



Tape and Reel

- **General Information**

The Tape and Reel packaging materials shall not adversely affect the visual, mechanical, and electrical characteristics or markings of the components. In all cases, the components must be protected from bent leads, lead contamination, ESD damage, and any matter that may interfere with the soldering or normal use of the product. All Tape and Reel materials were formulated to provide dimensions and tolerances necessary to tape surface mount components such that they may be automatically handled. Tape and Reel materials meet EIA-481-B requirements for embossed carrier taping of surface mount components for automatic handling, including IDT's standard aging and drop tests.

- **Carrier Tape (Figure I)**

The embossed carrier tape is made of conductive polystyrene plus carbon material (or equivalent). The surface resistivity is between 1×10^5 ohms/square and 1×10^{12} ohms/square.

- **Carrier Tape (Figure II)**

Cover tape's base film material is anti-static polyester and adhesive material is heat-activated synthetic. The surface resistivity is between 1×10^5 ohms/square and 1×10^{12} ohms/square. The cover tape is transparent to translucent so that component markings and orientation is visible. The peel force strength is between 10 to 130 grams at a pull velocity of 300 mm/minute \pm 10 mm/minute opposite the direction of carrier tape travel such that the cover tape makes an angle between 165 and 180 degrees (from the top of the cover tape).

- **Plastic Reel (Figure III)**

Reel material shall be plastic or IDT approved equivalent. The surface resistivity is between 1×10^5 ohms/square and 1×10^{12} ohms/square. The structure of the reel shall not restrict removal of the tape with a force greater than the weight of the empty reel.

- **Tape and Reel Orientation (Figure A,B,C,D,E,F,G)**

Component orientation inside the pocket of carrier tapes.



Package Family	Body Size (W X L)	Package Type	Tape Width (mm)	Ao (mm)	Bo (mm)	Ko (mm)	K1 (mm)	Pocket Pitch (mm)	Minimum # of Pockets (& inches) Tape Trailer	Maximum # of Pockets (& inches) Tape Trailer	Minimum # of Pockets (& inches) Tape Leader	Maximum # of Pockets (& inches) Tape Leader	No. of Units per Reel
SOIC	155 X 194	DC8/DCG8	12	6.5	5.3	2.1	-	8	38 (12")	95 (30")	63 (20")	120 (38")	3000
	155 X 342	DC14/DCG14	16	6.5	9.5	2.1	-	8	38 (12")	95 (30")	63 (20")	120 (38")	2500
	155 X 391	DC16/DCG16	16	6.55	10.38	2.1	N/A	8	38 (12")	95 (30")	63 (20")	120 (38")	2500
	348 X 720	PE28/PEG28	24	12.4	18.8	3.0	N/A	16	19 (12")	28 (18")	32 (20")	48 (30")	1000
	295 X 408	PS16/PSG16	16	10.8	10.8	3.1	2.70	12	25 (12")	38 (17.7")	42 (20")	63 (30")	1000
	295 X 454	PS18/PSG18	24	10.8	12	3.1	2.60	12	25 (12")	38 (17.7")	42 (20")	63 (30")	1000
	295 X 504	PS20/PSG20	24	10.8	13.2	3.2	2.90	12	25 (12")	38 (17.7")	42 (20")	63 (30")	1000
	295 X 607	PS24/PSG24	24	10.8	15.8	3.1	2.70	12	25 (12")	38 (17.7")	42 (20")	63 (30")	1000
295 X 706	PS28/PSG28	24	10.8	18.55	3.0	2.60	12	25 (12")	38 (17.7")	42 (20")	63 (30")	1000	
SOJ	300 X 625	PJ24/PJG24	24	9.1	16.4	4.1	2.80	12	25 (12")	65 (31")	42 (20")	70 (33")	1000
	296 X 706	PJ28/PJG28	24	9.1	18.25	4.3	3.00	12	25 (12")	65 (31")	42 (20")	70 (33")	1000
	300 X 825	PJ32/PJG32	32	9.10	21.80	4.00	3.00	16	19 (12")	50 (31")	32 (20")	65 (41")	1000
	400 X 725	PB28/PBG28	32	11.60	18.90	4.20	3.00	16	19 (12")	55 (35")	32 (20")	65 (41")	1000
	400 X 825	PB32/PBG32	32	11.60	21.90	4.2	3.00	16	19 (12")	55 (35")	32 (20")	65 (41")	1000
	400 X 925	PB36/PBG36	44	11.50	24.00	4.0	2.50	16	19 (12")	55 (35")	32 (20")	65 (41")	500
	400 X 1125	PB44/PBG44	44	11.8	29.2	4.2	3.00	16	19 (12")	55 (35")	32 (20")	65 (41")	500
QVSOP	150 X 390	DM40/DJ48 DMG40/DJG48	16	6.55	10.38	2.1	N/A	8	38 (12")	95 (30")	63 (20")	150 (47")	2000
	150 X 807	DM80/DMG80	32	6.4	20.9	2.2	1.6	12	25 (11.8")	75 (35")	42 (20")	120 (57")	2000
QSOP	150 X 150	PC16/PCG16	12	6.5	5.3	2.1	-	8	38 (12")	95 (30")	63 (20")	120 (38")	3000
	150 X 150	PC 20/24, PCG20/24	16	6.5	9.5	2.1	-	8	38 (12")	95 (30")	63 (20")	120 (38")	3000
	150 X 150	PC28/PCG28	16	6.55	10.38	2.1	N/A	8	38 (12")	95 (30")	63 (20")	120 (38")	2000
SSOP	5.3 X 6.2mm	PY14/16, PYG14/16	16	8.2	6.8	2.5	2.1	12	25 (12")	70 (33")	42 (20")	100 (47")	1500
	5.3 X 7.2mm	PY20/PYG20	16	8.2	7.5	2.5	2.1	12	25 (12")	70 (33")	42 (20")	100 (47")	1500
	5.3 X 8.2mm	PY24/PYG24	16	8.2	8.8	2.5	2.1	12	25 (11.8")	70 (33")	42 (20")	100 (47")	1500
	5.3 X 10.2mm	PY28/PYG28	24	8.4	10.8	2.5	1.82	12	25 (12")	70 (33")	42 (20")	100 (47")	1500
	295 X 625	PV48/PVG48	32	11.2	16.2	2.9	2.4	16	19 (12")	50 (31")	32 (20")	65 (41")	1000
	300 X 300	PV56/PVG56	32	11.2	18.7	3.1	2.6	16	19 (12")	50 (31")	32 (20")	65 (41")	1000
TSOT		DY6 (Turnkey)											3000
TSOP	8x13.4mm	PZ28/PZG28 PZ/PZG32	24	8.40	14	1.9	1.30	12	25 (12")	38 (17.7")	42 (20")	63 (30")	2000
	10.16 X 20.95mm	PH32/PHG32	32	12.4	21.6	1.5	1.30	16	150 (96")	200 (128")	32 (20")	48 (30")	1500



