

SPECIFICATION FOR APPROVAL

承 認 書

Description : Micro Dynamic Speaker

Kingstate Part No. : TRAG4030004-20W4

Customer's Model No. : _____

Specification No. : POD-5195

Number Of The Edition : 1.1

CUSTOMER'S APPROVED SIGNATURE

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Approved by	Checked by	Issued by
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A. SCOPE 範疇

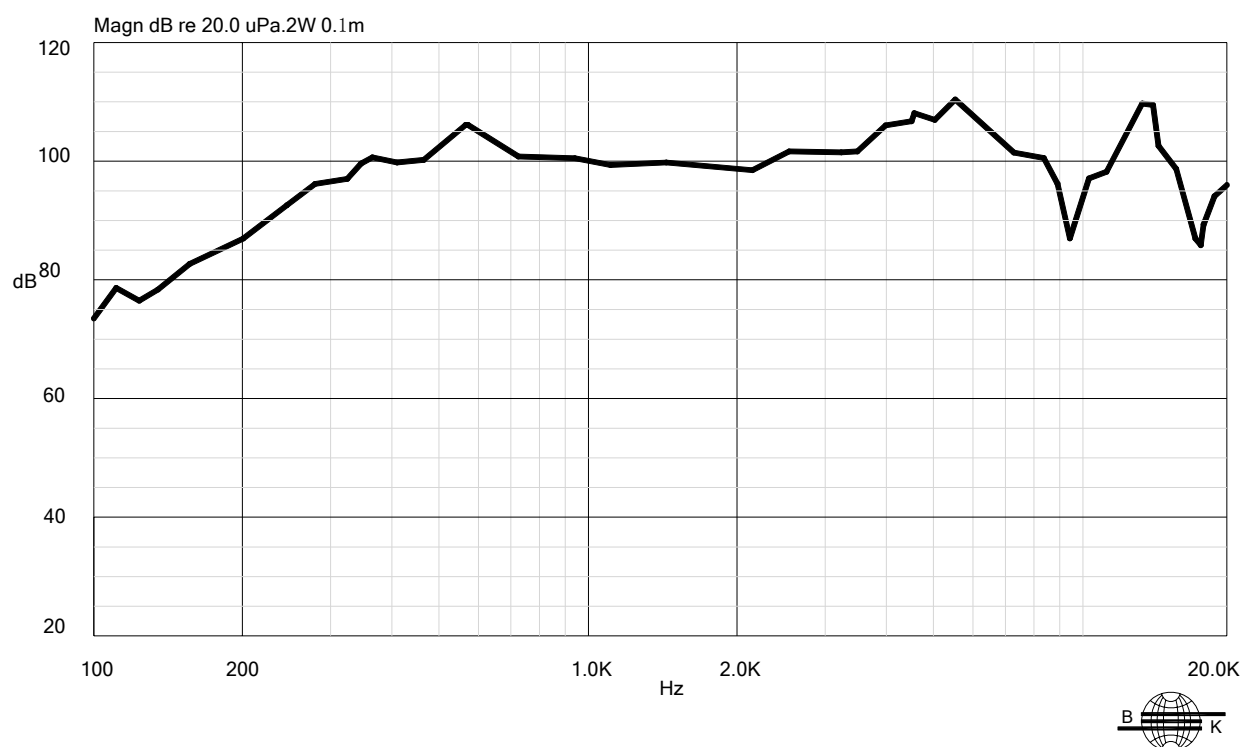
This specification applies speaker, **TRAG4030004-20W4**

