

DDR4 SODIMM 260P 0.50mm Pitch Socket

1. INTRODUCTION

This specification covers the requirements for application of DDR4 SODIMM 260 positions, Right Angled sockets with 0.50mm pitch. These surface mount sockets accept modules per JEDEC MO-310, and are available for module in either standard or reversed orientation.

The sockets may be placed on the P.C. board by hand or by automatic application tooling (typically vacuum pick and place). The sockets are supplied in tape& reel package.

When corresponding with TE personnel, use the terminology provided in this specification to facilitate your inquiries for information. Basic terms and features of these connectors are provided in Figure 1.

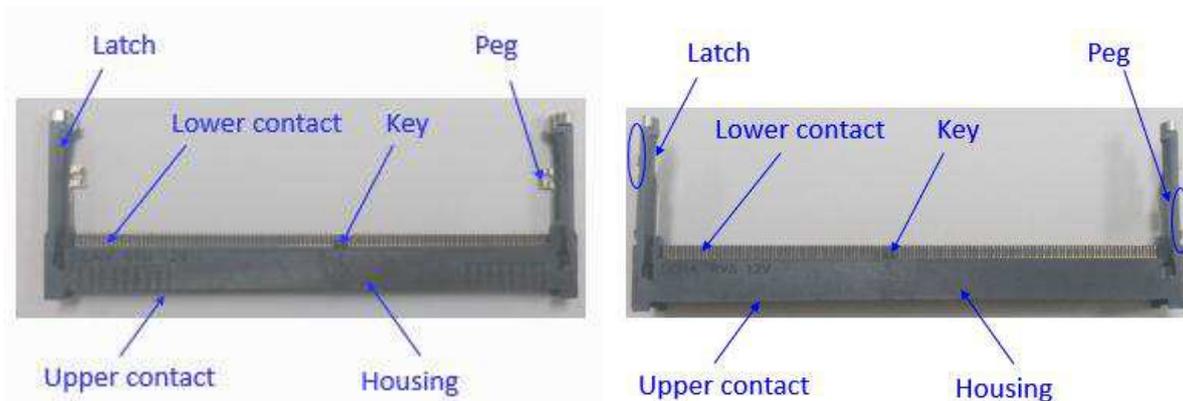


Fig. 1-1 applies to 4 mm and 5.2 mm Height product; Fig. 1-2 applies to 8 mm and 9.2 mm Height product;

Figure 1

2. REFERENCE MATERIAL

2.1. Customer Assistance

Product Drawing Number 2309407&2309408(4.0H stack height), 2309409&2309410(5.2H stack height), 23094011&2309412(8.0H stack height), 23094013&2309414(9.2H stack height) are representative of TE DDR4 SODIMM 260-position sockets. Use of these numbers will identify the product line and expedite your inquiries through a TE service network established to help you obtain product and tooling information. Such information can be obtained through a local TE Representative (Field Service Engineer, Field Applications Engineer, etc.) or, after purchase, by calling customer service at the numbers listed in our website (www.te.com).

2.2. Drawings

TE Customer Drawings for product part numbers are available from the service network. The information contained in Customer Drawings and this specification takes priority over any other document available through TE Incorporated. If there is a conflict with the information on the customer drawing and this specification, call customer service at the numbers listed in our website (www.te.com) for assistance.

2.3. Specifications

TE Product Specification 108-115122 provides product performance and test information.

2.4. Bulletins

TE Corporate Bulletin 402-40 is available upon request and can be used as a guide to soldering. This bulletin provides information on various flux types and characteristics with the commercial designation and flux removal procedures. A checklist is attached to the bulletin as a guide for information on soldering problems.

3. REQUIREMENTS

3.1. Material

The socket housing is made of high temperature thermoplastic. The contact is made of copper alloy plated with gold over nickel, and the solder tine is plated with gold over nickel. The solder peg is made of stainless steel plated with gold flash.

3.2. Storage

The sockets should remain in the shipping containers until ready for use to prevent deformation to the contact solder tines or damage to the housings. The sockets should be used on a first in, first out basis to avoid storage contamination that could adversely affect signal transmissions.

