

SPECIFICATION FOR  
 CONNECTOR USED FOR CIC WITH 1mm CONTACT SPACING  
 COPING WITH AUTOMATIC MOUNTING & SMT  
SFW\_\_S-6ST\_E\_LF

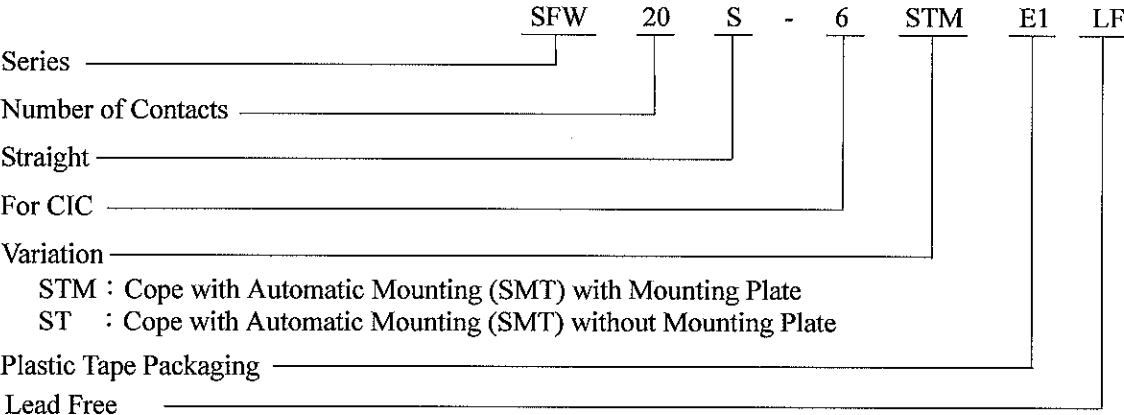
1. SCOPE

This specification covers the requirements for the connector (SFW\_\_S-6ST\_E\_LF) which the edge of 1mm spacing CIC (Conductor such as silver paste, carbon etc.) can be connected by Zero-Insertion-Force method and which copes with automatic mounting and SMT.

2. APPLICABLE STANDARDS

- JIS C 5402 Method for Test of Connectors for Electronic Equipment
- JIS C 0806 Packaging of Electronic Components on Continuous Tapes (Surface Mount Components)
- UL - 94 TESTS FOR FLAMMABILITY OF PLASTIC MATERIALS FOR PARTS IN DEVICES AND APPLIANCES.

3. CATALOG No. STRUCTURE



4. SHAPE, DIMENSIONS AND MATERIALS

See attached drawings.

5. ACCOMMODATED CONDUCTORS (CIC)

See attached drawings.

6. PACKAGING CONDITION

See attached drawings.

7. RECOMMENDED MOUNTING PATTERN DIMENSIONS

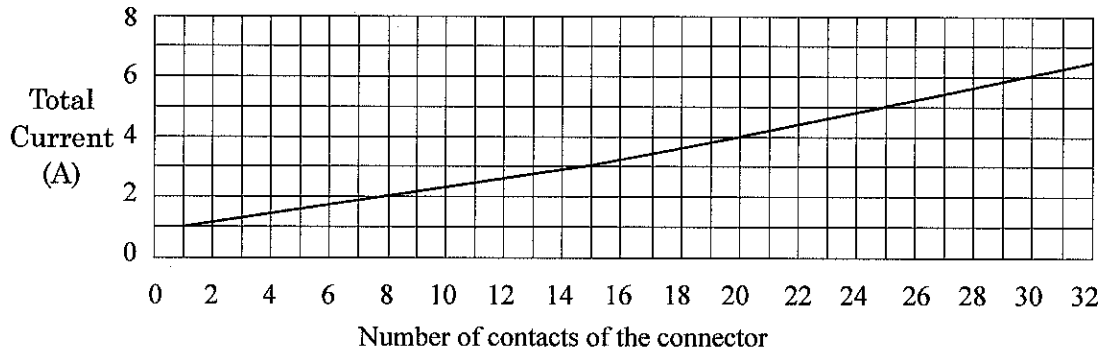
See attached drawings.

8. RATING

- 8-1. Voltage : A.C.100V      D.C.100V
- 8-2. Current : A.C.1A        D.C.1A (Refer to the following note.)
- 8-3. Operating Temperature : -55°C ~ +85°C  
(Including terminal temperature rises)

NOTE

Allowable maximum current for one contact is 1A. Total allowable current for a whole connector is the value which is shown in the following figure.



9. PERFORMANCE CHARACTERISTICS

9-1. Electrical Performance

No.	Test Item	Test Method	Requirements
9-1-1	Contact resistance	<p>1) Measure contact resistance between <math>V_1</math>-<math>V_2</math> by voltage drop method using the following circuit by mating accommodated conductor stipulated in clause 5 after reflow soldering the connector on the P.C.B. and cleaning flux dregs.</p>	<p>1) Initial value : Less than <math>30\Omega</math></p> <p>2) Contact resistance after the test is in accordance with the value specified in each test item.</p>
9-1-2	Insulation resistance	<p>1) Measure insulation resistance between adjacent contacts in a connector individual.</p> <p>2) Test voltage : D.C.500V</p> <p>3) Read value one minute after applying test voltage.</p>	<p>1) More than <math>500M\Omega</math></p>
9-1-3	Dielectric withstanding voltage	<p>1) For one minute, apply A.C.500V between adjacent contacts in a connector individual.</p> <p>2) Set current : A.C.1mA</p>	<p>1) Free from any short circuit and insulation breakdown.</p>

