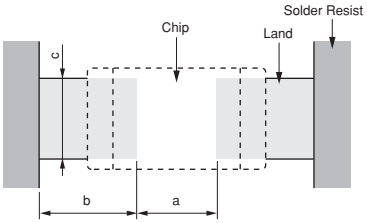
Mounting

■ Standard Land Dimensions



(in mm)

Part Number	Soldering Methods	Dimensions (mm)			
		Chip (L×W)	a	b	c
PRF18	Flow Soldering	1.6×0.8	0.6-1.0	0.8-0.9	0.6-0.8
	Reflow Soldering		0.6-0.8	0.6-0.7	0.6-0.8

■ Notice (Soldering and Mounting)

1. Solder and Flux
   (1) Solder Paste
   (a) Flow Soldering: Use Sn:Pb=60:40wt%, Sn:Pb=63:37wt%, Sn:Ag:Cu=96.5:3.0:0.5wt% or equivalent type of solder.
   (b) Reflow Soldering: Use Sn:Pb=60:40wt%, Sn:Pb=63:37wt%, Sn:Ag:Cu=96.5:3.0:0.5wt% or equivalent type of solder paste.
   For your reference, we are using '63Sn/37Pb RMA9086 90-3-M18', manufactured by Alpha Metals Japan Ltd., '96.5Sn/3.0Ag/0.5Cu M705-GRN360-K2-V', manufactured by Senju Metal Industry Co., Ltd. for any Internal tests of this product.

2. Cleaning Conditions and Drying
   To remove the flux after soldering, observe the following points in order to avoid deterioration of the characteristics or any change to the external electrodes quality.
   (1) Cleaning Conditions

Solvent	Dipping Cleaning	Ultrasonic Cleaning
2-propanol	Less than 5 minutes at room temp. or Less than 2 minutes at 40˚C max.	Less than 1 minute 20W/L Frequency of several 10kHz to 100kHz.

A sufficient cleaning should be applied to remove flux completely.

   (2) Drying
   After cleaning, promptly dry this product.

   (2) Flux
   Use rosin type flux in soldering process.
   If below flux is used, some problems might be caused in the product characteristics and reliability.
   Please do not use below flux.
   • Strong acidic flux (with halide content exceeding 0.2wt%).
   • Water-soluble flux
   (*Water-soluble flux can be defined as non rosin type flux including wash-type flux and non-wash-type flux.)

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3. Soldering Conditions

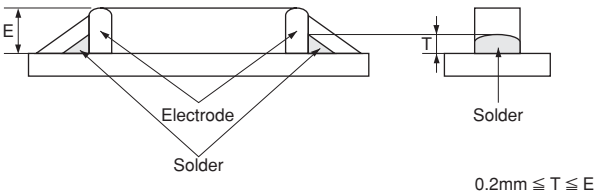
In your mounting process, observe the following points in order to avoid deterioration of the characteristics or destruction of this product. The mounting quality of this product may also be affected by the mounting conditions, shown in the points below.

(1) Printing Conditions of Solder Paste

(a) Recommended thickness of solder paste printing should be from 0.15 to 0.20mm.

(b) After soldering, the solder fillet should be a height from 0.2mm to the thickness of this product (see the figure at right).

(c) Too much solder gives too strong mechanical stress to this product. Such stress may cause cracking or other mechanical damage. Also, it can destroy the electrical performance of this product.



(2) Adhesive Application and Curing

(a) If insufficient adhesive is applied, or if the adhesive is not sufficiently hardened, this product may have a loose contact with the land, during flow soldering.

(b) Too low viscosity of adhesive causes this product to slip on board, after mounting.

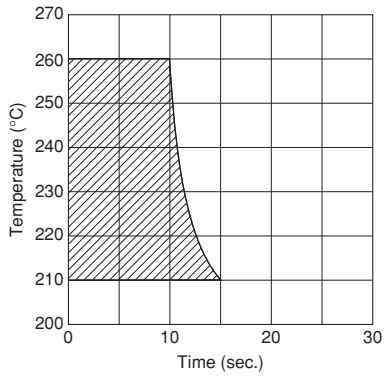
(3) Allowable Soldering Temperature and Time

(a) Solder within the temperature and time combinations, indicated by the slanted lines in the following graphs.

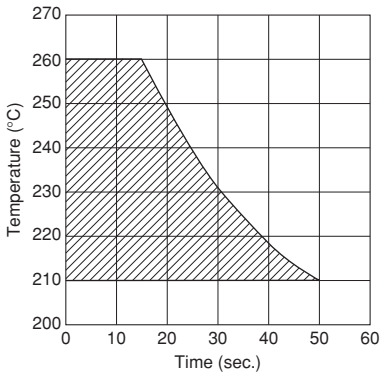
(b) The excessive soldering conditions may cause dissolution of metallization or deterioration of solder-wetting on the external electrode.

(c) In case of repeated soldering, the accumulated soldering time should be within the range shown below figure. (For example, Reflow peak temperature: 260°C, twice → The accumulated soldering time at 260°C is within 15 sec.)

Allowable Flow Soldering Temp. and Time



Allowable Reflow Soldering Temp. and Time



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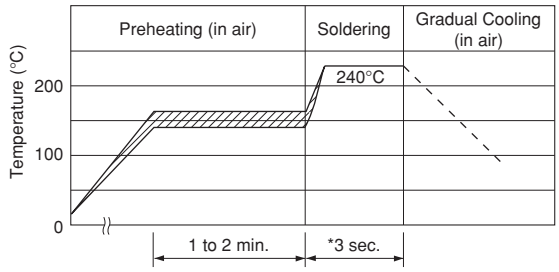
(4) Recommendable Temperature Profile for Soldering

(a) Insufficient preheating may cause a crack on ceramic body. Difference between preheating temperature and maximum temperature in the profile should be 100°C.

(b) Rapid cooling by dipping in solvent or by other means is not recommended.

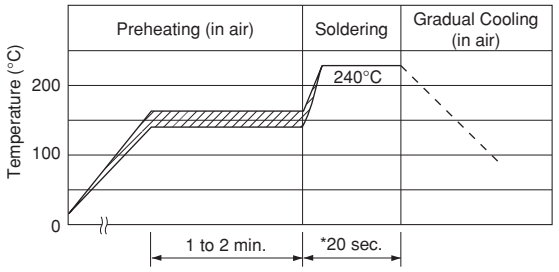
Flow Soldering Conditions



Preheating: 150±10°C, 1-2 minutes.
Soldering: 240°C, 3 sec.

* In case of repeated soldering, the accumulated soldering time should be within the range shown above figure (3).

Reflow Soldering Conditions



Preheating: 150±10°C, 1-2 minutes.
Soldering: 240°C, 20 sec.

* In case of repeated soldering, the accumulated soldering time should be within the range shown above figure (3).

(5) There may be a risk of unexpected failures (tombstone, insufficient solder-wetting, etc.) in the mounting process caused by the mounting conditions. Please make sure that this product is correctly mounted under specified mounting conditions.