

# MITSUI LEADFRAMES



## \* TOOL LOCATION

JPN (MJA)	.....	Mitsui High-tec Inc.
HKG (MHA)	.....	Mitsui High-tec (Hong Kong) Ltd.
S'PORE (MSA)	.....	Mitsui High-tec (Singapore) Pte. Ltd.
M'SIA (MMA)	.....	Mitsui High-tec (Malaysia) Sdn. Bhd.
PHILS (MPA)	.....	Mitsui High-tec (Philippines), Inc.
TWN (MKA)	.....	Mitsui High-tec (Taiwan) Co., Ltd.
Shanghai (MCA)	.....	Mitsui High-tec (Shanghai) Co., Ltd.
Guangdong (MGA)	.....	Mitsui High-tec Electronics (Guangdong) Co., Ltd.
TJN (MTA)	.....	Mitsui High-tec (Tianjin) Co., Ltd.
THAI (MAA)	.....	Mitsui High-tec (Thailand) Co., Ltd.

## \* LOCATION SYMBOLS

- ☆ STAMPING TOOL AND PLATING TOOL LOCATION  
(CAN SUPPLY BOTH BARE FRAME AND PLATED FRAME)
- STAMPING TOOL LOCATION  
(CAN SUPPLY BARE FRAME AND PLATED FRAME THROUGH OUTSIDE PLATER)
- △ PLATING TOOL LOCATION  
(CAN SUPPLY PLATED FRAME ONLY)

PLEASE CONTACT STAMPING TOOL LOCATION TO DISCUSS THE SPECIFICATION.

