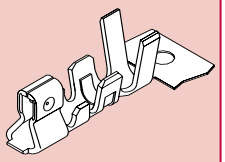
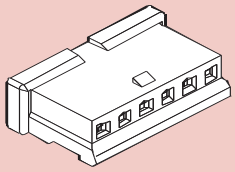
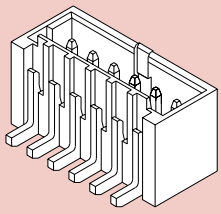
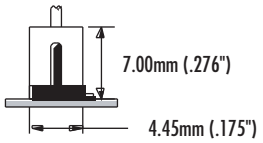
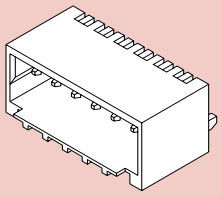
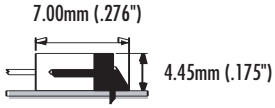
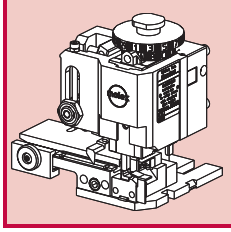
Jameco Part Number 1303337

	Description	Order No.	Circuits	Wire Range	Mated Dimensions	Materials (UL 94V-0)	Packaging
Terminal							
	Crimp Terminal	87421-0000	—	24 to 30 AWG	—	Tin-plated Phosphor Bronze	Reel
Crimp Housing							
	Friction Locking Receptacle Housing	87439-XX00	2-15	—	—	Glass-filled 6/6 Nylon	Bag
Header							
	Vertical SMT Header	87437-XX43	2-15	—		Glass-filled 4/6 Nylon	Embossed Tape
	Right Angle SMT Header	87438-XX43	2-15	—		Glass-filled 4/6 Nylon	Embossed Tape

Replace XX with number of circuits

APPLICATION TOOLING

	Terminal	Insulation Diameter	Strip Length	Order No.		
				TM-2000 Applicator	TM-40/TM-42 Applicator	Hand Tool
	87421-0000	1.15mm (.045") max.	1.05 to 1.54mm (.041 to .061")	63862-7000	63852-7000	63811-0100

1.50mm (.059") Pitch Pico-SPOX™

FEATURES AND BENEFITS

- Dual-point contact design for greater reliability
- Anti-fishhooking contact design to improve handling during harness assembly
- Locking tang on contact for secure retention to the housing
- Friction lock between receptacle housing and headers insures secure retention when mounted
- Lead-in chamfer on receptacle to ease mating
- Embossed tape packaging standard with headers for high volume applications
- Headers fully shrouded to protect pins
- Polarized mating geometry insures header and receptacle cannot be mis-mated
- Lead-free plating

SPECIFICATIONS

Reference Information

Recommended Wire Style
24 to 28 AWG: UL 1061
30 AWG: UL 1571
UL File No.: E29179
CSA File No.: LR19980A
RoHS Compliant

