

SPECIFICATION FOR APPROVAL

承 認 書

Description : **Piezo Audio Transducer**

Kingstate Part No. : **KPEM268F**

Customer's Model No. : _____

Specification No. : **DRD-B423**

Number Of The Edition : **1.6**

CUSTOMER'S APPROVED SIGNATURE		



KINGSTATE

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Approved by	Checked by	Issued by

SPEC SHEET REVISION RECORD

成品承認書修訂記錄

DRAWING NO. : DRD-B423 圖 號: DRD-B423		P/N: KPEM268F 料 號: KPEM268F	
REVISE DATE 修訂日期	APPLICANT 提出者	Version 版次	Revise 修訂記錄內容
2017/09/14	Waki	1.1	修訂 KPEM268F 規格
2017/11/24	Sean	1.2	1. 修改外觀尺寸圖 2. 加入消耗電流 3. 移除多於操作溫度 4. 修改保存期限 5. 加入重量 6. 修改總頁碼 7. 加入浮水印
2017/12/04	Sean	1.3	1. 在 Item 中加入 Tone 聲音 2. 在 Item 中加入防水防塵等級 3. 修改外觀尺寸圖
2017/12/07	Sean	1.4	修改頻率響應圖
2017/12/08	Sean	1.5	1. 更新外觀產品圖 2. 更新頻率響應圖
2017/12/11	Sean	1.6	1. 修改耗電流 2. 修改重量

A. SCOPE 範疇

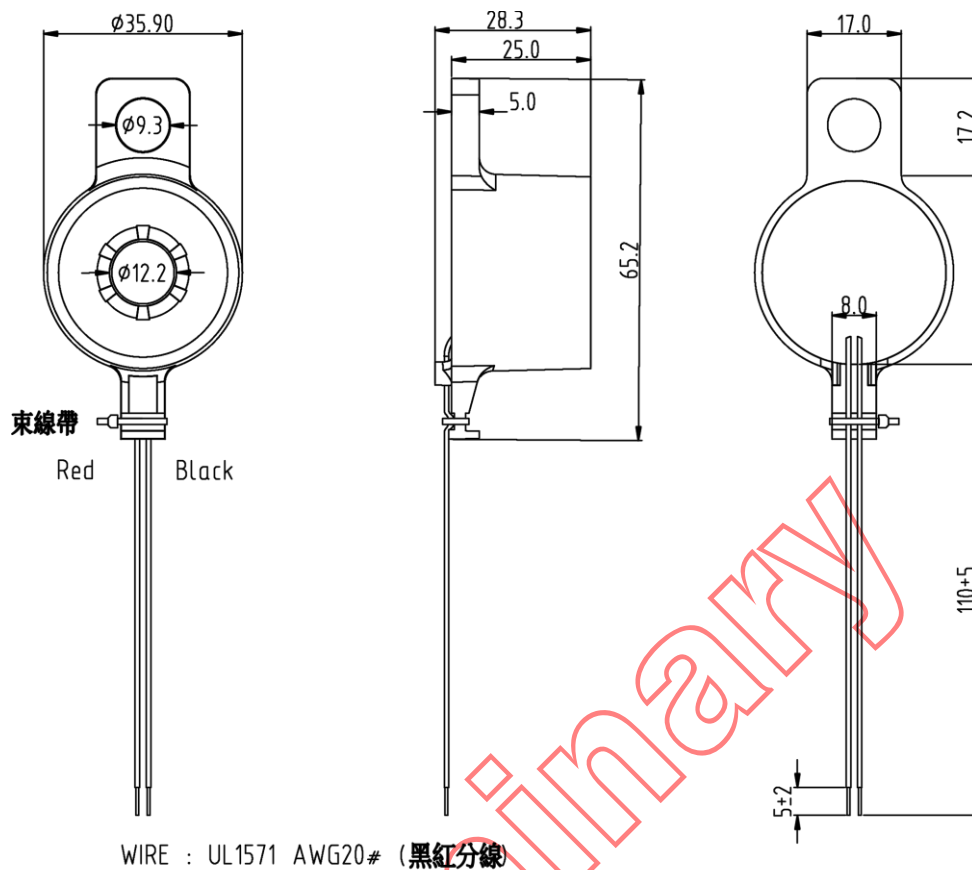
This specification applies piezo audio indicator, **KPEM268F**

