

# 興瑞通信股份有限公司

## 料號申請單

92 年 11 月 20 日

興瑞料號：A.n.t.e.n.n.a., 2...4.5.G., M.u.l.t.i.l.a.y.e.r.  
 料品名稱：.C.e.r.a.m.i.c., 4.3.1.1.-.1.1.5.-.1.1.2.6.φ.

興瑞料號：52165φ372 廠庫代號：φ3  
 (本欄由承辦人填寫)

製造廠 #1		製造廠 #2		料品說明
廠商名稱	YAGEO			Antenna, Chip, 2.45G
電話				
地址				
廠商代號	(本欄由採購填寫)		(本欄由採購填寫)	
料品編號	4311 115 11260			
料品名稱	MULTILAYER CERAMIC ANTENNA			
代理商 #1		代理商 #1		申請事由
廠商名稱	興邦國際股份有限公司	艾睿電子(股)公司		1. For C110 2. 新增料號
電話	02-29143801	03-620-1968		
地址	台北縣新店市寶橋路235巷16弄3號2樓			
廠商代號	E004 (本欄由採購填寫)	B3044 (本欄由採購填寫)		
料品編號				
料品名稱				
代理商 #2		代理商 #2		附件
廠商名稱				<input type="checkbox"/> 廠商資料 <input checked="" type="checkbox"/> 規格文件 <input checked="" type="checkbox"/> 其它 <u>sample x 1</u>
電話				
地址				
廠商代號	(本欄由採購填寫)		(本欄由採購填寫)	
料品編號				
料品名稱				
備註	1. 本單適用於料品及成品。一種料一張申請單，請勿併單。申請時須附上承認書。 2. 除非該項料品為獨家生產，無可替代，否則都須提供兩家製造廠。並填上其代理商（至少一家）。若代理商即製造廠，則該欄位只填"同上"。獨家產品須說明理由。 3. 原則上須有製造廠。若只知代理商，則須特別說明原因。			

申請人：Tully 申請主管：[Signature] 採購：Voky 承辦人：Cherry Grave 審核：[Signature]  
 日期：92.11.20 料號：031120 日期：11/20/03 料號：15003

第一聯(白)：文件室留存 第二聯(紅)：採購留存 第三聯(黃)：承辦人留存 第四聯(藍)：

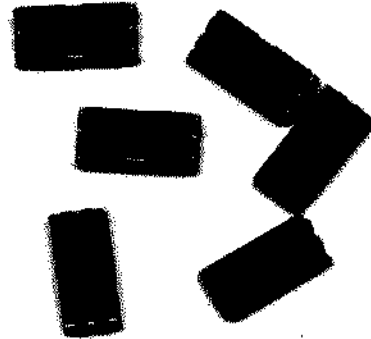


**MULTILAYER CERAMIC ANTENNA  
FOR BLUETOOTH & WLAN IEEE 802.11b (2.45G Hz ISM Band)  
(Long Shape)**

**Product Specification**

**QUICK REFERENCE DATA**

Dimension	7.8* 3.6 * 0.9 mm
Central Frequency*	2.45 GHz
Bandwidth	>100 MHz
Gain**	2.5dBi max
Average Gain**	-3 dBi
VSWR	2.0 max
Polarization	Linear
Azimuth	Omni-directional
Impedance	50Ω
Operating Temperature	-55~125 °C
Termination	Ni/Sn (Environmentally-Friendly Leadless)
Resistance to soldering heats	260°C, 10 sec.
Maximum Power	1W



\* Four types of antenna are available for central frequency adjustment  
(Type 245, type 260, type 270, type 230)

