

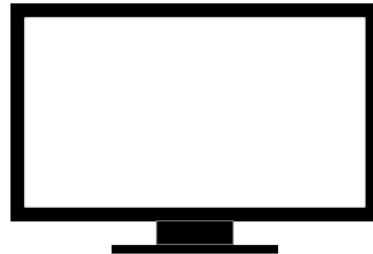
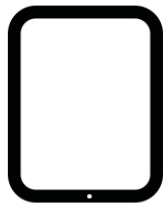
SM3 Series M.2 (NGFF) Connector

Connector Training Guide

Application Examples

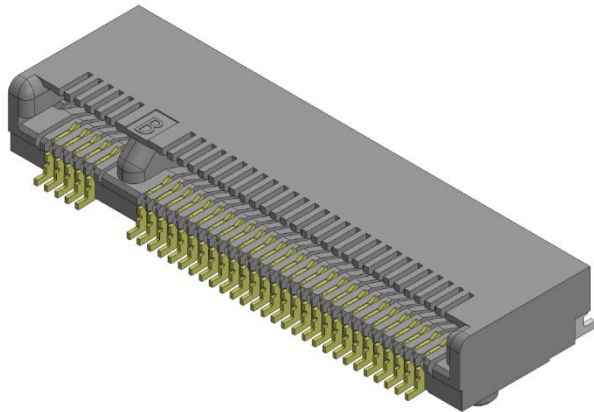
Solid state drives and wireless card interfaces in:

- PC/tablets
- Smart meter
- TV and set top box
- Other wireless ultra portable devices



SM3 Series Features

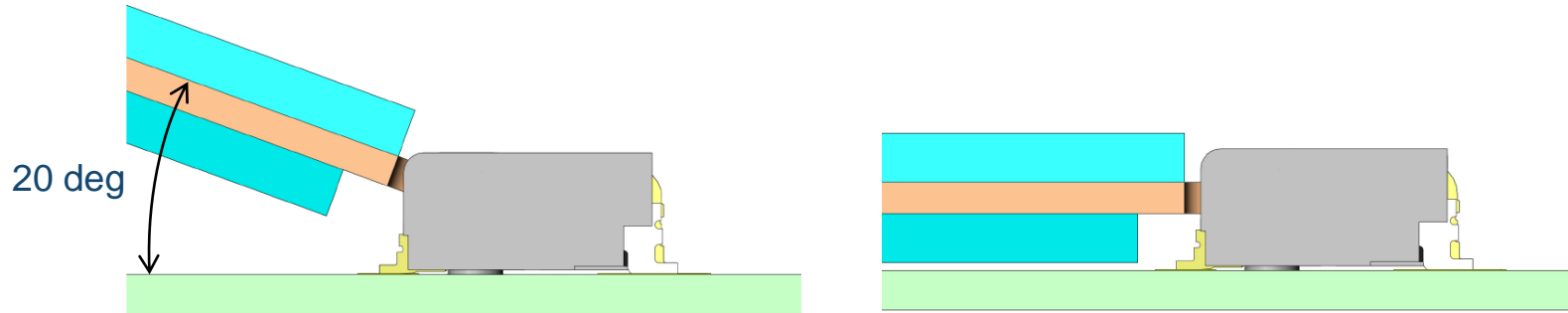
New alternative for PCIe Mini and Half Mini cards and connectors



- JAE's SM3 Series is a small size card edge connector for mobile devices.
- Significant space savings compared to previous technologies in both board space and height.
- Standard interface for solid state drives (SSD) and various wireless cards supporting Wi-Fi®, NFC, Bluetooth®, GNSS, WWAN, etc.
- Multiple heights and key options are available to accommodate various card types.
- Pb-Free, halogen-free product

Card Insertion method

3.1 and 4.1mm height (double-sided cards)



2.15mm height (single-sided cards)



The card is inserted at a slight angle to reduce the insertion force and make the assembly process easier. Once the card is mated, it should be fixed so it is parallel to the main PCB.

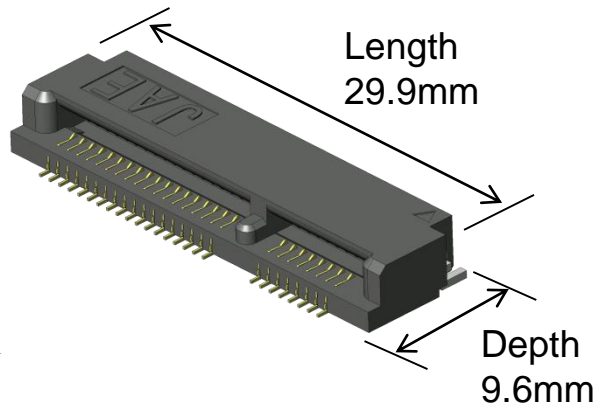
M.2 and Mini Card Comparison

PCI Express Mini Card (MM60 Series)

Height: 4.0, 5.9mm
52 contacts, 0.8mm pitch

Host Interfaces

- PCI Express
- USB

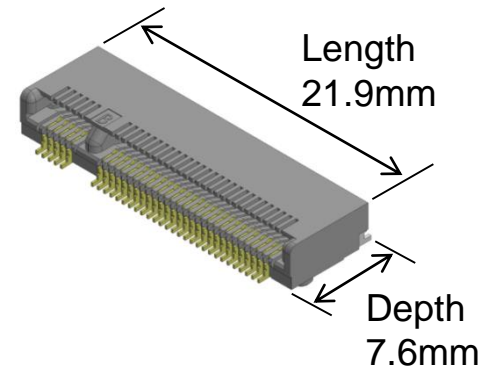


M.2 (SM3 Series)

