

**INDEX BY DEVICE TYPE OF REGISTERED
MICROELECTRONIC OUTLINES (MO)**

FAMILY	REGISTRATION NO.
AXIAL QUAD FAMILY	
1.56 mm (.065") Pitch Pins: 12	MO-010
2.54 mm (.100") Pitch Pins: 52, 64	MO-017
BALL GRID ARRAY (BGA) FAMILY	
Tape BGA 1, 1.27. 1.5 mm Pitch Pins: 100 thru 2401	MO-149
Plastic BGA 1, 1.27, 1 .5mm Pitch Pins: 16 thru 1089	MO-151
Ceramic BGA Square 1mm, 1.27 mm, 1.5 mm Pitch Pins: 49, 64, 100, 121, 144, 196, 225, 423, 361, 400, 441, 484, 576, 625, 676, 784, 900, 1024	MO-156
Ceramic BPA Rectangular	MO-157
Ceramic CGA Rectangular	MO-159
Plastic BGA 1 .27mm Pitch Pins: 119, 153	MO-163
Low Profile BGA Family	MO-192
TFBGA 0.5mm Pitch	MO-195
LFBGA .80 mm Pitch (Square & Rectangular) Pins: 64, 81, 96, 100, 114, 121, 126, 135, 140, 144, 150, 169, 196, 225, 289, 324, 361	MO-205
Chip-Size BGA (Rectangular) Pins: 24, 32, 40, 48, 64	MO-207
Thin Fine Pitch BGA (Rectangular) Pins: 60	MO-210
Die Size BGA Pins: 4, 6, 9, 16, 20, 25, 36	MO-211
TFBGA 1.0mm & .80 mm Pitch	MO-216
LFBGA .80 mm Pitch (Square & Rectangular) Pins: 64, 65, 68, 72, 73, 76, 77	MO-219
XF-XBGA Two Row .50 mm Pitch Pins: 48, 64, 80, 96, 112, 128, 144, 160, 176	MO-221
Very Thin Profile, fine Pitch BGA .50 & .65 mm Pitch Pins: 16, 35, 36, 48, 49, 60, 64, 81, 104, 144, 169, 256, 289	MO-225
TF-XBGA Dual Pitch (Square) Pins: 54, 62	MO-228

**INDEX BY DEVICE TYPE OF REGISTERED
MICROELECTRONIC OUTLINES (MO)**

FAMILY	REGISTRATION NO.
BALL GRID ARRAY (BGA) FAMILY (cont'd)	
TFR-XBGA-N (Rectangular) Pins: 60, 72	MO-233
R-LBGA-B Pins: 80, 165	MO-234
Rectangular Die Size Stacked BGA 0.80mm Pitch Pins: 63, 87, 95, 71	MO-242
Rectangular Fine Pitch Thin BGA 0.65 mm Pitch Thick & Very Thick Fine-Pitch Rectangular BGA Family 0.80 mm Pitch	MO-246
Upper POP Square Fine Pitch BGA Pins: 104, 112, 128, 136, 152, 160, 168, 176 184, 188, 200, 216, 232, 248	MO-273
Low Profile Fine Pitch BGA Pins: 36, 49 64, 81, 100, 121, 144, 169, 196, 225, 256, 289, 324, 361, 400, 441, 484, 529, 576, 625, 676, 729, 784, 841, 900, 961, 1024, 1089, 1156, 1225, 1296, 1369, 1444, 1521,	MO-275
Low Profile, Rectangular Fine Pitch BGA 0.50mm Pitch Pins: 153,169	MO-276
Ultra Thin & Very Very Thin Profile Fine Pitch BGA (SQ.) Pins: 81, 100, 121, 225, 324, 361	MO-280
Thin, Fine-Pitch, Rectangular Dual Pitch BGA 0.80mm x 1.00mm Pitch	MO-284
Very Thin Fine-Pitch BGA Rectangular 0.50/0.65/0.80 mm Pitch Pins: 20, 35, 36, 48, 54, 60, 90, 104, 148	MO-285
Thin Profile Interstitial Fine Pitch BGA (SQ) Pins: 313, 421, 545, 685, 800, 1105	MO-295
Thin Very Thin Very Very Thin Profile BGA (SQ) 0.40 mm Pitch Pins: 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256, 289, 324, 361, 400, 441, 484, 529, 625, 676, 729, 784, 900, 961, 1024, 1089, 1225, 1296, 1369, 1444, 1600, 1681, 1764, 1849, 2025, 2116, 2209, 2304, 2500, 2601,	MO-298
Standard & Low, Fine Pitch Rectangular BGA Family 0.65mm Pitch	MO-301
Very Thin Fine-Pitch Fully Overmolded Stackable BGA 0.4mm Ball Pitch	MO-302

