

KOA, Kamaya, Hokuriku and Taiyo Yuden:

Joint proposal of chip resistor recommended dimensions for promoting bulk mounting

KOA, Kamaya, Hokuriku and Taiyo Yuden announced joint proposal of new recommended dimensions tolerance(see below table, Note 2) for resistors in size 1608(1.6x0.8x0.45mm) and size 1005(1.0x0.5x0.35mm) which dominate approx 80% of total market share of rectangular type fixed chip resistors. The purpose is for promoting bulk mounting method(Note 1) which can reduce total mounting cost and ease environmental burden.

Conventional bulk mounting method of chip resistors has issues which discourage promoting bulk mounting method. The issues include both bulk feeders which soon stop by errors or take too much for recovery after the errors, and difficulty of components to keep stability due to the variation of component absorption rate(Note 3), an indicator of mounting reliability, depending on manufacturers.

With new concept, Taiyo Yuden has developed an unit type bulk feeders(Note 4) for chip resistors to resolve these issues. Moreover, KOA, Kamaya and Hokuriku have been experimenting using the unit type bulk feeders and each companies' resistor, in respect of the components dimensions. As a result, the new recommended dimension tolerance which can realize high level and stable component absorption rate, has been created.

Now all the rectangular type fixed chip resistors which meet new recommended dimension, of above three companies have proved the high level component absorption rate at 99.99% and over, with being verified by using the resistors of new recommended dimension tolerance and Taiyo Yuden's new unit type bulk feeders.

This new specification of recommended dimension tolerance for resistors has been explained on 16th Dec. 2005, for Bulk Mounting Study G of Electronic Components Packing STD Committee at JEITA, and well received, as the presentation of bulk capacitors got good reputations. We'll ask other companies for cooperation and promote bulk type component mounting.

<Conventional dimensions and recommendations>

Resistor size(mm)		Conventional dim.	New recommended dim.
1005	Length and tolerance	1.00±0.05mm	1.00±0.05mm
	Width and tolerance	0.50±0.05mm	0.50+0.05mm -0.03mm
	Height and tolerance	0.35±0.05mm	0.35+0 mm -0.05mm
1608	Length and tolerance	1.60±0.10mm	1.60+0.10mm -0.05mm
	Width and tolerance	0.80±0.10mm	0.80+0.10mm -0.02mm
	Height and tolerance	0.45±0.10mm	0.45+0.04mm -0.02mm

<Glossary>

Note1: Bulk mounting method

Method that keeps chip components discretely in a case and supplies them piece by piece by bulk feeder. For mounting chip components on PCB by using automatic mounting machine, an equipment(feeder) is needed for supplying chip components piece by piece. Current main mounting method uses tape feeders that contain chip components in pockets of tape winded in a reel and supplies from it. A problem is that taped product for tape feeder gives waste material after usage, because paper and resin are used for tape material. Bulk mounting method does not need tape, and is focused as supplying method which eases environmental burden.

Note2: Recommended dimension tolerance

Dimension tolerance is the range of dimension error that is allowable for nominal dimensions(length, width, height) of chip components. Ex., for length of multilayer ceramic capacitor in size 1005mm, the tolerance is 1.00±0.04mm. This means variation(tolerance) ±0.04mm, 0.96~1.04mm against nominal dimension 1.00mm is allowable.

Note3: Component absorption rate

The rate of quantity of components that can be actually absorbed by nozzle against the total component quantity supplied from feeder of chip component mounter. The higher the absorption rate is, the fewer the absorption error happens.

Note4: Unit type DD bulk feeder

Bulk feeder characterized by consisting of its basic functions 'Supply, Feed, Absorb' in 5 units. It offers benefit as easiness of actions against errors, because each unit has one-touch construction and can be replaced by person without special technology.

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