



產 品 規 格 書
PRODUCT SPECIFICATION

檔案號 FILE NO	1-HJ08N V4.0A for 3V3
日期 DATE	2018/4/14

項次 ITEM NO	機型 MODEL	客戶料號 CUSTOMER P/N
1	HJ-08N (non switch)	

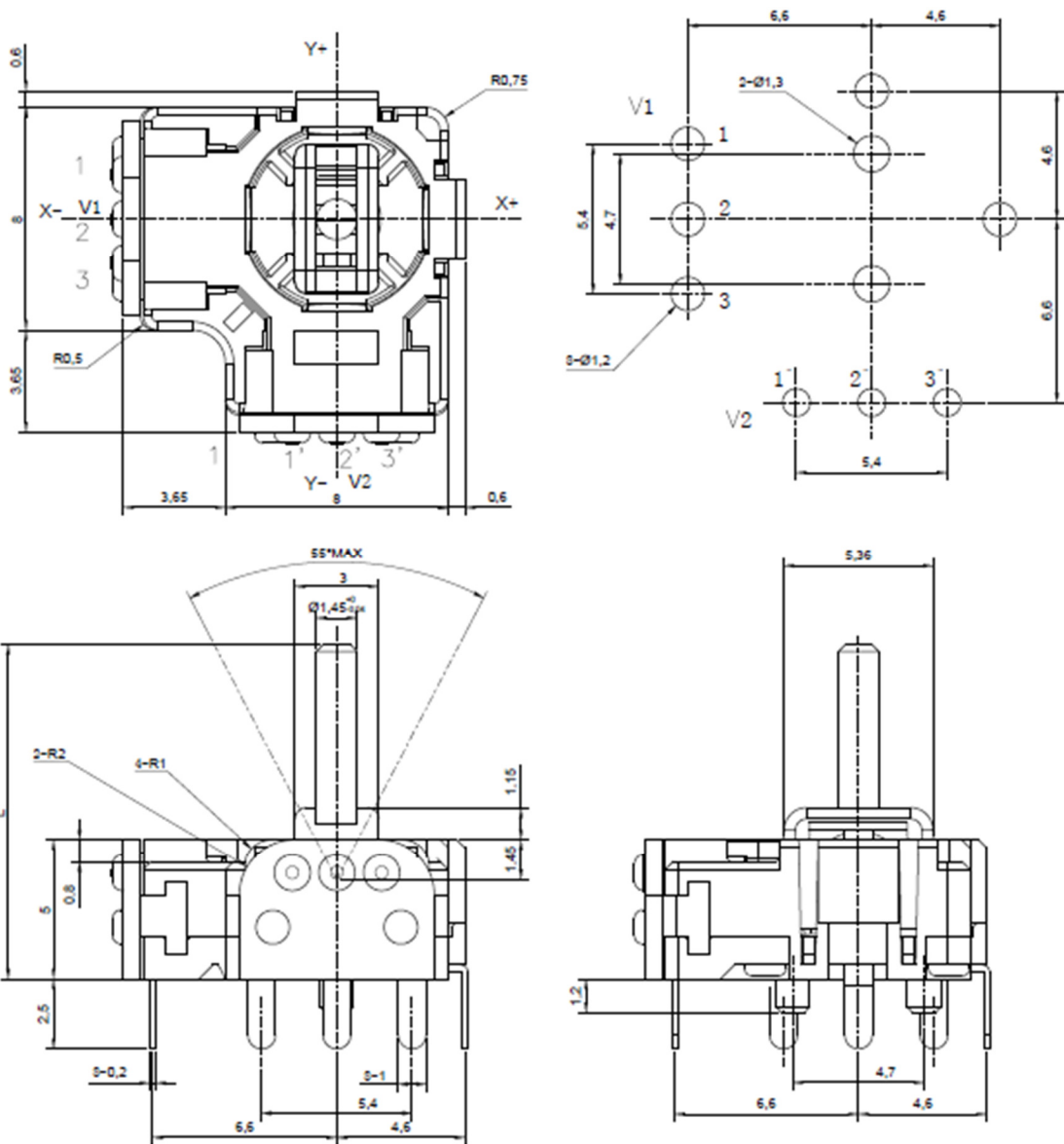
中國專利
CHINA PATENTED

經理 MANAGER	業務 MARKETING	工程 ENG	品保 QA

客戶承認 CUSTOMER APPROVAL		

Revision Record

1. 外型尺寸 OUTLINE DIMENSIONS



OVA SMART TECH

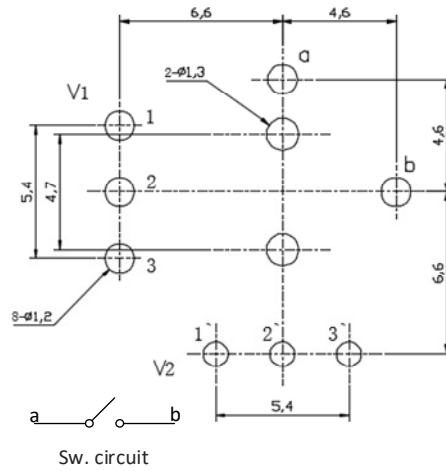
圖號
DRAWING NO

0-HJ-08 N

日期
DATE

2018.04.14

2. 腳位說明 PIN DESCRIPTION



Pin No.	Description	Signal	Remark
1	“Y” axis input	Vdd=3.3~6.0VDC	控制方向會隨搖桿在 PCB 上的安裝方向而改變； Control directions may vary due to different installation directions of joystick
2	“Y” axis output	Y-Vout	
3	“Y” axis ground	Ground	
1'	“X” axis input	Vdd=3.3~6.0VDC	
2'	“X” axis output	X-Vout	
3'	“X” axis ground	Ground	

3. 適用範圍
APPLICATION SCOPE

本產品適用於超薄型電子產品如各種移動裝置遊戲手柄、掌上型遊戲機、遙控器等；
This products is suitable for many kind of electronic products such as mobility devices, game pads and remote control devices.

4. 機型
MODEL

無按壓開關；
HJ-08N (“N”for non-switch)

5. 外觀
APPEARANCE