\*\* Depending on ground plane layout

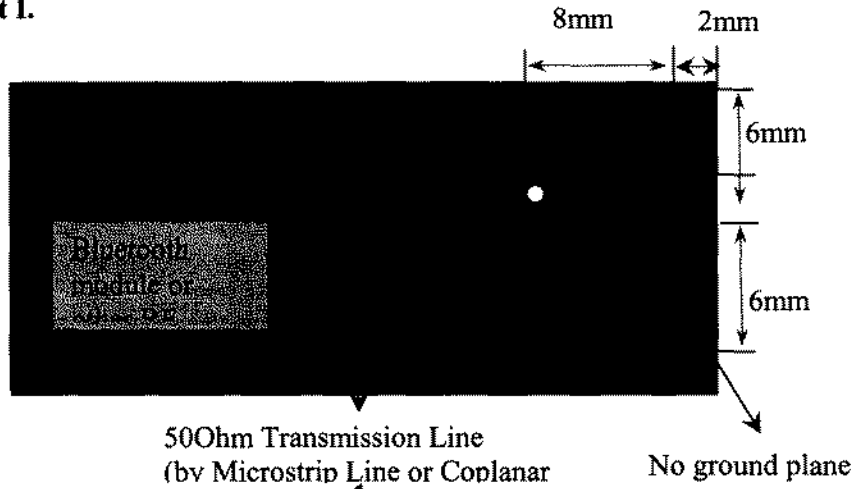


*Special Environmental Concerns- Green Products Design: The foil making process is using environmentally-friendly aqueous solvent technology. Termination is lead free (Pb free) and packing materials can be re-cycled*

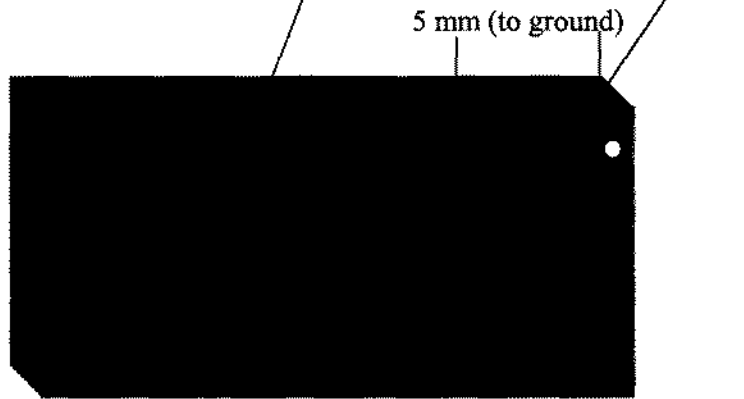
2.45GHz Multilayer Ceramic Antenna				4311 115 11245 4311 115 11260 4311 115 11270 4311 115 11230				—	1	Apr. 10, 03	
								—	2	Apr. 17, 03	
								—	3	May, 5, 03	
BY	YH/Cliff	SUPER		TLL.SH	12	PAGE	2	SH nr.	—	4	
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**APPLICATION**

**Suggested Layout I.**



**Suggested Layout II.**



Note: Optional matching network may be necessary if 5mm isolation distance to ground is reduced.

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BY	YH/Cliff	SUPER		TLL,SH	12	PAGE	3	SH nr.	—	4	
CHECK				DATE	May, 5, 03			—	5		

**DIMENSIONAL DATA**

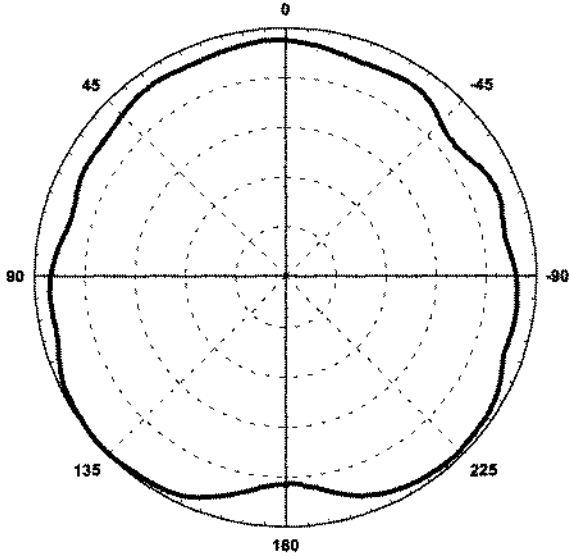
Figure	Dimension	Port	
	L	7.8 ± 0.25 mm	-
	W	3.6 ± 0.2 mm	-
	T	0.9 ± 0.2 mm	-
	F	0.5 ± 0.2 mm	Feed Termination
	C	0.4 ± 0.2 mm	-
	S1	0.5 ± 0.2 mm	NC Solder Termination Only
	S2	1.20 ± 0.2 mm	NC Solder Termination Only
	S3	0.8 ± 0.2 mm	NC Solder Termination Only

