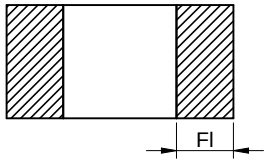
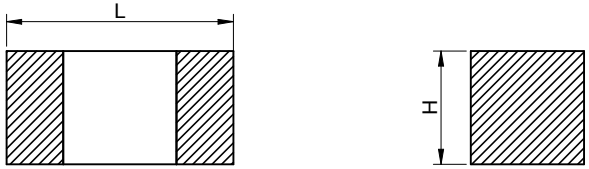
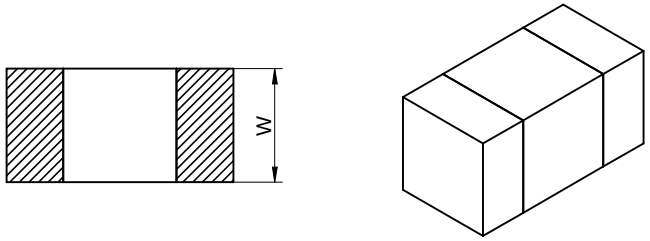
Dimensions: [mm]



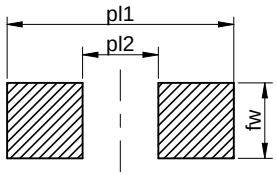




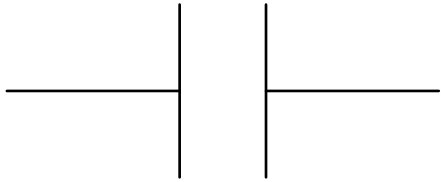
Properties		Value	Unit	Tol.
Length	L	1.6	mm	±0.1
Width	W	0.8	mm	±0.1
Height	H	0.8	mm	±0.07
Pad Dimension	Fl	0.4	mm	±0.15

pl1 - Reflow	2.3	mm	**pl2 - Reflow**	0.7	mm	**fw - Reflow**	0.8	mm
pl1 - Wave	2.4	mm	**pl2 - Wave**	1	mm	**fw - Wave**	0.8	mm

Recommended Land Pattern: [mm]



Schematic:



Electrical Properties:

Properties	Test conditions		Value	Unit	Tol.
Capacitance	1 ±0.2 V_{RMS}, 1 MHz ±10% @25 °C	C	150	pF	±5%
Rated Voltage		U_R	100	V (DC)	max.
Q-Factor	1 ±0.2 V_{RMS}, 1 MHz ±10% @25 °C	Q	1000		min.
Insulation Resistance	Apply U_R for 120 s max.	R_{ISO}	10	GΩ	min.

Precondition for Class II MLCC measurement: Apply a preheat treatment @150 ±10 °C for 1 hour. The measurement should be applied after 24 ±2 hrs the part was stored under ambient conditions. There is not any precondition necessary for Class I MLCC.

General Information:

General Purpose MLCC	
Ceramic Type	NP0 Class I
Temperature Coeffecient	± 30 ppm max.
Storage Conditions	5-35 °C, < 75% RH
Operating Temperature	-55 °C up to +125 °C
Dielectric Strength	5 sec. @250 % U_R; Charge & Discharge Current <50 mA
Test conditions of Electrical Properties: +20°C, 35% RH if not specified differently	
FIT according to separate documentation	
Component conform to REACh and RoHS requirements and standards	

Würth Elektronik eiSos GmbH & Co. KG
EMC & Inductive Solutions

Max-Eyth-Str. 1
74638 Waldenburg
Germany
Tel. +49 (0) 79 42 945 - 0

www.we-online.com
eiSos@we-online.com

CREATED	CHECKED	GENERAL TOLERANCE	PROJECTION METHOD
KaS	PSL	DIN ISO 2768-1m	

DESCRIPTION: **WCAP-CSGP Ceramic Capacitors**

TECHNICAL REFERENCE: NP00603151J100DFCT10000

ORDER CODE: **885012006080**

SIZE	REVISION	STATUS	DATE (YYYY-MM-DD)	BUSINESS UNIT	PAGE
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Mechanical Properties