外觀應無明顯損傷，如有疑義以限度樣品為準；

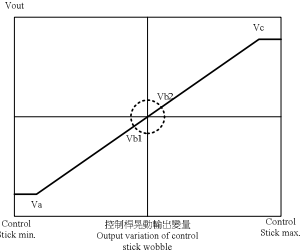
There shall be no remarkable damage in the visual inspection. Products shall be judged by boundary samples if there are any doubts.

6. 安裝尺寸
INSTALLATION

安裝尺寸參照第 1 項。
REFER TO CLAUSE 1 OUTLINE DIMENSIONS

DIMENSIONS			
7. 最大額定 MAX RATING			
項次 NO.	項目 ITEM	測試方法及條件 TESTING METHOD AND CONDITION	規格 SPECIFICATION
7.1	工作溫度範圍 Operating Temp		-30 ~ +105°C
7.2	儲存溫度範圍 Storage Temp		-10 ~ +60°C
7.3	工作電壓 Operating Voltage		2.5~ 5 VDC
7.4	工作電流 Operating Current	@Vdd=3.3V	最大 Max: <5 mA x 2 典型 Typical: <2.5mA x 2
8. 規格 SPECIFICATION			
8.1	搖桿旋轉方式 Joystick Rotation type	姆指操作 Thumb Operating	2D Rotating
8.2	搖桿旋轉角度 Joystick operating angle	投影儀 Engineering Projector	55° Max.
8.3	連續電氣角度 Electrical Continuity angle	軌跡測試儀	N/A
8.4	理論電氣角度 Theoretical Electrical angle	軌跡測試儀	N/A
8.5	功率 Power	@Vdd=5.0V @Vdd=3.3V @Vdd=2.5V	0.025W 0.015W 0.008W
8.6	旋轉扭力 Rotational torque	以姆指操作 Thumb Operating	120 ± 50 gf.cm;
8.7.1	按壓開關作動力 Tact Switch op force	NA	NA
8.7.2	開關行程 Switch travel	NA	NA
8.8	獨立線性	軌跡測試儀	N/A