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	10.16 X 10.16mm	PH44/PHG44	32	12.6	18.8	2.0	1.40	16	19 (12")	28 (18")	32 (20")	48 (30")	1500
TSSOP	6.1 X 17.0mm	DF80/DFG80	24	8.80	17.30	1.50	1.30	12	25 (11.8")	240 (113")	42 (20")	100 (47")	2000
	6.1 x 12.5mm	DW48/PA48 DWG48/PAG48	24	8.45	13.0	1.60	1.20	16	19 (12")	55 (35")	32 (20")	70 (44")	2000
	6.1 x 9.7mm	DQ/DQG28	16	8.8	10.1	1.6	1.3	12	19 (9")	55 (26")	32 (15")	70 (33")	1000
	6.1 X 14.0mm	PA56/PAG56	24	8.45	14.5	1.60	1.20	16	19 (12")	55 (35")	32 (20")	70 (44")	2000
	6.1 X 14.0mm	PA56/PAG56 (ICS)	24	8.8	14.5	1.5	1.3	12	25 (11.8")	90(43")	42 (20")	100(47")	1000
	6.1 X 12.5mm	PA64/PAG64	24	8.80	17.30	1.50	1.30	12	25 (11.8")	90 (43")	42 (20")	100 (47")	2000
TSSOP	4.4mm	PG8/PGG8	12	6.9	3.45	1.6	1.3	8	38 (12")	95 (30")	63 (20")	120 (38")	2500
	4.4 X 5.0mm	PG14/16, PGG14/16	16	6.8	5.4	1.7	1.30	08	38 (12")	57 (18")	63 (20")	95 (30")	4000
	4.4 X 5.0mm	EN/ENG16	16	6.8	5.4	1.7	1.30	08	38 (12")	57 (18")	63 (20")	95 (30")	2500
	4.4 X 6.5mm	EJ20/PG20/PGG20	16	6.9	7.0	1.5	1.30	12	25 (12")	38 (17.7")	42 (20")	63 (30")	3000
	4.4 X 7.8mm	PG24/PGG24 EJ24	16	6.9	8.2	1.5	1.30	12	25 (12")	38 (17.7")	42 (20")	63 (30")	3000
	4.4 X 9.7mm	PG28/PGG28	16	6.9	10.1	1.5	1.30	12	340 (160")	500 (240")	42 (20")	63 (30")	2000
TVSOP	4.4 X 4.4mm	PF48/PFG48	16	6.9	10.1	1.5	1.30	12	340 (160")	500 (240")	42 (20")	63 (30")	2500
	4.4 X 4.4mm	PF56/PFG56	24	7.0	11.8	1.5	1.30	16	250 (160")	350 (225")	32 (20")	48 (30")	2000
PLCC	453 X 453	PL28/PLG28	24	13	13	4.9	N/A	16	19 (12")	28 (18")	32 (20")	48 (30")	750
	450 X 450	PL32/PLG32	24	13.2	15.6	4.1	3.10	16	19 (12")	28 (18")	32 (20")	48 (30")	750
	650 X 650	PL44/PLG44	32	18	18	5.3	4.30	24	13 (12.5")	21 (20")	21 (20")	31 (30")	450
	750 X 750	PL52/PLG52	32	20.6	20.6	5.4	4.80	24	13 (12.5")	21 (20")	21 (20")	31 (30")	400
	950 X 950	PL68/PLG68	44	25.6	25.6	5.3	4.80	32	10 (12.6")	15 (18.5")	16 (20")	24 (30")	250
	1150 X 1150	PL84/PLG84	44	30.9	30.9	5.3	4.10	36	9 (12.8")	13 (18.5")	14 (20")	21 (30")	200
PQFP	10 X 10mm	DB44/DBG44	24	14.5	14.5	2.8	2.20	24	13 (12.5")	21 (20")	21 (20")	31 (30")	750
	14 X 14mm	DN52/DNG52 & DN64/DNG64	32	19.0	19.0	3.6	2.90	24	13 (12.5")	21 (20")	32 (20")	31 (20")	500
	14 X 14mm	EU/EUG80 PM64/80, PMG64/80	32	18	18	2.8	2.20	24	13 (12.5")	21 (20")	21 (20")	31 (30")	750
	14 X 20mm	PM100/PMG100	44	19.2	25.2	3.5	2.80	24	120 (113.4")	132 (125")	21 (20")	31 (30")	500
	14 X 20mm	PX128/PXG128	44	18.5	24.5	3.5	3.10	24	120 (113.4")	132 (125")	21 (20")	31 (30")	500
	14 X 20mm		44	18.5	24.5	3.5	3.10	24	120 (113.4")	132 (125")	21 (20")	31 (30")	500
TQFP	10 X 10mm	DE/DEG44/64 & ED/EDG64	24	13.0	13.0	1.6	1.30	16	150(96")	200(124")	32(20")	48 (30")	2000



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	12x12mm	ET80	24	14.7	14.7	1.6	1.2	24	13(12.5")	21(20")	21(20")	31(30")	1000
	14 x 14mm	EM/EMG100/128 & EV/EVG128	32	17.2	17.2	1.7	1.2	24	100(96")	150(144")	21(20")	31(30")	750
	10 x 10mm	DK/DKG64	24	13	13	2.0	1.70	16	150 (96")	200 (124")	32 (20")	48 (30")	1250
	14 x14mm	DQ/DQG100	32	17.2	17.2	2.0	1.4	24	100 (96")	150 (144")	21 (20")	31 (30")	750
	12 x 12mm	DT/DTG80	24	14	14	1.9	1.7	24	13 (12.5")	21 (20")	21 (20")	31 (30")	1000
	7 x 7mm	DX/DXG32/48	16	9.8	9.8	1.6	1.3	12	25(12")	38(17.7")	42(20")	63(30")	1000
	14 X 20mm	PK100/128 PKG100/128	44	17.1	23.1	2.1	1.50	24	13 (12.5")	21 (20")	21 (20")	31 (30")	1000
	14 X 14mm	PN 64/80, PNG64/80	32	17.2	17.2	2.0	1.40	24	100 (96")	150 (144")	21 (20")	31 (30")	750
	14 X 14mm	EQ/EQG100 PN 100/120/128 PNG100/120/128	32	17.2	17.2	2.0	1.40	24	100 (96")	150 (144")	21 (20")	31 (30")	750
	10 x 10mm	PP/PPG52	24	13	13	1.7	1.40	16	150(96")	200(124")	32 (20")	48 (30")	1500
	10 x 10mm	EP/EPG52	24	13	13	1.7	1.40	16	150(96")	200(124")	32 (20")	48 (30")	1500
	12x12mm	ET80	24	14.7	14.7	1.6	1.2	24	13(12.5")	21(20")	21(20")	31(30")	1000
	10 X 10mm	PP 44/64, PPG44/64	24	13	13	1.7	1.40	16	150 (96")	200 (124")	32 (20")	48 (30")	1250
	7 X 7mm	PR 32/PRG32	16	9.8	9.8	1.8	1.30	12	25 (12")	38 (17.7")	42 (20")	63 (30")	2000
	7 X 7mm	ER/ERG32	16	9.8	9.8	1.6	1.30	12	25 (11.8")	38 (17.7")	42 (20")	63 (30")	1000
	7 x 7mm	PR 48/PRG48	16	9.8	9.8	1.8	1.30	12	25 (12")	38 (17.7")	42 (20")	63 (30")	2000
	7 x 7mm	ES/ESG48	16	9.8	9.8	1.8	1.30	12	25 (12")	38 (17.7")	42 (20")	63 (30")	1000
MOQUAD	1145 X 1145	DL84/MJ84	44	30.9	30.9	5.3	4.10	36	103 (146")	108 (153")	14 (20")	21 (30")	100
PBGA	13 X 13mm	BB144/BBG144	24	13.4	13.4	2.2	1.70	16	19 (12")	28 (18")	32 (20")	48 (30")	1000
	15 X 15mm	BB156/160 BBG156/160	24	15.3	15.3	2.5	1.90	20	17 (13")	25 (19")	24 (20")	36 (30")	1000
	17 X 17mm	BB208/256 BBG208/256	32	17.3.0	17.3.0	2.1	1.50	24	13 (12.5")	21 (20")	32 (20")	31 (30")	1000
	19 X 19mm	BB240/260/324 BBG240/260/324 BC/BCG324	32	19.4	19.4	2.4	1.70	24	13 (12.5")	21 (20")	21 (20")	31 (30")	750
	27 x 27mm	BB/BBG416	44	27.6	27.6	3.5	2.50	32	10 (12.6")	15 (19")	16 (20")	24 (30")	250
	23 x 23mm	BB/BBG376 BC/BCG484	44	23.3	23.3	2.6	1.8	32	10 (12.6")	15 (19")	16 (20")	24 (30")	600
	15 X 15mm	BG74/BGG74	24	15.3	15.3	2.5	1.90	20	17(13")	25 (19")	24 (20")	36 (30")	1000
	22 X 14mm	BG119/BGG119	44	14.2	22.5	3.2	2.10	16	19 (12")	28 (18")	32 (20")	48 (30")	1000
	15 X 15mm	BG121/BGG121	24	15.3	15.3	2.5	1.90	20	17(13")	24 (20")	24 (20")	36 (30")	1000



