

1. Product Overview

The HK-KWQM4-4Z is a hermetically sealed snap-action micro switch featuring welded metal shell construction. Designed and qualified for high-reliability applications, it delivers exceptional EMI shielding, total ionizing dose tolerance up to 100 Krad(Si), and continuous operation across an extreme temperature range from -184°C to +260°C. The changeover (SPDT) circuit configuration with solder termination makes it suitable for mission-critical electronic and electrical systems.

Key Features

- Hermetically sealed welded metal shell — leak rate $\leq 1 \times 10^{-3}$ Pa·cm³/s
- EMI shielding and radiation hardened — 100 Krad(Si) total dose
- Snap-action changeover mechanism (SPDT)
- Solder termination for secure electrical connection
- Operating temperature: -184°C to +260°C
- M2 screw mounting with standard 2×Φ2.2mm hole pattern

Applications

- Aerospace electronic and avionics systems
- Military ground and airborne equipment
- Space-qualified instrumentation
- High-reliability industrial control

2. Technical Specifications

2.1 Electrical Ratings by Model

Model	DC Voltage	Resistive Load	Inductive Load	AC (400Hz)	Temperature Range
HK-KWQM4-4Z	28V DC	5A	3A	115V AC / 2A	-184°C ~ +125°C
HK-KWQM4-4Z-1	28V DC	4A	1A	115V AC / 2A	-65°C ~ +125°C
HK-KWQM4-4Z-5-1E	28V DC	4A	2A	115V AC / 2.5A	-184°C ~ +260°C
HK-KWQM4-4Z-5-1J	28V DC	4A	—	—	-65°C ~ +260°C
HK-KWQM4-4Z-9-1C	28V DC	0.5A	0.25A	—	-184°C ~ +121°C
HK-KWQM4-4Z-9-1F	28V DC	0.5A	—	—	-65°C ~ +125°C
HK-KWQM4-4Z-11-1A	28V DC	3A	1A	115V AC / 1A	-184°C ~ +121°C
HK-KWQM4-4Z-11-1G	28V DC	3A	—	—	-65°C ~ +125°C

2.2 Mechanical Specifications

Parameter	Value
Operating Force	≤ 1.95 N
Release Force	≥ 0.28 N
Operating Stroke	≤ 0.76 mm
Differential Stroke	≤ 0.15 mm
Electrical Life	10,000 cycles
Seal Leakage Rate	$\leq 1 \times 10^{-3}$ Pa·cm ³ /s

2.3 Environmental Specifications

Parameter	Value
Sine Vibration	10~2000 Hz, 15g
Random Vibration	10 (m/s ²) ² /Hz, 119.5 m/s ² RMS
Shock	100g
Humidity	10 days
Salt Spray	96 hours
Radiation (Total Dose)	100 Krad(Si)
Contact Bounce	≤ 1 ms

3. Quality Grades & Standards

Quality Grade	Detail Specification
Military Grade (J/Z)	Q/MA20347/Z-2019
Space Grade	YHYB S1201/001-2013
CAST Grade	CASTPS04/026-2018
Type Spectrum	Q/MA30016-2019
Conformity	ZZR-Q/MA20433-2019

4. Model Number Nomenclature

Field	Code	Description
Main Type	KW	Micro Switch
Sealing	QM	Hermetically Sealed
Body	4	Body configuration code
Actuator	4Z	Leaf spring actuator with specified geometry
Electrical Code	N / M / E / J / C / F / A / G	Load rating variant

Circuit State: Z = Changeover (SPDT), T = Normally Open (NO), D = Normally Closed (NC)

5. Dimensions & Drawings



Figure 1: Dimension Drawing (mm) — Tolerance GB/T1804-c

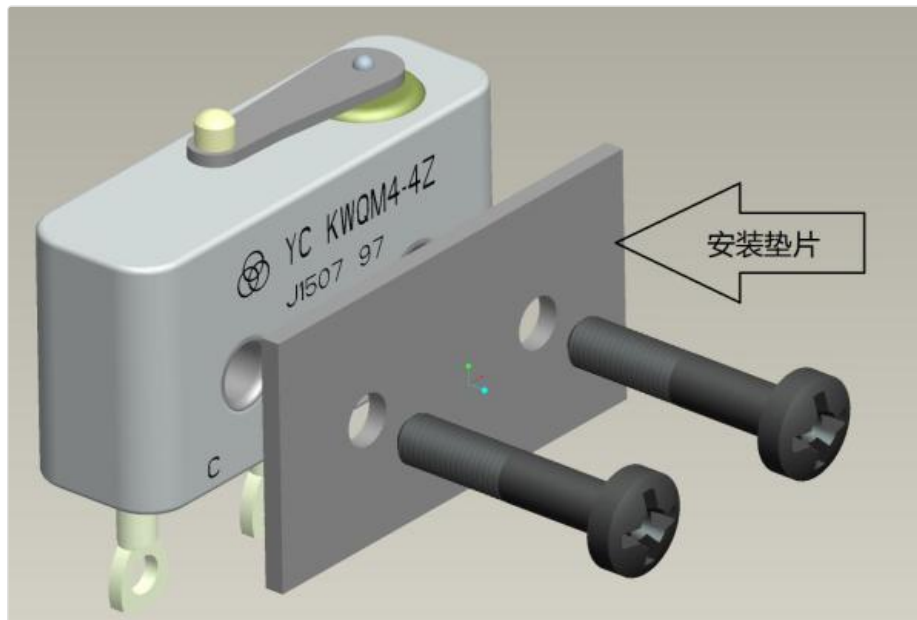


Figure 2: Circuit Diagram — SPDT Changeover (C/NC/NO)



Figure 3: Mounting Configuration — 2× M2 Φ2.2mm

6. Installation & Application Guide

6.1 Installation

Mounting: Secure with 2× M2 screws through Φ2.2mm holes. Torque ≤ 0.16 N·m. Use mounting washer for reliable clamping.

Wiring: Solder termination. Ensure connections comply with rated load specifications.

6.2 Position Adjustment

Free State: Actuator must NOT contact the push button. Circuit state: C-NC closed, C-NO open.

Actuated State: Apply vertical force ≥ 1.95N at PT + 2/3 OT position. Circuit state: C-NC open, C-NO closed.

Maximum Force: Do not exceed 40N on actuator arm.

6.3 Precautions

- △ Disconnect power before installation or maintenance
- △ Match load rating to application — do not use high-current model for micro-load
- △ Apply force perpendicular to push button axis only
- △ Do not exceed 40N mechanical load on actuator
- △ Solder temperature: ≤ 350°C, ≤ 3 seconds per terminal

7. Actuator Accessories

Accessory	Type	Application
HK-ACC-025	Roller Actuator	Initial position: 18.1~18.5 mm
HK-ACC-183	Support Plate	Initial position: 14.5~15.3 mm
HK-ACC-203	Support Plate	Initial position: 12.0~12.6 mm
HK-ACC-273	Support Plate	Initial position: 13.8~14.6 mm

8. Downloads

[Download Datasheet \(PDF\)](#)

9. Request Quote

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