## 9-2. Mechanical Performance

No.	Test Item	Test Method	Requirements
9-2-1	Durability (Slider operation)	1)Measure contact resistance before and after the test by the method in clause 9-1-1 by using the accommodated conductor specified in clause 5. 2)Number of slider open and close : 10 times (Insert and extract the conductor for each opening of the slider.)	1)Initial contact resistance : Less than 30Ω 2)Contact resistance after the test : Less than 50Ω 3)Free from any defect such as break etc. on the connector and conductor.
9-2-2	Vibration (Sinusoidal)	JIS C 0040 1)Use the conductor in clause 5. 2)Kind of test : Sweep endurance test 3)Frequency range : 10 ~ 500 Hz 4)Full amplitude, acceleration amplitude : 1.5mm or 98m/s <sup>2</sup> 5)Sweep rate : About 11 minutes for (10-500-10Hz) 6)Test time : 6 hours (2 hours for each axis)	1)During the test, no circuit opening for more than 1μsec. 2)Free from any defect such as break, deformation, loosening and falling off etc. on each portion of the connector.

## 9-3. Environmental Performance

No.	Test Item	Test Method	Requirements															
9-3-1	Damp heat (Steady state)	JIS C 0022 1)Measure contact resistance before and after the test by the method in clause 9-1-1 by using the accommodated conductor specified in clause 5. 2)Measure insulation resistance after the test by the method in clause 9-1-2. 3)Bath temperature : 40°C 4)Bath humidity : 90 ~ 95%RH 5)Period of exposure : 48 hours 6)Expose conductor and connector after mating them (Without insertion and extraction) and dry them naturally after posttreatment.	1)Initial contact resistance : Less than 30Ω 2)Contact resistance after the test : Less than 50Ω 3)Insulation resistance after the test : More than 100MΩ															
9-3-2	Change of temperature	JIS C 0025 1)Measure contact resistance before and after the test according to the method in clause 9-1-1 by using accommodated conductor in clause 5. 2)One cycle of temperature is as follow and test 5 cycles. <table border="1" data-bbox="614 1769 1021 1939"> <thead> <tr> <th>Step</th> <th>Temp.(°C)</th> <th>Time(min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-55±3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25±2</td> <td>2 ~ 3</td> </tr> <tr> <td>3</td> <td>85±2</td> <td>30</td> </tr> <tr> <td>4</td> <td>25±2</td> <td>2 ~ 3</td> </tr> </tbody> </table> 3)Expose conductor and connector by mating them and leave them under normal temperature.	Step	Temp.(°C)	Time(min.)	1	-55±3	30	2	25±2	2 ~ 3	3	85±2	30	4	25±2	2 ~ 3	1)Initial contact resistance : Less than 30Ω 2)Contact resistance after the test : Less than 50Ω 3)Free from any defect such as crack, warping and deformation etc. on each portion the connector.
Step	Temp.(°C)	Time(min.)																
1	-55±3	30																
2	25±2	2 ~ 3																
3	85±2	30																
4	25±2	2 ~ 3																

## 9-4. Other performance

No.	Test Item	Test Method	Requirements
9-4-1	Soldering (Resistance to reflow soldering)	1)Solder by setting reflow bath on the following condition. 2)Preheating : 150±10°C, 60~120 sec. 3)Soldering : 240±5°C, 30±1sec. NOTE : Temperature must be measured at contact terminal portion and peak temperature on the upper surface of P.C.B must be less than 260°C. 4)Solder paste to be used is JIS Z 3282 H60A or H63A. Soldering particle is more than 200 mesh and flux is inactive rosin family flux.	1)Contact resistance after the test : Less than 50Ω 2)Insulation resistance after the test : More than 100MΩ 3)No short circuit and insulation breakdown for dielectric withstanding voltage test after this test. 4)Free from any damage on performance and contact performance after soldering.
9-4-2	Soldering (Solderability) (Reflow)	1)Solder by setting reflow bath on the following condition. 2)Preheating : 150±10°C, 60~120 sec. 3)Soldering : 230±5°C,10±1sec. NOTE : Temperature must be measured at contact terminal portion and peak temperature on the upper surface of P.C.B must be less than 260°C. 4)Solder paste to be used is JIS Z 3282 H60A or H63A. Soldering particle is more than 200 mesh and flux is inactive rosin family flux.	1)Actual soldered area must be more than 90% of the dipped area intended to be soldered.
9-4-3	Conductor retention force (Reference)	1)Measure initial retention force after inserted and locked by using accommodated conductor specified in clause 5.	1)More than 0.49N/contact for CIC (More than 50g/contact for CIC)

## 10. INDICATION AND PACKAGING

## 10-1. Indication

- 1) Catalog number and lot number are not indicated on the connector.
- 2) Catalog number and quantity shall be indicated on the surface of the package box.