此規格書適用於喇叭, **TRAG4030004-20W4**

B. SPECIFICATION 規格

No.	Item	Symbol	Unit	Specification	Condition
1	Dimension 尺寸		mm	40x 30x7.0	
2	Power Rating 功率		W	Rated2W/ MAX3W	MaximumPower:IEC-60268-5 Filter 60s On/120s Off 10 Cycles (Room TEMP.)
3	Impedance 阻抗	Ω	ohm	4 $\pm$ 15%	At 2.0KHz 1V
4	Resonance Frequency 低音諧振	Fo	Hz	400 $\pm$ 20%	At 1V
5	Output S.P.L. 音壓位準		dB	85 $\pm$ 3dB(1w/0.5m)	At0. 8k,1.0k,1.2k,1.5kHz (Average figures)
6	Frequency Rang 有效頻寬		Hz	F0---20K	Average SPL -10db
7	Distortion 失真		%	5%MAX	1KHz at 2W
8	Voice Coil 音圈		mm		
9	Magnet 磁石		mm		Nd-Fe-B
10	Flux Density 磁通密度		Gauss		
11	Operating temp. 操作溫度		°C	-40~ +85	
12	Buzze & Rattle 異常音				Not be audible at 2.83V sine wave between From Fo ~20K 輸入 2.83V 正弦波從 Fo 到 20K 之間無異常音
13	Weight 重量		g		
14	Material 材質			PBT	
15	Environmental Protection Regulation 環保法規			RoHS	

C. SPEAKER CHARACTERISTICS CURVE SPEAKER 特性曲線



D.SPEAKER THD CURVE 失真曲線

Magn dB re 20.0 uPa.2W 0.1m

The graph shows the Total Harmonic Distortion (THD) of the speaker. The y-axis represents THD in percentage, ranging from 0 to 60. The x-axis represents Frequency in Hz on a logarithmic scale, ranging from 100 to 20.0K. The THD is highest at the lowest frequencies and decreases significantly as frequency increases, staying below 10% for frequencies above 200 Hz.

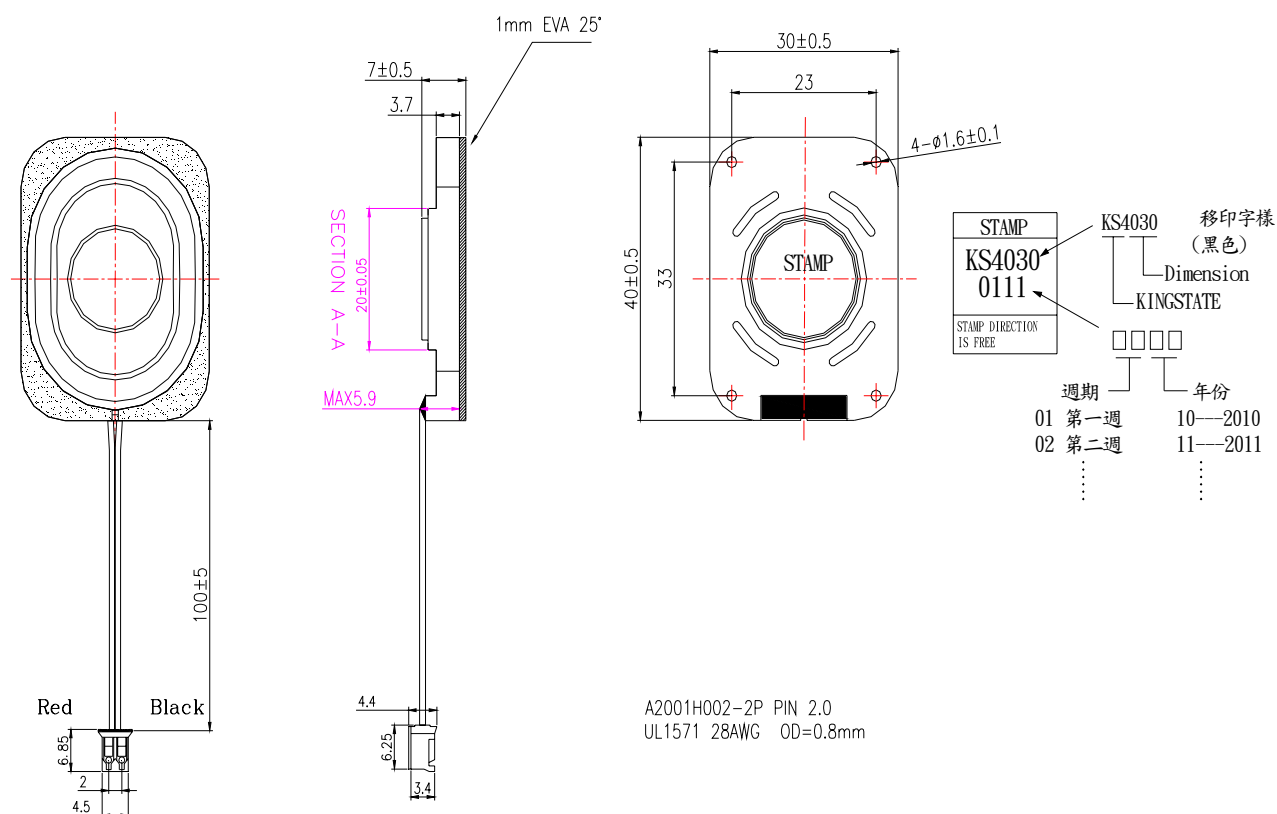
Frequency (Hz)	THD (%)
100	55
200	35
500	12
1000	5
2000	4
5000	2
10000	1
20000	5