此規格書適用於壓電式蜂鳴器, **KPEM268F**

B. SPECIFICATION 規格

No.	Item	Unit	Specification	Condition
1	Operating Frequency 操作頻率	KHz	3.7	
2	Operating Volt. 操作電壓	Vp-p	28	
3	Current consumption 消耗電流	mA	Max 30	
4	Sound pressure level 輸出音壓	dB	Min 108	at 30 cm/28Vp-p square wave
5	Tone 聲音		Continuous 直音	
6	Operating temp. 操作溫度	°C	-30 ~ +85	
7	Storage temp./Humidity 儲存溫度/濕度	°C/RH%	-30 ~ +85 / 20-75RH%	
8	Storage life 保存期限	month	6	
9	Dimension 尺寸	mm	$\phi 35.81 \times H28.1$	See appearance drawing 請參照外觀尺寸圖
10	Weight (MAX) 重量	gram	22	
11	Material 材質		PBT+15%Glass UL-94V0 (BLACK)	
12	Terminal 端子		Wire type	
13	Environmental Protection Regulation 環保法規		RoHS 2.0	
14	Dustproof and waterproof level 防塵、防水等級		IP67	IEC standard 529 edition 2.0(1989) IEC 標準 529 第二版(1989)

C. APPEARANCE DRAWING 外觀尺寸圖

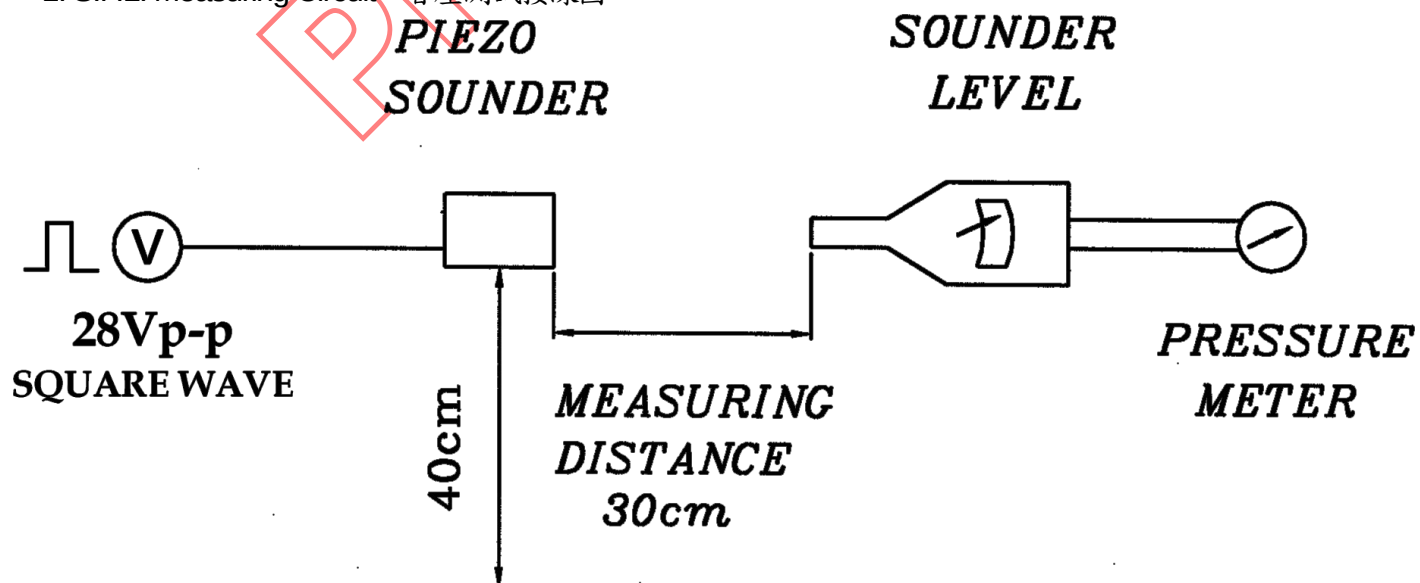


Tol : ± 0.5

Unit : mm

D. MEASURING METHOD 測量方法

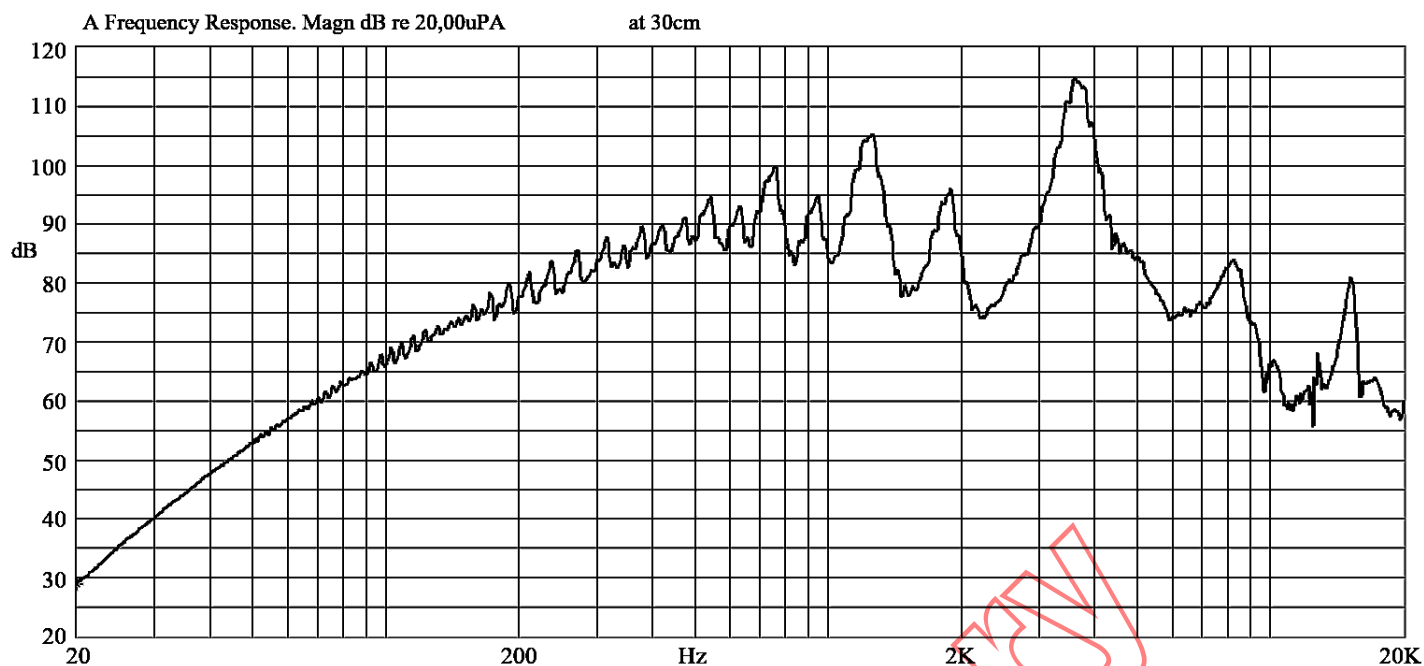
1. S.P.L. Measuring Circuit 音壓測試接線圖



Mic : RION S.P.L. meter UC30 or equivalent

Mic : RION 噪音計 UC30 或同等品

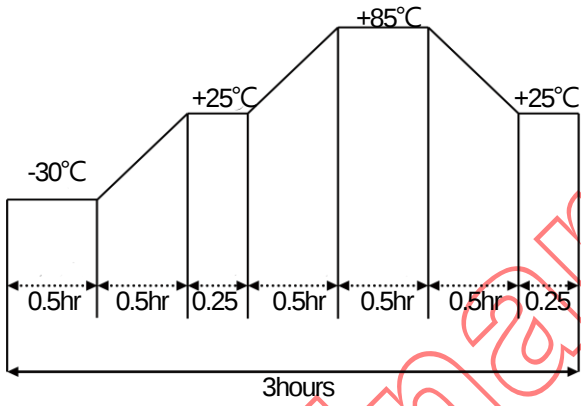
E. TYPICAL FREQUENCY RESPONSE CURVE 頻率響應曲線