REVISION	DATE	APPROVED	MADE BY
Y	Feb 4.2008		

S. Watanabe    S. Yunohara

PIN	PACKAGE SIZE	PAD SIZE	WIDTH	PITCH	LOCATION						DRAWING NO. & NOTES	
					JPN	HKG	S'PORE	M'SIA	Shanghai	TWN		
<b>&lt;QFP/TQFP/LQFP&gt;</b>												
256	28x28	8.0x8.0mm	78.0mm	41.67mm	☆(Ethed frame)						MLF-1491-O O	Dual
256	28x28	8.13x8.13mm	78.0mm	41.67mm	☆(Ethed frame)						MLF-1469-O O	Dual
240	32x32	10.0x10.0mm	50.0mm	42.0mm	☆						022-2820 D	
216	24x24	7.26x7.26mm	70.0mm	35.71mm	☆(Ethed frame)						MLF-1515-O O	Dual
216	24x24	7.37x7.37mm	70.0mm	35.71mm	☆						022-6112 O	Dual
208	28x28	11.0x11.0mm	61.4mm	50.0mm	☆						022-2667 C	
208	28x28	10.5x10.5mm	61.4mm	50.0mm	☆						022-2667 C	
208	28x28	9.5x9.5mm	61.4mm	50.0mm			☆				022-4261 O	
208	28x28	8.89x8.89mm	50.8mm	40.64mm	☆						022-3855 B	
208	28x28	9.0x9.0mm	61.4mm	50.0mm	☆						022-3123 A	
208	28x28	9.0x9.0mm	61.4mm	50.0mm	☆						022-5189 A	
208	28x28	8.5x8.5mm	61.4mm	50.0mm			☆				022-4260 O	
208	28x28	8.0x8.0mm	61.4mm	50.0mm	☆						022-5189 A	
208	28x28	8.0x8.0mm	78.0mm	41.67mm	☆						MLF-1298-O O	Dual
176	24X24	9.5x9.5mm	40.0mm	35.0mm	☆						S021-1012 E	
176	24X24	7.62x7.62mm	40.0mm	35.0mm	☆						S021-1012 E	
176	24X24	7.87x7.11mm	70.0mm	31.25mm	☆(Ethed frame)						MLF-1534-O O	Dual
160	28x28	7.5x7.5mm	61.4mm	50.0mm		☆					022-5662 O	ILP0.168
160	28x28	7.0x7.0mm	61.4mm	50.0mm		☆					022-5662 O	ILP0.168
160	28x28	9.0x9.0mm	61.4mm	50.0mm	☆						022-3930 A	
144	20X20	7.0x7.0mm	40.0mm	30.0mm	☆						S021-1017 B	
144	20X20	7.0x7.0mm	40.0mm	30.0mm		☆					022-2979 O	
128	14x20	6.0x6.0mm	34.8mm	26.42mm		☆				○	022-5020 O	
128	14x20	8.0x8.0mm	34.8mm	26.42mm		☆					022-6478 O	
128	14x20	6.0x6.0mm	67.9mm	28.0mm		☆					022-6039-5 O	Dual
128	14x20	8.0x8.0mm	67.9mm	28.0mm		☆				△	022-5187 O	Dual
128	14x14	6.0x6.0mm	45.7mm	27.0mm		☆				△	022-5596 O	Dual
128	14x14	10.0x10.0mm	30.734mm	20.40mm	☆						022-4148 A	
100	14x20	6.1x6.5mm	34.8mm	26.42mm		☆					022-4315 O	
100	14x20	6.1x6.1mm	34.8mm	26.42mm		☆					022-2626 F	
100	14x20	6.0x6.0mm	34.8mm	26.42mm		☆					022-2626 F	
100	14x14	6.0x6.0mm	27.7mm	26.42mm			☆				022-3053 B	
100	14x14	4.572x4.572mm	45.7mm	27.0mm		☆				△	022-6006 O	Dual
100	14x14	6.1x6.1mm	45.7mm	27.0mm		☆				△	022-6006 O	Dual
84	18.67x18.67	.300x.300	42.218mm	27.432mm			○	△			022-1610 E	Jedec
84	18.67x18.67	.350x.350	42.218mm	27.432mm			○	△			022-1611 B	Jedec
80	14x20	6.1x6.1mm	34.8mm	26.42mm	☆						022-5795 O	
80	14x20	7.2x7.2mm	34.8mm	26.42mm	△	☆					022-6074 O	
80	14x20	8.0x8.0mm	34.8mm	26.42mm	△	☆					022-6074 O	
64	10x10	5.3x5.3mm	45.7mm	21.6mm			△		☆	△	022-6035 O	Dual
64	10x10	5.59x5.59mm	34.8mm	26.42mm			○				022-2378 A	
64	10x10	6.5x6.5mm	34.8mm	26.42mm				☆			022-2580 A	
64	10x10	6.6x6.6mm	45.7mm	21.6mm				☆			022-6034 O	Dual
52	10x10	5.53x5.53mm	24.7mm	21.4mm			○				022-2274 O	
52	10x10	6.60x6.60mm	24.7mm	21.4mm			○				022-2571 A	