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	27 X 27mm	BG272/BGG272 & BG/BGG256	44	27.6	27.6	3.5	2.50	32	10 (12.6")	15 (18.9")	16 (20")	24 (30")	250
TEPBGA	17 x 17mm	BH/BHG256	32	17.30	17.30	2.1	1.50	24	13 (12.5")	21 (20")	21 (20")	31 (30")	1000
	27 X 27mm	BH481/BHG481	44	27.6	27.6	3.5	2.50	32	10 (12.6")	15 (19")	16 (20")	24 (30")	250
	27 X 27mm	BH481/BHG580	44	27.6	27.6	2.7	1.65	32	10 (12.6")	15 (19")	16 (20")	24 (30")	250
	31 x 31mm	BH/BHG640	44	31.4	31.4	2.5	1.30	36	10 (14.5")	15 (21.5")	16 (22")	24 (32.5")	350
CABGA	4 x 4.5mm	AD/ADG28	12	4.3	4.8	1.6	N/A	8	38 (12")	95 (30")	63 (20")	120 (38")	2500
	11 x 11mm	AC/ACG100	24	11.4	11.4	2.1	1.4	16	19 (12")	28 (18")	32 (20")	48 (30")	1500
	5 x 11.5 mm	AF96	24	5.3	11.8	1.6	N/A	8	38 (12")	95 (30")	63(20")	95(30")	3000
	17 x 17mm	BA/BAG256	32	17.30	17.30	2.1	1.50	24	13 (12.5")	21 (20")	21 (20")	31 (30")	1000
	11 X 11mm	BC100/BCG100	24	11.4	11.4	2.1	1.40	16	19 (12")	28 (18")	32 (20")	48 (30")	1500
	15 x 15mm	BC/BCG196	24	15.3	15.3	1.85	N/A	20	17(13")	25(19")	24(20")	36(30")	1000
	17 X 17mm	BP256/BPG256	32	17.30	17.30	2.1	1.50	24	13 (12.5")	21 (20")	21 (20")	31 (30")	1000
	8 x 8mm	BZ108/BZG108	16	8.30	8.30	1.6	1.10	12	25 (11.8")	38 (17.7")	42 (20")	63 (30")	2000
	7 X 7mm	BZ144/BZG144	16	7.40	7.40	2.2	1.60	12	25 (12")	38 (17.7")	42 (20")	63 (30")	2000
CTBGA	8x13.5mm	AK/AKG176	24	8.3	13.8	1.65	1.2	12	19(9")	55(26")	32(15")	70(33")	2000
	8 X 13mm	BK/BKG150	24	8.3	13.30	1.8	1.2	12	25(11.8")	38 (17.7")	42 (20")	63 (30")	2000
	9 X 13mm	BK/BKG160	24	9.3	13.35	1.8	1.3	12	25(11.8")	38 (17.7")	42 (20")	63 (30")	2000
	6 X 15mm	BK/BKG176	24	6.3	15.30	1.8	1.2	12	25(11.8")	38 (17.7")	42 (20")	63 (30")	2000
BGA / VBGA	13 X 13mm	BC144/BCG144	24	13.4	13.4	2.2	1.70	16	19 (12")	28 (18")	32 (20")	48 (30")	1000
	17 X 17mm	BC256/BCG256	32	17.3	17.3	2.1	1.50	24	13 (12.5")	21 (20")	21 (20")	31 (30")	1000
	9.0 X 9.0mm	BE48/BEG48	16	9.30	9.30	1.9	1.30	12	25 (11.8")	38 (17.7")	42 (20")	63 (30")	2000
CVBGA	4.5 X 7.0mm	RV52/BV52/BVG52	16	5.2	7.7	1.8	N/A	8.0	42 (13")	63 (20")	63 (20")	95 (30")	4500
	4.5 X 7.0mm	RV56/BV56/BVG56	16	5.2	7.7	1.8	N/A	8.0	42 (13")	63 (20")	63 (20")	95 (30")	4500
	6.0 X 6.0 X 1.0mm	BY100/BYG100	12	6.30	6.30	2.15	N/A	8.0	38 (12")	57 (18")	42 (13")	63 (30")	3000
	5.0 X 5.0 X 1.0mm	BY81/BYG81	12	5.4	5.4	1.5	0.75	8.0	38 (12")	57 (18")	42 (13")	63 (30")	3000
	7x7mm	BY/BYG144	16	7.3	7.3	1.45	0.95	12	25(11.8")	38(17.7")	42(20")	63(30")	2000
FPBGA	7.0 X 7.0mm	BF48/BFG48	16	7.40	7.40	2.2	1.60	12	25 (11.8")	38 (17.7")	42 (20")	63 (30")	2000
	8.0 X 8.0mm	BF64/BFG64/BZ/BZG108 & BF/BFG81	16	8.30	8.30	1.6	1.10	12	25 (11.8")	38 (17.7")	42 (20")	63 (30")	2000
	5.5 X 13.5mm	RF96/BF96/BFG96	24	5.90	13.9	2.2	1.50	8	38 (12")	95 (30")	63 (20")	95 (30")	3000
	10 X 10mm	BF100/BFG100	24	10.4	10.4	2.0	1.20	12	25 (11.8")	38 (17.7")	42 (20")	63 (30")	2500



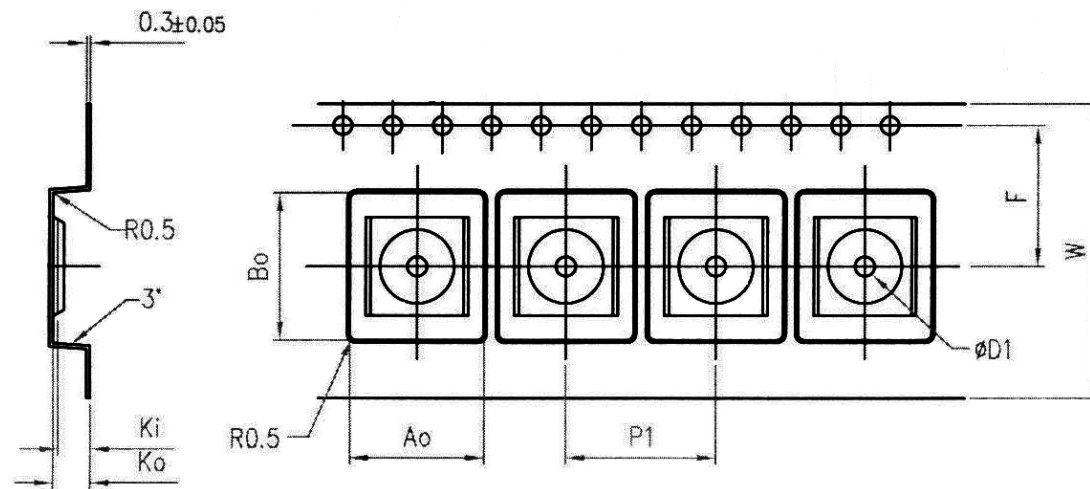
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	5.5 X 16.0mm	BF114/BFG114	24	5.90	16.3	2.2	1.50	8	38 (12")	95 (30")	63 (20")	95 (30")	3000
	12.0 X 12.0mm	BF144/BFG144	24	12.4	12.4	2.2	1.40	16	19 (12")	28 (18")	32 (20")	48 (30")	1500
	15.0 X 15.0mm	BF208/BFG208 & BF/BFG289	24	15.3	15.3	2.5	1.90	20	17(13")	25 (19")	24 (20")	36 (30")	1000
	13.0 X 15.0mm	BQ165/BQG165	24	13.3	15.3	1.8	1.10	16	19 (12")	28 (18")	32 (20")	48 (30")	2000
	5 x 12mm	BV/BVG119	24	5.3	12.3	1.48	0.85	8	38 (12")	95 (30")	63 (20")	95 (30")	3000
SBGA	29 X 29mm	BS272/BSG272	44	29.5	29.5	3.8	1.80	36	10 (14.5")	15 (21.5")	16 (22")	24 (32.5")	350
	31 X 31mm	RS304/BS304/BSG304 BX/BXG/RX500	44	31.4	31.4	2.5	1.30	36	10 (14.5")	15 (21.5")	16 (22")	24 (32.5")	350
	23 x 23mm	BX/BXG288	44	23.3	23.3	2.11	1.25	32	10(12.6")	15(18.9")	16(20")	24(30")	600
	25x25mm	BX/BXG320	44	25.3	25.3	2.3	1.25	32	10(12.6")	15(19")	16(20")	24(30")	500
	27 X 27MM	BX420	44	27.6	27.6	3.5	2.50	32	10 (12.6")	15 (18.9")	16 (20")	24 (30")	250
	27 X 27MM	RX420	44	27.6	27.6	3.5	2.50	32	10 (12.6")	15 (18.9")	16 (20")	24 (30")	250
VFQFP	4 X 4mm	NL20/NLG20 & NL/NLG24 & NO/NOG28	12	4.35	4.35	1.1	N/A	8	25 (7.9")	38 (12")	42 (13.3")	63 (20")	2500
	8 X 8mm	NL28/NLG28	16	6.3	6.3	1.5	1.20	8	38 (12")	57 (18")	63 (20")	95 (30")	5000
	8 X 8mm	ND/NDG48	16	6.3	6.3	1.5	1.20	8	38 (12")	57 (18")	63 (20")	95 (30")	2500
	5x5mm	NL/NLG/NP/NPG32 & ND/NDG40 & NO/NOG40	12	5.25	5.25	1.1	N/A	8	25(7.9")	38(12")	42(13.3")	63(20")	2500
	8 X 8mm	NL40/NLG40	16	6.3	6.3	1.5	1.20	8	38 (12")	57 (18")	63 (20")	95 (30")	5000
	7x7mm	NL/NLG48	16	7.3	7.3	1.5	1.2	12	25 (11.8")	38 (17.7")	42 (20")	63(30")	2000
	8 X 8mm	LL/LLG124 NL 52/56/NLG 52/56 ND/NDG68	16	8.5	8.5	1.6	1.30	12	25 (11.8")	38 (17.7")	42 (20")	63 (30")	3000
	9 x9mm	LG/LGG64 NL/NLG64 ND/NDG76	16	9.35	9.35	1.5	1.2	12	25 (11.8")	38 (17.7")	42 (20")	63 (30")	3000
	10 X 10mm	NL68/NLG68	24	10.35	10.35	1.50	1.20	16	19 (12")	28 (18")	32 (20")	48 (30")	2500
	10 x 10mm	NL/NLG/NP/NPG72, NQ132 & NL88	24	10.35	10.35	1.5	1.20	16	19 (12")	28(18")	32 (20")	48 (30")	2500
	11x11mm	NQ/NOG148	24	11.4	11.4	1.05	0.95	16	19 (12")	28(18")	32 (20")	48 (30")	1500
	5x7mm	NR/NRG10	16	5.4	7.4	1.4	N/A	8	38 (12")	57 (18")	63 (20")	95 (30")	2500
	3.5 X 3.5mm	NR16/NRG16	12	4.0	4.5	1.3	N/A	8	25 (7.9")	38 (12")	42 (13.3")	63 (20")	4500
	3.5 X 4.5mm	NR20/NRG20	12	3.9	4.9	1.1	N/A	8	25 (7.9")	38 (12")	42 (13.3")	63 (20")	4500



