



\*SOP variations e.g. TSSOP..

**Series IC51 (Clamshell)**  
SOP, TSOP Type I & II

0.4 to 1.27mm Pitch

**Specifications**

- Insulation Resistance: 1,000MΩ min. at 500V DC
- Dielectric Withstanding Voltage: 700V AC for 1 minute
- Contact Resistance: 30mΩ max. at 10mA/20mV max.
- Operating Temperature Range: -40°C to +150°C (for type PSF)  
-55°C to +170°C (for type PES & PEI)
- Mating Cycles: 10,000 insertions min.

**Materials and Finish**

- Housing: Polyetherimide (PEI), glass-filled
- Contacts: Beryllium Copper (BeCu)
- Plating: Gold over Nickel



**Part Number (Details)**

**IC51 - 028 2 - 334-1 - MF**

- Series No.
- No. of Contact Pins
- No. of Sides with Contacts
- Design Number
- MF= Flanged  
Unmarked = Not Flanged

**Series IC189 (Open Top)**  
SOP, TSOP Type I & II

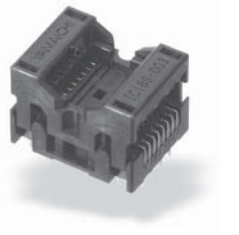
0.4 to 1.27mm Pitch

**Specifications**

- Insulation Resistance: 1,000MΩ min. at 100V DC, pitch 0.4, 0.5  
1,000MΩ min. at 500V DC, pitch 0.65, 0.8, 1.27
- Dielectric Withstanding Voltage: 100V AC for 1 minute, pitch 0.4, 0.5  
500V AC for 1 minute, pitch 0.65  
700V AC for 1 minute, pitch 0.8, 1.27
- Contact Resistance: 30mΩ max. at 10mA/20mV max.
- Operating Temperature Range: -40°C to +150°C
- Mating Cycles: 10,000 insertions
- Contact Force: 20g to 80g per pin

**Materials and Finish**

- Housing: Polysulphone (PSF), glass-filled  
Polyethersulphone (PES), glass-filled  
Polyetherimide (PEI), glass-filled
- Contacts: Beryllium Copper (BeCu)
- Plating: Gold over Nickel



**Part Number (Details)**

**IC189 - 016 2 - 019 \* - \***

- Series No.
- No. of Contact Pins
- Number of Sides with Contacts
- Design Number
- Positioning Pin:  
N = Without Positioning Pin  
P = With Positioning Pin
- Protection Key\*\*  
K = With Protection Key  
Unmarked = Without Protection Key

\*\*Protection Key: Prevents IC from releasing during transportation

**Series IC235 (Open Top)**  
SOP, TSOP Type II

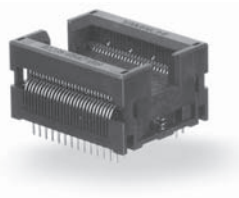
0.8 and 1.27mm Pitch

**Specifications**

- Insulation Resistance: 1,000MΩ min. at 500V DC
- Dielectric Withstanding Voltage: 700V AC for 1 minute
- Contact Resistance: 30mΩ max. at 10mA/20mV max.
- Operating Temperature Range: -40°C to +150°C
- Mating Cycles: 10,000 insertions min.
- Contact Force: 20g to 80g per pin

**Materials and Finish**

- Housing: Polyetherimide (PEI), glass-filled
- Contacts: Beryllium Copper (BeCu)
- Plating: Gold over Nickel



**Part Number (Details)**

**IC235 - 020 2 - 201 - \***

- Series No.
- No. of Contact Pins
- Number of Sides with Contacts
- Design Number
- Positioning Pin:  
N = Without Positioning Pin  
P = With Positioning Pin



Series IC191 (Open Top)  
Thin Small Outline Package (TSOP Type I)