Electrical

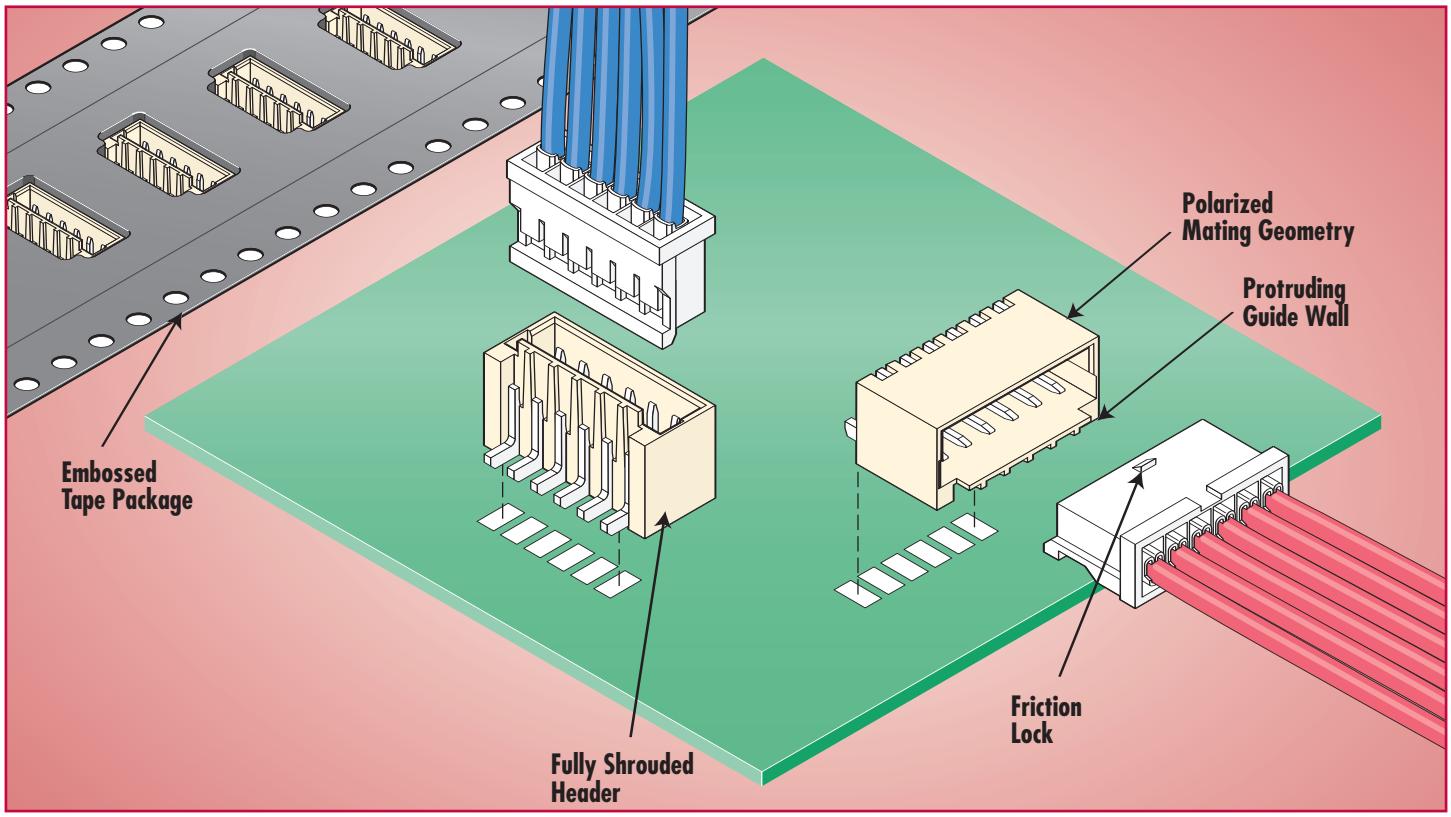
Current: 3.0A max.
Voltage: 50V
Contact Resistance: 40 milliohms max.
Dielectric Withstanding Voltage: 500V AC per 1 minute
Insulation Resistance: 1000 Megohms min.

Physical

Housing: White, Nylon, 6/6, UL 94V-0
Header: Beige, Nylon 4/6, UL 94V-0
Terminal: Phosphor Bronze
Pin: Brass
Plating: Lead-free Tin
Operating Temperature: -55 to +105°C

Mechanical

Mating Force (10-circuit parts): 5.9N max.
Unmating force (10-circuit parts): 1.5N min.
Durability: 10 cycles



Americas Headquarters
Lisle, Illinois 60532 U.S.A.
1-800-78MOLEX
amerinfo@molex.com

Far East North Headquarters
Yamato, Kanagawa, Japan
81-462-65-2324
feninfo@molex.com