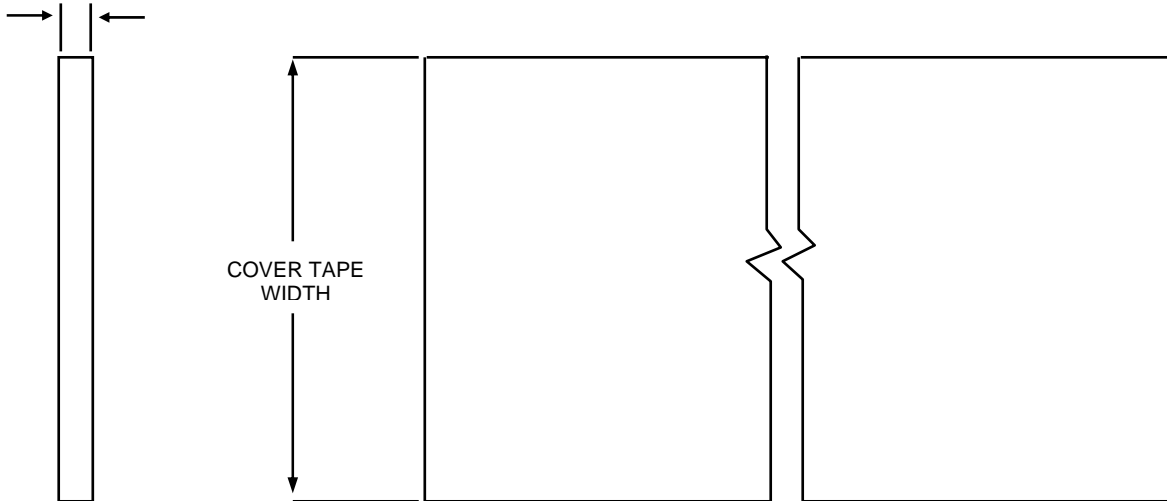
Package Family	Body Size (W X L)	Package Type	Tape Width (mm)	Ao (mm)	Bo (mm)	Ko (mm)	K1 (mm)	Pocket Pitch (mm)	Minimum # of Pockets (& inches) Tape Trailer	Maximum # of Pockets (& inches) Tape Trailer	Minimum # of Pockets (& inches) Tape Leader	Maximum # of Pockets (& inches) Tape Leader	No. of Units per Reel
	3.5 X 5.5mm	NR24/NRG24	12	3.95	5.95	1.2	N/A	8	25 (7.9")	38 (12")	42 (13.3")	63 (20")	4500
	3.5x9mm	NR/NRG42	16	3.8	9.3	1.15	N/A	8	25(7.8")	38(12")	42(13.5")	63(19.8")	3000
LCC	11.4 X 11.4mm	LC28	24	12.2	12.2	2.8	2.40	16	19 (12")	28 (18")	32 (20")	48 (30")	1000
	11.4 X 11.4mm	LC32	24	12.0	14.6	2.7	2.40	16	19 (12")	28 (18")	32 (20")	48 (30")	750
	8.9 X 12.7mm	LZ28	24	9.4	14.6	2.8	2.50	12	25 (11.8")	38 (17.7")	42 (20")	63 (30")	1000
FCBGA	24.5 x 19.5mm	BJ/BJG655 & RJG655	44	19.8	24.8	3	2	24	30 (28.5")	50 (48")	30 (28.5)	50 (48")	650
	24.5 x 19.5mm	HJ/HJG655 & RH655	44	19.8	24.8	3	2	24	30 (28.5")	50 (48")	30 (28.5)	50 (48")	650
	31x31mm	AL/AR900	44	31.3	31.3	3.97	2.97	36	10(14.5")	15(21.5")	16(23")	24(34")	350
	19 x 19mm	AL/ALG/AR/ARG324	32	19.3	19.3	3.28	2.46	24	13(12.5")	21(20")	21(20")	31(30")	750
	27 x 27mm	BL/BLG/BR/BRG672/676 BT576	44	27.3	27.3	4.12	N/A	32	10 (12.6")	15 (19")	16 (20")	24 (30")	350
	23 x 23mm	BR/BRG484 & BL/BLG484	44	23.3	23.3	3.87	2.87	32	10 (12.6")	15 (19")	16 (20")	24 (30")	350
	27x27mm	BR676	44	27.3	27.3	4.12	N/A	32	10 (12.6")	15 (19")	16 (20")	24 (30")	350
	29x29mm	BL/BR784	44	29.3	29.3	3.8	N/A	36	10(14.5")	15(21.5")	16(22")	24(32.5")	350
	25 x 25mm	BM/RM576	44	25.3	25.3	3.25	N/A	32	10 (12.6")	15 (19")	16 (20)	24 (30")	500
	25 x 25mm	BL/BLG/BR576 BN/BNG360	44	25.3	25.3	3.62	2.77	32	10 (12.6")	15 (19")	16 (20)	24 (30")	500
31 x 31mm	BN/BNG304	44	31.3	31.3	4.1	N/A	36	10 (14.5")	15 (21.5")	16 (22")	24 (32.5)	300	
VCXO	7 x 5mm	CD 4/6/8/10	16	5.6	7.4	2.15	1.8	8	42(13")	63(20")	63(20")	95(30")	3000
SOT		DZ5/6 (Turnkey)											3000
MLP 8ld		NB/NBG8 (Turnkey)											3000
MLP 16ld		ND16 (Turnkey)											2500

