



*SOP variations e.g. TSSOP...

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

0.5 to 1.27mm Pitch

Specifications

Insulation Resistance:	1,000M Ω min. at 500V DC
Dielectric Withstanding Voltage:	700V AC for 1 minute
Contact Resistance:	30m Ω 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

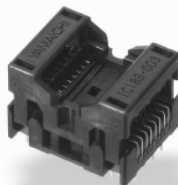
0.4 to 1.27mm Pitch

Specifications

Insulation Resistance:	1,000M Ω min. at 100V DC, pitch 0.4, 0.5 1,000M Ω 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:	30m Ω 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 PinProtection 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

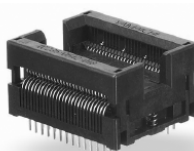
0.8 and 1.27mm Pitch

Specifications

Insulation Resistance:	1,000M Ω min. at 500V DC
Dielectric Withstanding Voltage:	700V AC for 1 minute
Contact Resistance:	30m Ω 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)

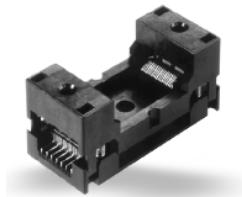
0.5mm Pitch

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.

No. of Contact Pins

Number of Sides
with Contacts

Design Number

Positioning Pin:
N = Without Positioning Pin
Unmarked = With Positioning Pin

Protection Key**
K = With Protection Key
Unmarked = Without Protection Key

**Protection Key: Prevents IC from releasing during transportation

Series IC363 (Open Top) Thin Small Outline Package (TSOP Type II)

0.65 and 0.8mm 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 60g per pin
Operating Force:	2.5kg max.

Materials and Finish

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



Part Number (Details)

IC363 - 0** 2 - 00* *

Series No.

No. of Contact Pins

Number of Sides
with Contacts

Design No.

Positioning Pin:
N = Without Positioning Pin
P = With Positioning Pin

Series IC369 (Open Top) Thin Small Outline Package (TSOP Type II)

0.8mm 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:	45g ±15g per pin

Materials and Finish

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



Part Number (Details)

IC369 - 054 2 - *

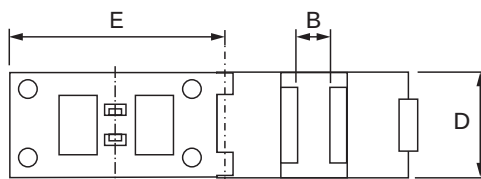
Series No.

No. of Contact Pins

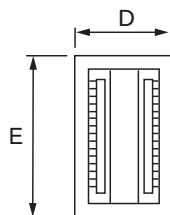
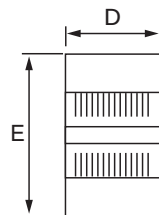
Number of Sides
with Contacts

Positioning Pin:
N = Without Positioning Pin
P = With Positioning Pin

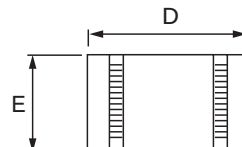
Clamshell Type Sockets

IC51 Series
QFP and BQFP

Open Top Type Sockets

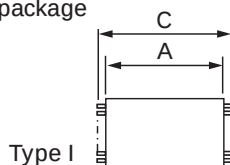
IC363 Series
IC369 Series
IC235 Series

IC189 Series

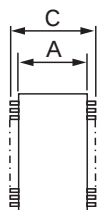


IC191 Series

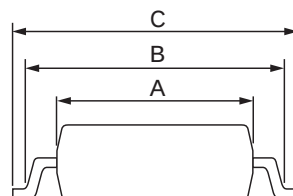
SO package



Type I



Type II

A = Body width
B = Lid size for IC
C = Tip-to-Tip

SO package orientation

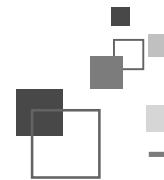
0.40mm Pitch

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	PCB Layout
			Body A	Lid Size IC and Socket B (max.)	Tip-to-Tip C				
IC189-0482-111 *-2	0.4	48	12.4		14.0	34.0 x 16.0	SOP	OT	
IC189-0522-124 *	0.4	52	8.69		10.49	30.5 x 18.0	SOP	OT	