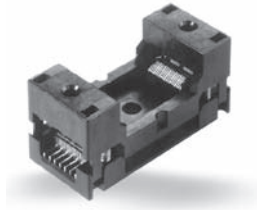
0.5mm Pitch

Specifications

- Insulation Resistance: 1,000MΩ min. at 500V DC
- Dielectric Withstanding Voltage: 700V AC for 1 minute
- Contact Resistance: 30mΩ max. at 10mA/20mV max.
- Current Rating: 1A max.
- Operating Temperature Range: -40°C to +170°C
- 40°C to +150°C (type -004\*)
- Mating Cycles: 10,000 insertions min.
- Contact Force: 20g to 80g per pin

Materials and Finish

- Housing: Polyetherimide (PEI), glass-filled
- Contacts: Beryllium Copper (BeCu)
- Plating: Gold over Nickel



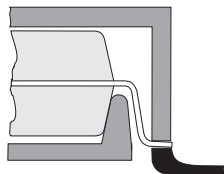
Part Number (Details)

IC191 - 032 2 - 001 \*

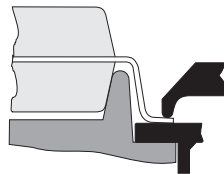
Series No.	IC191
No. of Contact Pins	032
Number of Sides with Contacts	2
Design Number	001
Positioning Pin:	*
	N = Without Positioning Pin
	Unmarked = With Positioning Pin

Gullwing-Leads - SO

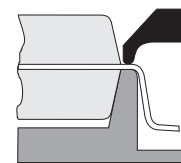
Contact Styles



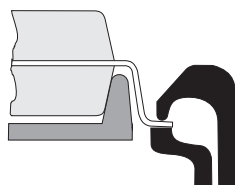
Series IC51



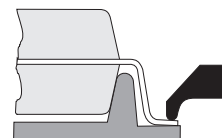
Series IC (two point Contact)



Series IC235

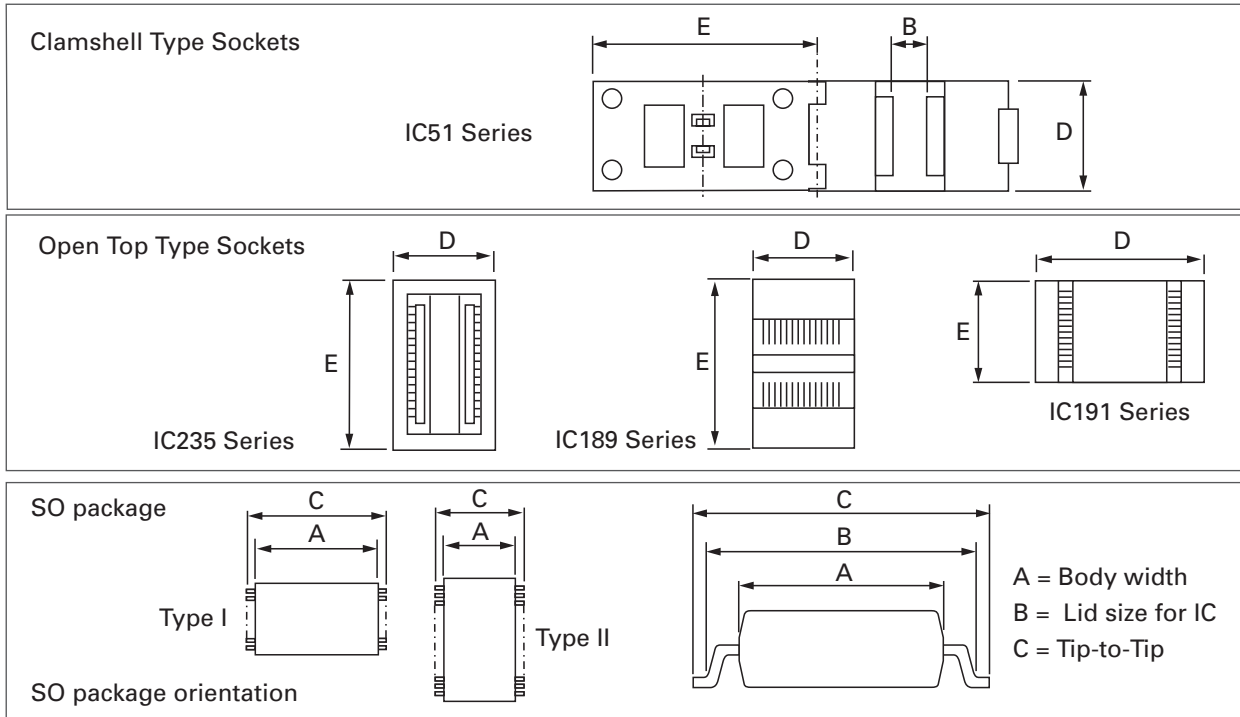


Series IC (kelvin)