## 10-2. Packaging

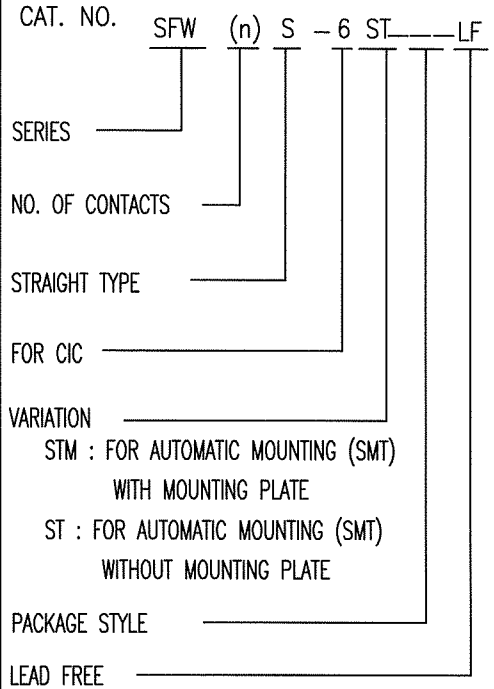
- 1) The connector individuals are packed by tapes with specified quantity in accordance with [JIS C 0806 “Packaging of Electronic Components on Continuous Tapes (Surface Mount components)” ] and put into package box in accordance with our packaging specification.

## 11. Remarks

- 11-1. Retention force for accommodated conductor specified in clause 9-4-3 differs due to it's kind, structure and surface treatment of conductor. Therefore, the value of retention force specified in the clause for performance is reference value.
- 11-2. Since this connector can not be used for FPC(Flexible Printed Circuit) and FFC(Flexible Flat Cable) as accommodated conductor, please consult us separately.
- 11-3. Please refer to the “Handing procedures and remarks” before use.

CAT. NO. & DIMENSIONS

NOTE3	NO. OF CONTACTS (n)	CAT. NO.	DIMENSIONS (NOTE2)		
			A ±0.2	B ±0.2	C ±0.2
	4	SFW4S-6ST___LF	10.4	5.24	3
	5	SFW5S-6ST___LF	11.4	6.24	4
	6	SFW6S-6ST___LF	12.4	7.24	5
*	7	SFW7S-6ST___LF	13.4	8.24	6
	8	SFW8S-6ST___LF	14.4	9.24	7
*	9	SFW9S-6ST___LF	15.4	10.24	8
	10	SFW10S-6ST___LF	16.4	11.24	9
	11	SFW11S-6ST___LF	17.4	12.24	10
*	12	SFW12S-6ST___LF	18.4	13.24	11
	13	SFW13S-6ST___LF	19.4	14.24	12
	14	SFW14S-6ST___LF	20.4	15.24	13
	15	SFW15S-6ST___LF	21.4	16.24	14
	16	SFW16S-6ST___LF	22.4	17.24	15
	17	SFW17S-6ST___LF	23.4	18.24	16
*	18	SFW18S-6ST___LF	24.4	19.24	17
*	19	SFW19S-6ST___LF	25.4	20.24	18
	20	SFW20S-6ST___LF	26.4	21.24	19
*	21	SFW21S-6ST___LF	27.4	22.24	20
	22	SFW22S-6ST___LF	28.4	23.24	21
	23	SFW23S-6ST___LF	29.4	24.24	22
	24	SFW24S-6ST___LF	30.4	25.24	23
*	25	SFW25S-6ST___LF	31.4	26.24	24
	26	SFW26S-6ST___LF	32.4	27.24	25
*	27	SFW27S-6ST___LF	33.4	28.24	26
	28	SFW28S-6ST___LF	34.4	29.24	27
	29	SFW29S-6ST___LF	35.4	30.24	28
	30	SFW30S-6ST___LF	36.4	31.24	29
*	31	SFW31S-6ST___LF	37.4	32.24	30
*	32	SFW32S-6ST___LF	38.4	33.24	31