FIGURE I

CARRIER - TAPE

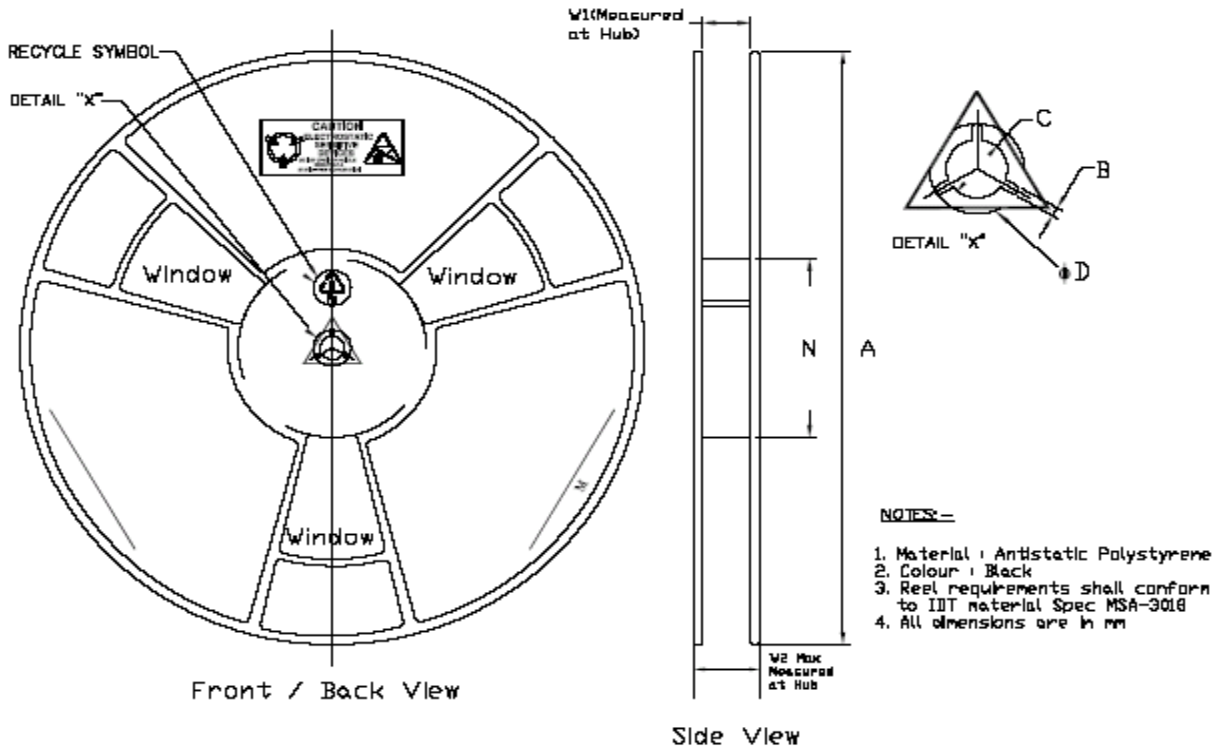


**FIGURE II
COVER TAPE**



CARRIER TAPE SIZE	COVER TAPE WIDTH
12mm	9.2mm
16mm	13.3mm
24mm	21.3mm
32mm	25.5mm
44mm	37.49mm

FIGURE III
PLASTIC REEL



P / N	TAPE	A+2.0	N+2.0	C + 0.8	D -0.2 +0.5	B + 0.5	W1 0.0 +2.0	W2 max.
P9-059-000	44mm	330	100	21.0	13.0	2.0	44.4	50.4
P9-058-000	32mm	330	100	21.0	13.0	2.0	32.4	38.4
P9-057-000	24mm	330	100	21.0	13.0	2.0	24.4	30.4
P9-056-000	16mm	330	100	21.0	13.0	2.0	16.4	22.4
P9-055-000	12mm	330	100	21.0	13.0	2.0	12.4	18.4

NOTE : All dimensions are in mm (millimeter)

FIGURE IV
Illustration Portion of Unit-Filled Carrier Tape

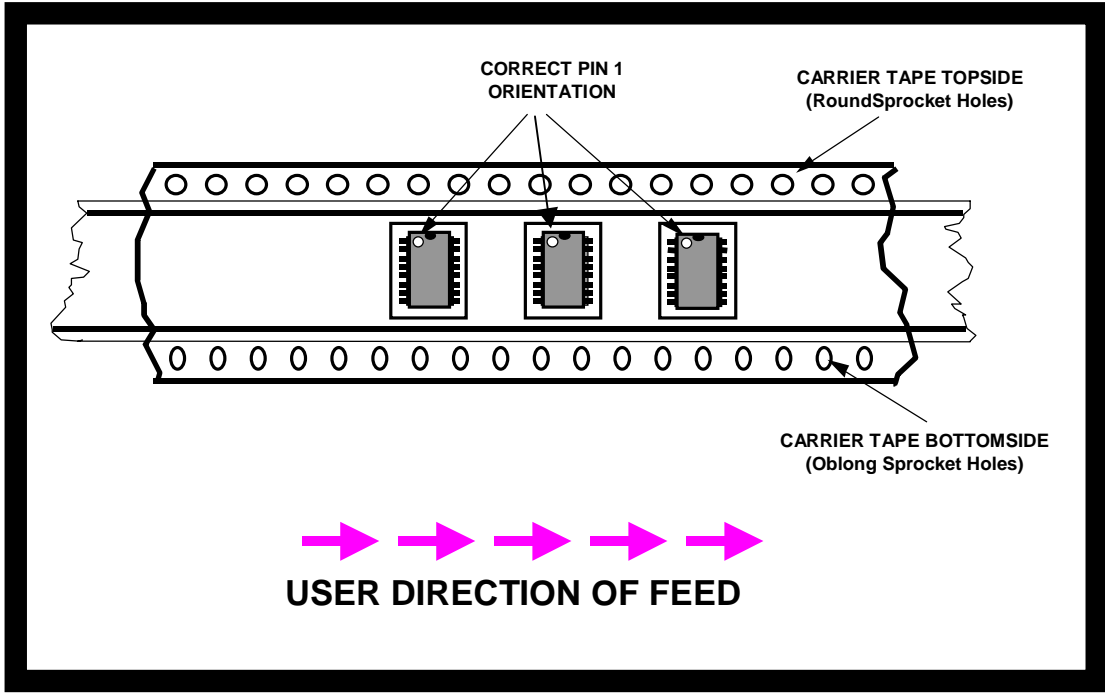


FIGURE IV A

NOTE: This Figure is applicable to all **SOIC (Gull wing & J Bent) / QSOP / QVSOP / SSOP / TSSOP / TSOP** packages:

- 1- Edge of package containing Pin 1 or Termination 1 shall be oriented toward the round sprocket holes
- 2- Pin 1 or Termination 1 in quadrant 1

CARRIER TAPE POCKET QUADRANT DESIGNATION

①	2
3	4

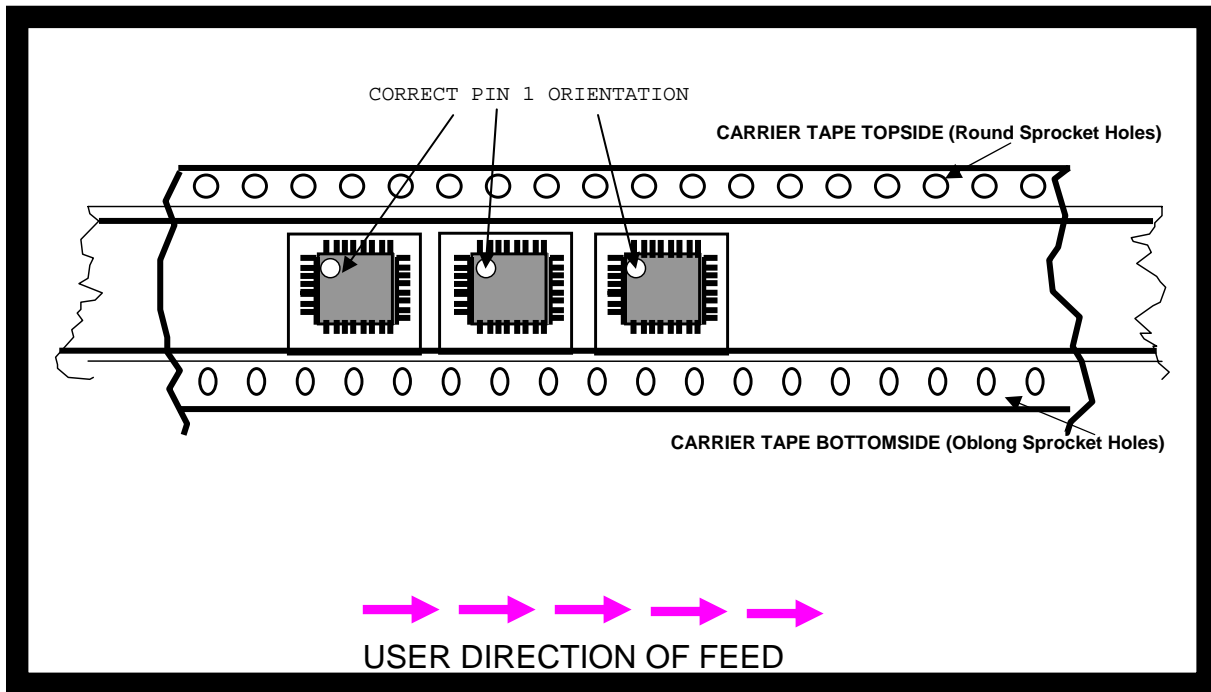


FIGURE IV B

NOTE: This Figure is Applicable for all Square **PQFP** and **TQFP** packages.

