



Dear Valued Customer,

The current mechanical specifications for the package can be found at the [www.national.com](http://www.national.com) web site or by clicking the following link:

<http://www.national.com/packaging/folders/sqf48a.html>

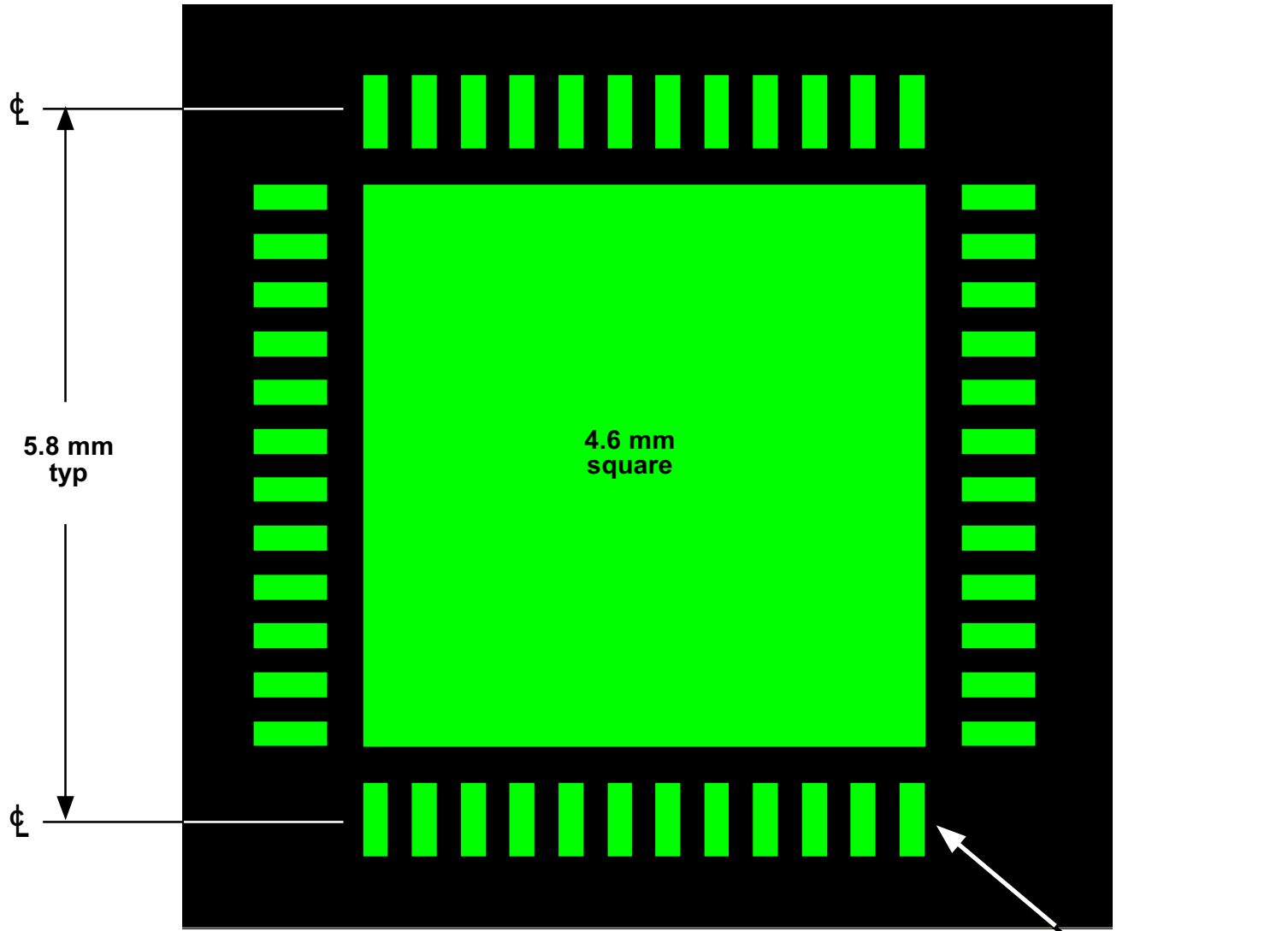
The following pages illustrate the recommended package footprints that apply to this package configuration. They are included in GERBER format for easy incorporation into most PCB layout packages.

