MAJ SERIES

IP67 Waterproof Micro switch

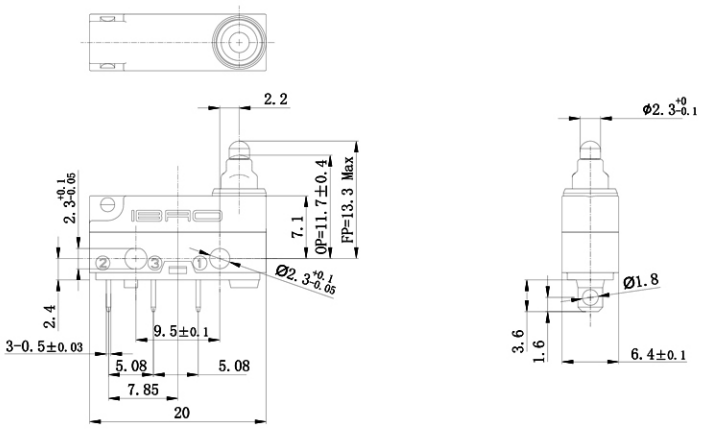
特点 FEATURE

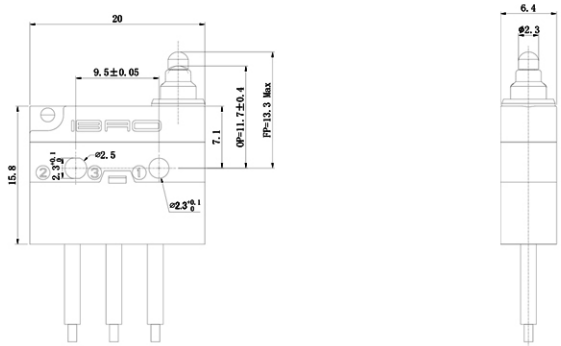
防水(IP67)设计 · Designed For Waterproof IP67
体型小巧、紧凑 · Small Compact Size
拥有开关安规认证 · Switch Safety Approvals
寿命长、可靠性高 · Long Life and High Reliability
配备各种形状的压杆 · Offer Variety Levers
接线端子种类齐全 · Complete Variety of Wiring Terminal

应用 APPLICATION

汽车 · Car
空调 · Air-Conditioner
通讯 · Communication
家用电器 · Home Appliance
电机控制器 · Motor Control
共享设备 · Sharing Device
玩具 · Toys
充电桩 · Charging Station

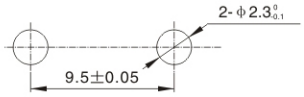
外形尺寸图 OUTLINE DRAWING



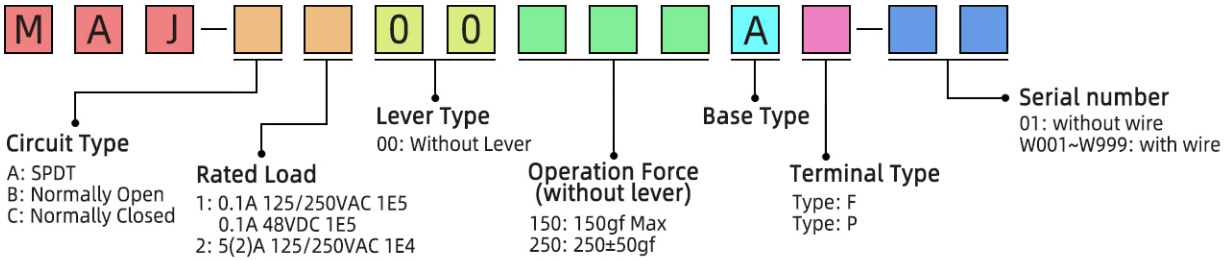


* 线材标准可以根据客户要求定制，出线方向可选侧出线或下出线。
* Wire standards can be customized according to customer requirements, The wire outlet direction can be side or lower.