F. MECHANICAL CHARACTERISTICS 機械特性

No.	Item	Test Condition	Evaluation standard
1	Solderability 焊錫附著性	Lead terminals are immersed in rosin for 5 seconds and then immersed in solder bath of $+270\pm5^{\circ}\text{C}$ for 3 ± 1 seconds. 端子部份浸入松香溶液 5 秒後,再浸入 $+270\pm5^{\circ}\text{C}$ 熔融焊錫槽中 3 ± 1 秒.	90% min. lead terminals shall be wet with solder. (Except the edge of terminal) 浸入端子部份附著焊錫 90%以上.(末端斷面不算)
2	Soldering Heat Resistance 焊錫耐熱性	Lead terminal are immersed up to 1.5mm from sounder's body in solder bath of $+300\pm5^{\circ}\text{C}$ for 3 ± 0.5 seconds or $+260\pm5^{\circ}\text{C}$ for 10 ± 1 seconds. 距離端子根部 1.5mm 的位置,浸入 $+300\pm5^{\circ}\text{C}$ 的焊錫槽 3 ± 0.5 秒,或 $+260\pm5^{\circ}\text{C}$ 的焊錫槽 10 ± 1 秒.	No interference in operation 操作上無任何不良.
3	Terminal Mechanical Strength 端子強度	The force 10 seconds of 9.8N (1.0kg) is applied to each terminal in axial direction. 各端子的軸方向施以 9.8N (1.0kg) 的力量 10 秒.	No damage and cutting off 端子不鬆動, 不脫落.
4	Vibration 振動試驗	Buzzer 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.	The value of oscillation frequency/ current consumption should be in 10% compared with initial ones .The SPL should be in $\pm 10\text{dB}$ compared with initial one.
5	Drop test 落下測試	The part only shall be dropped from a height of 75cm onto a 40mm thick wooden board 3 times in 3 axes (X.Y.Z). (a total of 9 times). 單體從 75 公分高處, X.Y.Z.3 個方向,各 3 回,落於 40mm 厚木板上.	諧振頻率與消耗電流變化量須在 $\pm 10\%$ 內. 輸出音壓變化量須在 $\pm 10\text{dB}$ 內.

G. ENVIRONMENT TEST 環境測試

No.	Item	Test Condition	Evaluation standard
1	High temp. test 高溫測試	After being placed in a chamber at +85°C for 240 hours 置於+85°C環境中 240 小時	Being placed for 4 hours at +25°C, buzzer shall be measured. The value of oscillation frequency/ current consumption should be in $\pm 10\%$ compared with initial ones. The SPL should be in $\pm 10\text{dB}$ compared with initial one. 經測試後，靜置於+25°C（室溫）環境中 4 小時後，諧振頻率與消耗電流變化量須在$\pm 10\%$內。輸出音壓變化量須在$\pm 10\text{dB}$ 內。
2	Low temp. test 低溫測試	After being placed in a chamber at -30°C for 240 hours 置於-30°C環境中 240 小時	
3	Humidity test 相對濕度測試	After being placed in a chamber at +30°C and 90 $\pm$ 5% relative humidity for 240 hours 置於+30°C，相對濕度 90 $\pm$ 5% 環境中 240 小時	
4	Temp. cycle test 溫度循環試驗	The part shall be subjected to 5 cycles. One cycle shall be consist of: 單體承受溫度循環測試 5 次，其循環內容如圖示： 	

H. RELIABILITY TEST 信賴性測試

No.	Item	Test condition	Evaluation standard
1	Operating life test 壽命測試	1. Continuous life test 高溫壽命測試(連續) 48 hours continuous operation at +70°C with rated voltage applied. 在+70°C環境下，以額定電壓連續操作 48 小時 2. Intermittent life test 室溫壽命測試(間歇) A duty cycle of 1 minute on, 1 minutes off, a minimum of 5000 times at room temp. (+25$\pm$2°C) and rated voltage applied 在室溫下(+25$\pm$2°C)，以額定電壓操作，通電 1 分鐘/斷電 1 分鐘，測試 5000 次循環。	Being placed for 4 hours at +25°C, buzzer shall be measured. The value of oscillation frequency/ current consumption should be in $\pm 10\%$ compared with initial ones. The SPL should be in $\pm 10\text{dB}$ compared with initial one. 經測試後，靜置於+25°C（室溫）環境中 4 小時後，諧振頻率與消耗電流變化量須在$\pm 10\%$內。輸出音壓變化量須在$\pm 10\text{dB}$ 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 $\pm$ 2°C	b) Humidity : 60-70%	c) Pressure : 860-1060mbar
爭議時測試條件	:	a) 溫度 : +25 $\pm$ 2°C	b) 濕度 : 60-70%	c) 氣壓 : 860-1060mbar

I.PACKING STANDARD 包裝規格

Each minimum package unit of products shall be in a carton box and it shall be clearly marked with Part Number, quantity and outgoing inspection number. There shall be no mechanical damage on products during transportation and/or in storage.

外箱須標示最小包裝單位，並註明產品型號、數量及檢驗批號，必須是物品儲藏或運輸過程中可防止造成損傷的包裝。

Preliminary