Far East South Headquarters
Jurong, Singapore
65-6-268-6868
fesinfo@molex.com

European Headquarters
Munich, Germany
49-89-413092-0
eurinfo@molex.com

Corporate Headquarters
2222 Wellington Ct.
Lisle, IL 60532 U.S.A.
630-969-4550
Fax:630-969-1352

Visit our Web site at http: //www.molex.com

Order No. USA-235

Printed in USA/7.5K/JI/JI/2004.04

1.50MM PITCH, WIRE-TO-BOARD SMT HEADER AND RECEPTACLE

1.0 SCOPE

This specification covers the performance requirement for a 1.50mm pitch, Wire-To-Board Header and Receptacle System.

2.0 PRODUCT DESCRIPTION

2.1 Product covered by this specification are for series number

1. 87437 (Vertical SMT Header)
2. 87438 (Right-Angle SMT Header)
3. 87439 (Receptacle Housing)
4. 87421 (Receptacle Crimp Terminal)

2.2 For dimensions, materials, platings and markings, refer to the appropriate Sales drawings.

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

The following documents are part of this specification to the extent specified herewith.
In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence.
In the event of conflict between the requirements of this specification and reference documents, this specification shall take the precedence.

MIL-STD-202	Test Methods for Electrical and Electronic Component Parts.
EIA Standards	Electrical Connector Test Procedure
MIL-STD-1344	Test methods of Electrical Connector

4.0 RATINGS

4.1 Voltage Rating : 87439 - 50 VAC Maximum
: 87421 - 50 VAC Maximum
: 87437 - 350 VAC Maximum
: 87438 - 350 VAC Maximum

4.2 Current Rating : 87421 / 87439 - AWG # 24 - 3A Maximum
- AWG # 26 - 2A Maximum
- AWG # 28 - 1.5A Maximum
- AWG # 30 - 1.5A Maximum

: 87437 / 87438 - 3A Maximum

4.3 Operating Temperature : -55°C to +105°C

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	**Contact Resistance**	Measure Contact Resistance by 10mAmp DC, open circuit voltage 20mV. Per MIL-STD-1344A, Method 3004.1	20 mohms Maximum (Initial) 40 mohms Maximum (After 10X durability, mechanical and/ or environmental test)
2	**Insulation Resistance**	Measurement taken between adjacent contacts where 500 VDC is applied. Per MIL-STD-202F, Method 302)	1000 Megaohms minimum
3	**Dielectric Strength**	Receptacle subjected to 500 VAC rms for 1 minute between adjacent contacts Per MIL-STD-202F, Method 301)	No breakdown

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
4	**Wire Crimping Strength**	Pull wire axially from terminal at a rate of 12.7mm per minute	Refer to Crimp Specification : CS-87421
5.	**Terminal Pull Strength**	Pull terminal axially from housing at a rate of 12.7mm per minute	1.0 KG Minimum
6.	**Single Extraction Force**	Gauge dimension is 0.37 ±0.005 Withdraw pin from gauge at a rate of 12.7mm per minute	30g Minimum (Initial) 25g Minimum (After 10X)
7.	**Total Insertion Force**	Insert connectors at a rate of 12.7mm per minute	2P 2.5KG Max 3P 3.0KG Max 4P 3.5KG Max 5P 4.0KG Max 6P 4.5KG Max 7P 5.0KG Max 8P 5.5KG Max 9P 5.5KG Max 10P 6.0KG Max 11P 6.0KG Max 12P 6.5KG Max 13P 6.5KG Max 14P 7.0KG Max 15P 7.0KG Max