3.3. Chemical Exposure

Do not store sockets near any chemical listed below as they may cause stress corrosion cracking in the contact solder tines.

| | | | | | |
|----------|------------|----------|------------|----------|-------------------|
| Alkalies | Ammonia | Citrates | Phosphates | Citrates | Sulphur Compounds |
| Amines | Carbonates | Nitrites | Sulphur | Nitrites | Tartrates |

3.4. P.C. Board

A. Material and Thickness

Board material must be glass epoxy (FR-4, G-10, or equivalent). Board thickness must be a minimum of 1.57.

B. Recommended Layout

Recommended solder circuit pad pattern and pad dimensions, as well as tolerances, are shown in the respective TE Customer Drawing, figure 2 is stack layout.

DDR4 DUAL STACKED COMPRESSED SODIMM

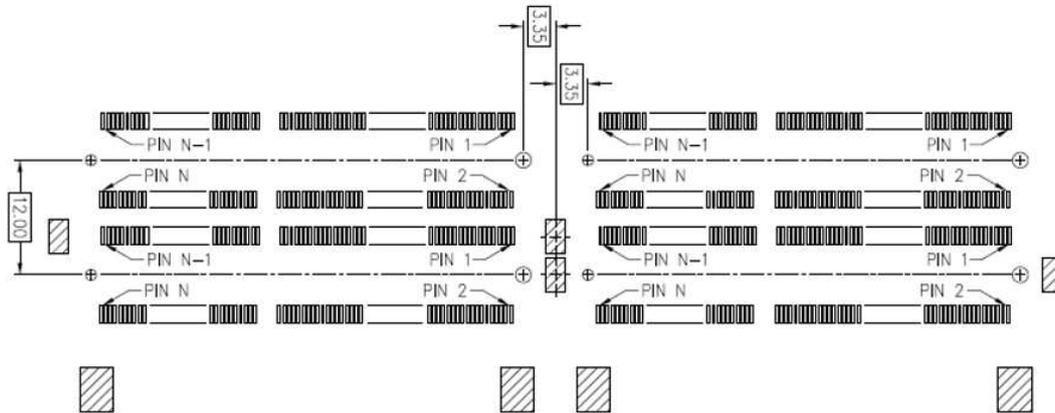


Figure 2 Dual stacked compressed SODIMM

3.5. Solder Paste Characteristics

- A. Pb-free solder alloy composition type shall be Sn95.5 Ag3.9 Cu0.6, allowing variation of the Ag content between 3.0-4.0 wt% and Cu content between 0.5-1.0 wt% with the balance being Sn.
- B. Flux incorporated in the paste shall be rosin, mildly active (RMA) type.
- C. Paste will be at least 80% solids by volume.

3.6. Solder Paste Thickness

Solder Paste thickness is recommended to be 0.13mm Min.

The stencil aperture is determined by the circuit pad size and stencil thickness. It may be any shape as long as it prevents solder bridging from one pad to another. Generally, the thinner stencil will need a larger aperture to maintain the given volume of solder paste.

CAUTION All traces must be covered by solder mask in the solder deposit area. Exposed traces could cause bridging and create a short, or wick solder away from the solder tines, producing a weak solder joint.

3.7. Solder Mask

Solder mask is recommended between all pads. If a trace is run between adjacent pads on the solder side of the pc board, a solder mask MUST be applied over the trace to prevent bridging and wicking of solder away from the contact solder tines. Additionally, there should be solder mask covering any traces in the area of the solder foot deposit. Liquid photo image-able or dry film solder masks are recommended.

3.8. Polarization

The sockets are polarized to the P.C. board by the alignment posts.

The module is polarized to the socket by a keying feature (notch) and the corresponding voltage key in the socket. This prevents the module from being oriented incorrectly in the socket.

3.9. Socket Placement

A. Registration

The socket alignment posts must be placed over their intended P.C. board holes, and placed so that the socket is parallel with the pc board, then gently pressed downward on the socket housing. When handling the sockets, pick them up by the housing only.