NOTES

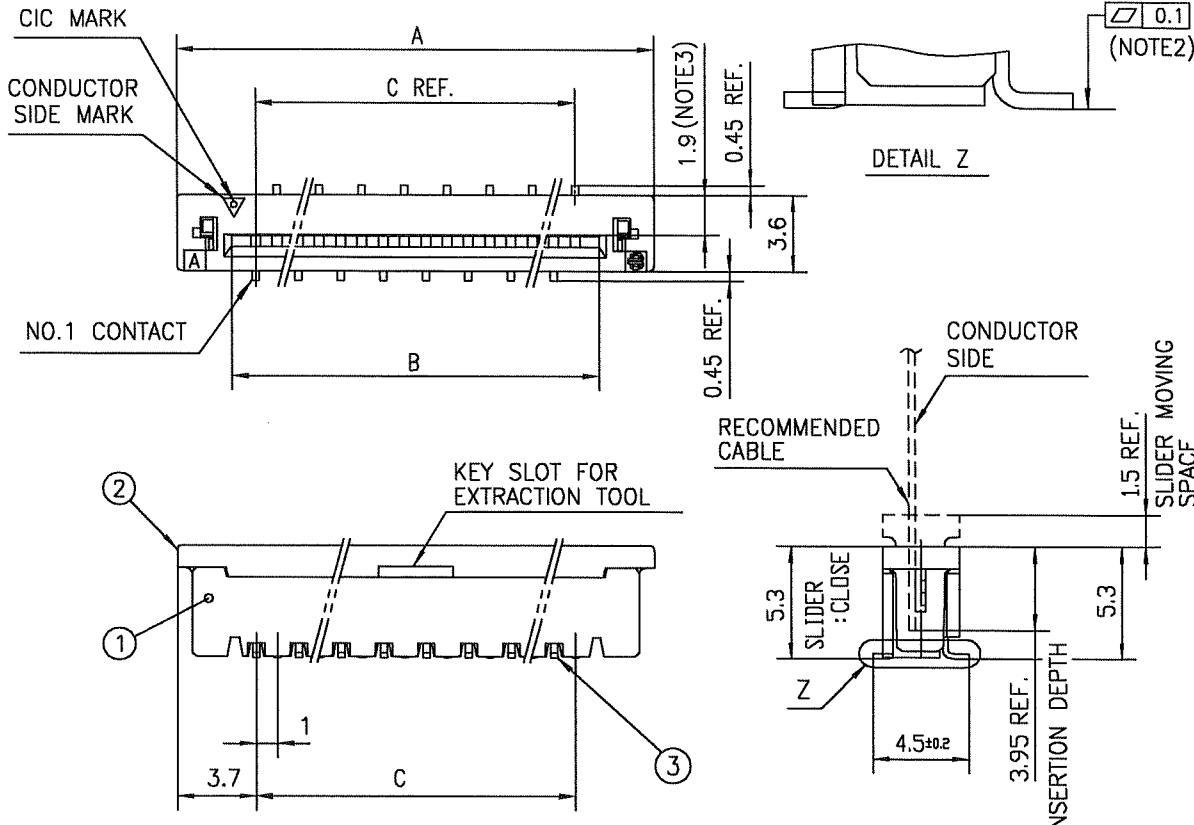
1. THIS PRODUCT IS THE CONNECTOR, DESIGNED TO TERMINATE CIC AND COPE WITH AUTOMATIC MOUNTING (SMT).
2. SEE PART DRAWINGS FOR DIMENSIONS A.B.C.
3. PLEASE CONSULT US IN CASE OF USING PARTS WITH \* MARK

mat'l. code				surface 58 / tolerance ISO 1302 / ISO 406 / ISO 1101		projection		product family 58SF		CODE JP	
ltr ecn no dr date				tolerances unless otherwise specified		mm		title CAT. NO. TABLE FOR 1mm SPACING SMT CONNECTOR (CAT.No.SFW__S-6ST___LF)			
A	J05-0377	H.T	2005-6-22	angles linear		scale X		dwg no JSA 96521 sheet 1 of 1 size A4 type Product Customer Drawing			
B	J05-0547	H.T	2005-8-30								
C	J06-0430	H.T	2006-10-19								
D	J07-0407	H.T	2007-8-9								
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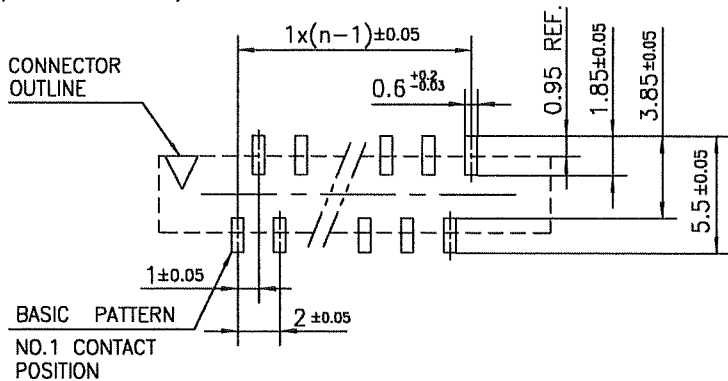
PT. NO.	PARTS NAME	MATERIAL	Q'TY	NOTE
1	HOUSING	GLASS FILLED THERMOPLASTIC RATED. (UL94V-0)	1	COLOR : BROWN
2	SLIDER	GLASS FILLED THERMOPLASTIC RATED. (UL94V-0)	1	COLOR : BLACK
3	CONTACT	PHOSPHOR BRONZE	n	PLATING : TIN Ni UNDER PLATED(LEAD FREE)

n : NO. OF CONTACTS

NOTES

1. THIS PRODUCT IS THE CONNECTOR DESIGNED TO TERMINATE CIC AND COPES WITH AUTOMATIC MOUNTING (SMT).
2. FLATNESS OF CONTACT TERMINAL MUST BE WITHIN TOLERANCE IN Z PORTION DETAILED DRAWING.
3. THIS DIMENSION IS SPACE FOR THE NOZZLE OF MOUNTER.
4. THIS PRODUCT MEETS EUROPEAN UNION DIRECTIVES AND OTHER COUNTRY REGULATIONS AS DESCRIBED IN GS-22-008
5. THE HOUSING WILL WITHSTAND EXPOSURE TO 260°C PEAK TEMPERATURE FOR 10 SECONDS IN A REFLOW SOLDERING OVEN.