Height: 2.15, 3.1, 4.1mm
67 contacts, 0.5mm pitch

Host Interfaces

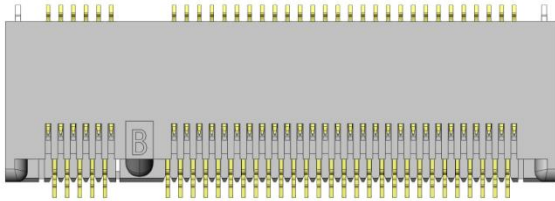
- PCI Express®
- USB
- SATA
- SDIO
- SSIC
- UART
- I2C
- DisplayPort
- PCM/I2S



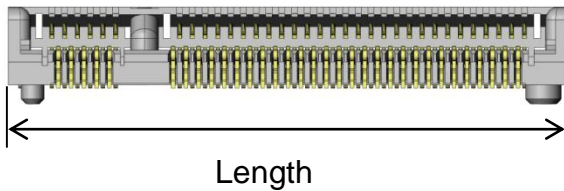
By reducing the contact pitch and the card size, the M.2 connector houses more contacts in a significantly smaller package compared to the older PCI Express Mini Card connector. In addition to saving a lot of space, the M.2 standard also supports more host interfaces such as SATA, I2C, DisplayPort, and many more.

General Specifications

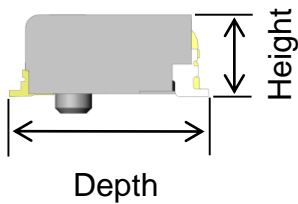
【Top View】



【Front View】



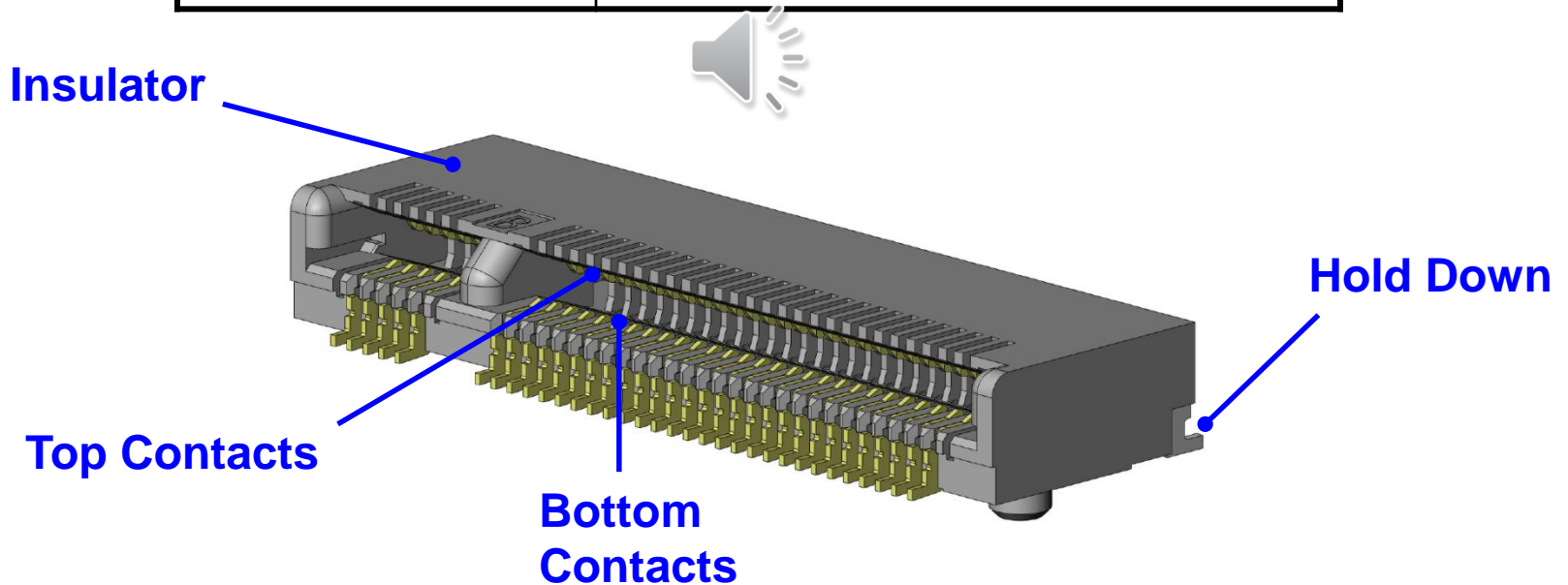
【Side View】




No. of Contacts	67
Pitch	0.5mm
Height	2.15, 3.1, 4.1mm
Length x Depth	21.9mm x 7.6mm
Applicable Card Thickness	0.8mm±0.08mm
Contact resistance	50m Ω max (initial)
Dielectric Withstanding Voltage	AC 300Vr.m.s (for 1 minute)
Operating Temperature Range	-40 to +80 °C
Rated Current	0.5A per pin
Rated Voltage	50 VAC
Mating Durability	60 cycles
Coplanarity	0.1mm max.

Materials and Finishes

Component	Material/Finish
Contact (2 Types)	Copper alloy/ Au Plating Over Ni Contact area: 0.13 μ m min. Au Plating Terminal/SMT area: Au Flash Plating
Hold Down	Copper alloy/ Tin Plating Over Ni
Insulator	Heat-resistant resin (Black, Halogen-free)



Summary

- The SM3 series is a natural alternative to the existing PCI Express mini card connectors
- The SM3 series allows the card to be inserted at a slight angle
- The M.2 connector houses more contacts in a significantly smaller package 
- The SM3 series has a contact pitch of 0.5 mm



Technology to Inspire Innovation

JAE