InMates are an innovative solution for through-hole socket requirements. Consisting of individual plastic carriers for the input and the output, each contains an array of sockets for either a full-, half- or quarter-brick sized module. The sockets are factory loaded into the carrier, which holds them rigidly in place throughout the assembly and soldering process. The carriers are later removed, leaving the sockets accurately positioned.

Designed for use with pin-compatible Maxi, Mini and Micro Family converters, InMates are available for a wide range of PCB sizes and mounting styles. PCB thicknesses can range from 0.055in [1,39mm] to 0.1375in [3,49mm].

Sockets also allow for mounting modules either inboard, with a cutout in the PCB for the module, to minimize the height above the board or onboard. InMates are compatible with the ModuMate or RoHS pin style.

InMates are available in standard recyclable JEDEC style trays for use with automated pick-and-place equipment and are compatible with most standard wave or hand solder operations. The sockets are soldered into the board as part of the PCB assembly process. The module can then be plugged into place at anytime later.

NOTE: Please refer to <u>Section 13</u> of the design guide for the InMate soldering procedure.

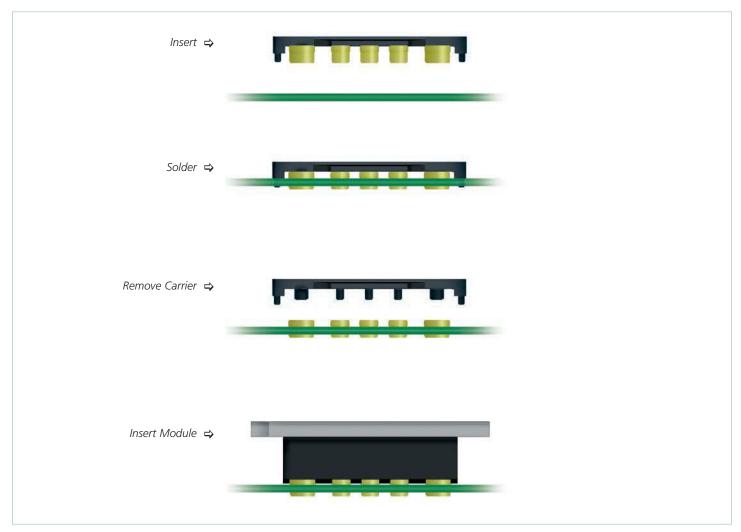


Figure 16.1 — InMate carrier / socket assembly and soldering process

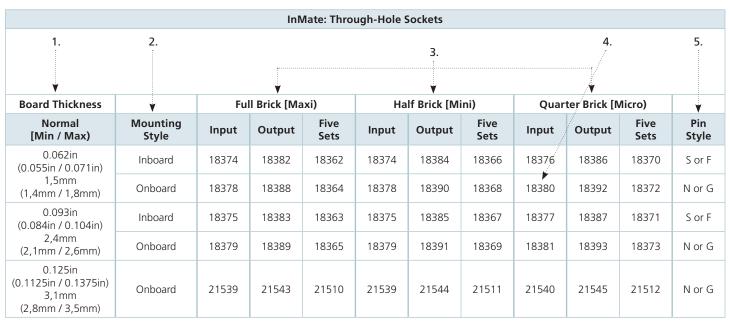


Table 16.1 — Guide to InMate selection

1. Select Board Thickness:

Nominal 0.062in [1,5mm], 0.093in [2,4mm] or 0.125in [3,1mm].

2. Select Mounting Style:

Inboard requires a PCB cutout for the "belly" of the module. See dotted lines in PCB drawing links on Page 80 for cut-out area.

3. Identify Module Type:

Full brick (Maxi), half brick (Mini) or quarter brick (Micro).

4. Select the Ordering Part Number:

Order packages of five input / output sets or in higher quantities order input and output InMates separately. For individual input or output InMates, minimum orders of 35 for Maxi or Mini and 40 for Micro apply.

5. Verify Correct Pin Style for the Module:

For predefined parts, "S" or "F"= short ModuMate and "N" or "G" = long ModuMate

See Table 16.4 for standoff recommendations.