**INDEX BY DEVICE TYPE OF REGISTERED
MICROELECTRONIC OUTLINES (MO)**

FAMILY	REGISTRATION NO.
BALL GRID ARRAY (BGA) FAMILY (cont'd)	
100/170 BGA Rectangular 1.0mm Pitch Pins: 170	MO-304
CERAMIC CHIP CARRIER	
1.27 mm (.050") Center Square Ledged Pins: 68, 84	MO-044
.635 mm (.025") Center Square Leadless Pins: 52, 68, 84, 100, 132, 146, 164, 244	MO-056
.508 mm (.020") Center Square Leadless Pins: 64, 104, 124, 164, 204, 244, 264	MO-057
.635 mm (.025") Center Square Leadless Pins: 148	MO-062
.635 mm (.050") Center Square J-lead Pins: 28, 44, 52, 68, 84	MO-107
J-lead Round Lead Pins: 16, 18, 20, 24, 28, 44, 52, 68, 84, 22, 32	MO-110
Gull-wing Round Lead Pins: 16, 18, 20, 24, 28, 44, 52, 68, 84, 22, 32	MO-111
.400 Body (.050") Pitch Small Outline Pins: 26, 28, 32	MO-126
Square (.020") Top Brazed Ledged Pins: 256, 340 Non-Conduct Tiebar	MO-129
Square (.015") Top Brazed Ledged Pins: 340 Non-Conduct Tiebar	MO-130
Square (.025") Top Brazed Ledged Pins: 132, 144, 196, 224	MO-131
.350" Body (.050") Pitch Small Outline Pins: 26	MO-144
CERAMIC DIP	
7.62 mm (.300") Row Spacing Pins: 8, 14, 16, 18	MO-036
10.16 mm (.400") Row Spacing Pins: 22	MO-037
7.62 mm (.300") Row Spacing Cerdip Pins: 24, 28	MO-058

**INDEX BY DEVICE TYPE OF REGISTERED
MICROELECTRONIC OUTLINES (MO)**

FAMILY	REGISTRATION NO.
---------------	-------------------------

DUAL-IN-LINE (DIP) FAMILY

Row Spacing 7.62 mm (.300") Pins: 6, 8, 14, 16	MO-001
Row Spacing 15.24 mm (.600") Pins: 16, 24, 28, 32, 36, 40, 42	MO-015
Row Spacing 22.86 mm (.900") Pins: 36, 50, 52, 64	MO-016
Row Spacing 12.7 mm (.500") Pins: 24	MO-024
Row Spacing 10.1 mm (.400") Pins: 22, 28	MO-026
Row Spacing 5.08 mm (.200") Pins: 10	MO-028
Row Spacing 19.05 mm (.750") Pins: 64	MO-043
Row Spacing 7.62 mm (.300") Pins: 8, 14, 16, 18, 20, 22, 24, 28, 32	MO-095
Row Spacing .050" (.300") Pins: 14, 16, 20	MO-122

FLANGE MOUNTED FAMILY AXIAL LEAD

7.62/8.25 mm (.300/.325") Pin Circle Pins: 4,8,10	MO-014
12.7 mm (.500") Pin Circle Pins: 11	MO-025
3.81 mm (.125") Flange Family 6/12 Leads Pins: 12	MO-079
15.24 mm (.600") Pin Circle Pins: 15	MO-097

FLATPACK FAMILY

Width 5.08 mm (.200") Pitch 1.27mm (.050") Pins: 10, 14	MO-003
Width 7.62 mm (.300") Pitch 1.27 mm (.050") Pins: 10, 14, 16	MO-004
Width 10.16 mm (.400") Pitch .89 mm (.035") Pins: 40	MO-018