- 1- Edge of the package containing Pin 1 or Termination 1 shall be oriented toward the round sprocket holes.
- 2- Pin 1 or Termination 1 in Quadrant1

CARRIER TAPE POCKET QUADRANT DESIGNATION

①	2
3	4

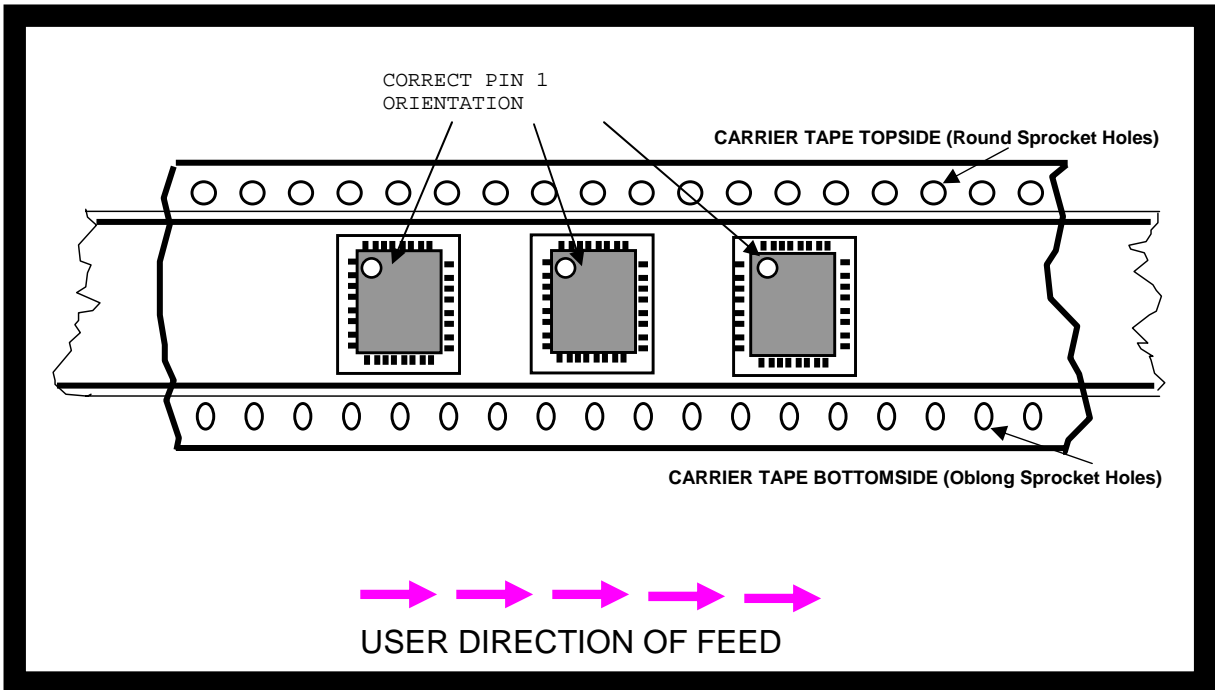


FIGURE IV C

NOTE: This Figure is Applicable for all Rectangular **PQFP** and **TQFP** packages.

- 3- Edge of the package containing Pin 1 or Termination 1 shall be oriented toward the round sprocket holes.
- 4- Pin 1 or Termination 1 in Quadrant 1

CARRIER TAPE POCKET QUADRANT DESIGNATION

①	2
3	4

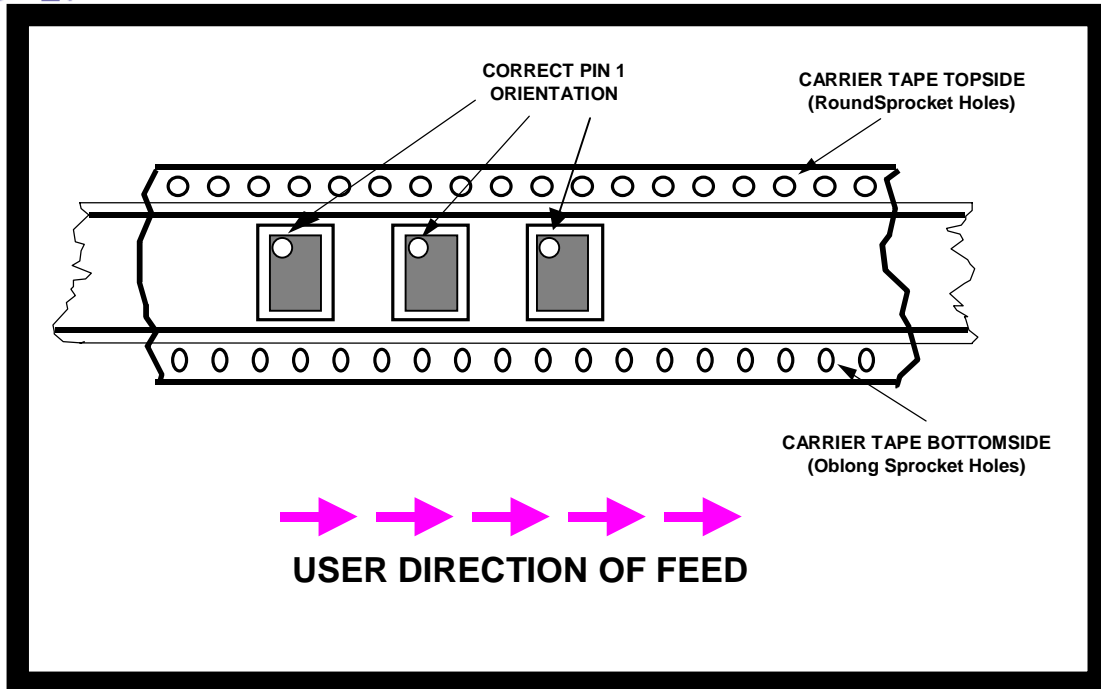
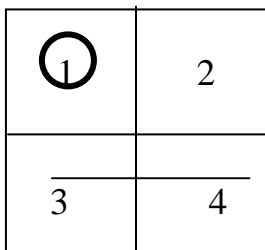


FIGURE IV D

NOTE: This Figure is applicable to BGA rectangular, example:
BF/BFG96, BF/BFG114, BF/BFG120, BF/BFG144, BQ/BQG165, BV/BVG52/56, BK/BKG150, BK/BKG160, BK/BKG176 and NR/NRG 16, NR/NRG 20, NR/NRG 24 packages

- 1- Edge of the package containing Pin 1 or Termination 1 shall be oriented toward the round sprocket holes
- 2- Pin 1 or Termination 1 in Quadrant 1

CARRIER TAPE POCKET QUADRANT DESIGNATION



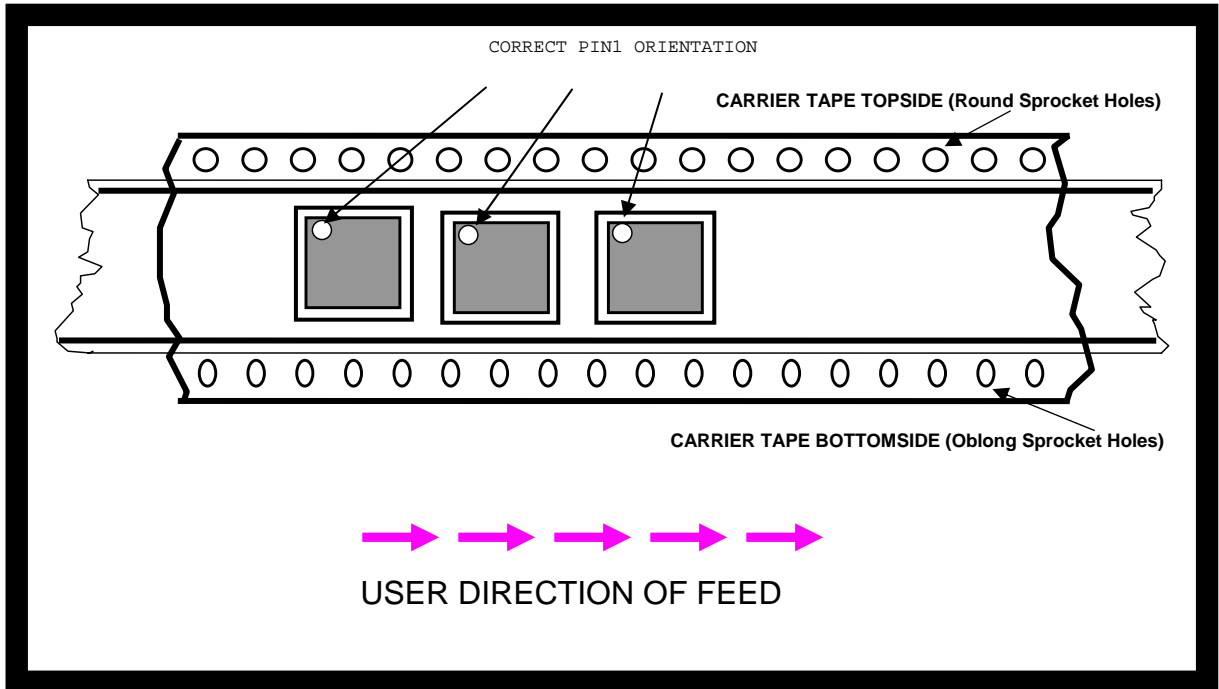


FIGURE IV E

NOTE: This Figure is applicable to all BGA Square package, example :

- FCBGA : BL/BLG472,616, BL/BLG900, BM/BMG900
- FPBGA : BE/BEG48, BF/BFG48, BF/BFG64, BF/BFG208
- CVBGA : BY/BYG 100, BY/BYG108
- CABGA : BC/BCG 100, BZ/BZG108, BZ/BZG144, BC/BCG144, BC/BCG256, BP/BPG256

1- Edge of the package containing Pin 1 or Termination 1 shall be oriented toward the round sprocket holes.