Hz

B K

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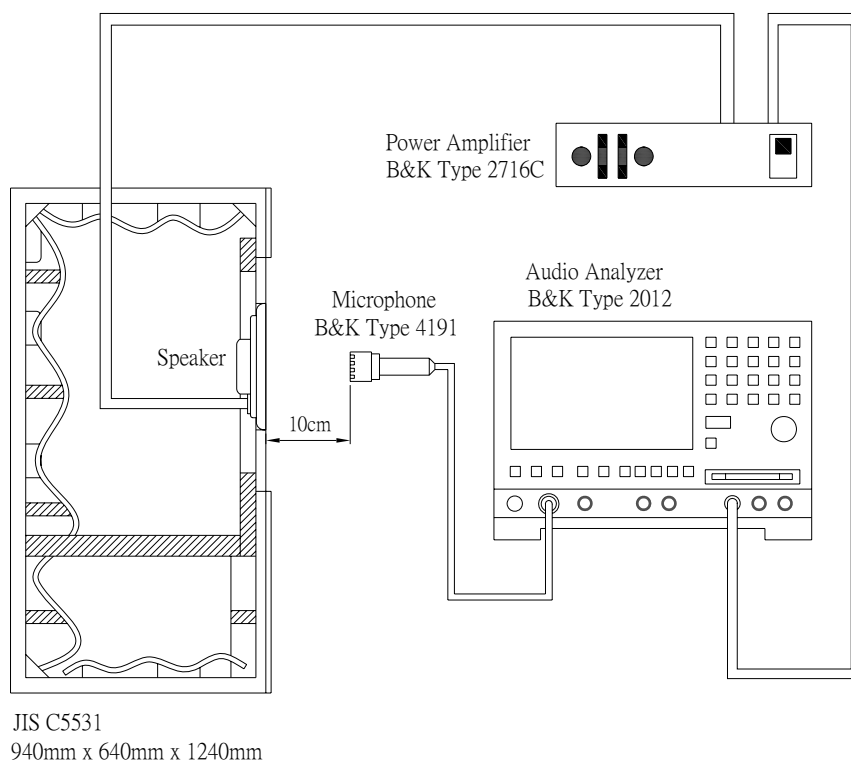
E. APPEARANCE DRAWING 外觀尺寸圖