Properties	Definition	
Adhesive Strength of Termination	0402 & 0603	10 ±1 sec; 5 N
	> 0603	10 ±1 sec; 10 N
Vibration Resistance		all 3 directions, 2 hours each @ 10 - 55 Hz/ min., amplitude 0.75 mm or 10 g
Resistance to Solder Heat	Specific	Refer to Soldering Profile

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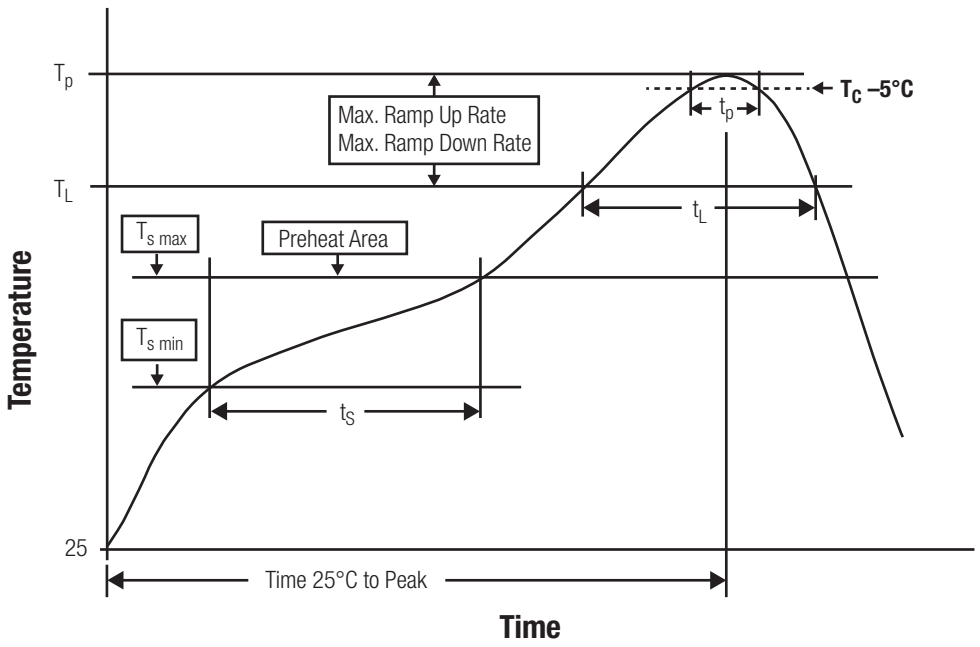
Classification Reflow Profile for SMT components:



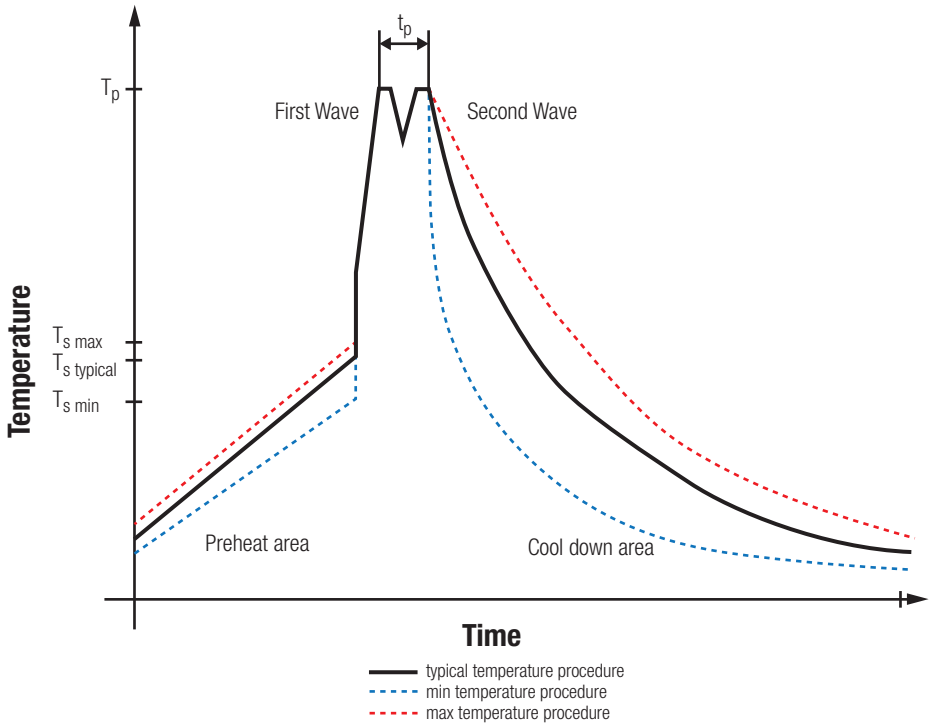
Classification Reflow Soldering Profile:

Profile Feature		Value
Preheat Temperature Min	$T_{s\ min}$	150 °C
Preheat Temperature Max	$T_{s\ max}$	200 °C
Preheat Time t_s from $T_{s\ min}$ to $T_{s\ max}$	t_s	60 - 120 seconds
Ramp-up Rate (T_L to T_P)		3 °C/ second max.
Liquidous Temperature	T_L	217 °C
Time t_L maintained above T_L	t_L	60 - 150 seconds
Peak package body temperature	T_p	see table
Time within 5°C of actual peak temperaure	t_p	20 - 30 seconds
Ramp-down Rate (T_L to T_P)		6 °C/ second max.
Time 25°C to peak temperature		8 minutes max.

refer to IPC/ JEDEC J-STD-020E

Properties	Volume mm³ <350	Volume mm³ 350-2000	Volume mm³ >2000
PB-Free Assembly I Package Thickness < 1.6 mm	22		

Classification Wave Soldering Profile:



Classification Wave Soldering Profile:

Profile Feature		Pb-Free Assembly	Sn-Pb Assembly
Preheat Temperature Min	$T_{s\ min}$	100 °C	100 °C
Preheat Temperature Typical	$T_{s\ typical}$	120 °C	120 °C
Preheat Temperature Max	$T_{s\ max}$	130 °C	130 °C
Preheat Time t_s from $T_{s\ min}$ to $T_{s\ max}$	t_s	70 seconds	70 seconds
Ramp-up Rate	Δ T	150 °C max.	150 °C max.
Peak temperature	T_p	250 °C - 260 °C	235 °C - 260 °C
Time of actual peak temperature	t_p	max. 10 seconds max. 5 seconds each wave	max. 10 seconds max. 5 seconds each wave
Ramp-down Rate, Min		~ 2 K/ second	~ 2 K/ second
Ramp-down Rate, Typical		~ 3.5 K/ second	~ 3.5 K/ second
Ramp-down Rate, Max		~ 5 K/ second	~ 5 K/ second
Time 25°C to 25°C		4 minutes	4 minutes

refer to EN61760-1:2006

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Cautions and Warnings:

The following conditions apply to all goods within the product series of WCAP-CSGP of Würth Elektronik eiSos GmbH & Co. KG:

1. General

- The capacitor is engineered, designed and manufactured to be used within the datasheet specified values.
- Do not use the capacitor neither short term nor long term outside the specified values, which are given in the data sheet.
- Do not apply any kind of flexural or compressive force onto soldered or unsoldered component.
- Prevent the capacitor surface from any damage or scratches with sharp edges (e.g. chassis, screwdrivers, pincers)

2. Product specific

The responsibility for the applicability of customer specific products and use in a particular customer design is always within the authority of the customer. All technical specifications for standard products do also apply to customer specific products.

Follow all instructions mentioned in the data sheet, especially the following items:

2.01 Storage conditions

- These ceramic capacitors must be stored in stable conditions within an ambient temperature between 5°C to 40°C with a relative humidity of
- The environment in which the capacitors are operated and stored has to have atmospheric characteristics and must be free of dew condensation and toxic gases (e.g. chlorine, ammonia, sulfur, hydrogen sulphide and hydrogen sulfate).
- All products shall be used before the end of the period of 12 months based on the product date code, if not, a 100% solderability cannot be guaranteed.
- The capacitance tolerance as specified within the datasheet is only valid on the date of delivery.

