Preliminary

Messrs.

Shock Sensor Specification

Part No. : PMLE480W-R

RoHS Compliant

Halogen-Free Compliant

16.Dec. 2010

Approved by	Kazuki Shimizu	
Checked by	Yasuhiro Nakai	
Issued by	Akira Oikawa	

KYOCERA CORPORATION

Mod	Modification Table					
No.	Date	Change	Apploved	Checked	Issued	
00	16.Dec 2010	The first edition	Kazuki Shimizu	Yasuhiro Nakai	Akira Oikawa	

1.Scope

This specification shall cover the characteristics of the shock sensor.

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2.Kyocera's Type Name

PMLE480W-R

3. Customer's Type Name

4.Electrical Characteristics

Items	Specifications		
4-1 Primary Axis Inclined Angle	0 ± 3 degree		
4-2 Capacitance	890pF \pm 30%, at 1Vrms, 1kHz		
4-3 Charge Sensitivity	0.608 pC/G \pm 15% under vibration at 200Hz, 2G		
4-4 Insulation Resistance	0.5Gohm minimum, at 10VDC after 1min.		
4-5 Resonant Frequency	19.5 ± 3.5kHz		
4-6 Non-linearity	5% maximum, under vibration at 25G		
4.7 Charge Sensitivity	Ta : 70°C 7.7±3.0%		
	Ta : 0°C -4.2±2.0%		
	under vibration at 200Hz, 2G		

<Measurement Condition>

The reference temperature shall be 25 °C ±5°C.



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6.Emvironmental Ch	naracteristics			
Items	Conditions	Preliminary		
6-1.High Temperature	Keep in a chamber at 85 $\pm 2^{\circ}$ C for 1000 +12/-0 hours, and then kee	ep at room		
Storage Test	temperature for 1 hour. The characteristics of shock sensor shall meet the			
	specifications.			
6-2.Low Temperature	Keep in a chamber at –40 $\pm 2^{\circ}$ C for 1000 +12/-0 hours, and then keep at			
Storage Test	room temperature for 1 hour. The characteristics of shock sensor shall meet			
	the specifications.			
6-3.Moisture	Keep in a chamber at 90 to 95 % R.H. and 60 \pm 2°C for 500 +12	2/-0 hours,		
Resistance Test	and then keep at room temperature for 1 hour. The characteristics of shock			
	sensor shall meet the specifications.			
6-4.Temperature	Apply 100 thermal cycles with the following temperatures:			
Cycling Test	- upper temperature 85°C for 20 minutes and transfer time 10 n	ninutes		
	- lower temperature -40°C for 20 minutes and transfer time 10 r	ninutes		
	- total cycle time is 1hour			
	and then left at room temperature for 1 hour. The characteristic	s of shock		
	sensor shall meet the specifications.			
6-5.Mechanical Shock	After applying the acceleration at 29430m/sec ² {3000G} in each c	of X, Y and		
Test	Z axis (each 3 times). The characteristics of shock sensor shal	I meet the		
	specifications.			
6-6.Solderability Test	At first, being soaked in the Methanol solution containing Re	osin for 5		
	seconds and then being dipped in a bath of Pb/Sn solder at 250 ±	± 5°C for 4		
	±0.5 seconds. The surface of the electrode terminal shall be sold	ered more		
	than 95%.			
6-7.Resistance to	Pre-heat temperature is 150 to 180°C for 1 minute. High temperature is 250			
Soldering Heat Test	\pm 5°C, over 200°C for 20 seconds max.(2times). Then keep	o at room		
	temperature for 1 hour. The characteristics of shock sensor shal	I meet the		
	specifications.			
6-8.Board Flex Test	After soldered on the circuit board specified as below, then the load which			
	cause 3 mm bend to the board is applied. The characteristics	s of shock		
	sensor shall meet the specifications. The shock sensor cause no defect in			
	the appearance. (Circuit Board: FR4, 100 x 40 x 1.6)			
	R230 7			
	45 45 45 3.0mm			
	<u>г</u> т 1			

<Measurement Condition>

The reference temperature shall be $25^{\circ}C\pm 5^{\circ}C$.



9-2. Taping

9-2-1. Taping Quantity

One reel of the carrier tape shall pack 3500 pcs. Shock sensor shall be contained in pocket continuously.

9-2-2. Dimensions





Unit: (mm)

Symbol	A	N	W ₁	W ₂
Dimensions	180±5.0	60min.	12.5 +2.0/-0.0	20.5 max.
Symbol	С	D	E	
Dimensions	13.0±0.2	21.0±0.8	2.0±0.5	

9-2-3. Leader and Blank Pocket

Package shall consist of leader, blank pocket and loaded pocket as follows. (fig.6)



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9-2-4. Reel label

A reel label shall be contained as below: (Based on EIAJ C-3 format)

- A) Customer P/N
- B) Lot No.
- C) Quantity
- D) Shipping date
- E) Vender Name

9-2-5. Exterior Package label

Shock sensor shall be packed properly to avoid defect in transportation and the marking of exterior package shall be contained as below:

- A) Name of Customer
- B) P/O No.
- C) Customer P/N
- D) Lot No.
- E) Quantity
- F) Shipping Date
- G) Vender Name

10. The agreement of this specifications

Should any part of the content of this specification become questionable, it shall be settled by mutual deliberations.

11. Remarks on Usage

- A) This part can use only reflow soldering.
- B) Not washable
- C) Maximum temperature is 280 degree.

12.RoHS Compliant

- A) Sensor Case: LCP(liquid crystal polymer)
- B) Terminal: Bronze with phosphate (thickness 100 um)Plating: Cu(1-2um), Ag(1-3 um)
- C) Elememt: Piezo Ceramic, contains lead-oxide, however, piezo-electronic devices are exempted from RoHS compliant requirement of article 4(1). (Refer to Annex, Section 7)

All materials meet to RoHS Compliant.

13.Halogen-Free Compliant

- A) Bromine(Br) <900ppm(0.09%)
- B) Chlorine(Cl) < 900 ppm (0.09%)
- C)Total concentration of Chlorine(Cl) + Bromine(Br) < 1500 ppm(0.15%)
- D)Antimony Trioxide(Sb2O3) <1000ppm(0.1%)
- E)Red Phosphorus <1000ppm(0.1%)

All materials meet to Halogen-Free Compliant.

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