5.2 MECHANICAL REQUIREMENTS (Continue)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
8.	**Total Extraction Force**	Withdraw connectors at a rate of 12.7mm per minute	2P 1.0-3.0KG 3P 1.0-3.5KG 4P 1.0-4.0KG 5P 1.0-4.5KG 6P 1.0-5.0KG 7P 1.0-5.0KG 8P 1.5-5.5KG 9P 1.5-5.5KG 10P 1.5-6.0KG 11P 1.5-6.0KG 12P 1.5-6.5KG 13P 1.5-6.5KG 14P 1.5-7.0KG 15P 1.5-7.0KG
9.	**Total Extraction Force (After 10X durability, SMT preconditioning, and/or moisture resistance test)**	Withdraw connectors at a rate of 12.7mm per minute	2P 0.6-2.5KG 3P 0.6-3.0KG 4P 0.6-3.5KG 5P 0.8-4.0KG 6P 0.8-4.5KG 7P 0.8-4.5KG 8P 1.0-5.0KG 9P 1.0-5.0KG 10P 1.0-5.5KG 11P 1.0-5.5KG 12P 1.0-6.0KG 13P 1.0-6.0KG 14P 1.0-7.0KG 15P 1.0-7.0KG

5.2 MECHANICAL REQUIREMENTS (Continue)

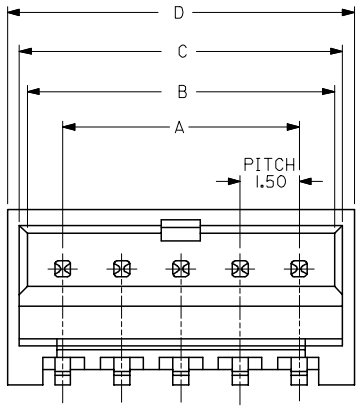
ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
10.	**Termal Life (Mated Connectors)**	Parts to be subjected to 105°C in a chamber for 168 hours.	1. Contacts resistance : 40 mohms Maximum 2. Appearance : No damage
11.	**Thermal Shock (Mated Connectors)**	Parts to be subjected to 2 hours of -55°C and 2 hours of 105°C for 10 cycles.	Similar to Thermal Life
12.	**Moisture Resistance (Mated Connectors)**	Parts to be subjected to 85°C and 85% RH for a period of 168 hours	Similar to Thermal Life

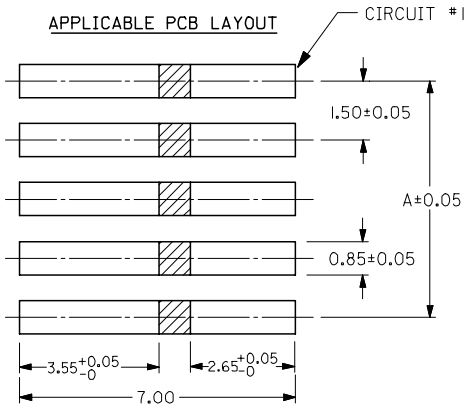
5.3 ENVIRONMENTAL REQUIREMENTS

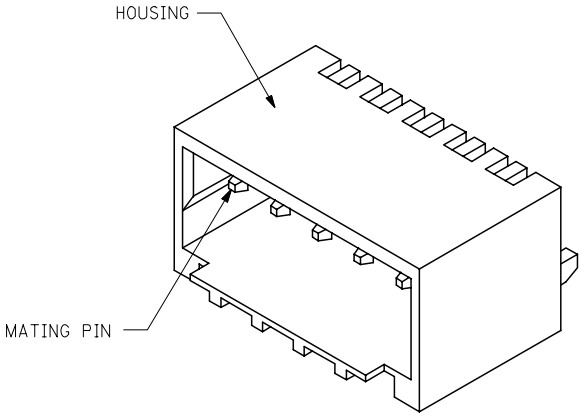
ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
13	**Solderability**	Immersion in molten solder at 245 ±5 °C for 5 seconds	Soldered area should be 95% or more
14	**Resistance to IR Heat**	Subject connector to IR Reflow with peak temperature of 250+/-5 °C and dwell temperature of 220 °C for 30 seconds	Similar to Thermal Life Total insertion and extraction force as per section 5.2 Plating thickness as specified on terminal drawings
15	**Push-out force**	Push header pin axially from housing at a rate of 12.7mm per minute	1.0KG Minimum after IR