Series IC189 / IC191

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C L = Clamshell, OT = Open Top, S = Separator, FB = Floating Base

0.40mm Pitch

Part Number	Pitch	Pin Count	IC Dimensions			Socket Dimensions D x E	Package Type	Special Note
			Body A	Lid Size IC and Socket B (max.)	Tip-to-Tip C			
IC51-0142-2074	0.4	14	4.40	5.70	6.40	16.0 x 34.0	SOP	CL/FB
IC51-0202-2072	0.4	20	4.40	5.70	6.40	16.0 x 34.0	SOP	CL/FB
IC51-0242-2071	0.4	24	4.40	5.70	6.40	16.0 x 34.0	SOP	CL/FB
IC189-0482-111*-2	0.4	48	-	12.40	4.00	34.0 x 16.0	TSOP I	OT
IC51-0482-2069	0.4	48	4.40	5.70	6.40	20.0 x 34.0	SOP	CL/FB
IC189-0522-124 *	0.4	52	-	8.69	10.49	30.5 x 18.0	TSOP I	OT
IC51-0562-2067	0.4	56	4.40	5.70	6.40	20.0 x 34.0	SOP	CL/FB
IC51-0802-2077	0.4	80	6.10	7.45	8.10	34.0 x 34.0	SOP	CL/FB

0.50mm Pitch

IC51-0242-1006-1	0.5	24	14.30	15.20	16.00	15.0 x 40.0	TSOP I	CL/FB
IC51-0302-2037	0.5	30	4.40	5.70	6.40	18.0 x 38.0	SOP	CL/FB
IC191-0322-001 *-*	0.5	32	18.40	-	20.00	40.0 x 16.0	TSOP I	OT
IC51-0322-1031-1	0.5	32	12.00	13.30	14.00	16.0 x 33.5	TSOP I	CL/FB
IC51-0322-1207-1	0.5	32	18.40	19.30	20.00	18.0 x 44.0	TSOP I	CL/FB
IC51-0322-883-1	0.5	32	14.00	14.50	16.00	16.0 x 39.0	TSOP I	CL/FB
IC51-0382-2036	0.5	38	4.40	5.70	6.40	25.0 x 38.0	SOP	CL/FB
IC189-0402-068 *	0.5	40	18.40	-	20.00	40.0 x 16.0	TSOP I	OT
IC191-0402-002 *-*	0.5	40	18.40	-	20.00	18.0 x 40.0	TSOP I	OT
IC51-0402-1174-1	0.5	40	18.40	19.30	20.00	18.0 x 44.0	TSOP I	CL/FB
IC51-0402-1557	0.5	40	12.00	13.40	14.00	20.0 x 44.0	TSOP I	CL/FB
IC189-0482-066 *	0.5	48	16.40	-	18.00	36.0 x 20.0	TSOP I	OT
IC189-0482-077 *	0.5	48	18.40	-	20.00	40.0 x 18.0	TSOP I	OT
IC189-0482-094 *	0.5	48	6.10	-	8.10	28.1 x 18.2	SOP	OT
IC191-0482-004 *-*	0.5	48	18.40	-	20.00	40.0 x 20.0	TSOP I	OT
IC51-0482-1099	0.5	48	16.40	17.60	18.00	20.0 x 44.0	TSOP I	CL/FB
IC51-0482-1513	0.5	48	6.10	7.20	8.10	22.0 x 38.0	SOP	CL/FB
IC51-0482-2018	0.5	48	18.40	19.15	20.00	20.0 x 44.0	TSOP I	CL/FB
IC53-0502-912	0.5	50	4.40	-	6.40	24.3 x 34.0	SOP	NO LID
IC189-0562-067 *	0.5	56	18.40	-	20.00	40.0 x 20.0	TSOP I	OT
IC191-0562-003 *	0.5	56	18.40	-	20.00	21.5 x 40.0	TSOP I	OT
IC51-0562-1514	0.5	56	6.10	7.20	8.10	29.0 x 38.0	SOP	CL/FB
IC53-0642-911	0.5	64	6.10	-	8.10	30.0 x 34.0	SOP	NO LID