0.50mm Pitch

IC51-0242-1006-1	0.5	24	14.0	15.2	16.0	15.0 x 40.0	TSOP I	CL/FBDD	
Discontinued									
IC191-0322-001 **	0.5	32	18.0		20.0	16.0 x 40.0	TSOP I	OT	
IC51-0322-1031-1	0.5	32	12.0	13.3	14.0	16.0 x 33.5	TSOP I	CL/FB	
IC51-0322-1207-1	0.5	32	18.0	19.3	20.0	18.0 x 44.0	TSOP I	CL/FB	
IC51-0322-1219	0.5	32	14.0	15.2	16.0	19.0 x 40.0	TSOP I	CL/FB	
IC51-0322-883-1	0.5	32	14.0	14.5	16.0	16.0 x 39.0	TSOP I	CL/FB	
Discontinued									
IC189-0402-068 *	0.5	40	18.4		20.0	40.0 x 16.0	TSOP I	OT	
IC191-0402-002 **	0.5	40	18.4		20.0	18.0 x 40.0	TSOP I	OT	
IC51-0402-1174-1	0.5	40	18.4	19.3	20.0	18.0 x 44.0	TSOP I	CL/FB	
IC51-0402-1557	0.5	40	12.0	13.4	14.0	20.0 x 44.0	TSOP I	CL/FB	
IC189-0482-066 *-2	0.5	48	16.4		18.0	36.0 x 20.0	TSOP I	OT	
IC189-0482-066 *	0.5	48	16.4		18.0	36.0 x 20.0	TSOP I	OT	
IC189-0482-077 *	0.5	48	18.4		20.0	40.0 x 18.0	TSOP I	OT	
IC189-0482-094 *	0.5	48	6.1		8.1	28.1 x 18.2	TSOP I	OT	
IC191-0482-004 **	0.5	48	18.0		20.0	20.0 x 40.0	TSOP I	OT	
IC51-0482-1099	0.5	48	16.0	17.6	18.0	20.0 x 44.0	TSOP I	CL/FB	
IC51-0482-2018	0.5	48	18.0	19.15	20.0	20.0 x 44.0	TSOP I	CL/FB	
IC189-0562-067 *	0.5	56	18.4		20.0	40.0 x 20.0	TSOP I	OT	
Discontinued									
IC191-0562-003 *	0.5	56	18.0		20.0	21.5 x 40.0	TSOP I	OT	
IC189-0682-097 *	0.5	68	8.38		9.98	30.0 x 26.8	TSOP II	OT	



0.55mm Pitch

Part Number	Pitch	Pin Count	A	B	C	D x E	Type	Note	PCB's
IC51-0282-673-1	0.55	28	11.8	12.6	13.4	15.0 x 37.0	SOP	CL/FB	

0.6 and 0.635mm Pitch

IC51-0322-910	0.60	32	14.0	14.6	15.2	17.5 x 39.0	SOP	FB	
IC51-1387.KS-15186	0.635	48	7.6	9.4	10.3	21.0 x 35.0	SOP	S	
IC51-0562-1387	0.635	56	7.6	9.4	10.3	21.0 x 35.0	SOP	S	

0.65mm Pitch

IC51-0162-778	0.65	16	4.4	5.6	6.4	16.0 x 32.0	SOP	S	
IC51-0162-911	0.65	16	4.4	5.6	6.4	16.0 x 32.0	SOP	FB	
IC51-755.KS-7514	0.65	16	5.6	6.7	7.6	16.0 x 32.0	SOP	S	
IC189-0202-038 *	0.65	20	6.1		8.1	24.0 x 22.5	SOP	OT	
IC51-0202-779	0.65	20	4.4	5.6	6.4	16.0 x 32.0	SOP	S	
IC51-0202-912	0.65	20	4.4	5.6	6.4	16.0 x 32.0	SOP	FB	
IC51-755.KS-7631	0.65	20	5.6	6.7	7.6	16.0 x 32.0	SOP	S	
IC189-0242-081 *	0.65	24	6.1		7.7	13.6 x 21.5	SOP	OT/	
IC51-0242-761	0.65	24	5.6	6.7	7.6	16.0 x 32.0	SOP	S	
IC51-0242-913	0.65	24	5.6	6.7	7.6	16.0 x 32.0	SOP	FB	
IC51-755.KS-13330	0.65	28	5.6	6.7	7.6	16.0 x 32.0	SOP	S	
IC189-0302-121 *	0.65	30	6.1		8.1	22.0 x 24.0	SOP	OT	
IC51-0302-755	0.65	30	5.6	6.7	7.6	16.0 x 32.0	SOP	S	
IC51-0302-914	0.65	30	5.6	6.7	7.6	16.0 x 32.0	SOP	FB	
IC189-0382-037 *	0.65	38	6.1		8.1	24.0 x 22.5	SOP	OT	
IC189-0482-047 *	0.65	48	8.0		10.0	24.0 x 22.5	SOP	OT	
IC363-0662-003 *	0.65	66	10.16		11.76	28.0x 20.20	SOP	S	
IC51-0722-1955-1	0.65	72	11.0	12.3	13.03	39.0 x 42.0	SOP	S	
IC189-0882-099 *	0.65	88	16.0		18.0	32.0 x 37.75	TSOP II	OT	