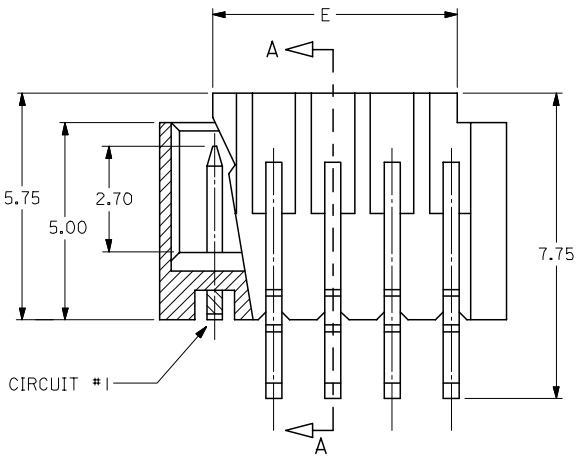
6.0 Packaging

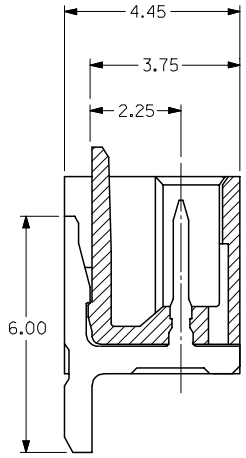
Product shall be packaged and protected against damage during handling, transportation and storage.











SECTION A-A

NOTES:
1. MATERIALS:
   HOUSING: NYLON, GLASS-FILLED, UL94 V-0,
   COLOR: SEE TABLE
   PINS: BRASS ALLOY, C26000
2. PLATING: 2.54μM MIN. TIN OVER 1.27μM MIN. NICKEL.
3. DRAWING SHOWS PLUG WITH 5 CIRCUITS.
4. HEADER TO BE USED WITH CRIMP HOUSING, P/N 87439
   AND CRIMP TERMINAL, P/N 87421

REVISED				REV	DESCRIPTION
EC NO: S2007-0011	DRWN:KFLIM	CHKD:MLONG	APPR:SKTOH	D1	2006/07/31 2006/08/01 2006/08/04

QUALITY SYMBOLS
▼=0
▽=0

GENERAL TOLERANCES (UNLESS SPECIFIED)

	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± 0.20	± ---
1 PLACE	± ---	± ---
ANGULAR ± 3 °		

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

DIMENSION STYLE: MM ONLY	SCALE: NTS	DESIGN UNITS: METRIC	THIRD ANGLE PROJECTION
DRAWN BY: KCLING DATE: 1994/04/08	TITLE: 1.50MM PITCH W-T-B, HEADER R/A, SMT		
CHECKED BY: SKTOH DATE: 1994/04/21			
APPROVED BY: RWONG DATE: 1994/04/24	molex MOLEX INCORPORATED		
MATERIAL NO.: SEE TABLE	DOCUMENT NO.: SD-87438-**31	SHEET NO.: 1 OF 3	

SIZE A3

CKT SIZE	A	B	C	D	E
02	1.50	3.30	3.70	4.30	1.70
03	3.00	4.80	5.20	5.80	3.20
04	4.50	6.30	6.70	7.30	4.70
05	6.00	7.80	8.20	8.80	6.20
06	7.50	9.30	9.70	10.30	7.70
07	9.00	10.80	11.20	11.80	9.20
08	10.50	12.30	12.70	13.30	10.70
09	12.00	13.80	14.20	14.80	12.20
10	13.50	15.30	15.70	16.30	13.70
11	15.00	16.80	17.20	17.80	15.20
12	16.50	18.30	18.70	19.30	16.70
13	18.00	19.80	20.20	20.80	18.20
14	19.50	21.30	21.70	22.30	19.70
15	21.00	22.80	23.20	23.80	21.20