Independent Linearity			
8.9	操縱桿晃動間隙 Control Stick rotation wobble	工程投影儀 Engineering Projector	±2.5° Max.
8.10	接觸雜音 Contact Noise	端子至端子 Lead to Lead	<3mV
8.11	輸出電流 Output Current	Apprx.: 1.33mA x 2 @ 2.5V 1.65mA x 2 @ 3.0V 2.0mA x 2 @ 5.0V	B=0 Gs
8.12	輸出頻寬 Output Bandwidth		<20 KHz
8.13	輸出響應時間 Output Response Time		3 μS
8.14	輸出訊號範圍 Output Voltage Range	@VDD=3.3V Vout=≤0.7V~≥2.6V	Va~Vc: ≤0.7~≥2.6V
		@VDD=5.0V Vout=≤0.7V~≥4.3V	Va~Vc: ≤0.7~≥4.3V
8.15	中點復歸範圍 Center Output Range For VCC=3.3V Application (97%为补偿系数)	輸出及軌跡測試系統 Output & Tracking Testing System	 <p>Calculation: $V_b = (V_c + V_a) / 2 * 97\% \pm 5\% (V_c + V_a)$ Apprx: 1.48 ~ 1.78V @ 3.3Vdd</p>

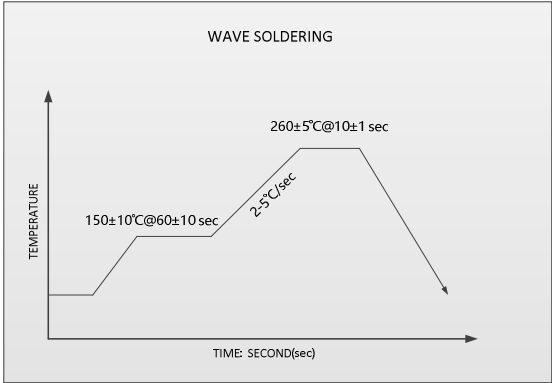
8.16	操縱桿晃動輸出誤差 Output variation of control stick wobble	輸出及軌跡測試系統 Output & Tracking Testing System	 <p>計算公式</p> <p>Calculation: Max. $2\%(V_c - V_a)$, or $\leq 40\text{mV}@V_{dd} = 3.3\text{V}$</p>
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8.17	輸出軌跡 Output Tracking	輸出及軌跡測試系統 Output & Tracking Testing System	 <p>True Output</p>
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9. 可靠性

RELIABILITY

9.1	搖桿壽命 Cycle Life	Cycle Life Tester	二百萬次以上 2-Million cycles min.
9.2	按壓開關壽命 Momentum Switch Cycle Life	NA	NA
9.3	耐熱性 High Temp	96 hours@80±2°C	Output variation <2%;
9.4	耐寒性 Low Temp	96 hours@-30±2°C	Output variation <2%;
9.5	耐濕性 Humid	96 hours@60±2°C, 90~95% RH	Output variation <2%;
9.6	浸錫試驗 Dipping Test	10s@260°C	Output Variation <1%
9.7	焊錫條件 Soldering Condition		

9.7.1	迴流焊 Reflow soldering	N/A	
9.7.2	波峰焊 Wave soldering	<div style="text-align: center;">  <p>The graph shows a temperature profile for wave soldering. The y-axis is labeled 'TEMPERATURE' and the x-axis is 'TIME: SECOND(sec)'. The profile starts at a baseline, rises to a plateau at 150±10°C for 60±10 seconds, then rises at 2-5°C/sec to a second plateau at 260±5°C for 10±1 second, and finally cools down.</p> </div> <p>Wave soldering is also applicable for manual soldering. The product can suffer 300°@10sec, but be noted that the term is for extreme condition, not for standard operating procedure. 手焊最高温度条件等同于波峰焊。手焊可承受 300°@10sec 以上，但仅限于极端情况下，请勿做为标准焊锡制程。</p>	
10.	環境 ENVIRONMENTAL	ROHS	Compliant
10.1	ESD; HUMAN	MIL-STD-883G Method 3015.7	(±)1000V ~ 4000V, Step : (±)500V
10.2	ESD; MACHINE	JEDEC EIA/JESD22-A115	(±)100V ~ 300V, Step : (±)50V
11.	X/Y 軸輸出曲線 X/Y Axis Output Curve		線性 Linear