For technical support, contact:

<http://www.national.com/support/>



Sincerely yours,

National Semiconductor

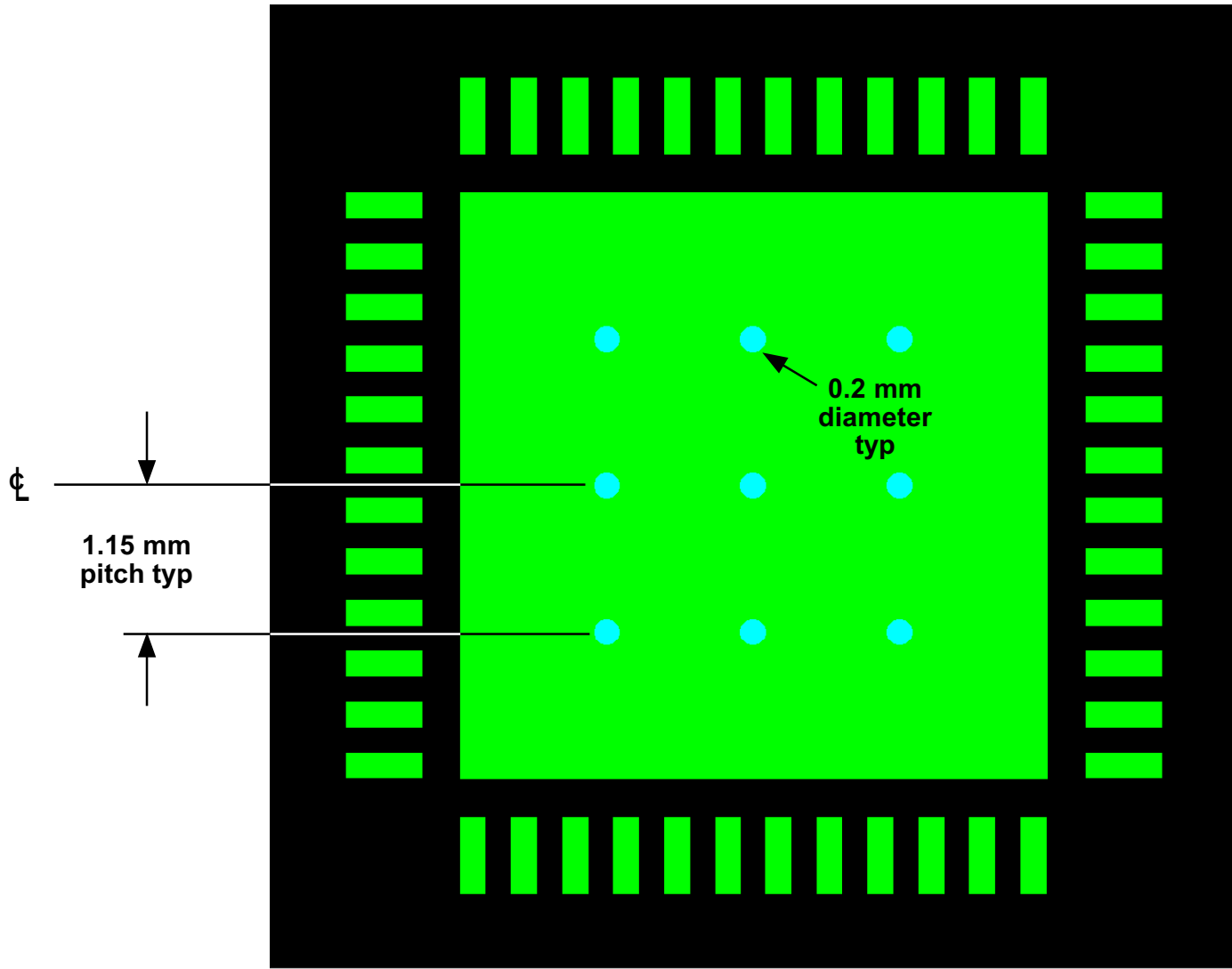


# TOP ETCH

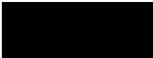