2.02 Operating climatic conditions

- Do not exceed the lower nor the upper specified temperature under no condition.
- Be aware that the specified capacitance tolerance is only valid at the date delivery and according specified measurement criteria.
- Do not use the capacitors under high humidity, high temperature nor under high or low atmospheric pressure which may affect capacitors reliability.
- Surface temperature including self-heating must be kept below the maximum operating temperature.
- The temperature rise of the capacitor´s temperature compared to ambient temperature shall be below 20°C.
- Avoid any water or heavy dust on capacitors surface, which may cause electrical leakage, damage, overheating or corrosion.

2.03 Operating load conditions

- Do not use the capacitor with any higher than specified voltage.
- Violation of the technical product specifications such as exceeding the specified voltage will void the warranty.
- Operating voltage across the terminals including AC and DC peaks and AC or pulse overshooting, Vp-p as well as irregular voltage because of resonance or switching must be below the rated voltage.
- Due to self-heating the reliability of the capacitor may be reduced, if high frequency AC or pulse is applied.
- Avoid any overload or conditions that are not specified in the capacitors datasheet.
- Consider carefully possible specific changes of electrical characteristics like capacitance over temperature, voltage and time as well as the specific performance over frequency for the actual use conditions. For detailed information see datasheet.

2.04 Design of the P.C. board

- The chip capacitor shall be located to minimize any possible mechanical stress from deflection or board wrap.
- It is recommended to position the chip capacitor in parallel to slits and perforations and as far away from slits, perforations, separation points, screw holes, frames and edges of the P.C. board to avoid mechanical stress.
- Determine the shape and size of the solder pads to have proper amount of solder on the terminations as the amount of solder at the terminations has a direct effect on the reliability of the capacitor.
- Provide individual solder pads for each termination. Solder pads are specified in the datasheet.
- The PCB design (e.g. land pattern design and grounding planes) must be evaluated for each individual circuit to achieve the optimal soldering results.

2.05 Mounting

- Avoid any stress from the mounting head to avoid cracks.
- Adjust the bottom dead center of the mounting head not to press on the P.C. board surface.
- The mounting head pressure has to be adjusted to 1 N up to 3 N of static force.
- Provide support from the bottom side of the P.C. board by a support pin for minimizing the impact energy from the mounting head.
- Provide sufficient close up dimension, preventive maintenance and replacement of the centering jaw to avoid a crack when it is worn out.

2.06 Adhesive

Selection of adhesive

- The adhesive should have sufficient coating and viscosity and should harden rapidly.
- The adhesive should be strong enough to hold parts on the board during the mounting and solder process and should have sufficient strength at high temperatures.
- The adhesive should have corrosion resistance, excellent insulation characteristics and no emission of toxic gasses nor any effect on the human body.

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- Do not use too much adhesive to avoid pollution of the soldering pads.

2.07 Soldering

-

Important Notes

The following conditions apply to all goods within the product range of Würth Elektronik eiSos GmbH & Co. KG:

1. General Customer Responsibility

Some goods within the product range of Würth Elektronik eiSos GmbH & Co. KG contain statements regarding general suitability for certain application areas. These statements about suitability are based on our knowledge and experience of typical requirements concerning the areas, serve as general guidance and cannot be estimated as binding statements about the suitability for a customer application. The responsibility for the applicability and use in a particular customer design is always solely within the authority of the customer. Due to this fact it is up to the customer to evaluate, where appropriate to investigate and decide whether the device with the specific product characteristics described in the product specification is valid and suitable for the respective customer application or not.

2. Customer Responsibility related to Specific, in particular Safety-Relevant Applications

It has to be clearly pointed out that the possibility of a malfunction of electronic components or failure before the end of the usual lifetime cannot be completely eliminated in the current state of the art, even if the products are operated within the range of the specifications.
In certain customer applications requiring a vhin theades isli8Würth Elektronik eiSos GmbH & Co. KG
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