RECOMMENDED PC BOARD LAYOUT (COMPONENT SIDE)

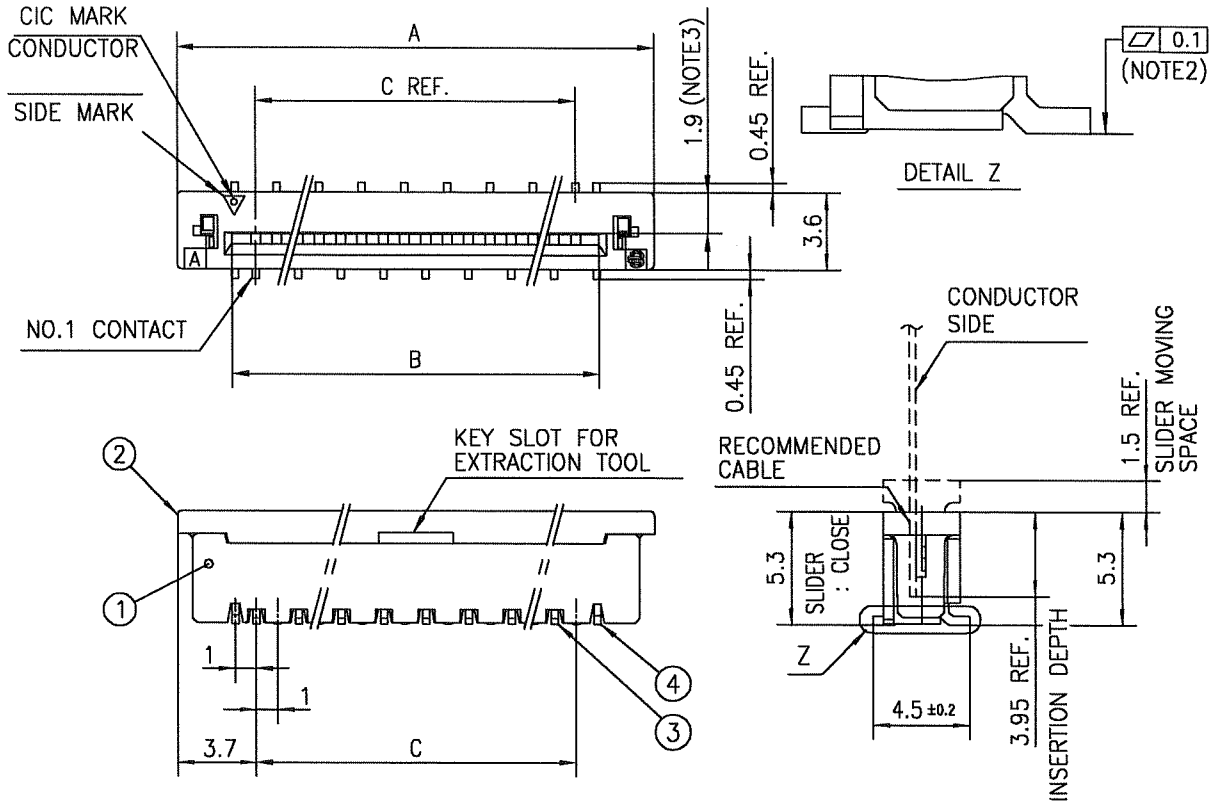


mat'l. code				surface 58	tolerance ISO 1302	projection	product family 58SF	CODE JP
ltr				tolerances unless otherwise specified		mm	title	
ecn no	dr	date		angles	linear		1mm SPACING SURFACE MOUNT CIC CONNECTOR (CAT.No.SFW__S-6ST__LF)	
A	J05-0377	H.T	6/22/05		±0.2		dwg no	
B	J05-0731	H.T	10/28/05		mm		sheet 1 of 1	
C	J06-0430	H.T	10/19/06		scale X		size	
				dr	10/19/06		JSA 96522	
				enr	10/19/06		A4	
				chr	10/19/06		type	
				appd	10/20/06		Product Customer Drawing	
sheet index	revision	C					Rev. C	
	sheet	1						



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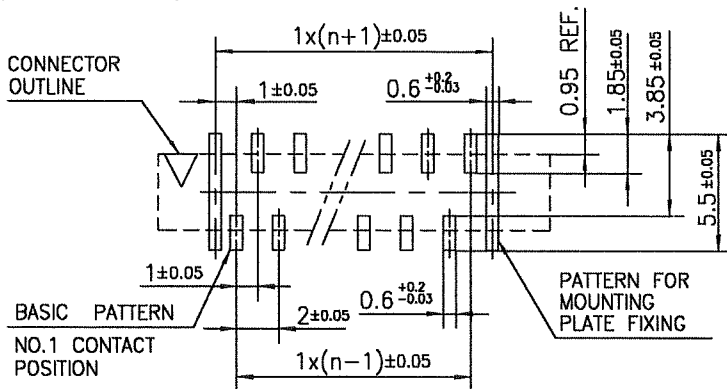
PT. NO.	PARTS NAME	MATERIAL	Q'TY	NOTE
1	HOUSING	GLASS FILLED THERMOPLASTIC RATED.	1	COLOR : ROWN
2	SLIDER	(UL94V-0)	1	COLOR : BLACK
3	CONTACT	PHOSPHOR BRONZE	n	PLATING : TIN Ni UNDER PLATED(LEAD FREE)
4	MOUNTING PLATE	BRASS	2	

n : NO. OF CONTACTS

NOTES

1. THIS PRODUCT IS THE CONNECTOR DESIGNED TO TERMINATE CIC AND COPE WITH AUTOMATIC MOUNTING (SMT).
2. FLATNESS OF CONTACT TERMINAL AND MOUNTING PLATE MUST BE WITHIN TOLERANCE IN Z PORTION DETAILED DRAWING.
3. THIS DIMENSION IS SPACE FOR THE NOZZLE OF MOUNTER.
4. THIS PRODUCT MEETS EUROPEAN UNION DIRECTIVES AND OTHER COUNTRY REGULATIONS AS DESCRIBED IN GS-22-008
5. THE HOUSING WILL WITHSTAND EXPOSURE TO 260°C PEAK TEMPERATURE FOR 10 SECONDS IN A REFLOW SOLDERING OVEN.