0.55 / 0.6 / 0.635mm Pitch

Part Number	Pitch	Pin Count	A	B	C	D x E	Type	Note
IC51-0282-673-1	0.55	28	11.80	12.60	13.40	15.0 x 37.0	SOP	CL/FB
IC51-0322-910	0.60	32	14.00	14.60	15.20	17.5 x 39.0	SOP	CL/FB
IC51-1387 KS-15186	0.635	48	7.60	9.40	10.30	21.0 x 35.0	SOP	CL/S
IC51-0562-1387	0.635	56	7.60	9.40	10.30	21.0 x 35.0	SOP	CL/S

0.65mm Pitch

IC51-778 A104194-001	0.65	8	4.40	5.60	6.40	16.0 x 32.0	SOP	CL/S
IC51-0162-778	0.65	16	4.40	5.60	6.40	16.0 x 32.0	SOP	CL/S
IC51-0162-911	0.65	16	4.40	5.60	6.40	16.0 x 32.0	SOP	CL/FB
IC51-0242-1341	0.65	16	4.40	5.60	6.40	16.0 x 32.0	SOP	CL/S
IC51-755 KS-7514	0.65	16	5.60	6.70	7.60	16.0 x 32.0	SOP	CL/S
IC189-0202-038 *	0.65	20	6.10	-	8.10	24.0 x 22.5	SOP	OT
IC51-0202-779	0.65	20	4.40	5.60	6.40	16.0 x 32.0	SOP	CL/S
IC51-0202-912	0.65	20	4.40	5.60	6.40	16.0 x 32.0	SOP	CL/FB
IC51-755 KS-7631	0.65	20	5.60	6.70	7.60	16.0 x 32.0	SOP	CL/S
IC189-0242-081P	0.65	24	6.10	-	7.70	13.6 x 21.5	SOP	OT
IC51-0242-761	0.65	24	5.60	6.70	7.60	16.0 x 32.0	SOP	CL/S
IC51-0242-913	0.65	24	5.60	6.70	7.60	16.0 x 32.0	SOP	CL/FB
IC51-755 KS-13330	0.65	28	5.60	6.70	7.60	16.0 x 32.0	SOP	CL/S
IC51-0302-755	0.65	30	5.60	6.70	7.60	16.0 x 32.0	SOP	CL/S
IC189-0302-121	0.65	30	6.10	-	8.10	22.0 x 24.0	SOP	OT
IC51-0302-914	0.65	30	5.60	6.70	7.60	16.0 x 32.0	SOP	CL/FB
IC189-0382-037 *	0.65	38	6.10	-	8.10	24.0 x 22.5	SOP	OT
IC51-0402-1347	0.65	40	5.50	6.70	7.80	16.0 x 32.0	SOP	CL/S
IC51-0402-1396	0.65	40	6.30	7.20	8.20	16.0 x 32.0	SOP	CL/S
IC189-0482-047N	0.65	48	8.00	-	10.00	24.0 x 22.5	SOP	OT
IC51-0482-1163	0.65	48	7.60	9.60	10.16	21.0 x 36.0	SOP	CL/S