Parameter	Specification Value	Reference		
Compatibility				
	F = short Au plated	Short RoHS pins Short ModuMate pins		
Module Pin Styles	S = short Au plated			
	G = long Au plated	Long RoHS pins		
	N = long Au plated	Long ModuMate pins		
Mechanical				
Contact Normal Force	100g EOL min	GR-1217-CORE, R5-23		
Number of Mating Cycles	5 max ^[h]	Exception to GR-1217-CORE which specifies 25 mating cycle		
Module Engagement Force	32lbs per connector set max	GR-1217-CORE, R5-31,32		
Module Disengagement Force	32lbs per connector set max	GR-1217-CORE, R5-31,32		
Electrical				
Current Rating for Output Pin Sockets	50A Maxi ^[e] / 50A Mini / 25A Micro (Based on 248°F [120°C] max socket temp & 86°F [30°C] max temperature rise of contact)	Gold plating standards and accepted industry standards such as IICIT, EIA, Bellcore guidelines		
Low-Level Contact Resistance 0.080in [2,03mm] dia socket (LLCR)	400μΩ max	GR-1217-CORE, 6.2.1		
Low-Level Contact Resistance 0.150in [3,81mm] dia socket (LLCR)	300μΩ max	GR-1217-CORE, 6.2.1		
Low-Level Contact Resistance 0.180in [4,57mm] dia sockets (LLCR)	200μΩ max	GR-1217-CORE, 6.2.1		
Thermal				
Max Socket Temperature	248°F [120°C] max	Max continuous-use temperature for gold plating		
Temperature Rise	86°F [30°C] max	GR-1217-CORE ^[g] EIA-364-70A ^[f]		
Environmental	'			
Shock and Vibration	InMate products are tested in random vibration environments to best simulate the broad spectrum of frequencies and amplitudes that may be encountered in typical applications. Actual system resonant frequencies will depend on PCB construction and mounting details. For critical or unusual shock and vibration environments, the performance of the system should be independently verified.			

Table 16.2 — InMate specifications and materials

Materials	Ratings			
Headers				
Material: Ryton™ R–7 PPS, 65% Glass Fiber and Mineral-Filled Compound	Poly-Phenylene Sulfide			
Flammability	UL94 V-0/5VA			
Thermal Stability (short term)	500°F [260°C]			
Thermal Stability (long term)	392°F [200°C]			
Solder Cap				
Material	305 stainless steel			
Plating	Clear passivate to repel solder			
Sockets				
Material	Brush Wellman Alloy #25 C17200 deep draw quality or equiv. 0.010in thick			
Plating	Woods nickel strike followed by 50μin min low stress sulfamate-based electrolytic nickel, followed by 20μin min hard gold, followed by 10μin min soft gold			

Table 16.3 — Material properties of InMate components

[e] For 80A operation with Maxi, contact Applications Engineering.



[[]f] GR-1217-CORE issue 1, November 1995 Generic requirements for separable electrical connectors used in telecommunications hardware. A module of NEBSFR, FR-2063

[[]g] ANSI/EIA-364 American National Standards Institute / Electronic Industries Association (Electronic Components, Assemblies & Materials Association)

^[h] The module and socket must be replaced after five mating cycles.

Standoff Kits for InMate Mounted Modules							
Board Thickness	Mounting Options	Slotted Baseplate		Through-Hole Baseplate		Threaded Baseplate	
Nominal (Min / Max]	Mounting Style	Through-Hole Heat Sink	Threaded Heat Sink	Through-Hole Heat Sink	Threaded Heat Sink	Through-Hole Heat Sink	
0.062in (0.055in / 0.071in) 1,5mm (1,4mm /1,8mm)	Inboard	Kit -18153	Kit -18154	Kit -18148	Kit -18149	Kit -18148	
		Bag -19129	Bag -19130	Bag -19124	Bag -19125	Bag -19124	
	Onboard	Kit -18158	Kit -18159	Kit -18153	Kit -18155	Kit -18153	
		Bag -19134	Bag -19135	Bag -19129	Bag -19131	Bag -19129	
0.093in (0.084in / 0.104in) 2,4mm (2,1mm /2,6mm)	Inboard	Kit -18153	Kit -18154	Kit -18148	Kit -18149	Kit -18148	
		Bag -19129	Bag -19130	Bag -19124	Bag -19125	Bag -19124	
	Onboard	Kit -18156	Kit -18157	Kit -18150	Kit -18152	Kit -18150	
		Bag -19132	Bag -19133	Bag -19126	Bag -19128	Bag -19126	
0.125in (0.113in / 0.138in) 3,1mm (2,8mm / 3,5mm)	Onboard	Kit - 24054	Kit -18157	Kit -24056	Kit - 18152	Kit-24056	
		Bag -19132	Bag -19133	Bag -19126	Bag - 19128	Bag-19126	

Kits include six (6] standoffs and screws. Mini and Micro modules require a minimum of four (4] standoffs. Bags of one hundred (100] do not include screws; #4-40 thread hardware required.

Table 16.4 — InMate standoff recommendations

InMate PCB layout drawing for Maxi Module InMate PCB layout drawing for Mini Module InMate PCB layout drawing for Micro Module InMate and Socket outline drawing for Inboard Maxi Modules InMate and Socket outline drawing for Inboard Mini Modules InMate and Socket outline drawing for Inboard Micro Modules InMate and Socket outline drawing for Onboard Maxi Modules InMate and Socket outline drawing for Onboard Mini Modules

InMate and Socket outline drawing for Onboard Micro Modules

References

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Module Exchange Tool

Used in facilitating the proper extraction of modules from InMate or SurfMate sockets. Removal without using the Exchange Tool may cause damage to the sockets.

Description	Part Number
Maxi Exchange Tool	22827
Mini Exchange Tool	22828
Micro Exchange Tool	22829

