

Product Specification

Number: L-KLS6-SQP-xW-xxxxJ
Name: Cement Fixed Resistors
Customer: _____
Date: 2026-04-29

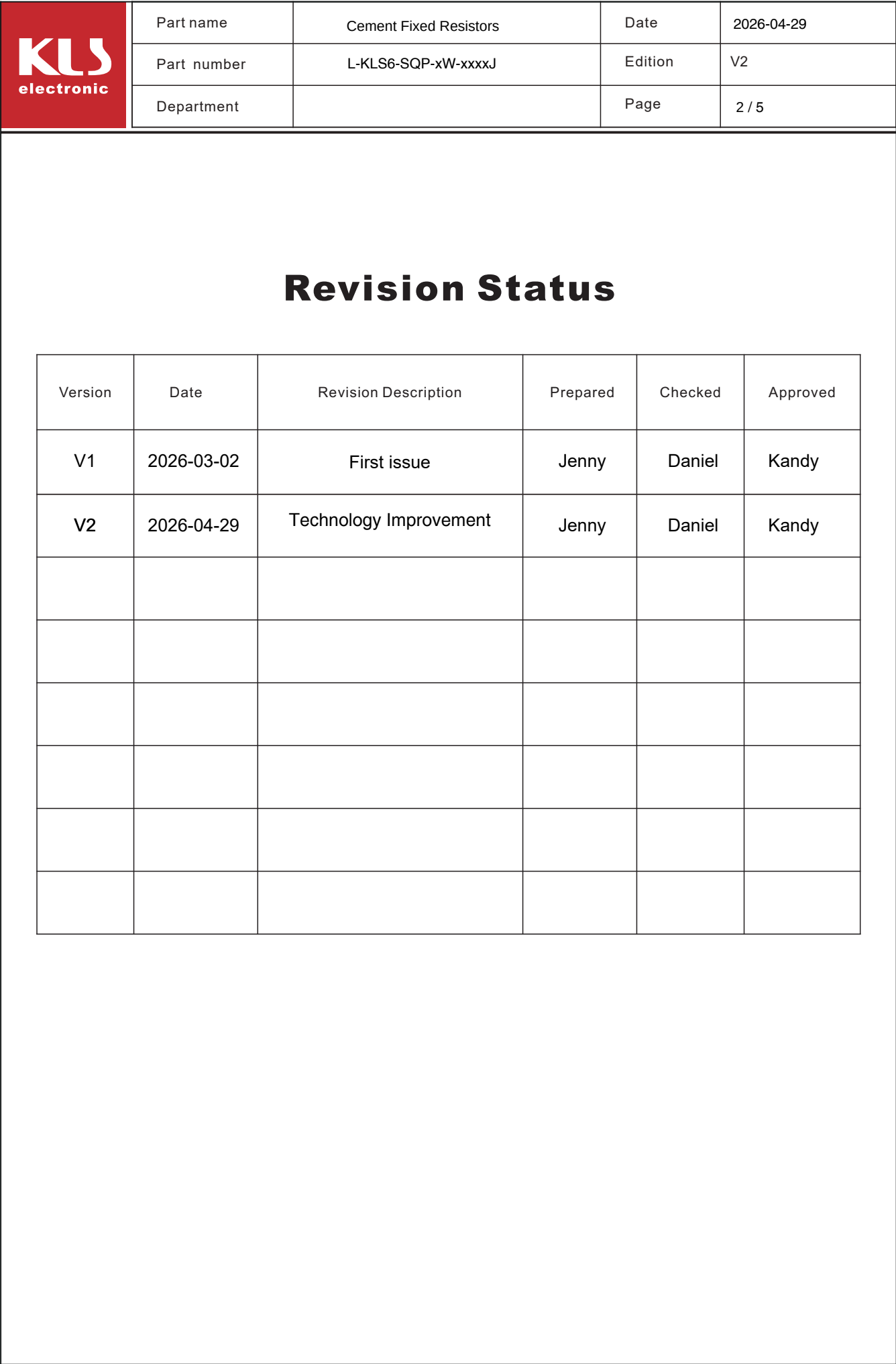
Process Change: V2.0 (Technology Improvement)

Customer Signature:



NINGBO KLS ELECTRONIC CO; LTD
Tel : 0086-574-86828566
Fax : 0086-574-86824882
ADD : NO. 8-1, RONGXIA RD. XIAPU SHANQIAN
INDUSTRIAL ZONE BEILUN NINGBO ZHEJIANG.