PIN	PACKAGE	PAD SIZE	WIDTH	PITCH	LOCATION								DRAWING NO. & NOTES
					JPN	HKG	S'PORE	M'SIA	PHILS	Shanghai	Guangdong	TWN	
<b>&lt;QFP/TQFP/LQFP&gt;</b>													
48	7x7	.205x.205	45.7mm	18.0mm		☆						△	022-5497 O 3 Rows
48	7x7	.181x.181	45.7mm	18.0mm		○						△	022-5932 O 3 Rows
48	7x7	.160x.160	45.7mm	18.0mm		○				△		△	022-5498 O 3 Rows
48	7x7	.120x.120	45.7mm	18.0mm		○						△	022-6554 O 3 Rows
44	10x10	5.08x5.08mm	24.7mm	21.4mm		○		△					022-2887 A
44	10x10	5.2x5.2mm	24.7mm	21.4mm				☆					022-2585 O
44	10x10	6.4x6.4mm	24.7mm	21.4mm		○		△					022-2887 A
44	10x10	5.21x5.21mm	45.7mm	21.6mm						☆			022-5240 O Dual
32	7x7	.205x.205	45.7mm	18mm		☆						△	022-6218 O 3 rows
<b>&lt;PLCC&gt;</b>													
84		.275x.275	1.870	1.600		☆							022-3787 O
84		.300x.300	1.870	1.600		☆							022-2917 E
84		.330x.330	1.870	1.600		☆							022-2917 E
84		.360x.360	1.870	1.600		☆	△						022-2917 E
84		.400x.400	1.870	1.600		☆							022-1068 E
84		.410x.410	1.870	1.600		☆							022-1068 E
84		.425x.425	1.870	1.600		☆							022-1068 E
68		.260x.260	1.670	1.400		○							022-2916 B
68		.410x.410	1.670	1.400		○							022-2858 A
68		.425x.425	1.670	1.400		○							022-2858 A
52		.350x.350	1.430	1.180		○							022-2377 B
52		.360x.360	1.430	1.180		○							022-2377 B
44		.220x.220	1.230	1.080				☆					022-3293 O
44		.250x.250	1.230	1.080					☆				022-2840 A CL D-BAR
44		.250x.250	1.230	1.080		○		△					022-2694 A
44		.280x.280	1.230	1.080				☆					022-2087 B
44		.270x.270	1.230	1.080					☆				022-2840 A CL D-BAR
44		.270x.270	1.230	1.080		○		△					022-2694 A
44		.300x.300	1.230	1.080				☆					022-2087 B
44		.180x.180	1.230	1.080							☆		022-6426 O
44		.200x.200	1.230	1.080							☆		022-6426 O Fused leads
44		.230x.230	1.230	1.080							☆		022-6426 O
32		.200x.200	1.230	0.880		☆						△	022-5242 O
32		.150x.150	1.230	0.880		○						△	022-4567 C
28		.150x.150	1.070	0.880				☆					022-2086 O
28		.180x.180	1.070	0.880		☆							022-2091 A
28		.180x.180	1.070	0.880				☆					022-2086 O
28		.200x.200	1.070	0.880		☆							022-2091 A
28		.200x.200	1.070	0.880				☆					022-2086 O
28		.220x.220	1.070	0.880		☆		☆					222-2398 O
28		.230x.230	1.070	0.880		☆		☆					222-2398 O
28		.230x.360	1.230	0.780				☆					002-364 C
20		.160x.160	0.970	0.780		☆							022-2598 A
20		.180x.180	0.970	0.780		☆							022-2598 A