PART NUMBER ASSIGNMENT

87438-XXXX

- 2- TUBE PACKAGING
  3- TAPE AND REEL PACKAGING
- 4- BEIGE COLOR HSG
  6- BLACK COLOR HSG
- 2 TO 15 - CIRCUIT SIZE

ADD PART NUMBER
EC NO: S2007-0011 2006/07/31
DRWN:KFLIM 2006/08/01
CHKD:MLONG 2006/08/04
APPR:SKTOH
DESCRIPTION
REV
D1

QUALITY SYMBOLS
▼=0
Ⓒ=0

GENERAL TOLERANCES (UNLESS SPECIFIED)

	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± 0.20	± ---
1 PLACE	± ---	± ---

ANGULAR ± 3 °

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

DIMENSION STYLE: MM ONLY
SCALE: NTS
DESIGN UNITS: METRIC
THIRD ANGLE PROJECTION

DRAWN BY: KCLING DATE: 1994/04/08
CHECKED BY: SKTOH DATE: 1994/04/21
APPROVED BY: RWONG DATE: 1994/04/24

TITLE: 1.50MM PITCH W-T-B, HEADER R/A, SMT

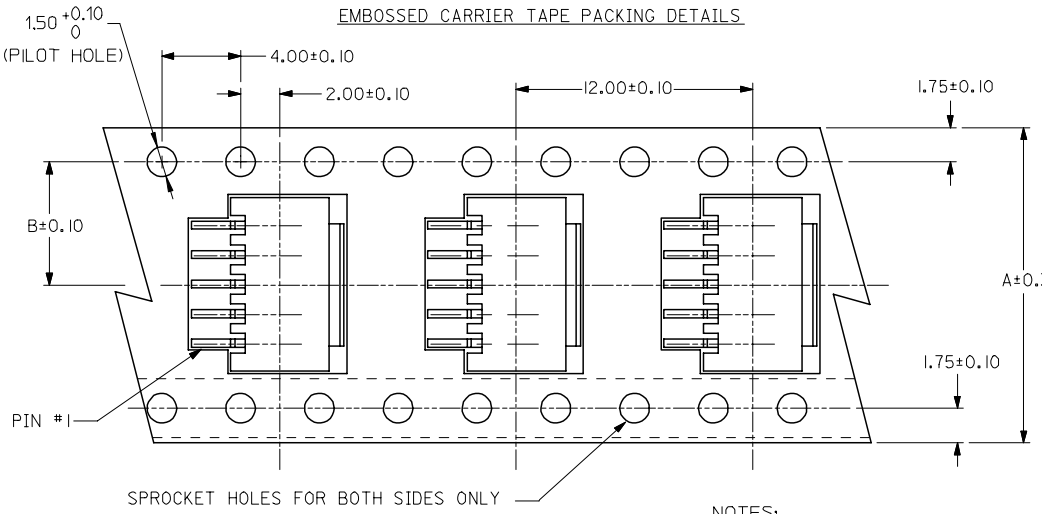
molex MOLEX INCORPORATED

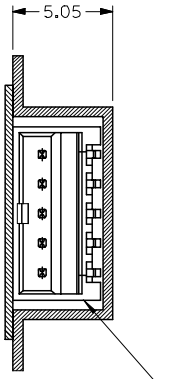
MATERIAL NO.: SEE TABLE
DOCUMENT NO.: SD-87438-**31
SHEET NO.: 2 OF 3