0.80mm Pitch

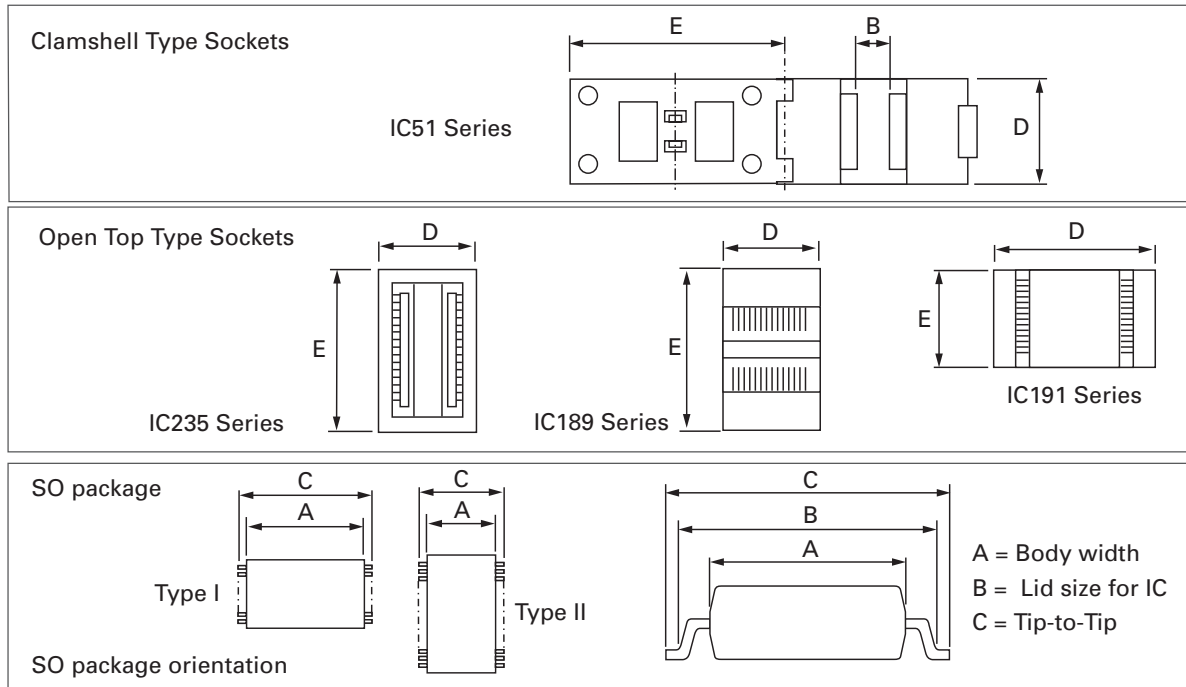
IC51-0122-1836	0.8	12	4.40	5.90	6.40	14.0 x 32.4	SOP	CL/S
IC51-0162-748	0.8	16	4.40	5.70	6.40	20.0 x 31.5	SOP	CL/S
IC51-0242-308	0.8	24	5.40	6.20	7.20	32.0 x 38.5	SOP	CL/FB
IC51-0242-577	0.8	24	7.80	9.30	10.00	22.0 x 32.5	SOP	CL/S
IC51-0362-309	0.8	36	8.40	11.00	12.10	32.0 x 38.5	SOP	FB
IC189-0422-025*-*	0.8	42	8.40	-	11.93	25.0 x 25.4	SOP	OT
IC51-0422-393	0.8	42	8.40	11.00	12.10	32.0 x 38.0	SOP	FB
IC51-0482-1009-2	0.8	48	13.70	15.10	16.00	28.0 x 42.5	SOP	FB
IC51-0502-1708	0.8	50	10.16	11.00	11.80	26.0 x 36.5	SOP	CL/S
IC189-0542-088 *	0.8	54	10.16	-	11.76	24.9 x 29.8	SOP	OT
IC189-0542-093 *	0.8	54	10.16	-	11.76	24.9 x 29.8	SOP	OT
IC51-0562-2144	0.8	56	13.30	15.15	16.00	22.0 x 48.5	SOP	CL/S
IC189-0622-084*-*	0.8	62	16.00	-	18.00	31.46 x 34.60	SOP	OT
IC189-0642-007 *-*	0.8	64	12.00	-	14.25	27.35 x 34.10	SOP	OT
IC189-0642-069 *-*	0.8	64	10.70	-	14.10	27.05 x 33.80	SOP	OT
IC189-0702-074 *	0.8	70	12.64	-	15.90	29.3 x 37.0	SOP	OT
IC51-0702-1965	0.8	70	12.80	14.90	15.90	36.0 x 42.0	SOP	CL/S
IC51-0442-1709	0.8	44 (50)	10.20	11.00	11.80	26.0 x 36.5	SOP	CL/S