Tol: ± 0.25

Unit: mm

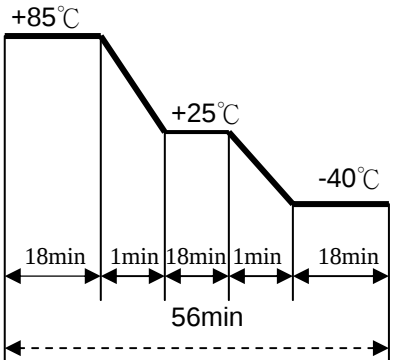
F. MEASUREMENT CIRCUIT 測量線路



G. MECHANICAL CHARACTERISTICS 機械特性

No.	Item	Test condition	Evaluation standard
1	Solder ability 焊錫附著性 (Connector excepted) 端子類不適用此項	Stripped wires of lead wires are immersed in rosin for 5 seconds and then immersed in solder bath of $+270\pm 5^{\circ}\text{C}$ for 3 ± 0.5 seconds. 裸線部份浸入松香溶液 5 秒後,再浸入 $+270\pm 5^{\circ}\text{C}$ 熔融焊錫槽 3 ± 0.5 秒.	90% min. stripped wires shall be wet with solder.(Except the edge of terminal) 浸入裸線部份附著焊錫 90% 以上.(末端斷面不算).
2	Vibration Test 振動測試	Speaker shall be measured after being applied vibration of amplitude of 1.5mm with 10 to 55Hz band of vibration frequency to each of 3 per-pendicular directions for 2 hours. 振動週波數 10~55Hz、全振幅 1.5mm 於 X.Y.Z 3 個方向, 各 2 小時.	No obstacle to be harmful to normal operation; damages, cracks, rusts and distortions. Should not be audible at 2.83V sine wave between 50 ~ 5KHz
3	Drop Test 落下測試	Drop the speakers contained in normal box onto the board 40mm thick 10 times from the height of 75cm 將揚聲器置於盒中, 自 75 公分高度落在 40mm 木板上共 10 次.	測試後無任何障礙防礙正常操作. 且在輸入 2.83V 正弦波從 50 到 5KHz 之間無異常音.

H. ENVIRONMENTAL TEST 環境試驗

No.	Item	Test conditions	Evaluation standard
1	High temp. Test 高溫測試	After being placed in a chamber at $+85\pm 3^{\circ}\text{C}$ for 24hours 置於 $+85\pm 3^{\circ}\text{C}$ 環境中 24 小時	Being placed for 1 hours at $+25^{\circ}\text{C}$, speaker shall be measured. No obstacle to be harmful to normal operation; damages, cracks, rusts, etc. Should not be audible at 2.83V sine wave between F_o 到 20K. F_o should meet initial one. S.P.L. deviation of unit should be within $\pm 3\text{dB}$ 經測試後, 靜置於 $+25^{\circ}\text{C}$ (室溫)環境中 1 小時後, 測試後無任何障礙防礙正常操作. 且在輸入 2.83V 正弦波從 F_o 到 20K 之間無異常音. F_o 與原規格值相同, 輸出音壓變化量在 $\pm 3\text{dB}$ 內.
2	Low temp. Test 低溫測試	After being placed in a chamber at $-40\pm 3^{\circ}\text{C}$ for 24hours. 置於 $-40\pm 3^{\circ}\text{C}$ 環境中 24 小時	
3	Humidity test 相對濕度測試	After being placed in a chamber at $+40\pm 3^{\circ}\text{C}$ and 90%~95% RH relative humidity for 48hours. 置於 $+40\pm 3^{\circ}\text{C}$, 相對濕度 90%~95%環境中 48 小時	
4	Temp. cycle test 溫度循環測試	The part shall be subjected to 20 cycles. One cycle shall be consist of: 單體承受溫度循環測試 20 次, 其循環內容如圖示: 	