**SOLDER LAND PATTERN**

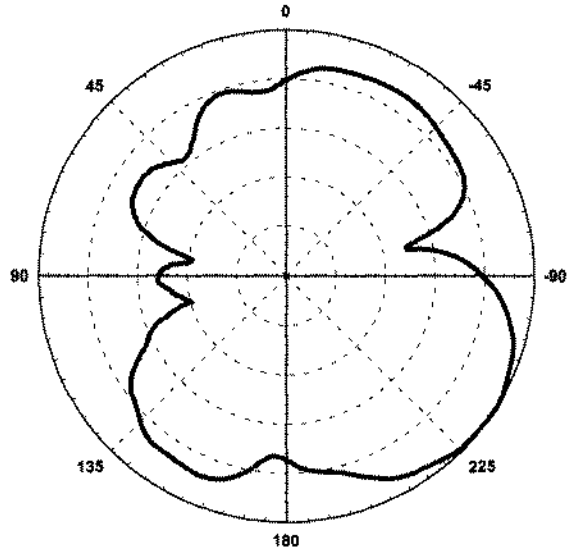
Figure	Dimensions	Remark	
	L	9 ± 0.10 mm	Feed Pad
	W	3.7 ± 0.20 mm	
	F	0.80 ± 0.20 mm	
	C	0.90 ± 0.20 mm	NC Mount Pad Only
	S1	0.80 ± 0.2 mm	NC Mount Pad Only
	S2	1.60 ± 0.2 mm	NC Mount Pad Only
	S3	0.90 ± 0.2 mm	NC Mount Pad Only

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**Radiation Pattern Polar Plot (Based on Suggested Layout)**



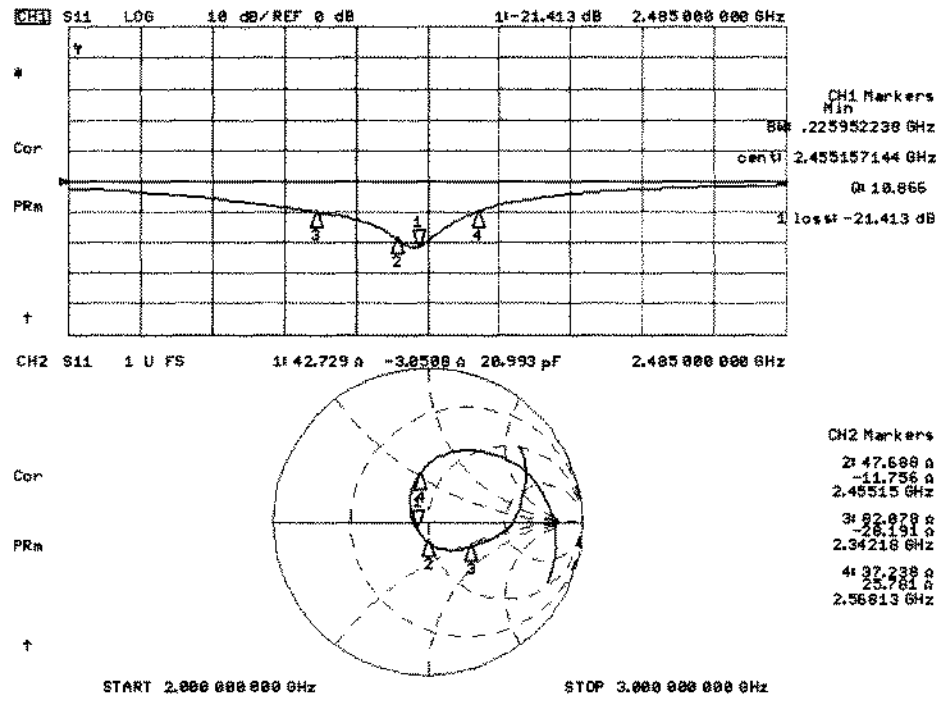
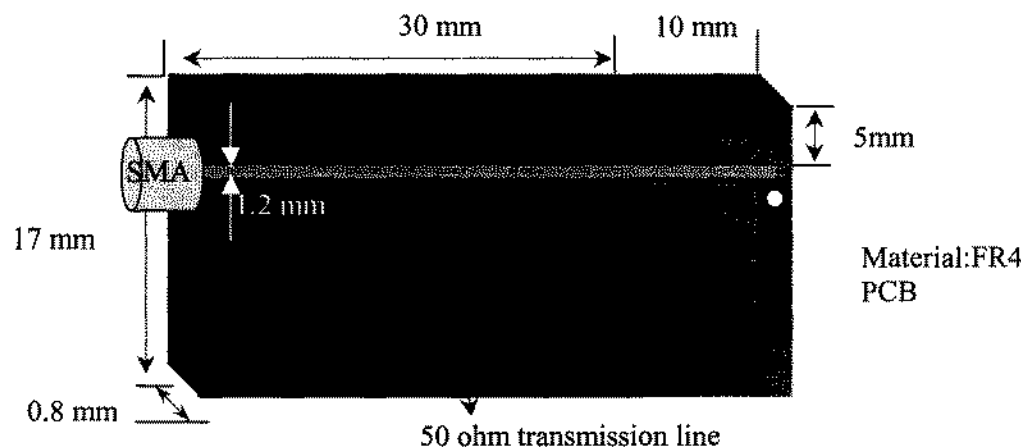
**H-Plane**