2- Pin 1 or Termination 1 in Quadrant 1

CARRIER TAPE POCKET QUADRANT DESIGNATION

①	2
3	4

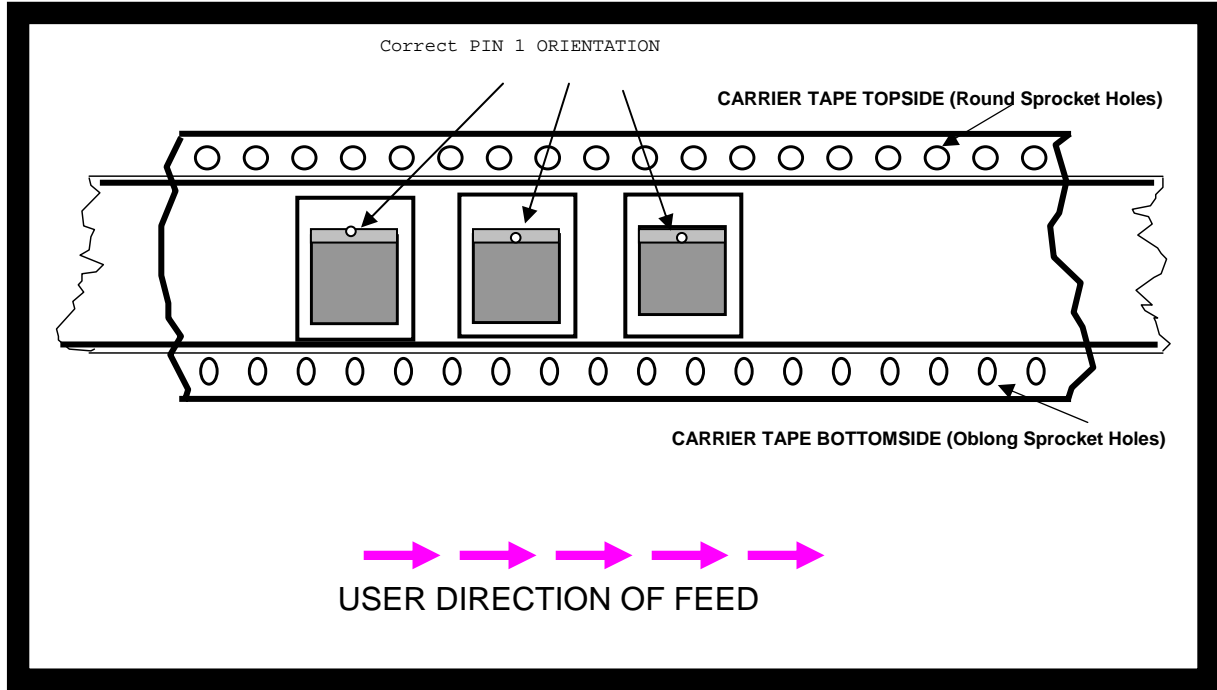


FIGURE IV F

NOTE: This Figure is applicable to PLCC/PLCCG 28, 32, 44, 52, 68,84 and DL/DLG 84 packages.

- 1- Edge of package containing Pin 1 or Termination 1 shall be oriented toward the round sprocket holes

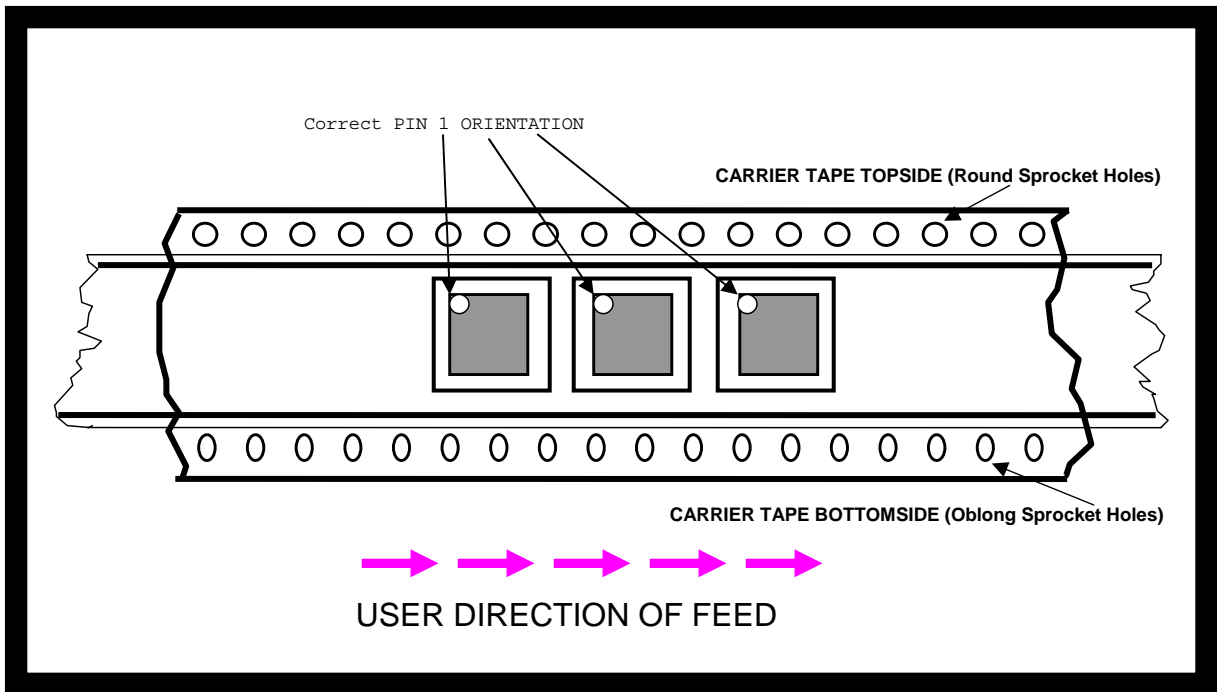


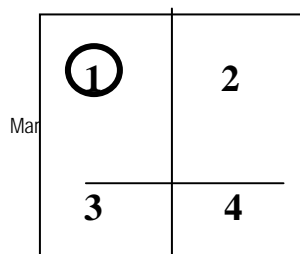
FIGURE IV G

NOTE: This Figure is applicable for MLP Dual, QFP-N and VFQFP-N, example :