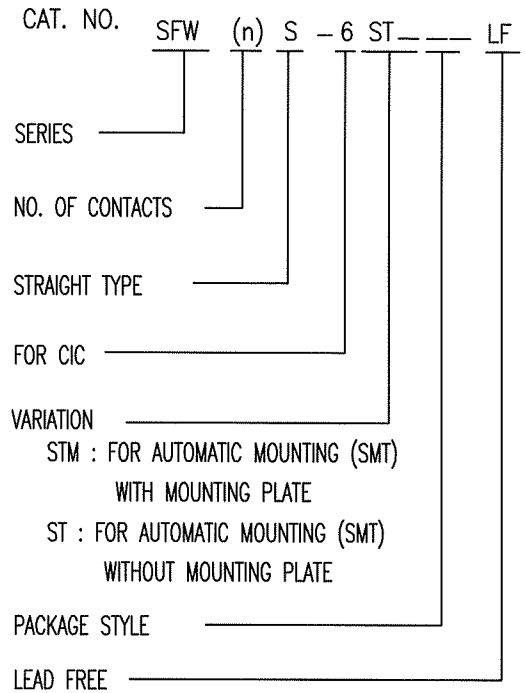
RECOMMENDED PC BOARD LAYOUT (COMPONENT SIDE)



mat'l. code				surface 58 ✓ ISO 1302		tolerance ISO 406 ISO 1101		projection 		product family 58SF		CODE JP	
ltr ecn no dr date				tolerances unless otherwise specified		±0.2		mm		title 1mm SPACING SURFACE MOUNT CIC CONNECTOR (CAT.No.SFW__S-6STM__LF)			
A J05-0377 H.T 6/22/05				angles		linear		scale X		dwg no sheet 1 of 1		size	
B J05-0731 H.T 10/28/05										JSA 96523		A4	
C J06-0430 H.T 10/19/06				dr		10/19/06				type Product Customer Drawing			
				enr		10/19/06							
				chr		10/19/06							
				appd		10/20/06							
sheet index		revision sheet		C		1						Rev. c	

CAT. NO. & DIMENSIONS

(NOTE4)	NO. OF CONTACTS (n)	CAT. NO. (NOTE2)	DIMENSIONS (NOTE3)		
			D ± 5	E ± 0.3	F ± 0.1
	4	SFW4S-6ST_E1LF	28.4	24	—
	5	SFW5S-6ST_E1LF	28.4	24	—
	6	SFW6S-6ST_E1LF	28.4	24	—
*	7	SFW7S-6ST_E1LF	28.4	24	—
	8	SFW8S-6ST_E1LF	28.4	24	—
*	9	SFW9S-6ST_E1LF	28.4	24	—
	10	SFW10S-6ST_E1LF	28.4	24	—
	11	SFW11S-6ST_E1LF	28.4	24	—
*	12	SFW12S-6ST_E1LF	36.4	32	28.4
	13	SFW13S-6ST_E1LF	36.4	32	28.4
	14	SFW14S-6ST_E1LF	36.4	32	28.4
	15	SFW15S-6ST_E1LF	36.4	32	28.4
	16	SFW16S-6ST_E1LF	48.4	44	40.4
	17	SFW17S-6ST_E1LF	48.4	44	40.4
*	18	SFW18S-6ST_E1LF	48.4	44	40.4
*	19	SFW19S-6ST_E1LF	48.4	44	40.4
	20	SFW20S-6ST_E1LF	48.4	44	40.4
*	21	SFW21S-6ST_E1LF	48.4	44	40.4
	22	SFW22S-6ST_E1LF	48.4	44	40.4
	23	SFW23S-6ST_E1LF	48.4	44	40.4
	24	SFW24S-6ST_E1LF	48.4	44	40.4
*	25	SFW25S-6ST_E1LF	48.4	44	40.4
	26	SFW26S-6ST_E1LF	48.4	44	40.4
*	27	SFW27S-6ST_E1LF	60.4	56	52.4
	28	SFW28S-6ST_E1LF	60.4	56	52.4
	29	SFW29S-6ST_E1LF	60.4	56	52.4
	30	SFW30S-6ST_E1LF	60.4	56	52.4
*	31	SFW31S-6ST_E1LF	60.4	56	52.4
*	32	SFW32S-6ST_E1LF	60.4	56	52.4



NOTES

- THIS PRODUCT IS THE CONNECTOR DESIGNED TO TERMINATE CIC AND COPE WITH AUTOMATIC MOUNTING (SMT).
- THIS CATALOG NO. INDICATES PLASTIC TAPE PACKAGED CONNECTOR.
- SEE PART DRAWINGS FOR DIMENSIONS D~F.
- PLEASE CONSULT US IN CASE OF USING PARTS WITH \* MARK.