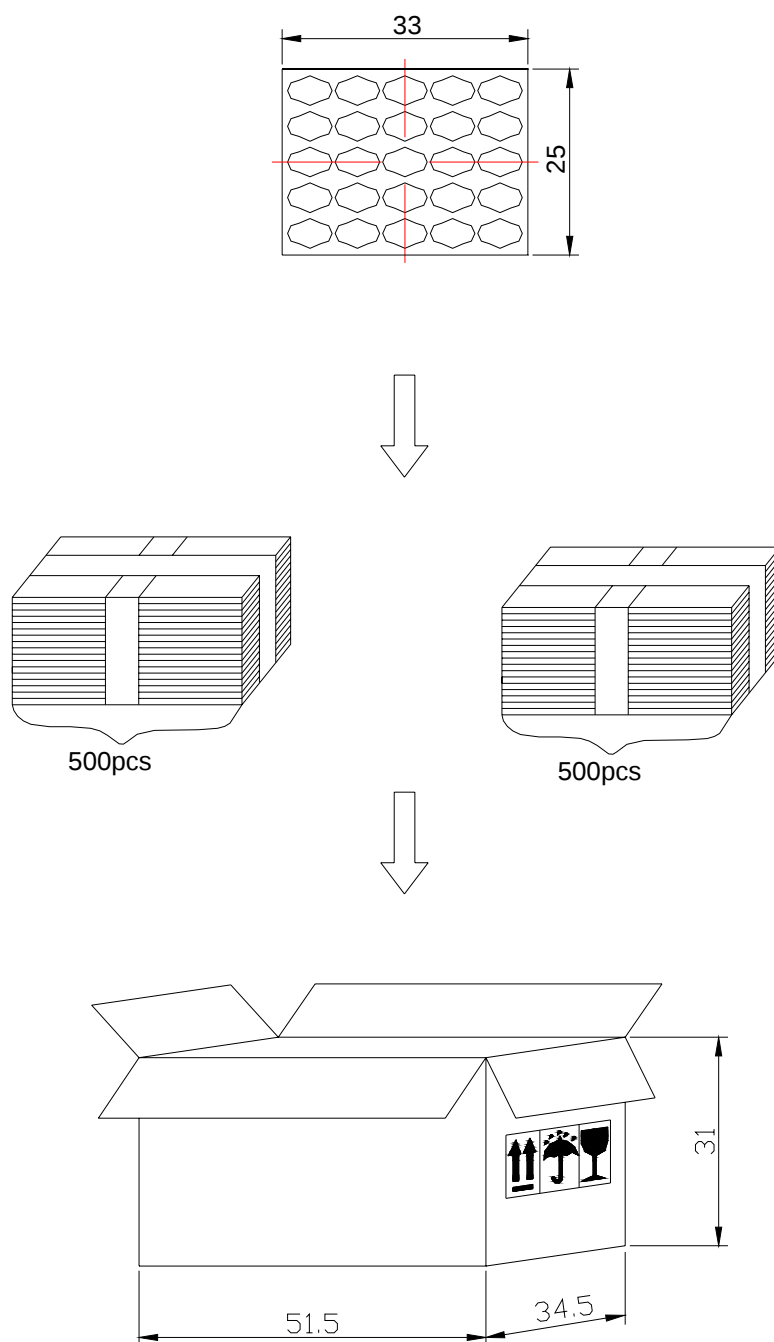
I. RELIABILITY TEST 信賴性試驗

No.	Item	Test conditions	Evaluation standard
1	Load test 連續負荷	A: 2.0W white noise is applied for 96 hours, at room temp. 在室溫下, 輸入功率 2.0W, 白雜音連續操作 96 小時. B: or 2W F0 tone is applied for 8 hours at room temp. 或是在室溫下, 2W F0 單點連續操作 8 小時	Being placed for 1 hours at +25°C, speaker shall be measured. No obstacle to be harmful to normal operation; damages, cracks, rusts, etc. Should not be audible at 2.83V sine wave between Fo 到 20K. Fo should meet initial one. S.P.L. deviation of unit should be within ±3dB 經測試後, 靜置於+25°C (室溫) 環境中 1 小時後, 測試後無任何障礙防礙正常操作. 且在輸入 2.83V 正弦波從 Fo 到 20K 之間無異常音. Fo 與原規格值相同, 輸出音壓變化量在±3dB 內.

TEST CONDITION.

Standard Test Condition :	a) Temperature : +5 ~ +35°C	b) Humidity : 45-85%	c) Pressure : 860-1060mbar
一般測試條件 :	a) 溫度 : +5 ~ +35°C	b) 濕度 : 45-85%	c) 氣壓 : 860-1060mbar
Judgement Test Condition	a) Temperature : +25 ± 2°C	b) Humidity : 60-70%	c) Pressure : 860-1060mbar
爭議時測試條件:	a) 溫度 : +25 ± 2°C	b) 濕度 : 60-70%	c) 氣壓 : 860-1060mbar

J. PACKING STANDARD 包裝規格



Remark:

25 pcs per tray

20 trays for unit , 2 units per carton

Total:1000 pcs per box

Size:51.5*34.5*31cm