**INDEX BY DEVICE TYPE OF REGISTERED
MICROELECTRONIC OUTLINES (MO)**

FAMILY	REGISTRATION NO.
---------------	-------------------------

FLATPACK FAMILY (cont'd)

Width 10.16 mm (.400") Pitch 1.27mm (.050") Pins: 24, 28, 18	MO-019
Width 12.70 mm (.500") Pitch 1.27 mm (.050") Pins: 36, 40	MO-020
Width 15.24 mm (.600") Pitch 1.27mm (.050") Pins: 16, 24, 36	MO-021
Width 12.78 mm (.700") Pitch 1.27 mm (.050") Pins: 20, 24, 28, 42, 40	MO-022
Width 22.86 mm (.900") Pitch 1.27 mm (.050") Pins: 36, 50	MO-023
Width 16.64 mm (.650") Pitch 1.27 mm (.050") Pins: 42, 52	MO-032
Width 6.35 mm (.300") CERPAK 1.27mm (.050") Pins: 10, 14, 16, 18	MO-092
(.260") Pitch Braze-Lead (.050") Pins 10, 14, 16, 18	MO-098
Width (.550") Pitch (.050") Top-Braze Pins: 48	MO-101
(.535") Pitch .76 mm (.030") Pins 22, 24, 28	MO-106
Width (.480") Pitch (.050") Pins: 32	MO-115

FLOPPY DISK CARD

FDC Pins: 22	MO-186
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GRID ARRAY FAMILY (PGA)

3.81 mm (.125") Pitch Pins: 16	MO-005
2.54 mm (.100") Pitch Pins: 40	MO-011
2.54 mm (.100") Pitch Ceramic SO Pins: 81, 100, 121, 144, 169, 196, 225, 256, 289, 324, 361, 400	MO-066

**INDEX BY DEVICE TYPE OF REGISTERED
MICROELECTRONIC OUTLINES (MO)**

FAMILY	REGISTRATION NO.
---------------	-------------------------

GRID ARRAY FAMILY (PGA) (cont'd)

2.54 mm (.100") Pitch Ceramic Large Outline Pins: 81, 100, 121, 144, 169, 196, 225, 256, 289, 324, 361, 400	MO-067
2.54 mm (.100") Plastic Pins: 81, 100, 121, 144, 169, 196, 225, 256, 289, 324, 361, 400	MO-083
2.54 mm (.100") Ceramic Staggered Pins Pins: 145, 181, 221, 265, 313, 365, 421, 481, 545, 613, 685, 761, 841, 1013, 1301	MO-128
1.27 mm (.050") Ceramic Surface Mount Pins: 288, 323, 360, 399, 440, 483, 528, 575, 624, 675, 728, 783	MO-145
Ceramic CGA Pins: 361, 400, 441, 529, 625, 767, 784, 900,	MO-158
SQ Bump Grid Array Pins: 5, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256, 289, 324, 361, 400, 441, 484, 529, 576, 625, 676, 729, 784, 841, 900, 961, 1024, 1089, 1225, 1296, 1369, 1444, 1600, 1681	MO-294

HEADER FAMILY

Pin Circle 5.08 mm (.200") Pins: 8, 10, 12	MO-002
Pin Circle 5.84 mm (.230") Pins 8, 10, 12	MO-006
Pin Circle 3.58 mm (.141") Pins: 8	MO-007
Pin Circle 2.54 mm (.100") Pins: 8	MO-008
Pin Circle 5.08 mm (.200") Pins: 10	MO-009
Pin Circle 1.65 mm (.065") Pins: 12	MO-010
Pin Circle 11.89 mm (.468") Pins: 9	MO-013
Plastic Surface-Mounted Header Pins: 3, 5, 7, 11, 15	MO-169
Plastic Staggered Header Pins: 7, 9	MO-218