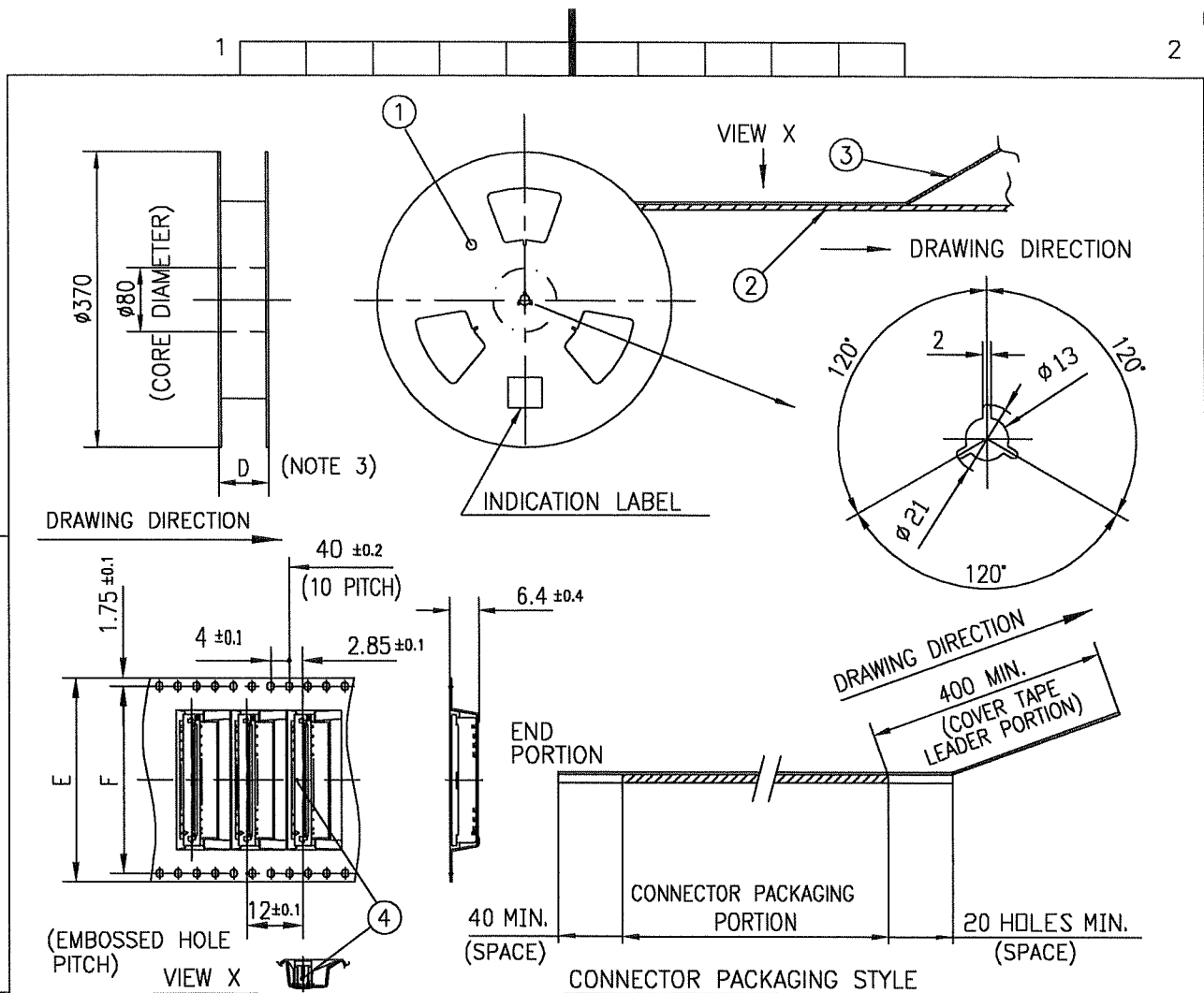


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mat'l. code				surface 58 / tolerance ISO 1302 ✓ / ISO 406 / ISO 1101		projection		product family 58SF		CODE JP	
litr ecn no dr date				tolerances unless otherwise specified		mm		title			
A	J05-0377	H.T	2005-6-22	angles linear		mm		CAT. NO. TABLE FOR PLASTIC TAPE PACKAGED 1mm SPACING SMT CONN. (CAT.No.SFW__S-6ST_E1LF)			
B	J05-0547	H.T	2005-8-30			scale X		dwg no sheet 1 of 1 size			
C	J06-0430	H.T	2006-10-19			FCI		JSA 96524 A4			
D	J07-0407	H.T	2007-8-9	dr engr chr appd				type Product Customer Drawing			
sheet index		revision sheet		D 1						Rev. D	





PT. NO.	PARTS NAME	CAT. NO.	MATERIAL	Q'TY	NOTE
1	REEL	_____	CARDBOARD	1	COLOR:GRAY
2	PLASTIC (EMBOSS) TAPE	_____	PET	_____	COLOR:TRANSPARENCY
3	COVER	_____	POLYESTER	_____	COLOR:TRANSPARENCY
4	CONNECTOR	SFW__S-6ST__LF	SEE ATTACHED DWG.	1000	_____

- NOTES
1. THIS IS PLASTIC TAPE PACKAGED CONNECTOR USED FOR CIC AND COPES WITH AUTOMATIC MOUNTING (SMT).
  2. SEE JIS C 0806 (PACKING OF ELECTRONIC COMPONENTS ON CONTINUOUS TAPES (SURFACE MOUNTING DEVICES)) FOR SHAPE AND DIMENSIONS OF PLASTIC (EMBOSS) TAPE AND REEL.
  3. D DIMENSION IS PORTION OF THE CORE.