**E-Plane**

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**STANDARD TEST BOARD FOR SWR**



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**RELIABILITY DATA (Reference to IEC Specification)**

IEC 384-10/CECC 32 100 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
4.4		Mounting	The antenna can be mounted on printed-circuit boards or ceramic substrates by applying wave soldering, reflow soldering (including vapour phase soldering) or conductive adhesive	No visible damage
4.5		Visual inspection and dimension check	Any applicable method using $\times 10$ magnification	In accordance with specification (chip off 4mm)
4.6.1		Antenna	Central Frequency at 20 °C	Standard test board in page 4
4.8		Adhesion	A force of 3 N applied for 10 s to the line joining the terminations and in a plane parallel to the substrate	No visible damage
4.9		Bond strength of plating on end face	Mounted in accordance with CECC 32 100, paragraph 4.4	No visible damage
			Conditions: bending 0.5 mm at a rate of 1mm/s, radius jig. 340 mm, 1.6 mm FR4 board of 90 mm length	No visible damage
4.10	20(Tb)	Resistance to soldering heat	260 $\pm$ 5 °C for 10 $\pm$ 0.5 s in a static solder bath	The terminations shall be well tinned after recovery and Central Freq. Change $\pm$ 6%

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IEC 384-10/ CECC 32 100 CLAUSE	IEC 60068-2 TEST METHO D	TEST	PROCEDURE	REQUIREMENTS
		Resistance to leaching	260 ± 5 °C for 30 ± 1 s in a static solder bath	Using visual enlargement of × 10, dissolution of the termination shall not exceed 10%
4.11	20(Ta)	Solderability	Zero hour test, and test after storage (20 to 24 months) in original atmosphere; un-mounted chips completely immersed for 2 ± 0.5 s in 235 ± 5°C.	The termination must be well tinned, at least 75% is well tinned at termination
4.12	4(Na)	Rapid change of temperature	-55 °C (30 minutes) to +125 °C (30 minutes); 100 cycles	No visible damage Central Freq. Change ± 6%
4.14	3(Ca)	Damp heat	500 ± 12 hours at 60 °C; 90 to 95 % RH	No visible damage 2 hours recovery Central Freq. Change ± 6%
4.15		Endurance	500 ± 12 hours at 125 °C;	No visible damage 2 hours recovery Central Freq. Change ± 6%

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**ORDERING INFORMATION: Method I- by 12NC Ordering Code**

The antennas may be ordered by using the 12 NC ordering code. These code numbers can be determined by the following rules:

- 4311 1 15 11 245  
F C MS T A
- F. Family Code  
43 = Antenna
- C. Packing Type Code  
11 = 180 mm/ 7" blister (1000pcs) , 12 = 330 mm/13" blister (4000 pcs)  
13 = Bulk (1000 pcs)
- M. Materials Code  
1 = High Frequency Material
- S. Size Code  
15 = 7.8 \* 3.6 \* 0.9 mm
- T. Tolerance/Style  
11 = larger than 100 M Hz Band Width with 8 terminations
- A. Working Frequency (three types of antenna are available)
  - 245 = 2.45 GHz Type 245 (No Marking)
  - 260 = (2.45+0.15) GHz \* Intention for shift up 150MHz Type 260 (Marking 6)
  - 270 = (2.45+0.25) GHz \* Intention for shift up 250MHz Type 270 (Marking 7)
  - 230 = (2.45-0.15) GHz \* Intention for shift down 150MHz Type 230 (Marking 3)

**Example: 12NC 4311 115 11245**  
 Product description: Antenna (43) by 180 mm blister (11) of High Frequency Material (1), Size 7.8\*3.6\*0.9 mm (1);  
 Tolerance (11) of 100 MHz (VSWR<2) with 8 termination  
 Working Frequency (245) = 2.45G Hz

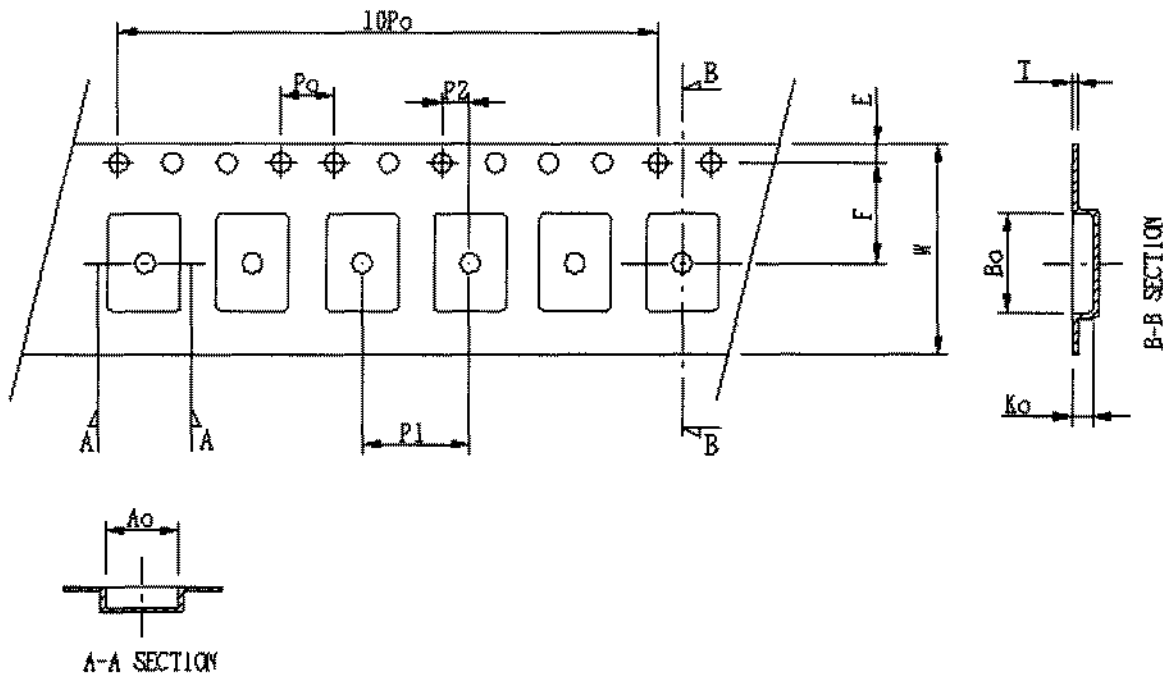
**ORDERING INFORMATION: Method II- by Clear Text Code**

The antennas may be ordered by using the 16-digit clear text ordering code. These code numbers can be determined by the following rules:

AN2450110708031K (Clear Text Code Example)						
AN	2450	11	07	0803	1	K
Product	Central Freq.	Bandwidth	Material	Size	Quantities	Packing
AN=	2450=2.45GHz	00=	07=K7	0803=7.8*	1 = 1K	K=7" plastic
Antenna	2600=2.60GHz	>100MHz		3.6*0.9	4 = 4K	F =13"
	2700=2.70GHz			mm		plastic
	2300=2.30GHz					B = Bulk