**INDEX BY DEVICE TYPE OF REGISTERED
MICROELECTRONIC OUTLINES (MO)**

FAMILY	REGISTRATION NO.
HEADER FAMILY (cont'd)	
Plastic Surface Mounted Header Pins: 15	MO-231
Surface Mounted Peripheral Pins: 5	MO-235
Surface Mount (Peripheral Terminals) Pins: 8	MO-306
HEAT SLUG PACKAGES	
Plastic Flatpack Pins: 48	MO-162
Plastic SO Pins: 20, 24, 30, 36	MO-166
Plastic SO Pins: 10, 12, 16, 29	MO-184
Power PQFP with Heatslug Pins: 20, 32, 26, 40, 42, 52, 64	MO-188
INTERNAL STACKING MODULE	
Extra Thin Profile Fine Pitch ISM with Single Interconnect Array Pins: 56, 72, 96, 99, 104, 112, 132, 154, 156, 182, 221, 224, 272	MO-270
MULTICHIP MODULE (MCM-C)	
Multichip Module (MCM-C)	MO-148
MULTIMEDIA CARD (MMC)	
13 Pin Reduced Size MultimediaCard (MMC) MMCmobile 18 X 24 X 1.4mm Pins: 13	MO-277
10 Pin Micro Size MultimediaCard (MMC) MMCmicro 14 X 12 X 1.1mm Pins: 13	MO-278

**INDEX BY DEVICE TYPE OF REGISTERED
MICROELECTRONIC OUTLINES (MO)**

FAMILY	REGISTRATION NO.
---------------	-------------------------

MULTIMEDIA CARD (MMC) (cont'd)

10 Pin Micro Size MultimediaCard (MMC) MMCmicro 14 X 12 X 1.1mm Pins: 10	MO-279
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NON-HERMETIC LEADLESS CHIP CARRIER

1.27 mm (.050") Lead Spacing Quad Pins: 20, 24, 28, 44, 68, 84	MO-075
1.27 mm (.050") Lead Spacing SO Pins: 8, 14, 16, 20, 24, 28	MO-076
Very Very Thin Quad Bottom Terminal Chip Carrier Pins: 24, 32, 48, 64	MO-217

PLASTIC CHIP CARRIER

1.27 mm (.050") Lead Spacing Square Pins: 20, 28, 44, 52, 68, 84, 100, 124	MO-047
.635 mm (.025") Lead Spacing Square	MO-069

PLASTIC DUAL FLAT NO LEAD

V-PDFP-N & W-PDFP-N Pins: 4, 6, 8, 10, 12, 14, 16, 18	MO-229
L-PDFP-N	MO-232
HL-PDFP-N	MO-240
HE-PDFP-N Pin: 6, 8, 10, 12, 16	MO-245

PLASTIC FLANGE MOUNTED HEADER FAMILY

1.27 mm (.050") Lead Spacing Pins: 11, 15, 17, 23	MO-048
2.54 mm (.100") Lead Spacing 5 Lead Pins: 5	MO-078
Flange-Mounted 5-Lead Pins: 5	MO-093
Flange-Mounted 7 lead Pins: 7	MO-096

**INDEX BY DEVICE TYPE OF REGISTERED
MICROELECTRONIC OUTLINES (MO)**

FAMILY	REGISTRATION NO.
---------------	-------------------------

POWER MODULE

5 Terminal Pins: 5	MO-040
Power Dip Pins: 12	MO-127
16 Lead Type 1 Ceramic Power Pkg. Pins: 16	MO-138
16 Lead Type 2 Ceramic Power Pkg. Pins: 16	MO-139
18 Lead Ceramic Power Pkg.	MO-140
16 Lead Screw Mount Power Pkg. Pins: 10, 16	MO-253
Surface Mount Power Package Pins: 8	MO-299

QUAD FLATPACK FAMILY

Leadless QFP 1.27 mm Pitch Pins: 28	MO-027
Ceramic or Glass QFP (.040") Pitch Pins: 132	MO-060
Plastic QFP .025 Pitch Gull-wing Pins: 52, 68, 84, 100, 132, 164, 146, 244	MO-069
Plastic QFP (.020") Pitch Gull-wing Pins: 40, 52, 68, 84, 132, 220	MO-071
Ceramic QFP (.050") Pitch Straight-Leads Pins: 68	MO-081
.635 mm (.025") Cerquad Gullwing Pins: 68, 84, 100, 132, 164, 196	MO-082
1.27 mm (.050") Cerquad Gullwing Pins: 36, 44, 52, 68, 84, 100	MO-084
.635 mm (.025") Plastic Quadpack Pins: 44, 52, 68, 84, 100, 132, 148, 164	MO-086
1.27 mm (.050") Ceramic Cerquad J-Lead) Pins: 28, 44, 52, 68, 84	MO-087
1.27 mm (.050") plastic quadpack gullwing Pins: 28, 44, 52, 68, 84	MO-089
.635 mm (.025") Ceramic leaded Pins: 84, 100, 132, 144, 172, 196	MO-090