mat'l. code				surface 58 ISO 1302 ✓	tolerance ISO 406 ISO 1101	projection mm	product family 58SF	CODE JP	
ltr	ecn no	dr	date	tolerances unless otherwise specified		mm	title PLASTIC TAPE PACKAGED 1mm SPACING SMT CONNECTOR (CAT.No.SFW__S-6ST_E1LF)		
A	J05-0377	H.T	6/22/05	angles	±5				
B	J06-0430	H.T	10/19/06	linear	±5'	scale X	dwg no sheet 1 of 1 size		
				dr	<i>H. Shoupe</i> 10/19/06		JSA 96525 A4		
				enr	<i>H. Shoupe</i> 10/19/06		type Product Customer Drawing		
				chr	<i>R. Shoupe</i> 10/19/06				
				appd	<i>S. Shoupe</i> 10/20/06				
sheet index	revision sheet	B	1					Rev. B	D

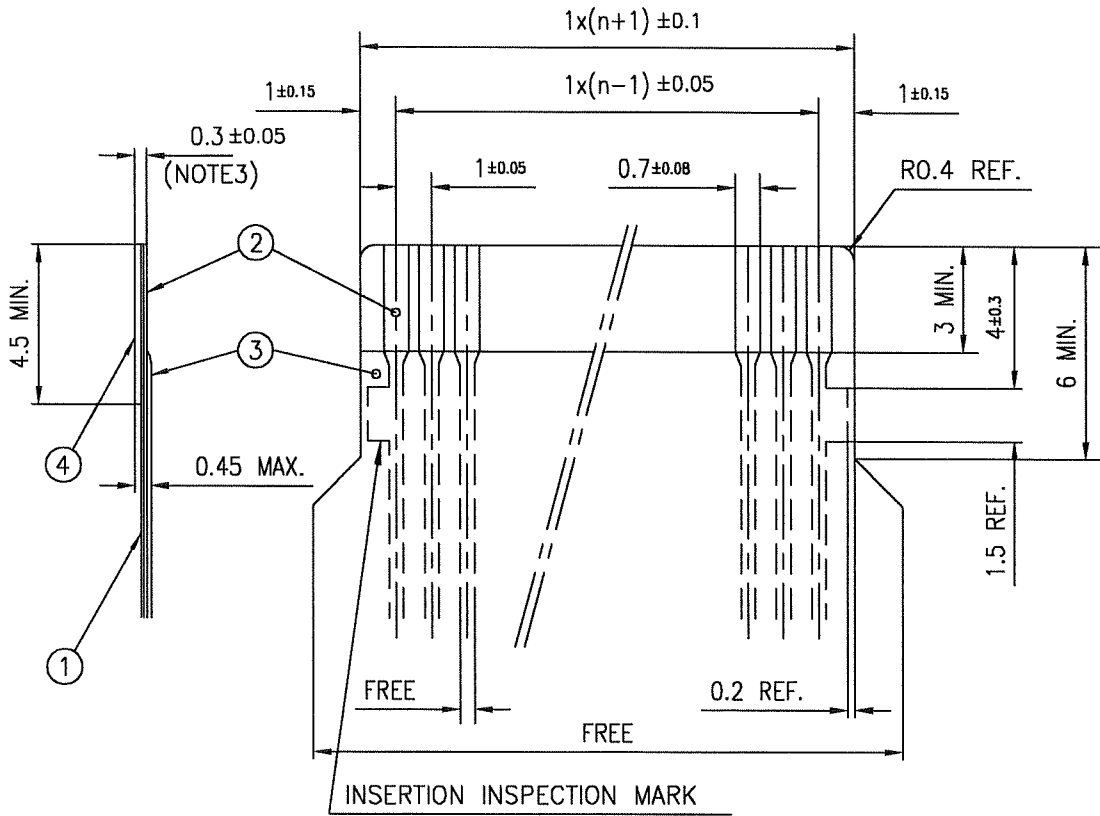


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RECOMMENDED CABLE (CIC)

n : NO. OF CONDUCTOR



PT. NO.	PARTS NAME	MATERIAL	THICKNESS (μm)	
1	BASE FILM	POLYESTER OR EQUAL	75	25
2	CONDUCTOR	CARBON PASTE OVER SILVER PASTE	10 MIN.	
3	OVERLAY	POLYIMIDE OR POLYESTER OR EQUAL	—	
4	SUPPORTING TAPE	POLYESTER OR POLYIMIDE OR EQUAL	188	250

NOTES

1. NO BURR AT EACH PORTION.
2. NO PEELING IN COMMON USE.
3. TOTAL THICKNESS LIMIT OF EACH MATERIAL (INCLUDING ADHESIVE AGENT) IS SPECIFIED.



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mat'l. code				surface 58 ISO 1302 ✓		tolerance ISO 406 ISO 1101		projection mm		product family 58SF		CODE JP	
ltr ecn no dr date				tolerances unless otherwise specified		angles linear		scale X		title RECOMMENDED CABLE (CAT.No.SFW__S-6ST__)			
AA J04-0333 H.T Oct.13,'04										dwg no		sheet 1 of 1 size	
AB J06-0430 H.T 10/19/06										JSA 93904		A4	
				dr		10/19/06		FCI		type Product Customer Drawing			
				enr		10/19/06							
				chr		10/19/06							
				appd		10/20/06							
sheet index		revision sheet		AB 1								Rev. AB	