Compi	Check	Review	Approva
Jenny	Jack.C		



Cement Resistors SQP 5W

1. Scope of the coverage:

This specification is pertinent to the application of cement resistors

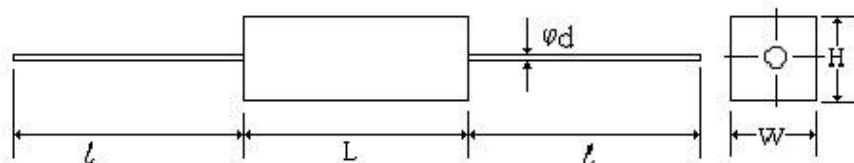
2 .Temperature range of the application:

-55℃~155℃

3. Type:

SQP 5W

Out size



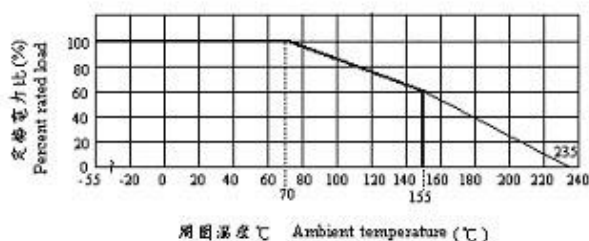
Rated Power	W	H	L	dφ	l
5W	10 ±1.0	9.0 ±1.0	22 ±1.5	0.7 ±0.05	23 ±5



4. Characteristics of electrical performance

4.1 Rated power

The rated power indicates the maximum power the resistor can endure continuously when the ambient temperature is equal to or lower than 70℃. When the ambient temperature is higher than 70℃, the rated power of the resistor is determined by the derating curve described in the following figure.



4.2 Rated voltage

The rated voltage of a resistor is either a continuous DC voltage or an AC rms voltage which can be calculated by the following formula. If the calculated rated voltage is higher than the highest working voltage then the highest working voltage should be used as the rated voltage. $E = \sqrt{PR}$ P: Rated power(W), R: Nominal resistance(Ω), E: Rated voltage(V)

4.3 Insulation resistance (Ref. JIS C5202 5.6)

Equipment: Insulation resistance tester

The body of the resistor is wrapped around by the aluminum foil without extending beyond the resistor body. Clap one electrode on the aluminum foil and the other electrode on the lead wire. Apply 500V from the tester for 1 min. and the measured resistance value should be larger than 100MW.

4.4 Dielectric strength (Ref. JIS C5202 5.7)

Equipment: Dielectric strength tester

The body of the resistor is wrapped around by the aluminum foil without extending beyond the resistor body. Clap one electrode on the aluminum foil and the other electrode on the lead wire. Apply 1,000V from the tester to the resistor for 1 min.. No flash-over, burning or breakdown should be observed.

4.5 Short time overload (SOL) (Ref. JIS C5202 5.5)

Part name	Cement Fixed Resistors	Date	2026-04-29
Part number	L-KLS6-SQP-xW-xxxxJ	Edition	V2
Department		Page	4 / 5

Equipment: S.O.L. tester.

Apply voltage of $\sqrt{10PR}$ to the resistor for 5 sec., After the test, stabilize the resistor at room temperature for 30 min. then measure its resistance. Compare the resistance before and after the test. The acceptable change of the resistance is: $\pm(2\%+0.1\Omega)$. The highest applied overload voltage is listed in Table-1.

5. Environmental tests

5.1 Load life test (Endurance with rated load) (Ref. JIS C5202 7.10)

Equipment: High temperature chamber and DC power supply

The resistors are put in a fixture where no interference will be allowed. Put the fixture in a $70\pm3^{\circ}\text{C}$ chamber and apply rated voltage with a cycle of 90 min. ON and 30 min. OFF for 1000+48-0 hours. After 240, 480, 720 and 1,000 hours, the resistors are taken out and stabilize at room temperature for 30 min. and then the resistance is measured. Upon each step of resistance measurement, the change of the resistance should not exceed $\pm(5\%+0.1\Omega)$ and the appearance should show no remarkable abnormality and legibility of marking.