**INDEX BY DEVICE TYPE OF REGISTERED
MICROELECTRONIC OUTLINES (MO)**

FAMILY	REGISTRATION NO.
QUAD FLATPACK FAMILY (cont'd)	
.508 mm (.020") Ceramic QFP Pins: 256	MO-100
Ceramic QFP .025 Pitch Gull-wing Pins: 196	MO-104
Plastic Metric QFP 3.2 mm Footprint Gull-wing Pins: 44, 52, 64, 80, 100, 120, 128, 144, 160, 184, 232	MO-108
Plastic Metric QFP 3.9 mm Footprint Gull-wing Pins: 44, 52, 64, 80, 100, 120, 128, 144, 160, 184, 232	MO-112
Ceramic QFP with Tie Bar .025 Pitch Pins: 164, 146	MO-113
Ceramic QFP .65, .80 Pitch Gull-wing Pins: 120, 128, 144, 160	MO-114
Ceramic QFP .025 Pitch Gull-wing Pins: 132	MO-125
.50 mm Pitch Ceramic QFP Pins: 224, 256, 288, 320, 351	MO-134
Thin QFP 1.0 and 1.4mm Thick Pins: 32, 40, 48, 52, 64, 80, 100, 112, 120, 128, 144, 160, 176, 208, 216, 256	MO-136 Replaced by MS-026
.4 & .5 mm Fine Pitch QFP Pins: 64, 80, 100, 120, 128, 144, 176, 216, 208, 240, 256, 272, 292, 296, 304, 336, 376	MO-143
Thin QFP with Heat Spreader Pins: 208, 240, 256, 296, 304, 376	MO-173
Plastic QFP Heat Slug Pins: 16, 20, 24, 32, 40, 48	MO-189
PQFP-B 3 Tier Family Pins: 216, 264, 312, 360, 408, 456	MO-198
QFP with Heat Sink Pins: 52, 64, 80, 100	MO-204
PQFP No Lead Pins: 7, 8, 12, 16, 20, 24, 28, 36, 48	MO-208
Rectangular PQFP 1.0mm Thick Body 3.20 Foot Print Pins: 100	MO-212
QFP No-Lead-Thermally Enhanced .80, .65, .50, Pitch Pins: 4, 8, 12, 14, 16, 18, 20, 22, 24, 28, 32, 36, 38, 40, 44, 48, 52, 56	MO-220
Very Thin PQFP No-Lead Thermally Enhanced .50 Pitch Pins: 64, 80, 96, 112, 128, 144, 160, 176, 192	MO-239

**INDEX BY DEVICE TYPE OF REGISTERED
MICROELECTRONIC OUTLINES (MO)**

FAMILY	REGISTRATION NO.
---------------	-------------------------

QUAD FLATPACK FAMILY (cont'd)

Dual Compatible Thermally Enhanced -PQFP/PSO-N Pins: 14, 16, 20	MO-241
Thermally Enhanced Plastic Bumped QFP Pins: 16, 24, 32, 40, 48, 56, 64, 72	MO-243
Plastic Quad No-Lead Staggered Multi-Row Pins: 60, 68, 76, 84, 92, 100, 108, 116, 124, 132, 136, 140, 156, 164, 172, 180, 196, 204, 220, 228, 232, 252, 292, 316	MO-247
Thermally Enhanced Plastic Ultra Thin and Extremely Thin Fin Pitch QFP No Lead Pins: 8, 12, 16, 20, 22, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64	MO-248
Thermally Enhanced Plastic Bumped Very Thin and Very Very Thin QFP No Lead Pins: 24, 32, 36, 40, 44, 48, 52, 56, 64, 72	MO-250
Thermally Enhanced Plastic Very Thick QFP No Lead Pins: 12, 16, 20, 24, 28, 32, 36, 40, 42, 46, 48, 52	MO-251
Thermally Enhanced Plastic Low and Thin Profile Fine Pitch Quad Flat No Lead Package Pins: 16, 20	MO-254
Thermally Enhanced Plastic Fine Pitch Quad No-Lead Staggered Two Row Pins: 44, 60, 76, 92, 108, 124, 156	MO-257
Thermal Enhanced Plastic Very Thin Very Very Thin Fine Pitch Quad Flat No Lead	MO-262
Plastic Very Thin and Very Very Thin Fine Pitch Quad Flat No Lead	MO-263
Thermally Enhanced Plastic Very Thin Fine Pitch Quad Flat No Lead Including Corner Terminals Pins: 52	MO-265
Thermally Enhanced Plastic Very Thin Fine Pitch Quad Flat No Lead Pins: 108, 116, 124, 132, 156, 164	MO-267
Small Scale Plastic Ultra Extra and Super Thin QFP Pins: 8, 10, 12, 14, 16, 20, 24	MO-288
Very Thin Fine Pitch Plastic QFP Pins: 64	MO-291
Very Thin Fine Pitch Plastic QFP Pins: 100	MO-292