PIN	PACKAGE	PAD SIZE	WIDTH	PITCH	LOCATION							DRAWING NO. & NOTES	
					JPN	HKG	M'SIA	Shanghai	TWN	TJN	THAI		Guangdong
<b>&lt;TSOP&gt;</b>													
50		.235x.465	29.718mm	18.288mm	☆							022-4197 O	TYPE II
50		.210x.170	29.718mm	18.288mm		☆						022-5178 A	TYPE II
44		.145x.390	34.80mm	25.00mm	☆							022-3970 A	TYPE II
44		.200x.390	34.80mm	25.00mm	☆							022-3970 A	TYPE II
44		.145x.390	34.80mm	25.00mm	☆							022-4110 O	TYPE II
32		6.22x7.11mm	34.80mm	26.42mm		☆						022-3785 B	Dual
32		6.22x13.21mm	34.80mm	26.42mm		○						022-2845 B	Dual
28		6.10x10.16mm	34.80mm	26.42mm		○						022-2844 B	Dual
<b>&lt;SSOP&gt;</b>													
56		.138x.182	23.78mm	14.20mm		☆						022-4935-1 O	
24	5.3x8.2	4.3x3.68mm	50.80mm	15.24mm				☆				022-5148 A	4 Rows
<b>&lt;SO&gt;</b>													
28/24		4.2x5.2mm	23.78mm	14.20mm		○						022-3589 A	
20	300mil	.110x.150	58.42mm	17.78mm				☆				022-5221 O	4 Rows
20	300mil	.150x.150	58.42mm	17.78mm				☆				022-5221 O	4 Rows
20	300mil	.160x.200	58.42mm	17.78mm				☆				022-5222 O	4 Rows
20	300mil	.200x.200	58.42mm	17.78mm				☆				022-5222 O	4 Rows
20/16		3.2x4.0mm	18.70mm	14.20mm		○			△			022-2697 A	
20/16		4.2x5.2mm	18.70mm	14.20mm		○						022-2477 D	
18		.16x.2	0.700	2.300						☆		022-5188 O	
16		.090x.110	1.070	0.360		○						022-5689 O	Dual
16		.090x.130	1.070	0.360		○						022-5689 O	Dual
14		2.29x2.29	65.42mm	24.92mm						☆		022-2701 O	
14		2.29x3.30	65.42mm	24.92mm						☆		022-2702 O	
14		090x110	27.178	9.144							☆	022-3538-C	
8		2.29x2.29	65.42mm	17.5mm						☆		022-3023 B	
8		.090x.100	1.070	0.360		○						022-5116 A	Dual
8		090x090	50.800	16.307							☆	022-6622	5 Rows
8		140x160	50.800	16.916							☆	022-6626	5 Rows
<b>&lt;IDF&gt;</b>													
40		5.59x6.10	59.33mm	21.46mm						☆		022-5295 O	
40		5.08x5.21	59.33mm	21.46mm						☆		022-5295 O	
20		.090x.110	1.240	0.540			☆					022-3955 B	
20		.110x.120	1.240	0.540			☆					022-3955 B	
20		.140x.160	1.240	0.540			☆					022-2544 A	
20		.150x.190	1.240	0.540			☆					022-2562 O	
20		.160x.230	1.240	0.540			☆					022-2563 O	
16		2.03x2.03	24.64mm	13.716mm						☆		022-1328 B	
16		.110x.140	0.970	0.540		○						022-2737 A	
16		.110x.140	0.970	0.540			☆					022-1975 O	
16		.080x.110	0.970	0.540			☆					022-1469 O	
16		.110x.140	0.970	0.540			☆					022-1975 O	
16		.140x.150	0.970	0.540			☆					022-2255 O	
16		.150x.200	0.970	0.540			☆					002-685 C	
14		2.03x2.03	24.64mm	13.716mm						☆		022-1746 A	
14		.110x.140	0.970	0.540		○						002-639 O	
14		.080x.080	0.970	0.540			☆					022-2865 O	
14		.080x.150	0.970	0.540			☆					002-734 -	
14		.080x.150	0.970	0.540			☆					022-2865 O	
14		.110x.140	0.970	0.540			☆					002-703 -	
8		.080x.100	0.970	0.540			☆					022-2972 O	
8		.110x.134	0.970	0.540			☆					022-2972 O	
8		.110x.160	0.970	0.540			☆					022-2972 O	