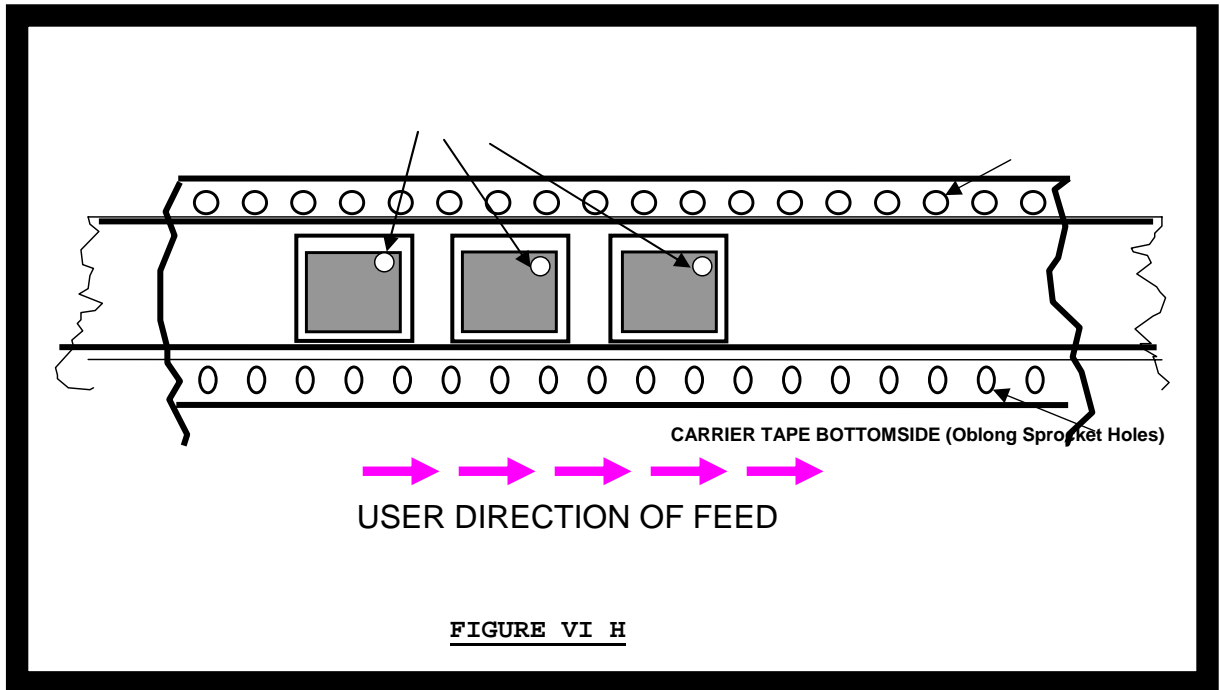
NL/NLG 8, 16, 20, 28, 32, 40, 48, 52, 56, 64, 68, 72 NB/NBG8, ND/NDG 16, 48, 68, 76 NP/NPG 32, 72 and NR/NRG 16, 20, 24 packages.

- 1- Edge of the package containing Pin 1 or Termination 1 shall be oriented toward the round sprocket holes
- 2- Pin 1 or Termination 1 in Quadrant 1

CARRIER TAPE POCKET QUADRANT DESIGNATION



NOTE : LOADING ORIENTATION FOR PCA PACKAGES



NOTE: This Figure is applicable for **PCA** packages involved :

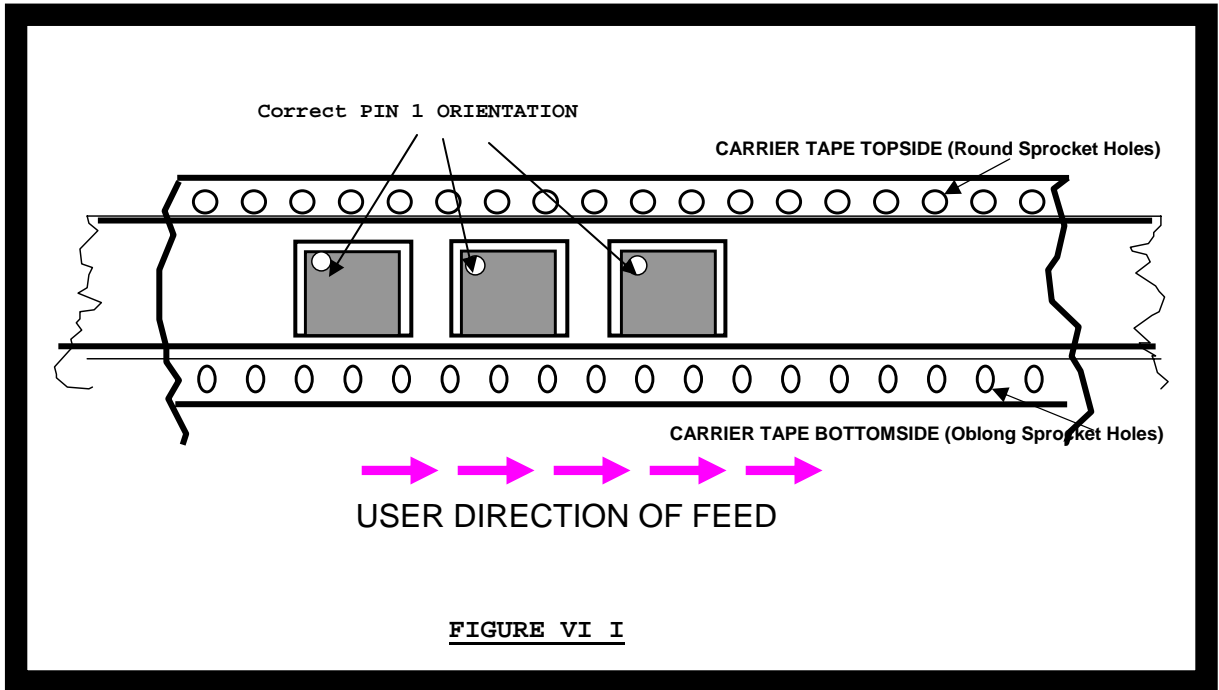
NL/NLG 48 & PR/PRG 48 package.

1- Edge of the package containing Pin 1 or Termination 1 shall be oriented toward the round sprocket holes

2-Pin 1 or Termination 1 in **Quadrant 2**

CARRIER TAPE POCKET QUADRANT DESIGNATION

1	②
3	4



NOTE: This Figure is applicable for **PCA** packages involved :

NL/NLG 32, 52, & 56 & ND/NDG 68 package.

1- Edge of the package containing Pin 1 or Termination 1 shall be oriented toward the round sprocket holes

2-Pin 1 or Termination 1 in **Quadrant 1**

CARRIER TAPE POCKET QUADRANT DESIGNATION

①	2
3	4



NOTE : LOADING ORIENTATION FOR DDO MLP2x3

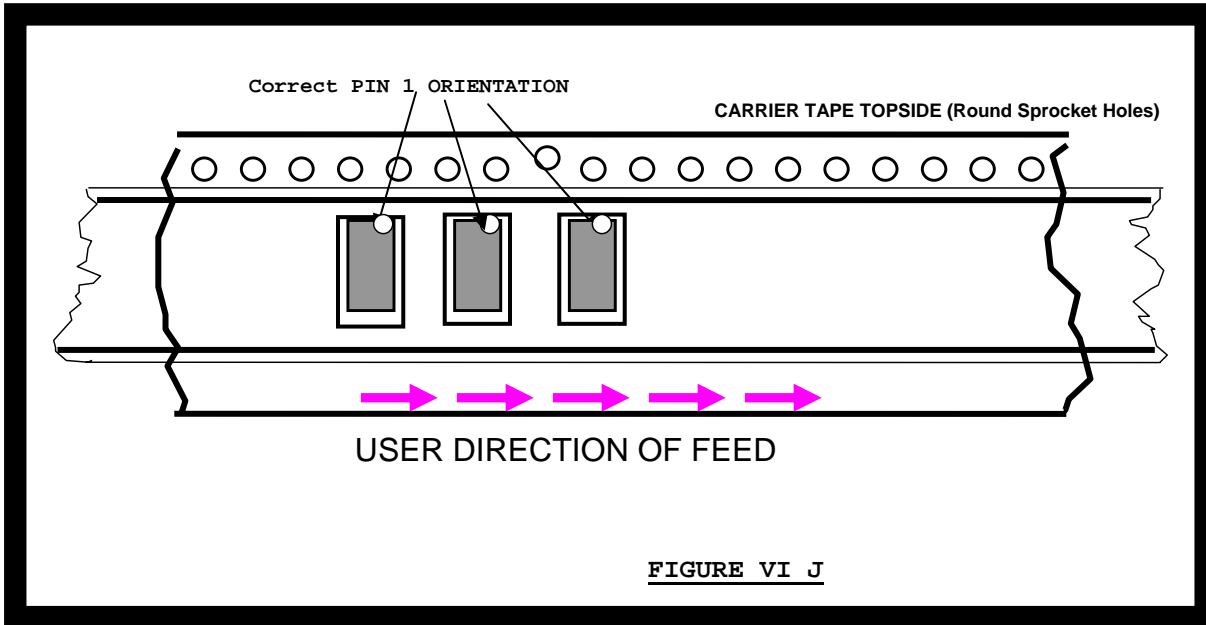


FIGURE VI J

NOTE: This Figure is applicable for **DDO MLP2x3** packages. Packages involved are NC/NCG8 & NR/NRG8.

1- Edge of the package containing Pin 1 or Termination 1 at 2mm side shall be oriented toward the round sprocket holes

2-Pin 1 or Termination 1 in **Quadrant 2**

CARRIER TAPE POCKET QUADRANT DESIGNATION

1	②
3	4