**INDEX BY DEVICE TYPE OF REGISTERED
MICROELECTRONIC OUTLINES (MO)**

FAMILY	REGISTRATION NO.
---------------	-------------------------

QUAD FLATPACK FAMILY (cont'd)

Scalable Quad Flat No-Lead Sq. & Rect. Pins: 68, 74	MO-296
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QUAD HEADER FAMILY

2.54 mm (.100") Pitch Pins: 12	MO-012
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QUAD IN-LINE (QUIP) FAMILY

5.08/10.16 mm (.200/.400") Row Spacing Pins: 16	MO-029
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19.05/23.50 mm (.750/9.25") Row Spacing Pins: 42	MO-030
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5.08/10.16 mm (.200/.400") Row Spacing Pins: 14	MO-031
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17.78/22.86 mm (.700/.900") Row Spacing Pins: 42, 52, 64	MO-033
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RECTANGULAR CHIP CARRIER

19.05/23.49 mm (.750/.925") Row Spacing Pins: 42, 64, 52	MO-034
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1.27 mm (.050") Center Type E Pins: 18, 20, 28, 32	MO-041
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1.27 mm (.050") Center Type F Pins: 18, 20	MO-042
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1.02 mm (.040") Center Leadless Staggered Pins: 32	MO-085
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RFID

Plastic Super-Thin and Die Thin Profiles RFID Dipole Straps	MO-283
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SHRINK SMALL OUTLINE (SSOP) FAMILY

SSOP .300" Body Width (.025") Pitch Pins: 28, 48, 56, 64	MO-118
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**INDEX BY DEVICE TYPE OF REGISTERED
MICROELECTRONIC OUTLINES (MO)**

FAMILY	REGISTRATION NO.
---------------	-------------------------

SHRINK SMALL OUTLINE (SSOP) FAMILY (cont'd)

SSOP .150" Body Width (.025") Pitch Pins: 14, 16, 18, 20, 24, 28	MO-137
SSOP 5.3 mm Body Width (.65mm) Pitch Pins: 8, 14, 16, 18, 20, 22, 24, 28, 30	MO-150
SSOP .4mm, .5mm, .65mm Pitch Family	MO-152
TSSOP 4.4, 5.1, 8 mm Body Width Pitch Pins: 8, 14, 16, 20, 24, 28, 36, 40, 48, 52, 56, 60, 64, 68	MO-153
SSOP 3.9mm Body Width .4mm Pitch	MO-154
SSOP No Lead Pins: 6, 8, 10, 20, 24, 28, 36, 48	MO-209

SIMM/DIMM FAMILY

2.54 mm (.100") Centers 30-Pin SIMM Pins: 30	MO-064
1.27 mm (.050") Pitch SIMM Pins: 72	MO-116
1.27 mm (.050") Pitch DIMM Pins: 72, 84, 88	MO-160
1.27 mm (.050") Pitch DIMM Pins: 100, 168	MO-161
1.27 mm (.050") Pitch DIMM Pins: 128	MO-167
1.27 mm (.050) Pitch DIMM Pins: 112, 200	MO-172
0.65 mm Pitch SO-DIMM Pins: 200	MO-177
1 mm Pitch DIMM Pins: 278	MO-179
1.27 mm (.050) SDIMM Pins: 72	MO-185
0.8 mm SO DIMM Pins: 144	MO-190
1.27 mm Pitch DIMM Pins: 160	MO-191
1.27 mm Pitch DDR DIMM Pins: 184	MO-206

