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 0.055"(1,39 mm) to 0.1375"(3,49 mm).

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 Section 13 of the design guide for the InMate soldering procedure.

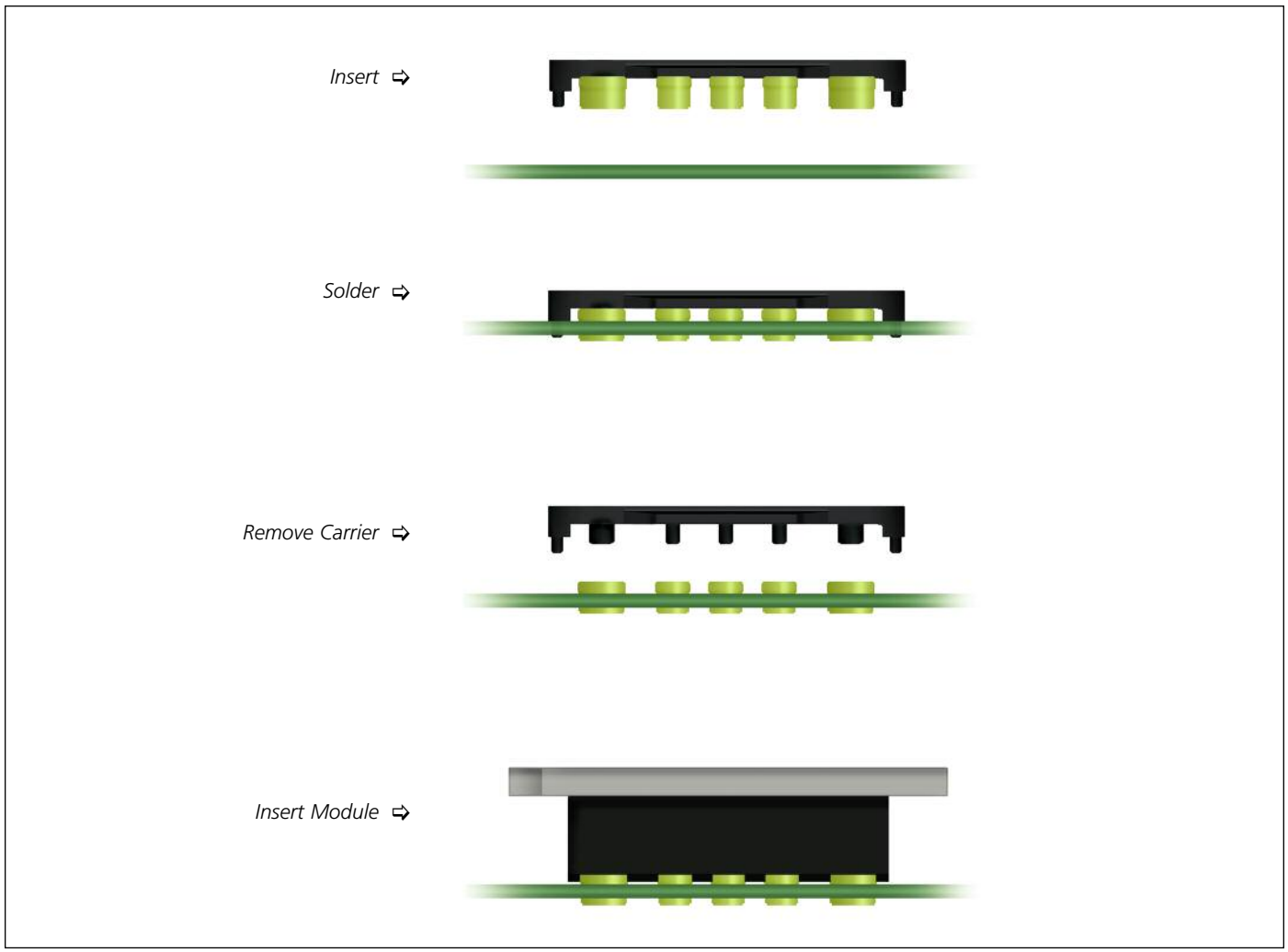
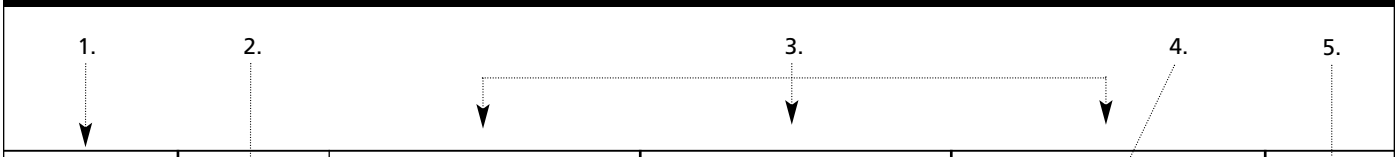