SIZE A3

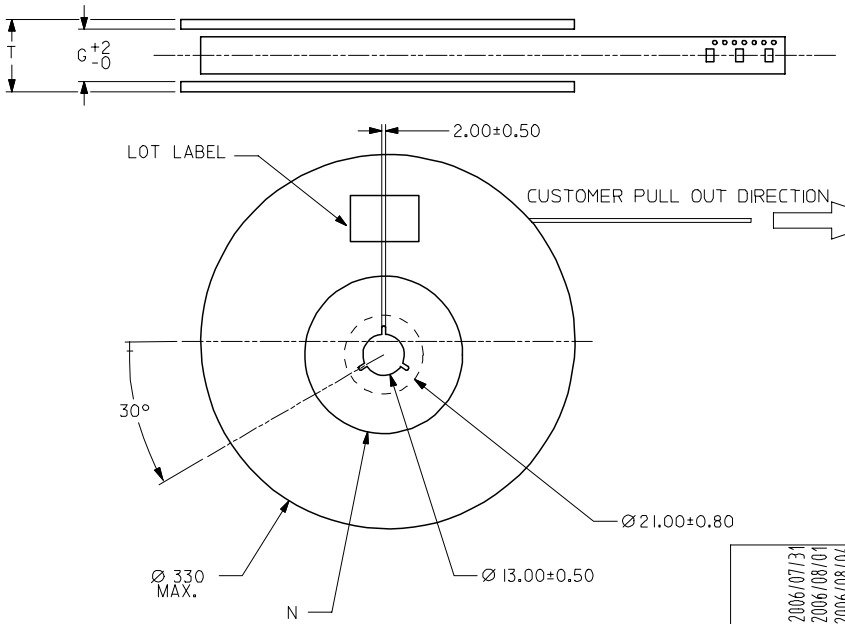
CIRCUIT SIZE	A	B	N	G	T MAX
15	44	20.20	100	44.40	50.40
11, 12, 13, 14	32	14.20	100	32.40	38.40
7, 8, 9, 10	24	11.50	100	24.40	30.40
2, 3, 4, 5, 6	16	7.50	100	16.40	22.40

EMBOSSED CARRIER TAPE PACKING DETAILS



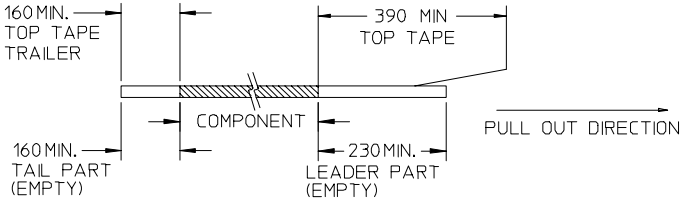


REEL DETAILS



NOTES:

1. LEADER AND TRAILER TAPE



2. PEELING OFF FORCE OF THE TOP TAPE: 20-80gf.
   (PEELING DIRECTION AS SHOWN IN FOLLOWING FIGURE)

3. PACKAGING STANDARD IS AS PER EIA-481.
4. TAPE & REEL QUANTITY = 1000PCS/REEL
5. THE TAPE IS TREATED FOR ANTI-STATIC

REVISED
EC NO: S2007-0011 2006/07/31
DRWN:KFLIM 2006/08/01
CHKD:MLONG
APPR:SKTOH 2006/08/04
DESCRIPTION
REV D1

QUALITY SYMBOLS
▼=0
▽=0

GENERAL TOLERANCES (UNLESS SPECIFIED)

	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± 0.20	± ---
1 PLACE	± ---	± ---
ANGULAR ± 3 °		

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

DIMENSION STYLE	MM ONLY
SCALE	NTS
DESIGN UNITS	METRIC
	THIRD ANGLE PROJECTION
DRAWN BY	KCLING
DATE	1994/04/08
CHECKED BY	SKTOH
DATE	1994/04/21
APPROVED BY	RWONG
DATE	1994/04/24
TITLE	1.50MM PITCH W-T-B, HEADER R/A, SMT
	MOLEX INCORPORATED
MATERIAL NO.	SEE TABLE
DOCUMENT NO.	SD-87438-**31
SHEET NO.	3 OF 3
SIZE	A3