**INDEX BY DEVICE TYPE OF REGISTERED
MICROELECTRONIC OUTLINES (MO)**

FAMILY	REGISTRATION NO.
---------------	-------------------------

SIMM/DIMM FAMILY (cont'd)

0.5 mm Pitch Micro-DIMM Pins: 144	MO-214
1.00 mm Pitch SDRAM DIMM Pins: 210	MO-215
.60 mm Pitch DDR SO-DIMM Pins: 200	MO-224
1.00 mm Pitch DDR SDRAM Pins: 232	MO-227
1.00mm DDRII SDRAM Pins: 240	MO-237
DDR2 Mini DIMM 0.60 Lead Centers Pins: 244	MO-244
FB DIMM 1.00mm Pins: 240	MO-256
DDR Mini DIMM 0.60 Lead Centers Pins: 200	MO-258
DDR DDR2 Micro DIMM Mezzanine Pins: 214	MO-260
DDR3 SO DIMM 0.60 Lead Centers Pins: 204	MO-268
DDR3 SDRAM DIMM 1.00mm Contact Centers Pins: 240	MO-269
DDR1/DDR2 16b/32b SO DIMM 0.8 Lead Centers	MO-274
DDR2 SDRAM DIMM Flex-Based, 1.00mm Pins: 240	MO-281
FB DIMM Family, Flex Based, 1.00 mm Contact Centers Pins: 240	MO-282
DDR3 SDRAM DIMM Flex-Based, 1.00mm Contact Centers Pins: 8	MO-290

SINGLE-IN-LINE (SIP) FAMILY

2.54 mm (.100") Row Spacing Pins: 11	MO-035
3.81 mm (.150") Row Spacing Pins: 9	MO-045
2.54 mm (.100") Row Spacing Ceramic Pins: 11, 16	MO-055

**INDEX BY DEVICE TYPE OF REGISTERED
MICROELECTRONIC OUTLINES (MO)**

FAMILY	REGISTRATION NO.
SINGLE-IN-LINE (SIP) FAMILY (cont'd)	
2.54 mm (.100") Row Spacing Edge Clip Pins: 22, 24, 30, 40	MO-068
0.50 mm Lead Pitch Vertical Surface Mount	MO-141
SMALL OUTLINE (SO) FAMILY	
5.3 mm (.200") Body Width Gull-wing Pins: 14, 16, 20	MO-046
8.54 mm (.330") Body Width Gull-wing Pins: 24, 28	MO-059
9.6 mm (.400") Body Width SOJ Pins: 28, 32, 36, 40, 44	MO-061
9.0 mm (.350") Body Width SOJ Pins: 22	MO-063
7.62 mm (.300") Body Width SOJ Pins: 24, 26	MO-065
7.62 mm (.300") Body Width SOJ Pins: 24, 25, 28, 32	MO-077
7.62 mm (.300") Body Width SOJ Pins: 14, 16, 18, 20, 24, 28	MO-088
9.0 mm (.350") Body Width SOJ Pins: 26, 28	MO-091
TSOJ Pins: 22, 24, 28	MO-105
12 mm Body Width SO Gull-wing .8 mm Pitch Pins: 64	MO-117
SOJ 0.300" Body Width Pins: 24, 28, 32, 36	MO-119
SOJ 0.350" Body Width Pins: 24, 28, 32, 36	MO-120
SOJ 0.330" Body Width Pins: 24, 28, 32, 36	MO-121
SOJ 12mm Body Width 0.8 mm Pitch Pins: 64	MO-123
SOJ 12.7 mm Body Width 1.27 Pitch Pins: 32, 34, 36, 40, 70	MO-124
9.6 mm (.400") Body Width SO 50 mm Pitch Pins: 28, 32	MO-126

**INDEX BY DEVICE TYPE OF REGISTERED
MICROELECTRONIC OUTLINES (MO)**

FAMILY	REGISTRATION NO.
---------------	-------------------------

SMALL OUTLINE (SO) FAMILY (cont'd)