PIN	PAD SIZE	WIDTH	PITCH	LOCATION						DRAWING NO. & NOTES		
				JPN	HKG	M'SIA	PHILS	Shanghai	TWN		Guangdong	
<b>&lt;PDIP&gt;</b>												
48	.200x.200	2.600	1.160	☆							022-1031 O	
48	.250x.250	2.600	1.160	☆							022-1031 O	
42	.200x.200	2.270	1.040		○						022-2191 O	
40	.180x.180	2.270	1.040		☆				△		022-4003 O	
40	.200x.200	2.270	1.040		☆				△		022-4003 O	
28	.200x.200	1.670	1.040		○						022-2151 O	
28	.200x.220	1.670	1.040		○						022-2151 O	
28	.230x.230	1.670	1.040		○						022-2151 O	
28	.150x.150	1.670	1.040		○						022-2115 B	
28	.150x.250	1.670	0.870		○						022-2857 B	
28	.260x.260	1.670	1.040		○						022-3824 O	
28	.180x.180	1.670	1.040		○						022-1216 O	
28	.200x.200	1.670	1.040		○						022-1216 O	
28	.140x.220	1.670	0.720		○						022-3039 A	
28	.140x.235	1.670	0.720		○						022-3039 A	
24	.150x.150	1.470	1.040		○						022-2173 O	
24	.180x.220	1.470	1.040		○						022-2173 O	
24	.230x.230	1.470	1.040		○						022-2490 O	
24	.250x.270	1.470	1.040		○						022-2490 O	
24	.260x.260	1.470	1.040		○						022-2490 O	
22	.140x.170	1.300	0.850		○		△				022-3103 C	
22	.190x.220	1.300	0.850		○						022-2428 A	
20	.110x.130	1.240	0.720		○						022-3568 A	
20	.110x.140	1.240	0.720		○						022-3568 A	
20	.150x.190	1.240	0.720		○						022-3539 A	
18	.080x.120	1.070	0.720		○						022-3829 A	
18	.140x.160	1.070	0.720		○						022-3252 O	
18	.140x.180	1.070	0.720		○						022-3252 O	
16	.080x.080	0.970	0.720					☆			022-5117 O	
16	.110x.140	0.970	0.720					☆			022-5103 O	
16	.110x.140	0.970	0.720		☆						022-2843 C	
14	.110x.140	0.970	0.720		○						022-3337 B	
8	.080x.080	0.970	0.720		○						002-336 O	
8	.100x.100	0.970	0.720		○						022-3271 O	
8	.100x.100	0.970	0.720						○		022-3271 O	
											Dual	
											Dual	
											Single	
<b>&lt;TO-220&gt;</b>												
5		1.238	0.500			☆					022-2741 O	
3		1.238	0.500			☆					022-3605 O	
<b>&lt;SOT-23&gt;</b>												
3		28.08mm	4.5mm					☆			022-4601 F	4 Rows
3		26.8mm	5.0mm					△		○	022-4664 C	4 Rows
<b>&lt;HSIP&gt;</b>												
8/15		32.200	21.500					☆			022-5173/5174 O	