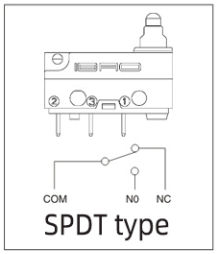
特性参数 PARAMETERS

安规认证		
额定负载/Rated Load		0.1A 125/250VAC 5E4 5(2)A 125/250VAC 5E4
初始接触电阻/Initial Contact Resistance		100mΩ Max（不含线束）Without wire
环境温度/Working Temperature		40T85
寿命/Service Life	电气/Electrical	50,000 Cycles
		100,000 Cycles
	机械/Mechanical	1,000,000 Cycles
安装孔尺寸/Hole For Mounting	定位孔尺寸(参考) 	

订货型号指引 ORDERING INSTRUCTION



● 电路形式 Circuit type



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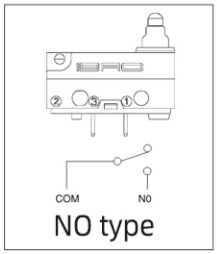

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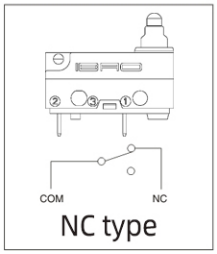
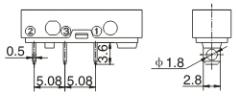
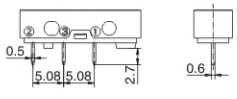


C

● 端子类型 Terminal type

F	
P	

※ For more lever and terminal types, please contact us, We accept paid customization.

开关参数规格 SWITCH SPECIFICTION

● 一般特性 General

适用范围 Application Area:
该规格书指微动开关MAJ系列的一般使用范围
This specification refers to the general use of micro switch MAJ series
使用温度范围 Operation Temperature rating： 参见产品图纸 See the outline drawing
相对湿度 Operation Relative Humidity： ≤85%at,+40℃
实验条件 Test conditions:
环境湿度 Ambient Temperature： 5~35℃
相对湿度 Relative Humidity: 45~85%
大气压力 Air Pressure: 86~106Kpa(860~1060mbar)

● 外观结构及尺寸 Appearance, Configuration and Dimensions

外观：产品外观良好，无锈蚀、裂纹和镀层缺陷
Appearance：Product appearance and no rust, crack and coating defects
结构尺寸 Structur and Dimension：参见产品图纸 See the outline drawing
标识 Sign：参见产品图纸 See the outline drawing
通过的安规认证 Safety Certification：RoHS,REACH
产品防护等级 Degree of protection： IP67(Except terminal)

● 电气性能 Electrical characteristic

No.	Item 项目	Criteria 标准	Test Method 实验方法
1	Contact Resistance 接触电阻	100mΩ Max	Measured by a voltage drop method at 1A Max, 5VDC. Before test contact resistance, please press the button 3 times. 以 1A，5V 直流电，采用电压降法测量. 检测开关前，请按动按键 3 次后检测接触电阻.
2	Insulation Resistance 绝缘电阻	100MΩ Min 100 兆欧以上。	Apply 500 VDC for 1 min. between mutual insulation terminals (at FP and TTP). 在载流端子与外壳及非载流金属件之间，在相互绝缘的所有端子之间加 500V 直流电，持续时间 1 分钟.
3	Dielectric voltage 抗电强度	There should be no breakdown and flashover 无击穿、无飞弧现象发生。	1000VAC(50~60Hz,leakage current 10mA) is applied between non-connected terminals；of 1500VAC (50~60Hz,leakage current 10mA) is applied between terminals and out casing, or between terminals and non-loaded metal parts, last for 60s. 在相互绝缘的所有端子之间加载 1000VAC(50-60Hz，漏电流10mA)，或端子与外壳及非载流金属件之间加载 1500VAC(50-60Hz，漏电流10mA)，持续时间60s.

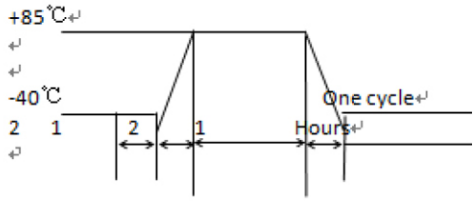
● 机械性能 Mechanical characteristic

No.	Item 项目	Criteria 标准	Test Method 实验方法
1	Terminal strength 端子强度	No damage(Electricaland mechanical) 端子没有裂开，松动 等异常，满足于机械,电器性能.	According IEC61058,A static load of 25N shall be applied to the tip of terminal in a desired direction for 10±1S.The test shall be done once per terminal. 按 IEC61058 标准，以 25N 作用力沿轴向逐渐施加于接线端末端，作用力方向为离开开关向外指向，保持 10±1S,每个接线端子测量一次.
2	Soldering heat test 耐焊接热	No damage electrical and mechanical) 无异常。（电气、机械特性）	Soldering area: t/2 of P.W.B. thickness (P.C.B:T=1.6mm) 焊接面积：印刷基板的 1/2 厚度处 Soldering temperature : 250± 5℃ 焊接温度：250± 5℃ soldering time : 3±1 sec. 焊接时间：3 ±1 秒
3	Solderability 可焊性	Except for the edge, the coating should cover a minimum 75% 除边缘外涂层应均匀覆盖 75%以上	Measurements shall be made followingthe test set forthbelow: 在以下设定条件下进行测量: (1) Solder temperature : 235±5℃ 焊接温度:235±5℃ (2)Immersion time:3s±0.5s 浸入时间:3s±0.5s The other steps please refer to 《 GB 5095.6-86》TEST 12a 对于其它步骤参考《GB 5095.6—86》试验12a

