



# MEMORY SOCKETS

## Quick Reference Guide

TE Connectivity's (TE) main memory connectors are made to JEDEC industry standards for dual in-line memory modules (DIMM) and small outline DIMM (SO DIMM) as well as custom memory modules for server, workstation, desktop, notebook, storage and communication applications. Our memory socket portfolio covers the DDR2, DDR3, and DDR4 generations of sockets. Each product family consists of vertical and a few right-angle and various-angled configurations in solder tail and surface mount (SMT) mounting options.

### Applications

- Servers
- High Performance Computing (HPC)
- Workstations
- Mass storages
- Communication equipment
- Desktop PCs
- Instrument equipment

### Benefits

- Wide variety of options
- Enable reliable connections to standard memory modules
- Contact design protects against module stubbing

### Features

- Designed to JEDEC industry standards for new and existing DIMM memory modules
- Provide end latches for module retention, ejection and mechanical voltage keying
- SO DIMM sockets are offered in several stacking heights to maximize board space

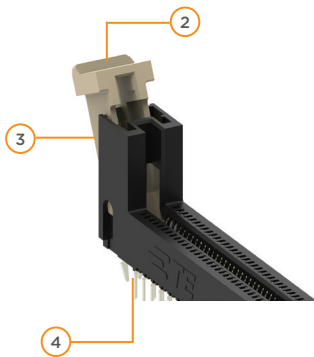
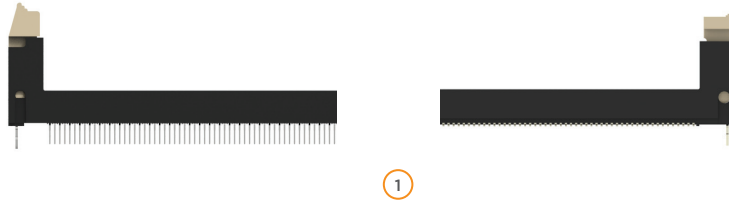
# Memory Sockets

## DIMM Sockets

DIMM sockets enable reliable connection to standard memory modules

Through Hole (TH)

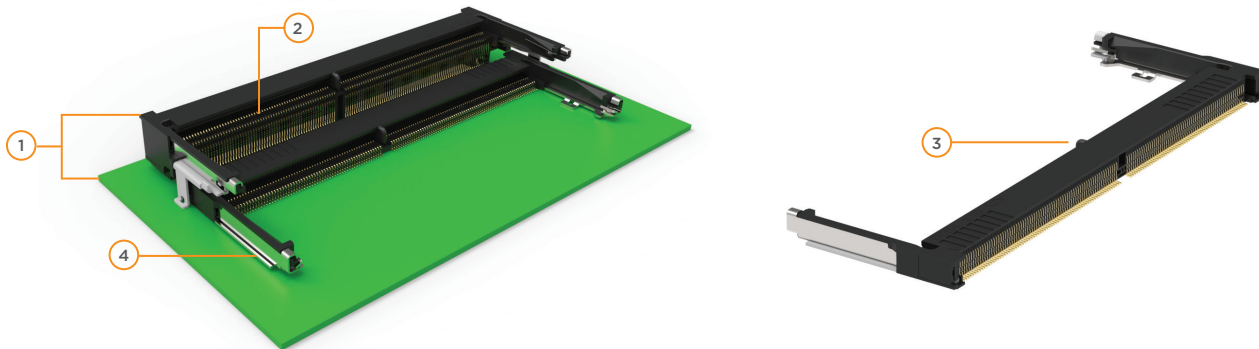
Surface Mount (SMT)



1. Various mounting types: through hole, surface mount
2. Various latch types: short and long latch to meet different space requirements
3. Multiple color options for latch and housing
4. Various contact length (TH) and plating options to meet different PCB and field lifetime

## SO DIMM Sockets

SO DIMM sockets provide highly reliable, low cost, space saving benefits where height off the board is important