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**Taping Blister Tape**

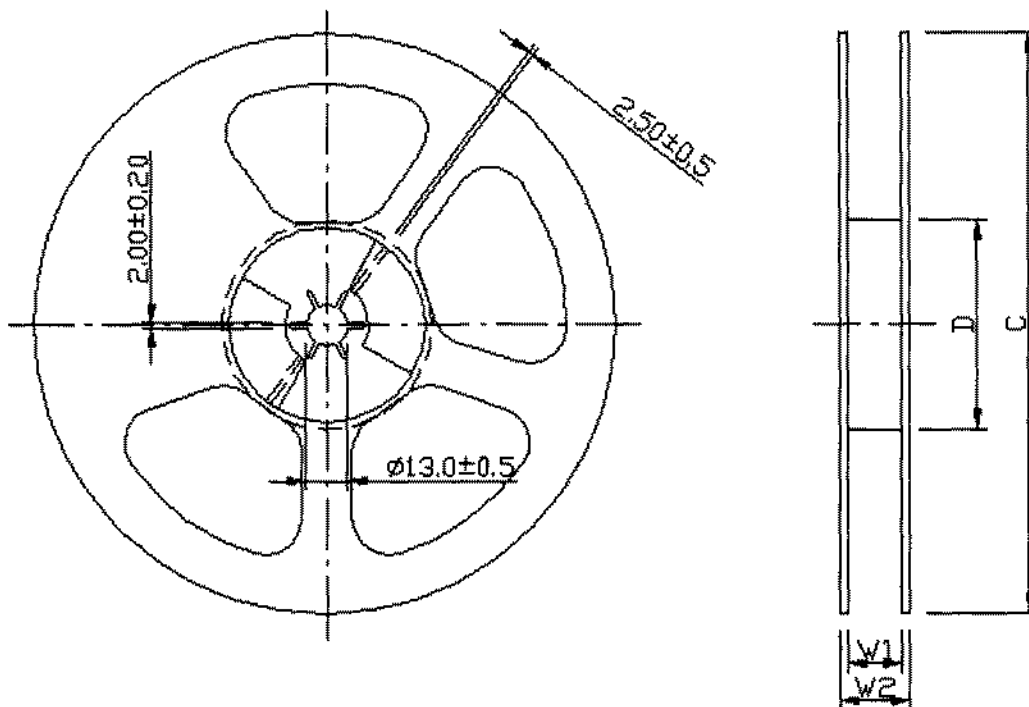


DIMENSION:

Serial no	Checking note	Index	Spec(mm)
1	Sprocket hole	Do	1.55±0.10
2	Pocket hole	D1	1.50±0.10
3	Distance sprocket hole/sprocket hole	Po	4.0±0.10
4	Distance pocket/pocket	P1	8.0±0.10
5	Distance sprocket hole/pocket	P2	2.0±0.10
6	Tape width	W	16.0±0.30
7	Distance sprocket hole/outside	E	1.75±0.10
8	Distance sprocket hole/pocket	F	7.50±0.10
9	Pocket length	Ao	3.86±0.10
10	Pocket length	Bo	8.15±0.10
11	Pocket depth	Ko	1.20±0.10
12	Thickness of tape	T	0.25±0.10
13	10x sprocket hole pitch	10Po	40.0±0.20

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**7" (180mm) Reel Specifications**



Product size code	Units per Reel	Tape Width (mm)	C (mm)	D (mm)	W <sub>1</sub> (mm)	W <sub>2</sub> (mm)
Antenna	1000	16	180.0±1.0	62±0.5	16.0 <sup>+1</sup> <sub>-0</sub>	20.5±0.2

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**Revision Control:**

Revision	Date	Content	Remark
Rev. 1	April 10, 03	Sheet 190 New Issued with 8 termination	
Rev. 2	April 17, 03	Bending Specification updated	
Rev. 3	May 5, 03	Layout dimension change and 8 termination with new 12NC	

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