# MITSUI LEADFRAMES

## REVISION HISTORY

REV.	DESCRIPTION OF CHANGE	TYPE	PIN	DRAWING NO.	NOTES
	Deleted revision history from "N" to "S"				
U	Added	QFP/TQFP/LQFP	256	MLF-1491-O O	Etched frame
	Added	QFP/TQFP/LQFP	256	MLF-1469-O O	Etched frame
	Added	QFP/TQFP/LQFP	216	MLF-1515-O O	Etched frame
	Added	QFP/TQFP/LQFP	216	022-6112 O	
	Added	QFP/TQFP/LQFP	208	022-6018-1 A	
	Added	QFP/TQFP/LQFP	176	MLF-1534-O O	Etched frame
V	Location changed	QFP/TQFP/LQFP	128	022-5187 O	From Shanghai to HKG
	Added	QFP/TQFP/LQFP	64	022-6034 O	Shanghai/☆
	Added	QFP/TQFP/LQFP	64	022-6035 O	Shanghai/☆
W	Added	QFP/TQFP/LQFP	128	022-6039-5 O	☆ at HKG
	Added	QFP/TQFP/LQFP	128	022-6133 O	☆ at S'pore
	Added	QFP/TQFP/LQFP	100	022-6006 O	4.572x4.572 pad / ☆ at HKG & △ at Taiwan
	Added	QFP/TQFP/LQFP	100	022-6006 O	6.1x6.1 pad / ☆ at HKG & △ at Taiwan
	Added	QFP/TQFP/LQFP	48	022-5932 O	○ at HKG & △ at Taiwan
	Added	QFP/TQFP/LQFP	32	022-6218 O	☆ at HKG & △ at Taiwan
	Added	QFP/TQFP/LQFP	128	022-5596 O	added △ at Taiwan
	Added	QFP/TQFP/LQFP	64	022-6035 O	added △ at HKG
	Changed symbol	QFP/TQFP/LQFP	48	022-5497 O	changed from ○ to ☆
	Deleted	QFP/TQFP/LQFP	100	022-3266 A	
	Deleted	QFP/TQFP/LQFP	100	022-2734 B	
	Deleted	QFP/TQFP/LQFP	100	022-3253 A	
	Deleted	Flat Pack	68	022-2841 O	
	Added	PLCC	44	022-5958 O	☆ at Guangdong
	Added	SOT-23	3	022-4664 C	○ at Guangdong & △ at Shanghai
X	Deleted	QFP/TQFP/LQFP	128	022-5786 O	
	Drawing No. changed	QFP/TQFP/LQFP	128	022-6478 O	Replaced from 022-5441 O
	Deleted	QFP/TQFP/LQFP	128	022-6133 O	
	Partially added	QFP/TQFP/LQFP	128	022-5187 O	Added △ at Taiwan
	Partially deleted	QFP/TQFP/LQFP	80	022-5795 O	Deleted △ from S'pore
	Drawing No. changed & partially deleted	QFP/TQFP/LQFP	80	022-6074 O	Replaced from 022-2074 D & deleted △ from S'pore
	Partially added	QFP/TQFP/LQFP	64	022-6035 O	Added △ at Taiwan
	Partially added	QFP/TQFP/LQFP	48	022-5498 O	Added △ at Shanghai
	Added	QFP/TQFP/LQFP	48	022-6554 O	
	Partially deleted	PLCC	84	022-2917 E	Deleted △ from S'pore
	Partially deleted	PLCC	68	022-2916 B	Deleted △ from S'pore
	Deleted	PLCC	44	022-3339 A	
	Location changed	PLCC	32	022-5242 O	Transferred △ from Taiwan to Guangdong
	Location changed	PLCC	32	022-4567 C	Transferred △ from Taiwan to Guangdong
	Deleted	PLCC	20	022-2597 O	
	Partially deleted	PLCC	20	022-2598 A	Deleted △ from S'pore
	Deleted	SO	28/24	022-2405 A	
	Deleted	SO	14	022-3538 B	
	Added	SO	14	022-3538 C	
	Added	SO	8	022-6622	
	Added	SO	8	022-6626	
	Deleted	IDF	20	022-1916 O	

# MITSUI LEADFRAMES

## REVISION HISTORY

REV.	DESCRIPTION OF CHANGE	TYPE	PIN	DRAWING NO.	NOTES	
X	Partially deleted	IDF	16	022-1975 O	Deleted $\Delta$ from S'pore	
	Partially deleted	IDF	16	022-1469 O	Deleted $\Delta$ from S'pore	
	Partially deleted	IDF	16	022-2255 O	Deleted $\Delta$ from S'pore	
	Partially deleted	IDF	16	022-685 C	Deleted $\Delta$ from S'pore	
	Partially deleted	IDF	14	022-639 O	Deleted $\Delta$ from S'pore	
	Partially deleted	IDF	14	022-734	Deleted $\Delta$ from S'pore	
	Partially deleted	IDF	14	022-703	Deleted $\Delta$ from S'pore	
	Deleted	PDIP	40	022-2773 O		
	Deleted	PDIP	40	022-2977 O		
	Deleted	PDIP	40	022-2172 O		
	Deleted	PDIP	28	022-2279 A		
	Deleted	PDIP	16	022-4926		
	Deleted	TO-220	3	022-2282 B		
	Deleted	TO-92	3	022-2738 D		
	Y	Deleted	QFP/TQFP/LQFP	80	022-4151 A	
		Deleted	PLCC	32	022-3247 O	
		Deleted	SO	16	022-3338 O	
Deleted		TO-92	3	022-1640 B		
Deleted		TO-92	3	022-2190 A		