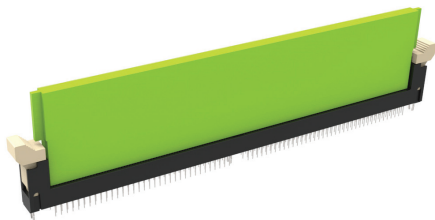
1. Multiple height options are ideal to stack and save space
2. Zero insertion force for easy module insertion
3. Two key types: standard and reverse key position to prevent mis-insertion
4. Latch floating helps ensure coplanarity and easy soldering

# Memory Sockets

## Technical Specifications

		DDR1/2 SO DIMM	DDR3 SO DIMM	DDR4 DIMM	DDR4 SO DIMM
Pin count		200	204	288	260
Card thickness		1.0+/-0.10	1.0+/-0.10	1.40+/-0.10	1.20+/-0.10
Pitch		0.6	0.6	0.85	0.5
Operation voltage		2.5V/1.8V	1.5V	1.2V	1.2V
Voltage (max)		25 VAC	25 VAC	25 VAC	25 VAC
Voltage key positions		Center	Center	Center	Center
Current (max)		0.5 A	0.5 A	0.75A	0.5 A
Low level contact resistance (mac)		50mΩ initial	50mΩ initial	10mΩ initial	50mΩ initial
Dielectric withstanding voltage		250 VAC	250 VAC	500 VAC	250 VAC
Insulation resistance (min)		250 MΩ initial	250 MΩ initial	1000 MΩ initial	250 MΩ initial
Module insertion force (with latch))		N/A	N/A	106N	N/A
Terminal retention force (min)		1.2N	1.2N	3N	1.2N
Fork lock		N/A	N/A	13.3N	N/A
Latch actuation force (to open)		N/A	N/A	20N	N/A
Module rip-out force at center (without damage)		N/A	N/A	20N max	N/A
PCB retention force		N/A	N/A	75N max	N/A
Durability (mating cycles)		25	25	25	25
Operating temperature		-55°C to 85°C	-55°C to 85°C	-55°C to 85°C	-55°C to 85°C
JEDEC Standards	Microelectronic Outlines	SO-005	SO-006	SO-016	SO-018
	Socket Outlines	MO-224	MO-268	MO-309	MO-310
Compliance		RoHS, ELV, UL 94V0			

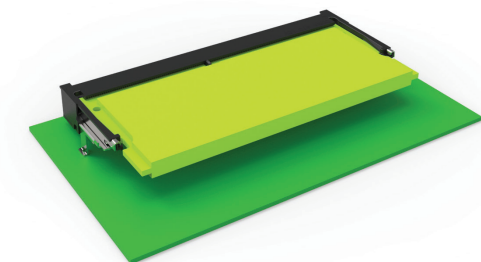
### DIMM module fully inserted into socket