0.80mm Pitch

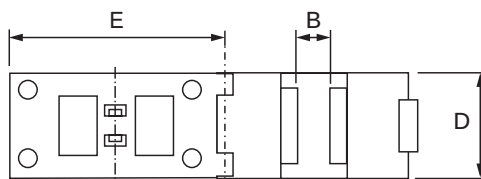
IC51-0122-1836	0.80	12	4.4	5.9	6.4	14.0 x 32.4	SOP	CL/S	
IC51-0242-308	0.80	24	5.4	6.2	7.2	32.0 x 38.5	SOP	CL/FB	
IC51-0242-577	0.80	24	7.8	9.3	10.0	22.0 x 32.5	SOP	CL/S	
IC51-0362-309	0.80	36	8.4	11.0	12.1	32.0 x 38.5	SOP	CL/FB	
IC51-0402-708	0.80	40	8.8	10.6	12.4	19.0 x 32.5	SOP	CL/S	
IC235-0402-205-*	0.80	40	10.16		15.9	19.9 x 24.0	SOP	OT	
IC189-0422-025 *-*	0.80	42	8.4		11.76	25.0 x 25.4	SOP	OT	
IC51-0422-393	0.80	42	8.4	11.0	12.1	32.0 x 38.0	SOP	CL/FB	
IC235-0442-207-*	0.80	44	10.16		11.76	19.9 x 24.0	SOP	OT	
IC51-0442-1709	0.80	44	10.2	11.0	11.8	26.0 x 36.5	SOP	CL/S	
IC235-0442-215-*	0.80	44	10.16		11.76	20.2 x 26.4	SOP	OT	
IC51-0482-1009-2	0.80	48	13.7	15.1	16.0	28.0 x 42.5	SOP	CL/FB	
IC235-0502-209-*	0.80	50	10.16		11.76	20.2 x 26.4	SOP	OT	
IC363-0502-001 *	0.80	50	10.16		11.76	26.4 x 20.2	SOP	S	
IC51-0502-1708	0.80	50	10.2	11.0	11.8	26.0 x 36.5	SOP	CL/S	
IC235-0542-218-2	0.80	54	12.7		14.3	23.0 x 28.0	SOP	OT	
IC189-0542-088 *	0.80	54	10.16		11.76	24.9x29.8	TSOP II	OT	
IC189-0542-093 *	0.80	54	10.16		11.76	24.9x29.8	TSOP II	OT	
IC235-0542-218-*	0.80	54	12.7		14.3	23.0 x 28.0	SOP	OT	
IC235-0542-250-*	0.80	54	10.16		11.76	20.2 x 28.0	SOP	OT	
IC363-0542-002 *	0.80	54	10.16		11.76	28.0 x 20.2	SOP	CL/S	
IC369-0542-002	0.80	54	10.16		11.76	28.0 x 20.2	SOP	CL/S	
IC51-0562-2144	0.80	56	13.3	15.15	16.0	22.0 x 48.5	SOP	CL/S	
IC189-0622-084 *-*	0.80	62	16.0		18.0	31.46 x 34.6	SOP	OT	
IC189-0642-007 *-*	0.80	64	12.0		14.25	27.35 x 34.1	SOP	OT	
IC189-0642-028 *-*	0.80	64	11.8		13.8	27.35 x 34.1	SOP	OT	
IC189-0642-041 *-*	0.80	64	12.0		14.25	27.35 x 34.1	SOP	OT	
IC189-0642-069 *-*	0.80	64	10.7		14.1	27.05 x 33.8	SOP	OT	
IC189-0702-074 *	0.80	70	12.64		15.9	29.3 x 37.0	SOP	OT	