1.00mm Pitch

IC51-0242-310-1	1.00	24	4.5	5.2	6.0	18.0 x 28.5	SOP	CL/S
IC51-0322-948	1.00	32	8.2	10.5	11.8	20.0 x 32.0	SOP	CL/S
IC51-0342-741	1.00	34	7.8	7.9	9.4	22.0 x 35.0	SOP	CL/S

1.25mm Pitch

IC51-0142-951	1.25	14	4.4	5.2	5.9	24.0 x 27.5	SOP	CL/S
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1.27mm Pitch

C L = Clamshell, OT = Open Top, S = Separator, FB = Floating Base

Part Number	Pitch	Pin Count	IC Dimensions			Socket Dimensions D x E	Package Type	Special Note
			Body A	Lid Size IC and Socket B (max.)	Tip-to-Tip C			
IC235-0082-236-*	1.27	8	7.00	-	8.60	16.8 x 12.0	SOP	OT
IC51-0082-1024	1.27	8	5.20	7.20	7.90	18.5 x 32.5	SOP	CL/FB
IC51-0082-763	1.27	8	4.10	5.4	6.00	14.0 x 30.0	SOP	CL/S
IC51-1035 KS-10460	1.27	8	4.00	5.40	6.00	22.0 x 27.2	SOP	CL/S
IC51-0142-1013	1.27	14	5.20	7.20	7.90	18.5 x 32.5	SOP	CL/FB
IC51-1035 KS-15187	1.27	14	4.00	5.40	6.00	22.0 x 27.2	SOP	CL/S
IC51-347 KS-7704	1.27	14	7.70	9.50	10.30	16.0 x 31.5	SOP	CL/S
IC189-0162-003 *-*	1.27	16	5.30	-	7.80	20.9 x 15.8	SOP	OT
IC189-0162-019 *-*	1.27	16	5.60	-	7.70	20.8 x 16.0	SOP	OT
IC51-0162-1025	1.27	16	5.20	7.20	7.90	18.5 x 32.5	SOP	CL/FB
IC51-0162-1035	1.27	16	4.00	5.40	6.00	22.0 x 27.2	SOP	CL/S
IC51-0162-1042	1.27	16	4.00	5.40	6.00	22.0 x 27.2	SOP	CL/S
IC51-0162-150	1.27	16	4.50	4.90	6.40	26.0 x 35.0	SOP	CL/S
IC51-0162-271-1	1.27	16	5.50	5.22	8.00	13.0 x 28.5	SOP	CL/S
IC51-0162-271-2	1.27	16	5.00	5.22	8.00	13.0 x 28.5	SOP	CL/S
IC51-0162-271-3	1.27	16	4.50	5.22	8.00	13.0 x 28.5	SOP	CL/S
IC51-0162-272-1	1.27	16	5.50	5.72	8.00	13.0 x 28.5	SOP	CL/S
IC51-0162-273-1	1.27	16	5.50	6.22	8.00	13.0 x 28.5	SOP	CL/S
IC51-0162-302	1.27	16	5.35	7.20	7.80	12.0 x 30.5	SOP	CL/S
IC51-0162-658	1.27	16	4.40	5.70	7.00	26.0 x 31.5	SOP	CL/S
IC51-0162-902-2	1.27	16	5.30	7.20	8.20	12.0 x 28.5	SOP	CL/S
IC51-347 KS-6768	1.27	18	7.70	9.50	10.30	18.0 x 31.5	SOP	CL/S
IC189-0202-017	1.27	20	5.60	-	7.70	24.0 x 22.5	SOP	OT
IC51-0202-1026	1.27	20	5.20	7.20	7.90	18.5 x 32.5	SOP	CL/FB
IC51-0202-164	1.27	20	5.30	6.70	8.50	32.0 x 36.5	SOP	CL/S
IC51-0202-347	1.27	20	7.70	9.53	10.30	16.0 x 31.5	SOP	CL/S