#### Applications:

- Servers
- Communications Equipment
- Workstations
- High-Performance Computing

### SO DIMM module fully inserted into socket



#### Applications:

- Mass storage
- Communications
- Desktop PCs
- Instrument equipment

# Memory Sockets

## Part Number Detail

### DDR4 DIMM

Part Number	Latch Type	Tail Length (mm)	Type	Contact Plating	Gold Thickness	Housing Color	Latch Color	Packaging
2308107-1	Long	2.4	TH	Gold	15u"	Black	Black	Tray
2308107-2	Long	2.4	TH	Gold	15u"	Blue	Natural	Tray
2308107-3	Long	2.4	TH	Gold	15u"	Green	Natural	Tray
2308107-4	Long	2.4	TH	Gold	30u"	Black	Black	Tray
2308107-5	Long	2.4	TH	Gold	30u"	Natural	Natural	Tray
2308107-6	Long	3.18	TH	Gold	15u"	Blue	Natural	Tray
2308107-7	Long	3.18	TH	Gold	15u"	Black	Natural	Tray
2308107-8	Long	2.1	TH	Gold	15u"	Green	Natural	Tray
2308107-9	Long	2.1	TH	Gold	15u"	Blue	Natural	Tray
1-2308107-0	Long	2.1	TH	Gold	15u"	Black	Natural	Tray
1-2308107-1	Long	2.67	TH	Gold	30u"	Black	Green	Tray
1-2308107-2	Long	2.67	TH	Gold	30u"	Black	Natural	Tray
1-2308107-3	Long	2.67	TH	Gold	30u"	Black	Black	Tray
1-2308107-4	Long	2.1	TH	Gold	30u"	Black	Green	Tray
1-2308107-5	Long	2.1	TH	Gold	30u"	Black	Natural	Tray
1-2308107-6	Long	2.1	TH	Gold	30u"	Black	Black	Tray
1-2308107-7	Long	3.18	TH	Gold	15u"	Black	Black	Tray
1-2308107-8	Long	3.18	TH	Gold	15u"	Natural	Natural	Tray
1-2308107-9	Long	3.18	TH	Gold	15u"	Green	Green	Tray
2-2308107-0	Long	3.18	TH	Gold	15u"	Blue	Blue	Tray
2-2308107-1	Long	2.4	TH	Gold	15u"	Black	Natural	Tray
5-2308107-1	Short	2.67	TH	Gold	15u"	Black	Natural	Tray
5-2308107-2	Short	2.67	TH	Gold	15u"	Blue	Natural	Tray
5-2308107-3	Short	2.67	TH	Gold	15u"	Natural	Natural	Tray
5-2308107-4	Short	2.67	TH	Gold	15u"	Black	Black	Tray
5-2308107-5	Short	2.67	TH	Gold	30u"	Natural	Natural	Tray
5-2308107-6	Short	2.67	TH	Gold	30u"	Black	Black	Tray
5-2308107-7	Short	2.1	TH	Gold	30u"	Black	Black	Tray
5-2308107-8	Short	2.1	TH	Gold	30u"	Natural	Natural	Tray
5-2308107-9	Short	3.18	TH	Gold	30u"	Black	Black	Tray
6-2308107-0	Short	3.18	TH	Gold	30u"	Black	Natural	Tray
6-2308107-1	Short	3.18	TH	Gold	30u"	Black	Green	Tray
2199155-7	Short	N/A	SMT	Gold	30u"	Black	Green	Tray
2199155-6	Short	N/A	SMT	Gold	30u"	Natural	Natural	Tray
2199155-4	Short	N/A	SMT	Gold	30u"	Black	Black	Tray
2199155-3	Short	N/A	SMT	Gold	15u"	Black	Black	Tray
2199155-2	Short	N/A	SMT	Gold	30u"	Black	Natural	Tray
2199155-1	Short	N/A	SMT	Gold	15u"	Black	Natural	Tray

### DDR4 SO DIMM

Packaging	Height (mm)	Module Orientation	Type	Part Number	Contact Gold Plating Thickness				
					GF	5u"	10u"	15u"	30u"
Tape & Reel	4.0	Right Angle	SMT, Std	2309407-x	-1	-2	-3	-4	-5
		Right Angle	SMT, Rvs	2309408-x	-1	-2	-3	-4	-5
	5.2	Right Angle	SMT, Std	2309409-x	-1	-2	-3	-4	-5
		Right Angle	SMT, Rvs	2309410-x	-1	-2	-3	-4	-5
	8.0	Right Angle	SMT, Std	2309411-x	-1	-2	-3	-4	-5
		Right Angle	SMT, Rvs	2309412-x	-1	-2	-3	-4	-5
	9.2	Right Angle	SMT, Std	2309413-x	-1	-2	-3	-4	-5
		Right Angle	SMT, Rvs	2309414-x	-1	-2	-3	-4	-5