B. Seating Forces

Because the socket alignment posts are for polarization only (clearance and fit), the force required to seat the socket is minimal. Apply only the force necessary to seat the contact solder tines and each solder peg into the top surface of the solder paste.

3.10. Soldering

A. Process

The socket is compatible with both infrared reflow and forced convection soldering processes. Additional information on soldering and soldering variables can be found in Corporate Bulletin 402-40.

B. Temperature and Time

Refer to IPC/JEDEC J-STD-020 Table 5-2 and Figure 5-1.

NOTE

Due to the many variables involved with reflow processes (component density, location, orientation, etc.), it is recommended that the user conduct trial runs under actual manufacturing conditions to ensure product/process compatibility.

C. Cleaning

Fluxes, residues, and activators must be removed. Cleaning procedures depend on the type of flux used on the solder line. Listed in Figure 3 are cleaning compounds and chemicals that may be used on the sockets for up to five minutes without harmful effects.

| Cleaner | | Time (Minutes) | TEMPERATURES (Maximum) | |
|-------------------|---------|-------------------|---------------------------|------------|
| Name | Type | | CELSIUS | FAHRENHEIT |
| Alpha 2110 ♠ | Aqueous | 1 | 132 | 270 |
| Bioact EC-7 ♣ | Solvent | 5 | 100 | 212 |
| Butyl Carbitol ♥ | Solvent | 1 | Room Ambient | |
| Isopropyl Alcohol | Solvent | 5 | 100 | 212 |
| Kester 5778 ♦ | Aqueous | 5 | 100 | 212 |
| Kester 5779 ♦ | Aqueous | 5 | 100 | 212 |
| Loncoterge 520 ♥ | Aqueous | 5 | 100 | 212 |
| Loncoterge 530 ♥ | Aqueous | 5 | 100 | 212 |
| Terpene Solvent | Solvent | 5 | 100 | 212 |

♠ Product of Fry's Metals, Inc.

♣ Product of Petroterm, Inc.

♥ Product of Union Carbide Corp.

♦ Product of Litton Systems, Inc.

Figure 3

DANGER

Consideration must be given to toxicity and safety requirements recommended on the Material Safety Data Sheet furnished by the solvent manufacturer.

D. Drying

When drying cleaned assemblies and P.C. boards, ensure that temperature limitations of -18.1 to +40.6°C are met. Temperature extremes outside this range may cause housing degradation.

3.11. Module Assembly and Removal

A. Mating Module with Socket

A-1 Refer to Figure 4, and proceed as follows:

As for the module boards to be fitted, use such ones as meeting the requirements of the external dimensions stipulated in our Customer drawing for DDR4 SODIMM Socket. If such module boards as not observing the stipulated external dimensions, a trouble of defective performance might be caused in some cases.

After confirming that the module card key notch is aligned with connector key, insert the module board at an angle of 20-30 deg. into the innermost part of the connector. Continue until it is hard stopped against the Housing.

Now the module card is completely in the connector slot, if not, don't do next step.

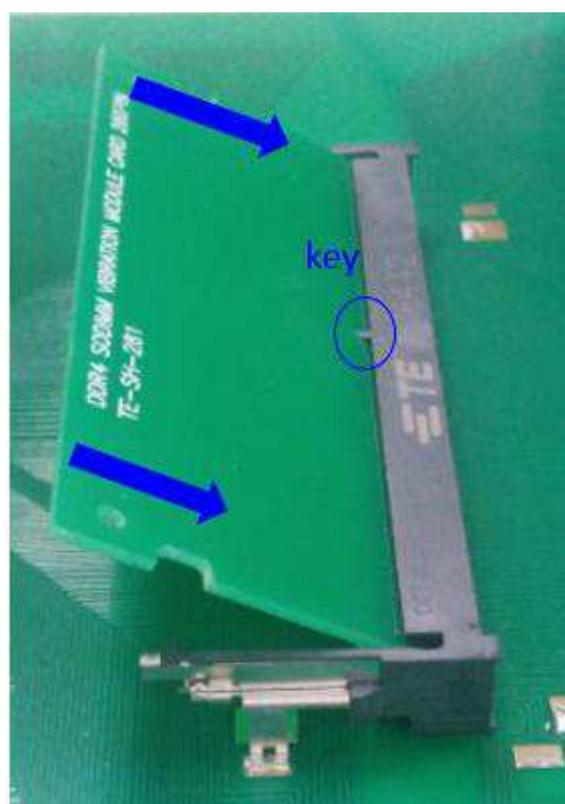


Figure 4

A-2 Refer to Figure 5, and proceed as follows:

Pushing down the module board downwards, when load is kept applied, the latches at both sides will be turned on.

* If boards having a low rigidity or varied shape are fitted, no latches will be turned on smoothly in some cases. In such a case, placing the action point near the notch of half circle of module board, apply the latches in such a way as pushing against simultaneously at both sides.

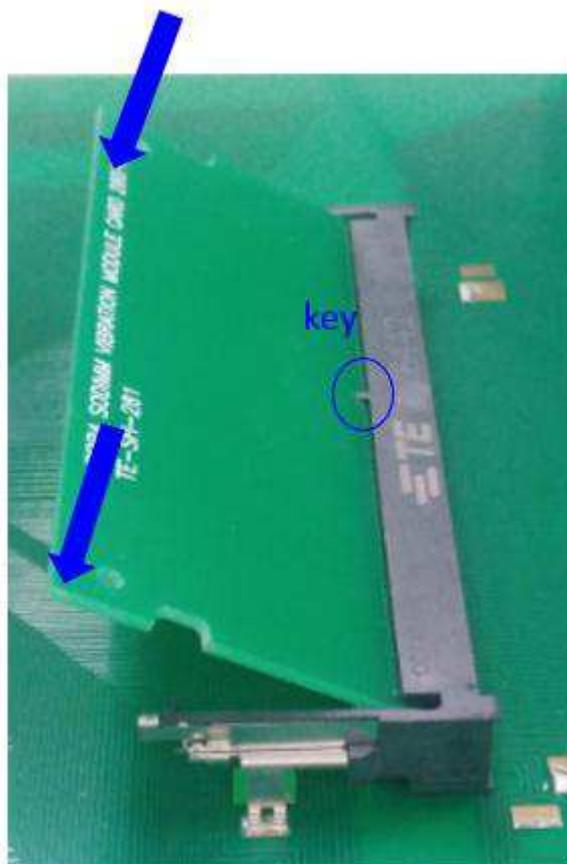


Figure 5

A-3 Refer to Figure 6, and proceed as follows:

Both latches should automatically rotate inwards during the insertion, then stop pushing down. If the module board is held by the latches and does not get up, mounting will finish. The Module is now fully locked in the Socket.

* Be sure to confirm that latches at both sides are turned on correctly. If latches are not applied correctly e.g. half fitting, remove the board in accordance with the next Step (B)_How to remove the module board and refit it once again by starting the fitting procedure with step (A).



Figure 6

B. Module Removal

Refer to Figure 7, and proceed as follows:

Move both side of Latch simultaneously in direction shown in Fig.7-1, and remove the lock from the board.

When the lock is released, the board will tilt approximately 25 degrees in angle to the connector. The board must be pulled out straight and softly in the angle direction.

CAUTION Prevent unnecessary deformation of the latch arms, after the lock is released (displacement of 1mm on point A in the Fig.7), don't deform the latch arm any more.



Fig. 7-1



Fig. 7-2

Figure 7

3.12. Repair

The socket may be removed from the P.C. board by standard de-soldering methods and replaced with a new socket.

When manual mounting of connector is performed, be careful not to deform the Latch and the tine part of the Upper Contact and Lower Contact, and mount it parallel to the surface of the board. After mounting, softly push housing top surface in order to tighten the grip.

Number of reflow times should be kept twice of less. Reflow is the general method of soldering but in case of using a soldering tool, for fixing purpose, for instance, do not touch the part of Contacts with the tool, in order to avoid deformation.