1.27mm Pitch

Part Number	Pitch	Pin Count	IC Dimensions			Socket Dimensions D x E	Package Type	Special Note
			Body A	Lid Size IC and Socket B (max.)	Tip-to-Tip C			
IC51-0202-714	1.27	20	7.60	9.30	10.30	18.0 x 32.0	SOP	CL/FB
IC51-0202-932-1	1.27	20	5.30	6.50	7.20	15.5 x 26.0	SOP	CL/S
IC51-334 KS-13574	1.27	20	7.50	9.40	10.30	18.0 x 32.0	SOP	CL/S
IC51-0222-803	1.27	22	5.50	6.00	6.60	16.5 x 29.0	SOP	CL/S
IC189-0242-040 *	1.27	24	7.15	-	10.30	24.0 x 22.5	SOP	OT
IC51-0242-303-1	1.27	24	5.30	7.30	8.00	18.0 x 28.5	SOP	CL/S
IC51-0242-367-1	1.27	24	9.40	10.43	11.20	18.0 x 32.5	SOP	CL/S
IC51-0242-793	1.27	24	5.50	7.10	8.00	18.5 x 29.0	SOP	CL/S
IC51-0242-980	1.27	24	5.20	7.20	7.90	18.5 x 32.5	SOP	CL/FB
IC51-334 KS-6411	1.27	24	7.50	9.40	10.30	22.0 x 32.5	SOP	CL/S
IC51-0262-1339	1.27	26	7.60	8.40	9.20	23.0 x 35.5	SOP	CL/FB
IC189-0282-042 *	1.27	28	7.15	-	10.30	24.0 x 22.5	SOP	OT
IC51-0282-165	1.27	28	7.40	8.40	9.40	40.0 x 50.0	SOP	CL/S
IC51-0282-334-1	1.27	28	7.50	9.40	10.30	22.0 x 32.5	SOP	CL/S
IC51-0282-474	1.27	28	8.45	11.10	12.00	22.0 x 32.5	SOP	CL/S
IC51-0282-474-2	1.27	28	8.45	10.70	12.00	22.0 x 32.5	SOP	CL/S
IC51-0282-986	1.27	28	7.60	9.60	10.30	23.0 x 35.5	SOP	CL/FB
IC51-0302-371-1	1.27	30	7.80	9.60	10.30	24.0 x 32.5	SOP	CL/S
IC51-0302-904	1.27	30	7.80	9.20	10.30	24.0 x 32.5	SOP	CL/S
IC189-0322-004 *.-*	1.27	32	11.40	-	14.10	27.2 x 26.5	SOP	OT
IC189-0322-005 *.-*	1.27	32	11.00	-	14.00	27.2 x 27.5	SOP	OT
IC51-0322-304-2	1.27	32	8.40	11.00	12.00	24.0 x 32.5	SOP	CL/S
IC51-0322-667	1.27	32	11.60	13.10	14.00	26.0 x 33.0	SOP	CL/S
IC51-0322-667-2	1.27	32	11.60	13.10	14.00	26.0 x 33.0	SOP	CL/S
IC51-0322-937	1.27	32	8.80	10.90	12.00	26.0 x 31.5	SOP	CL/S
IC51-0322-950	1.27	32	11.30	13.00	15.00	28.0 x 42.5	SOP	CL/FB
IC51-0402-1197	1.27	40	10.90	12.90	13.70	20.0 x 52.0	SOP	CL/S
IC51-0402-991	1.27	40	11.60	13.00	14.00	30.0 x 34.5	SOP	CL/S
IC189-0442-065 *	1.27	44	13.20	-	16.00	29.11 x 34.10	SOP	OT
IC51-0442-1208	1.27	44	12.80	14.70	15.60	22.0 x 55.0	SOP	CL/S
IC51-0442-1315	1.27	44	13.00	15.00	15.80	33.0 x 40.5	SOP	CL/FB
IC51-0442-1536	1.27	44	13.40	14.70	15.60	22.0 x 55.0	SOP	CL/S

Gullwing-Leads - SO