# Memory Sockets

## Part Number Detail

### DDR3 SO DIMM

Part Number	Module Orientation	Type	Contact Plating	Gold Thickness	Housing Color	Height (mm)	Packaging
2013022-1	Right Angle	SMT, Std	Gold	GF	Black	4.0	Tray
2-2013022-1	Right Angle	SMT, Std	Gold	GF	Black	4.0	Reel
2-2013022-2	Right Angle	SMT, Std	Gold	10u"	Black	4.0	Reel
2-2013022-3	Right Angle	SMT, Std	Gold	30u"	Black	4.0	Reel
2-2013287-1	Right Angle	SMT, Rvs	Gold	GF	Black	4.0	Reel
2013289-1	Right Angle	SMT, Std	Gold	GF	Black	5.2	Tray
2013289-2	Right Angle	SMT, Std	Gold	10u"	Black	5.2	Tray
2013289-3	Right Angle	SMT, Std	Gold	30u"	Black	5.2	Tray
2-2013289-1	Right Angle	SMT, Std	Gold	GF	Black	5.2	Reel
2-2013289-2	Right Angle	SMT, Std	Gold	10u"	Black	5.2	Reel
2-2013289-3	Right Angle	SMT, Std	Gold	30u"	Black	5.2	Reel
2013290-1	Right Angle	SMT, Rvs	Gold	GF	Black	5.2	Tray
2013290-2	Right Angle	SMT, Rvs	Gold	10u"	Black	5.2	Tray
2-2013290-1	Right Angle	SMT, Rvs	Gold	GF	Black	5.2	Reel
2-2013290-2	Right Angle	SMT, Rvs	Gold	10u"	Black	5.2	Reel
2-2013290-3	Right Angle	SMT, Rvs	Gold	30u"	Black	5.2	Reel
2-2013297-1	Right Angle	SMT, Std	Gold	GF	Black	8.0	Reel
2013310-1	Right Angle	SMT, Std	Gold	GF	Black	9.2	Tray
2013310-3	Right Angle	SMT, Std	Gold	30u"	Black	9.2	Tray
2-2013310-1	Right Angle	SMT, Std	Gold	GF	Black	9.2	Reel
2-2013310-2	Right Angle	SMT, Std	Gold	10u"	Black	9.2	Reel
2-2013311-1	Right Angle	SMT, Rvs	Gold	GF	Black	9.2	Reel

### DDR2 SO DIMM

Part Number	Module Orientation	Type	Power Supply	Housing Color	Height (mm)	Packaging	Remark
1473005-4	Right Angle	SMT, Std	1.8V	Black	5.2	Tray	N/A
1717254-4	Right Angle	SMT, Std	1.8V	Black	5.2	Reel	N/A
1473149-4	Right Angle	SMT, Std	1.8V	Black	5.2	Tray	New Latch Type
1473150-4	Right Angle	SMT, Rvs	1.8V	Black	5.2	Tray	New Latch Type
1565917-4	Right Angle	SMT, Std	1.8V	Black	5.2	Reel	Emboss
1565918-4	Right Angle	SMT, Rvs	1.8V	Black	5.2	Reel	Emboss
1612773-4	Right Angle	SMT, Rvs	1.8V	Black	6.5	Tray	N/A

### DDR1 SO DIMM

Part Number	Module Orientation	Type	Power Supply	Housing Color	Height (mm)	Packaging	Remark
1473005-1	Right Angle	SMT, Std	2.5V	Black	5.2	Tray	N/A
1-1473005-1	Right Angle	SMT, Std	2.5V	Black	5.2	Tray	Bossless
1717254-1	Right Angle	SMT, Std	2.5V	Black	5.2	Reel	N/A
5-1612773-1	Right Angle	SMT, Rvs	2.5V	Gray	6.5	Tray	N/A

## Frequently Asked Questions

### Question 1

Is it possible to stack two SO DIMM module cards by using different height SO DIMM sockets?

### Answer 1

Yes, it is possible and 8H or 9.2H height SODIMM socket is suggested to be used with 4H height SODIMM socket, and 9.2H height SODIMM socket is suggested to be used with 5.2H height SODIMM socket. When designing the printed circuit board (PCB), two SODIMM socket footprints are still needed and they can be next to each other, so when inserting the SODIMM module cards to two different height SODIMM sockets, you will find the two module cards are kind of stacked.

### Question 2

Are all TE memory sockets RoHS compliant and halogen free ?

### Answer 2

Yes, TE's DDR1/2 SODIMM, DDR3 SODIMM, and DDR4 DIMM and SODIMM are all RoHS compliant and halogen free.

### Question 3

What is the suggested thickness of solder paste on the printed circuit board (PCB) for surface mount technology (SMT) memory sockets?

### Answer 3

For SMT type TE memory sockets, 0.13mm solder paste thickness is suggested to achieve the required flatness specification.

## TE Technical Support Center

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- Подбор аналогов;
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- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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