Plastic SO .8mm pitch Pins: 70	MO-174
SOP 12.6 mm Body Width Pins: 44, 48	MO-175
SO Gull Wing 13.30 mm Body Width Pins: 44, 56	MO-180
SOJ Metric 16 mm Body Width Pins: 40	MO-181
Metric Thin SO 16 mm Body Width Pins: 40, 62, 88, 100	MO-182
6 Lead Thin SO Pins: 6	MO-193
Plastic Thin Shrink SO Pins: 14, 16, 20, 24, 48, 56, 80, 100	MO-194
Plastic Leadless SO (SON) Pins: 28	MO-196
Plastic USON 0.5mm Pitch Pins: 40, 46	MO-197
LSOJ Pins: 28, 32, 36, 40, 42, 44, 50, 54, 70	MO-199
SOJ 2High/4High Pins: 32, 44	MO-200
Plastic SO Heat Slug 7.5 mm Body Width 1.0 mm Pitch	MO-226
Plastic SO Exposed Heat Sink Pins: 20, 30, 36	MO-230
Plastic USON Pins: 2, 3, 4	MO-236
P-WFDSO, P-UFDSON, P-XFDSO Pin: 6	MO-252
P-WFQFN, P-UFQFN, P-XFQFN Pins: 8, 10	MO-255
Exposed Pad Plastic 7.60mm Body Width Pins: 20, 24, 28, 36	MO-271
Plastic SO Wide Body SOIC 7.5 Body Width Pins: 32, 54	MO-286
Plastic Dual SO No Lead Pins: 6, 8	MO-287
Plastic Dual SO Flat Leaded Pins: 3, 5, 6	MO-293

**INDEX BY DEVICE TYPE OF REGISTERED
MICROELECTRONIC OUTLINES (MO)**

FAMILY	REGISTRATION NO.
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SMALL OUTLINE TRANSISTOR FAMILY

Low Profile Exposed Pad Plastic 3.90mm Body Width Pins: 10, 12, 14, 16	MO-272
5-pin SOT	MO-178
Shrink SOT Pins: 5, 6	MO-203
Shrink SOT Pins: 5, 6, 8	MO-223

SSD ASSEMBLY

Slim Lite	MO-297
mSATA	MO-300
Pins: 52	

TAPEPAK

Molded Carrier Ring Family Pins: 192, 256, 312, 376, 440, 446, 248, 328, 408, 488, 568, 648, 408, 512, 608, 712, 808, 416, 552, 680, 816, 952, 1080	MO-076
Molded Carrier Ring Family	MO-109

THIN SMALL OUTLINE (TSOP) FAMILY

7.62 mm Body TSOP 2 Pins: 20, 24, 24	MO-132
10.16 mm Body TSOP 2 Pins: 28, 32, 44	MO-133
12.70 mm Body TSOP 2 Pins: 32, 34, 50, 54	MO-135
TSOP 1 Pins: 24, 32, 40, 48, 56	MO-142
TSOP2 16 mm Body Width	MO-182
TSOP 1 .55 Pitch Pins: 28	MO-183
TSSOP Pins: 8	MO-187
TSOP II 2 High/4 High Pins: 32	MO-201

**INDEX BY DEVICE TYPE OF REGISTERED
MICROELECTRONIC OUTLINES (MO)**

FAMILY	REGISTRATION NO.
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THIN SMALL OUTLINE (TSOP) FAMILY (cont'd)

TSOP II 2 High Pins: 54, 66	MO-238
Thin SO 8.89 Body Pins: 28, 32, 36, 40, 44, 52, 56, 64, 68	MO-249
Very Very Thin SO Package Type 1 Pins: 48	MO-259

ZIG-ZAG (ZIP) FAMILY

2.54 mm (.100") Row Spacing Pins: 16	MO-054
1.27 mm (.050") Row Spacing Pins: 19, 20, 24, 28, 40	MO-072
2.54 mm (.100") Row Spacing Pins: 23, 26	MO-080
Ceramic 2.54mm (.050) Row Spacing Pins: 20, 24, 28	MO-176
R-PZIP .40 mm Pitch Pins: 64	MO-202
PZIP .40 mm Pitch Pins: 64	MO-213