● 寿命试验 Life test

No.	Item 项目	Criteria 标准	Test Method 实验方法
1	Mechanical Life 机械寿命	After test, Contact resistance:100m ohm max Insulation resistance: 100M ohm min The electrical performance requirements specified in item 3 shall be satisfied. The switch shall be free from abnormalities in appearance construction. 实验后： 接触电阻：100m ohm max. 绝缘电阻： 100M ohm min. 电气性能应符合第 3 条的要求。 开关外观及结构应无损坏。	Under the condition of without load, at the operating frequency of 100 ~ 200 cycles/min continuous transformation on life test equipment 50000 cycles 在不带负荷的条件下，以 100～200 次/分钟的操作频率在寿命试验设备上连续转换 50,000 次。
2	Electronics Life 电气寿命		According to the standard UL61058 by the corresponding number of load life test(see drawing)for the rated load. 按 UL61058 标准进行相应次数的负载寿命试验（额定负载参见产品图纸） According to the standard IEC61058 by the corresponding number of load life test(see drawing)for the rated load. 按 IEC61058 标准进行相应次数的负载寿命试验（额定负载参见产品图纸）

● 耐候实验 Environmental test

No.	Item 项目	Criteria 标准	Test Method 实验方法
1	Cold Resistant test 耐冷试验	（1）insulation resistance 100MΩ min. 绝缘电阻 100 兆欧以上. （2）there shall be no sign of mechanical and electrical damage. 无任何迹象显示机械及电器性能之损坏.	At -40±3℃for 96H,test after keeping in normal condition for 60min. 在-40±3℃环境中放 96 小時，再置于正常环境中，60 分钟后进行测试。
2	Heat Resistan test 耐热试验		85±3℃ for 96H,test after keeping in normal condition for 60min. 在 85±3℃环境中放 96 小时，再置于正常环境中，60 分钟后进行测试。
3	Moisture Resistant test 耐湿试验		At 40±3℃ 90～95% RH for 96H,test after keeping in normal condition for 60min. 在 40±3℃ 90～95%环境中放 96 小时，再置于正常环境中，60 分钟后进行测试。
4	Change of temperature 温度周期性测试		According to following figure, after 5cycles, test after keeping in normal condition for 1H. 如图示之环境中，循环 5 次后， 再置于正常环境中， 1 个小时后进行测试。 
5	IP67 Protection (terminal and wire excluded) IP67 防护(端子与电线除外)	After test: 实验后： The Insulation Resistance should accord with the requirement of electrical performance 2 -绝缘电阻符合电气性能 2 要求 The electric strength should accord with the requirement of electrical performance 3 -抗电强度应符合电气性能3 的要求	Distance from Switch to water surface shall be 1050mm. There shall be no water ingress to the amount which causes harmful influence after 30 minutes of immersion. 据 IEC60529，开关置于水下 1050mm 处，保持 30 分钟,取出后在正常温度和湿度下测试，并在此后 1 小时内对试品进行测量

● 开关的储存 Storage of switches

1.请避开产生污染气体、有机气体的区域(如燃气、取暖器附近)以及灰尘、潮湿等环境。
Please avoid areas that produce polluted gases, organic gases (such as gas, near heaters), dusty, humid environments, etc.

2.保存温度湿度:温度5~35℃,湿度≤80%RH
Temperature & Humidity:Temp 5 ~ 35 ℃ and Hum 80% RH Max.

3.开关储存期为6个月，超过6个月需重新检查。
The storage period is 6 months, re-inspected over 6 months.

● 开关的使用 Use of switches

小心不要让开关跌落地面和受猛烈冲击，这样可能使开关的内部元件损坏，因开关的设计是适用于微小操作力的。
Be careful not to drop the switch to the ground and subject it to violent shocks which may damage the internal components of the switch because the switch is designed for small operating forces.