Click on radio button for PCB dimensions

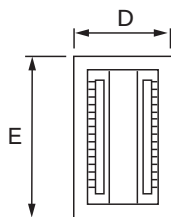
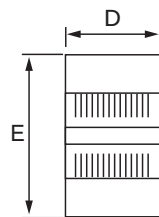
Click on radio button for PCB dimensions

Click on radio button for PCB dimensions

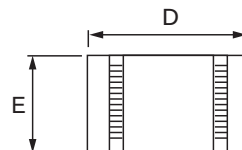
Clamshell Type Sockets

IC51 Series
QFP and BQFP

Open Top Type Sockets

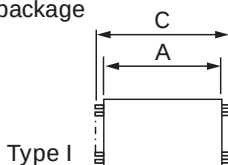
IC363 Series
IC369 Series
IC235 Series

IC189 Series

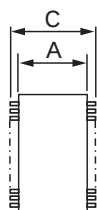


IC191 Series

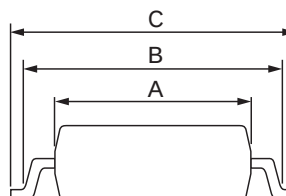
SO package



Type I



Type II

A = Body width
B = Lid size for IC
C = Tip-to-Tip

SO package orientation

1.00mm 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	PCB Layout (see page)
			Body A	Lid Size IC and Socket B (max.)	Tip-to-Tip C				
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	

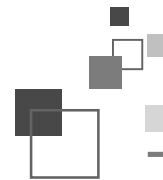
1.25mm Pitch

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

IC235-0082-236-*	1.27	8	7.0		8.6	16.8 x 12.0	SOP	OT	
IC51-0082-1024	1.27	8	5.2	7.2	7.9	18.5 x 32.5	SOP	CL/FB	
IC51-1035.KS-10460	1.27	8	4.0	5.4	6.0	22.0 x 27.20	SOP	CL/S	
IC51-0142-084	1.27	14	4.4	5.7	6.5	22.0 x 25.0	SOP	CL/S	
IC51-0142-1013	1.27	14	5.2	7.2	7.9	18.5 x 32.5	SOP	CL/FB	
IC51-1035.KS-15187	1.27	14	4.0	5.4	6.0	22.0 x 27.2	SOP	CL/S	
IC189-0162-003 *-*	1.27	16	5.6		7.8	20.8 x 16.0	SOP	OT	
IC189-0162-019 *-*	1.27	16	5.3		7.7	20.9 x 16.1	SOP	OT	
IC51-0162-1025	1.27	16	5.2	7.2	7.9	18.5 x 32.5	SOP	CL/FB	
IC51-0162-1035	1.27	16	4.0	5.4	6.0	22.0 x 27.2	SOP	CL/S	
IC51-0162-1042	1.27	16	4.0	5.4	6.2	22.0 x 27.2	SOP	CL/S	
IC51-0162-271-1	DISCONTINUED								

Applicable Dimensions (Small Outline Packages, Gullwing Leads)