Figure 16–1 — *InMate carrier / socket assembly and soldering process*

16. Through-hole Socket Mount System (InMate)

InMate: Through-hole Sockets



Board Thickness		Full Brick (Maxi)			Half Brick (Mini)			Quarter Brick (Micro)			
Norm. (Min. / Max.)	Mounting Style	Input	Output	5 Sets	Input	Output	5 Sets	Input	Output	5 Sets	Pin Style
0.062" (0.055"/ 0.071") 1,5 mm (1,4 mm /1,8 mm)	Inboard	18374	18382	18362	18374	18384	18366	18376	18386	18370	S or F
	Onboard	18378	18388	18364	18378	18390	18368	18380	18392	18372	N or G
0.093" (0.084"/ 0.104") 2,4 mm (2,1 mm /2,6 mm)	Inboard	18375	18383	18363	18375	18385	18367	18377	18387	18371	S or F
	Onboard	18379	18389	18365	18379	18391	18369	18381	18393	18373	N or G
0.125" (0.1125"/0.1375") 3,1 mm (2,8 mm /3,5 mm)	Onboard	21539	21543	21510	21539	21544	21511	21540	21545	21512	N or G

Table 16–1 *— Guide to InMate selection*

1. *Select Board Thickness.*
   Nominal 0.062"(1,5 mm), 0.093"(2,4 mm) or 0.125"(3,1 mm).

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 Module pin styles	F = short Au plated S = short Au plated	Short RoHS pins Short ModuMate pins
	G = long Au plated N = long Au plated	Long RoHS pins Long ModuMate pins
Mechanical Contact normal force	100 grams EOL min.	GR-1217-CORE, R5-23
Number of mating cycles	5 max.(Note4)	Exception to GR-1217-CORE which specifies 25 mating cycle
Module engagement force	32 lbs per connector max.	GR-1217-CORE, R5-31,32
Module disengagement force	32 lbs per connector max.	GR-1217-CORE, R5-31,32
Electrical Current rating for output pin sockets	50 A Maxi(Note1) / 50 A Mini / 25 A 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 0.080" (2,03 mm) dia socket (LLCR)	400 µΩ max.	GR-1217-CORE, 6.2.1
Low level contact resistance 0.150" (3,81 mm) dia socket (LLCR)	300 µΩ max.	GR-1217-CORE, 6.2.1
Low level contact resistance 0.180" (4,57 mm) dia sockets (LLCR)	200 µΩ 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. EIA-364-70A(Note2)	GR-1217-CORE(Note3)
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. 0.010" thick
Plating	Woods nickel strike followed by 50 µ in. min. low stress sulfamate-based electrolytic nickel, followed by 20 µ in min hard gold followed by 10 µ in. min. soft gold

Table 16–3 — *Material properties of InMate components*

(Note1) For 80 A operation with Maxi, contact Applications Engineering.

(Note2) GR-1217-CORE issue 1, November 1995 Generic requirements for separable electrical connectors used in telecommunications hardware. A module of NEBSFR, FR-2063

(Note3) ANSI/EIA-364 American National Standards Institute / Electronic Industries Association (Electronic Components, Assemblies & Materials Association)

(Note4) The module and socket must be replaced after 5 mating cycles.

(1)For 80 A operation with Maxi, contact Applications Engineering.

Standoff Kits for InMate Mounted Modules*						
Board Thickness		**Slotted Baseplate**		**Through-Hole Baseplate**		**Threaded Baseplate**
Nom. (Min. / Max.)	**Mounting Style**	**Through-Hole Heat Sink**	**Threaded Heat Sink**	**Through-Hole Heat Sink**	**Threaded Heat Sink**	**Through-Hole Heat Sink**
0.062" (0.055"/0.071") 1,5 mm (1,4 mm /1,8 mm)	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
0.093" (0.084"/0.104") 2,4 mm (2,1 mm /2,6 mm)	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
0.125" (0.113"/0.138") 3,1 mm (2,8 mm /3,5 mm)	Onboard	Kit-24054	Kit-18157	Kit-24056	Kit-18152	Kit-24056
		Bag-19132	Bag-19133	Bag-19126	Bag-19128	Bag-19126

Table 16–4 — *InMate standoff recommendations*

* 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.

References

InMate PCB layout drawing for Maxi Module
http://asp.vicorpower.com/cadUtil/display_cad.asp?pn=18400&ct=PDF

InMate PCB layout drawing for Mini Module
http://asp.vicorpower.com/cadUtil/display_cad.asp?pn=18399&ct=PDF

InMate PCB layout drawing for Micro Module
http://asp.vicorpower.com/cadUtil/display_cad.asp?pn=18398&ct=PDF

InMate and Socket outline drawing for Inboard Maxi Modules
http://asp.vicorpower.com/cadUtil/display_cad.asp?pn=18483-XX&ct=PDF

InMate and Socket outline drawing for Inboard Mini Modules
http://asp.vicorpower.com/cadUtil/display_cad.asp?pn=18482-XX&ct=PDF

InMate and Socket outline drawing for Inboard Micro Modules
http://asp.vicorpower.com/cadUtil/display_cad.asp?pn=18481-XX&ct=PDF

InMate and Socket outline drawing for Onboard Maxi Modules
http://asp.vicorpower.com/cadUtil/display_cad.asp?pn=18480-XX&ct=PDF

InMate and Socket outline drawing for Onboard Mini Modules
http://asp.vicorpower.com/cadUtil/display_cad.asp?pn=20030-XX&ct=PDF

InMate and Socket outline drawing for Onboard Micro Modules
http://vdac2.vicr.com/cadUtil/display_cad.asp?pn=20029-XX&ct=PDF

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

