBISHI · SUMTOMO · YAMAHA
NI	· ALLOY 42	· 가 · · · MEMORY LC	30% ()	· HITACHI · DAIDO · NIMICO · IMPHY
STEEL	· CRS	· 가 · LED	5% (가)	· NISSHIN

IC (: 100)					
	1991	1992	1993	1994	1995
Plastic DIP	17,549	14,264	11,056	8,120	5,818
Ceramic DIP	2,801	2,616	2,304	2,142	1,922
QUAD	5,169	7,024	10,140	14,399	16,781
Ceramic Chip Carrier	271	292	312	350	325
Plastic Chip Carrier	579	724	834	767	663
SO	12,053	13,576	14,809	16,860	19,058
Ceramic PGA	395	602	762	795	742
Plastic PGA	248	512	744	865	850
Bare Chip	4,153	4,905	6,604	9,409	12,011
	43,218	44,515	47,565	53,707	58,170

(Bonding Wire)

가 92 25% 258 92 25% 가 322 5000

, 91 20%

93 (KIST)

Heraus

91 10% 8%

91 3 5400 8.7% 가 3

8500

가 60%

Seconmentul, American Fine Wire 30%, Heraus가 10%

가

IC

가

IC

5Nine(99.999%) 가

1mil 1.3mil 가 가 (Dopping Material) 가

가

Al 4 가 Al 2

90%

VLSI

Al Ball Bonding

EMC		(: 100)							
		1989	1990	1991	1992	1993	1994	1995	1996
		35	40	43	44.2	51.9	58.5	67	77
		-	-	-	0.8	1.1	1.5	3	5
		5	7	8	10	15	19	25	33
		30	33	35	35	38	41	45	49

EMC		(: M/T, 1000)			
		2,500	5,800	7,500	
		2,500	850	1,500	
		5,000	6,650	9,000	

LSI Au () Al - 1% Si

(Wedge/) Au 가 가 Au-Al 가

Au-Al , (,

) 가 Au Ag, Al, Cu

가 Ar, Ar+H2

EMC(Epoxy Molding Compound) 70%
 EMC 92 EMC 8200 가 4500 80% 6480
 20% 1380
 340 2 EMC 2500
 EMC Nitto, Toshiba, Sumitomo, Hitachi
 4M
 DRAM 16M DRAM 가
 가
 85% EMC 가 7
 Nitto가 33% Sumitomo 23% Hitachi 16%,
 Plascon 9%, 19% MPI 89
 IC EP-ROM 1 set
 DIP 1500
 91 933 5000 Cer-DIP 92 9.8% 842
 4000 93 14.2% 722 8000 IC 가
 가
 IC 가 85% 93
 90% Cer-DIP 15%,
 85% Cer-DIP 91 28 92 6.6% 26
 93 92 11.9% 23 가
 가 60%, 20%, MPT가
 10%

가 , , ,
DIP 가 .
, .
EMC Epoxy가
가
.
Crack
가 , , , 4가 .
가
가 , Soldering , lead
, lead
, .
Transfer Mold가
가 , 가
, X EP
ROM 가 Device 가 10
, EMC , (Memory 7), 가 ,
, 가가 Device 가 ,
Stress가
EMC User
leading 가 , Pillar Epoxy Material
, .
EMC .