SMT Devices

1.27mm Pitch

Part Number	Pitch	Pin Count	IC Dimensions			Socket Dimensions D x E	Package Type	Special Note	PCB Layout see Page
			Body A	Lid Size IC and Socket B (max.)	Tip-to-Tip C				
IC51-0162-271-2	DISCONTINUED								
IC51-0162-271-3	DISCONTINUED								
IC51-0162-272-1	1.27	16	5.5	5.7	6.5	13.0 x 26.5	SOP	CL/S	
IC51-0162-273-1	1.27	16	5.5	6.22	7.0	13.0 x 26.5	SOP	CL/S	
IC51-0162-658	1.27	16	4.4	6.2	7.0	26.0 x 31.5	SOP	CL/S	
IC51-0162-902-2	1.27	16	5.3	7.2	8.2	12.0 x 28.5	SOP	CL/S	
IC51-347.KS-7704	1.27	16	7.7	9.5	10.3	18.0 x 31.5	SOP	CL/S	
IC51-347.KS-6768	1.27	18	7.7	9.5	10.3	16.0 x 31.5	SOP	CL/S	
IC235-0202-201-*	1.27	20	7.56		9.22	17.3 x 22.0	SOP	OT	
IC51-0202-1026	1.27	20	5.2	7.2	7.9	18.5 x 32.5	SOP	CL/FB	
IC51-0202-347	1.27	20	7.7	9.5	10.3	16.0 x 31.5	SOP	CL/S	
IC51-0202-714	1.27	20	7.6	9.3	10.3	18.0 x 32.0	SOP	CL/FB	
IC51-0202-932-1	1.27	20	5.4	6.5	7.2	15.5 x 26.0	SOP	CL/S	
IC51-334.KS-13574	1.27	20	7.5	9.4	10.3	18.0 x 32.0	SOP	CL/S	
IC51-0222-803	1.27	22	5.5	6.0	6.6	16.5 x 29.0	SOP	CL/S	
IC189-0242-021 *-*	1.27	24	5.60		7.7	24.0 x 22.5	SOP	OT	
IC189-0242-040	1.27	24	7.15		10.3	24.0 x 22.5	SOP	OT	
IC51-0242-303-1	1.27	24	5.3	7.3	8.0	18.0 x 28.5	SOP	CL/S	
IC51-0242-303-3	1.27	24	5.35	6.0	7.0	18.0 x 30.5	SOP	CL/S	
IC51-0242-367-1	1.27	24	9.4	10.43	11.2	18.0 x 32.5	SOP	CL/S	
IC51-0242-793	1.27	24	5.5	7.1	8.0	18.5 x 29.0	SOP	CL/S	
IC51-0242-980	1.27	24	5.2	7.2	7.9	18.5 x 32.5	SOP	CL/FB	
IC235-0242-202-*	1.27	24	7.56		9.22	17.3 x 22.0	SOP	OT	
IC235-0242-203-*	1.27	24	10.16		11.76	19.9 x 23.3	SOP	OT	
IC51-334.KS-6411	1.27	24	7.5	9.4	10.3	22.0 x 32.5	SOP	CL/S	
IC235-0262-206-*	1.27	26	7.56		9.22	17.3 x 22.0	SOP	OT	
IC51-0262-1339 *	1.27	26	7.6	8.4	9.2	23.0 x 35.5	SOP	CL/FB	
IC189-0282-042 *	1.27	28	7.15		10.3	24.0 x 22.5	SOP	OT	
IC235-0282-204-*	1.27	28	10.16		11.76	19.9 x 23.3	SOP	OT	
IC51-0282-334-1	1.27	28	7.5	9.4	10.3	22.0 x 32.5	SOP	CL/S	
IC51-0282-474	1.27	28	8.4	11.1	12.0	22.0 x 32.5	SOP	CL/S	
IC51-0282-986	1.27	28	7.6	9.6	10.3	23.0 x 35.5	SOP	CL/FB	
IC51-0302-371-2	1.27	30	8.0	9.2	10.3	24.0 x 32.5	SOP	CL/S	
IC51-0302-904	1.27	30	7.8	9.2	10.3	24.0 x 32.5	SOP	CL/S	
IC189-0322-004 *-*	1.27	32	11.4		14.1	27.2 x 26.5	SOP	OT	
IC189-0322-005 *-*	1.27	32	11.0		14.0	27.2 x 27.5	SOP	OT	
IC235-0322-232-*	1.27	32	10.16		11.76	20.2 x 26.4	SOP	OT	
IC51-0322-304-2	1.27	32	8.4	11.0	12.0	24.0 x 32.5	SOP	CL/S	
IC51-0322-667	1.27	32	11.6	13.1	14.0	26.0 x 33.0	SOP	CL/S	
IC51-0322-667-2	1.27	32	11.6	13.1	14.0	26.0 x 33.0	SOP	CL/S	
IC51-0322-937	1.27	32	8.8	10.9	12.0	26.0 x 31.5	SOP	CL/S	
IC51-0322-950	1.27	32	11.3	13.0	15.0	28.0 x 42.5	SOP	CL/FB	
IC189-0402-096 *	1.27	40	11.3		14.1	27.2 x 31.6	SOP	OT	
IC51-0402-1197	1.27	40	10.9	12.9	13.7	20.0 x 52.0	SOP	CL/S	
IC51-0402-991	1.27	40	11.6	13.0	14.0	30.0 x 34.5	SOP	CL/S	
IC51-0442-1208	1.27	44	12.8	14.7	15.6	22.0 x 55.0	SOP	CL/SS	
IC51-0442-1315	1.27	44	13.0	15.0	15.8	33.0 x 40.5	SOP	CL/FB	
IC51-0442-1536	1.27	44	13.4	14.7	15.6	22.0 x 55.0	SOP	CL/SS	

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