5.2 Resistance to damp heat (Ref. To JIS C5202 7.2)

Equipment: Constant temperature and humidity chamber

The resistors are put in a $40\pm2^{\circ}\text{C}$ chamber with RH=90~95% for 56 days. After the test, take the resistors out and stabilize in room temperature for 1 - 4 hour. Measure the resistance. The acceptable change of resistance should not exceed $\pm(3\%+0.1\Omega)$ and the appearance should show no remarkable abnormality and legibility of marking.

5.3 Temperature coefficient (TCR) (Ref. JIS C5202 5.2)

Equipment: High temperature chamber

Measure the resistance at room temperature. Put the resistor in a chamber with the temperature of $RT+100^{\circ}\text{C}$ for 30 - 45 min. to stabilize. Measure the resistance again. Compare the resistance at these two temperatures with the following equation and the acceptable value is:

$R \leq 1\Omega$: $\pm 600 \text{ PPM}/^{\circ}\text{C}$. or $R > 1\Omega$: $\pm 350 \text{ PPM}/^{\circ}\text{C}$.

$$\text{溫度係數 (PPM}/^{\circ}\text{C}) = \frac{R-R_0}{R_0} \times \frac{1}{T-T_0} \times 10^6$$

R = Resistance at T $T = RT + 100^{\circ}\text{C}$ R_0 = Resistance at T_0 T_0 = room temperature

5.4 Resistance to heat (Ref. JIS C5202 7.2)

Equipment: High temperature chamber

Measure the resistance at room temperature. Put the resistors to 155°C chamber for 1,000 hours. Take resistors out and stabilize at room temperature for 1 hour. Measure the resistance value. The change of the resistance before and after the test should be less than $\pm(5\%+0.1\Omega)$. The appearance should show no remarkable abnormality and legibility of marking.

5.5 Temperature cycling (Ref. JIS C5202 7.4)

Equipment: High temperature chamber, low temperature chamber

Measure the resistance before the test. Put the resistor to -55°C chamber for 30 min. then take it out at room temperature for 2 to 3 min.. Put the resistor to $+155^{\circ}\text{C}$ chamber for 30 min. then take it out at room temperature for 2 to 3 min. This completes a cycle. Repeat the cycle 5 times. Put resistors at room temperature for 90 min. and then measure the resistance. Compare the resistance before and after test. The acceptable change of resistance is $\pm(1\%+0.05\Omega)$. The appearance should show no remarkable abnormality and legibility of marking.

6. Mechanical performance

Part name	Cement Fixed Resistors	Date	2026-04-29
Part number	L-KLS6-SQP-xW-xxxxJ	Edition	V2
Department		Page	5 / 5

6.1 Resistance to soldering heat (Ref. JIS C5202 6.4)

Equipment: Solder bath

Measure the resistance before the test. Immerse part of the lead wire which is $4\pm 0.8\text{mm}$ away from the body to the flux for 5 - 10 sec. Take the resistor out and immerse resistors in the solder bath of $350\pm 10^\circ\text{C}$ for 3.5 ± 0.5 sec.. Stabilize at room temperature for 1 hour and then measure the resistance value. Compare the resistance values before and after the test, The acceptable change is $\pm(1\%+0.05\Omega)$

6.2 Solderability (Ref. JIS C5202 6.5)

Equipment: Solder bath

Immerse part of the lead wire which is $4\pm 0.8\text{mm}$ away from the body to the flux for 5 - 10 sec. Take the resistor out and immerse resistors in the solder bath of $245\pm 5^\circ\text{C}$ for 2 sec.. Take the resistor out and inspect the lead wire visually. The acceptable level is the coverage of the new solder to be 95%. The composition of the solder bath is 99.7% tin and 0.3% Cu.

6.3 Robustness of terminals (Ref. JIS C5202 6.1)

6.3.1 Tensile strength of termination

Equipment: Weight gauge

Fixed the resistor and apply gradually along the terminal 4Kg of force for 30 sec., The lead wire should not break or detached from the resistor and the change of the resistance should be less than $\pm(1\%+0.05\Omega)$.

ORDER INFORMATION

L - KLS6 - SQP - xW - xxxx - J
 RoHS ☐
 Part Number
 Cement Fixed Resistors Type
 Rated Power
 Resistance Value (Ω)
 OR1=0.1 Ω 100R=100 Ω 1K=1K Ω 100K=100K Ω
 Resistance Tolerance (%): J= $\pm 5\%$