0.2 x 0.6 mm  
Typ 48 places

 = Exposed FR4     = Exposed metal


**NOTE:**  
Refer to package mechanical drawing at the website for complete mechanical dimensions.

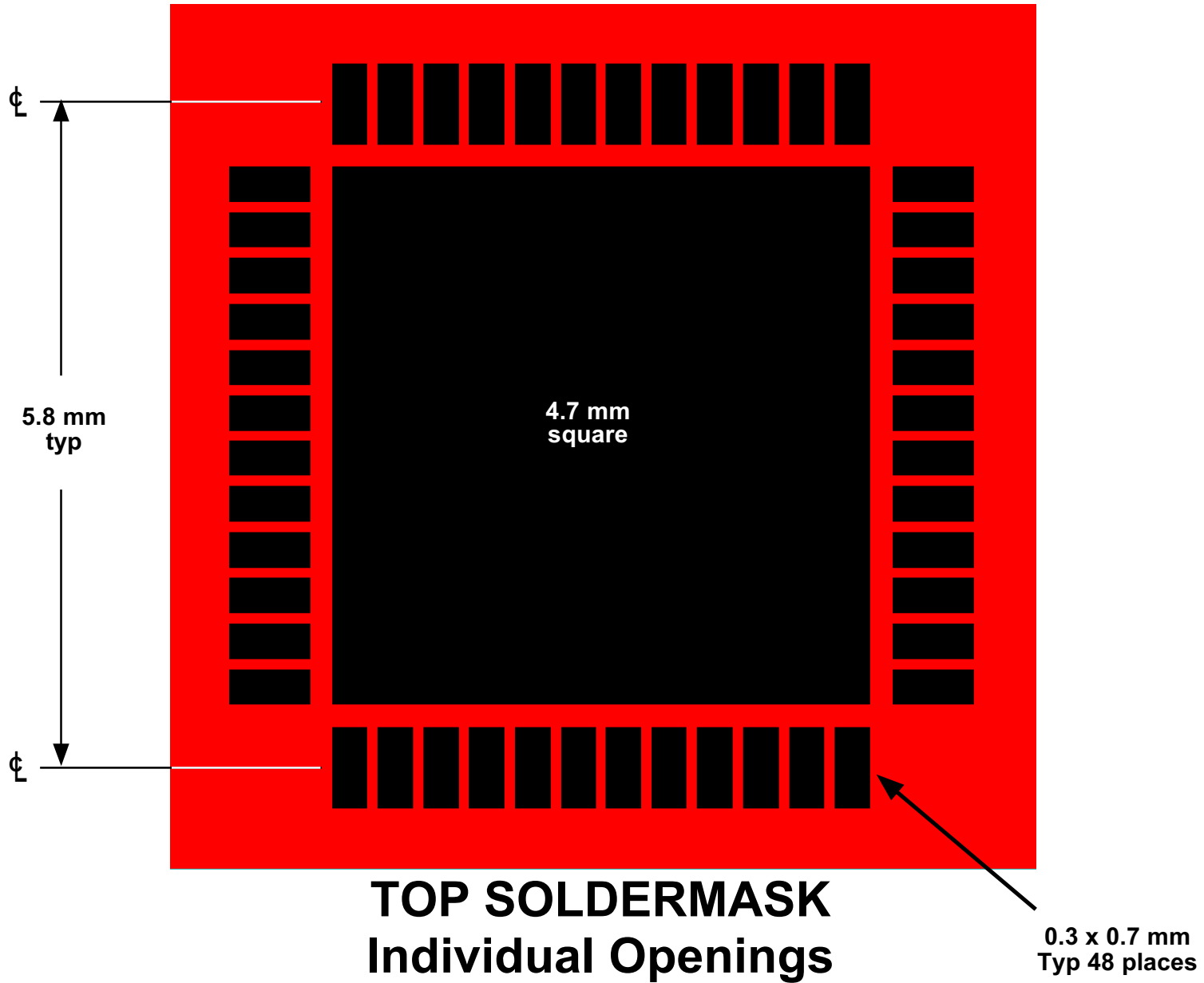


# TOP ETCH with THERMAL VIAS

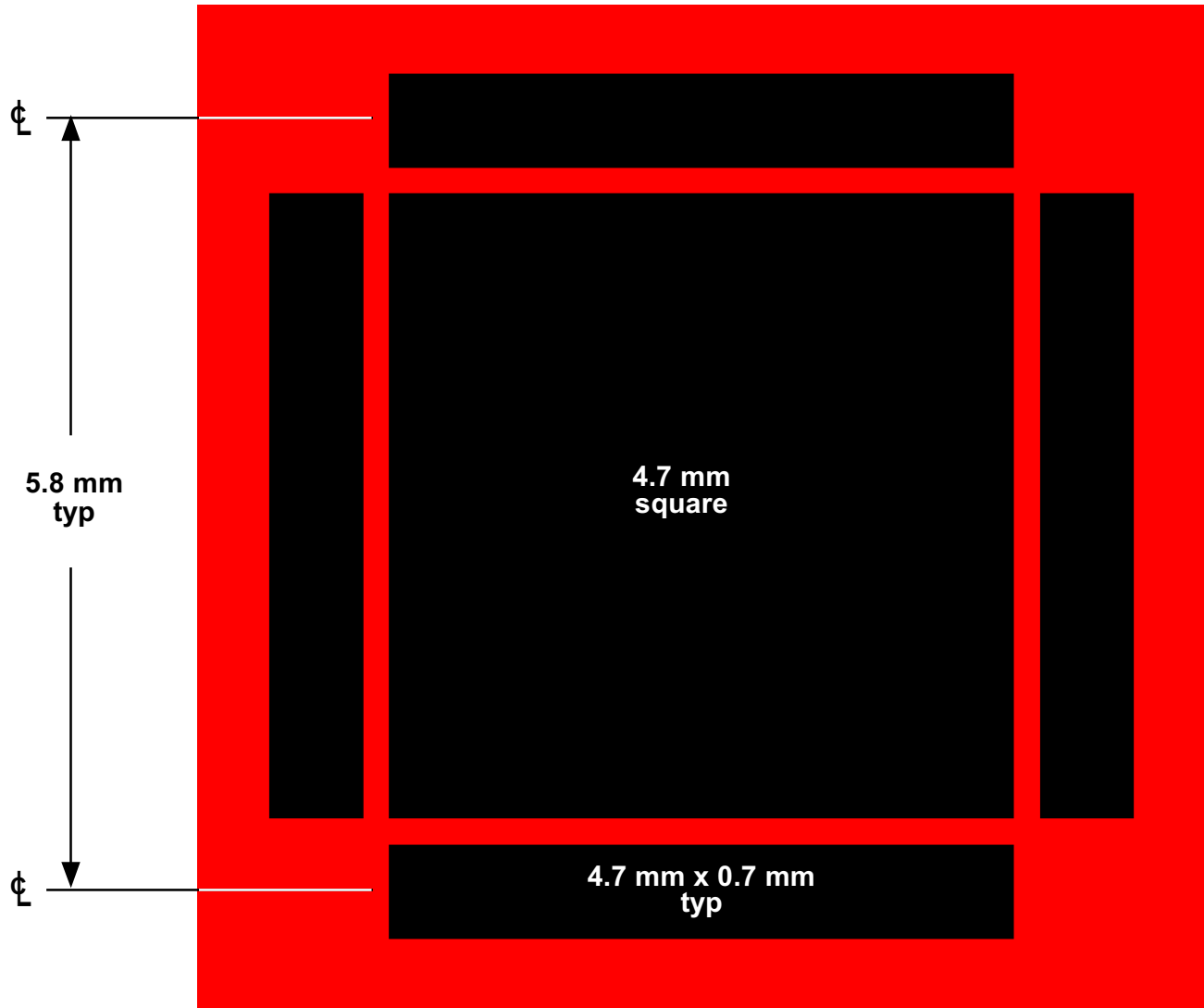
 = Exposed FR4

 = Exposed metal

 = Thermal Vias

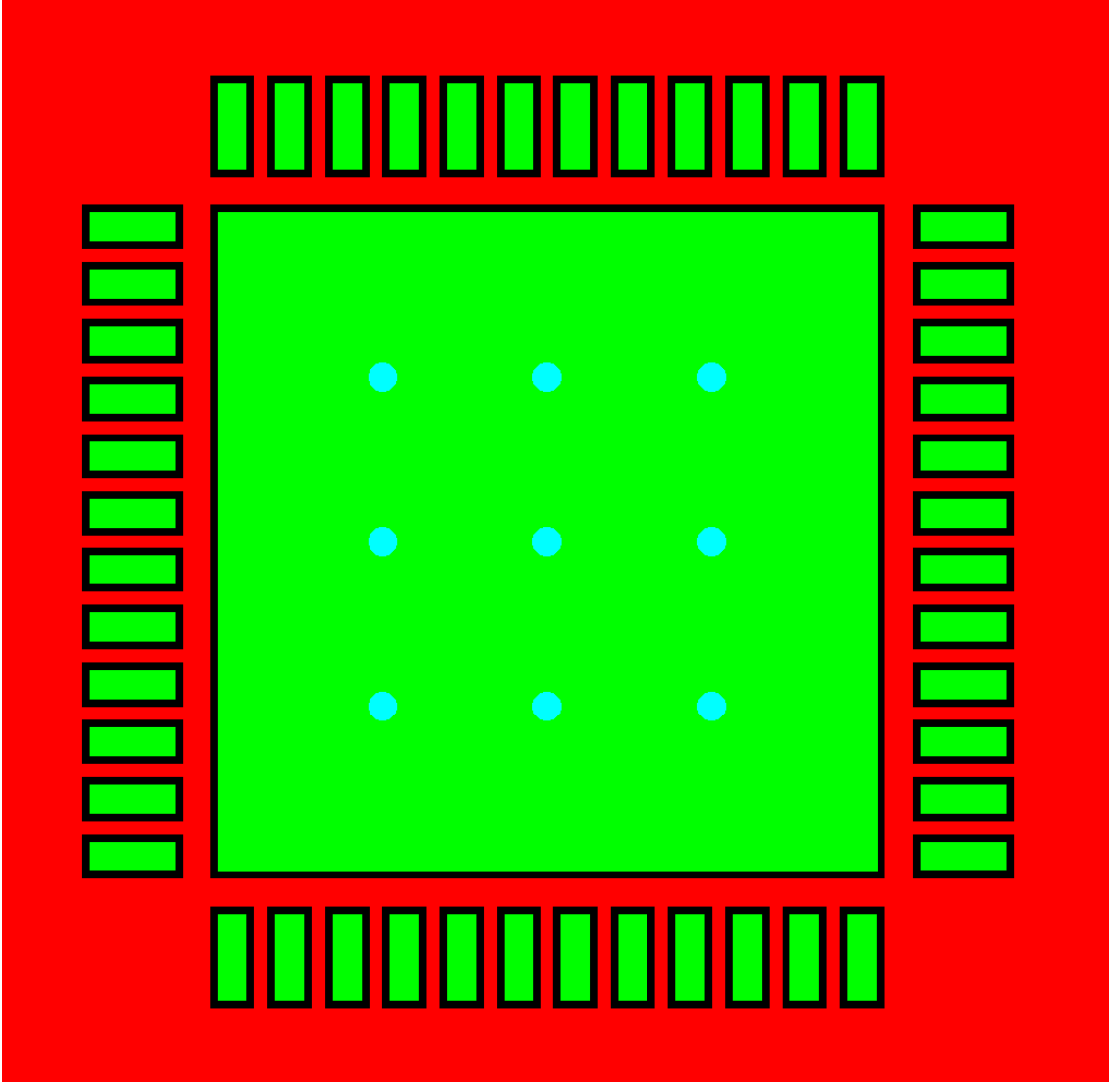


-  = Exposed FR4
-  = Mask over FR4



## TOP SOLDERMASK Trench or Gang Openings

-  = Exposed FR4
-  = Mask over FR4



**TOP ETCH + SOLDERMASK + VIAS  
(Individual Mask Openings)**



= Exposed FR4



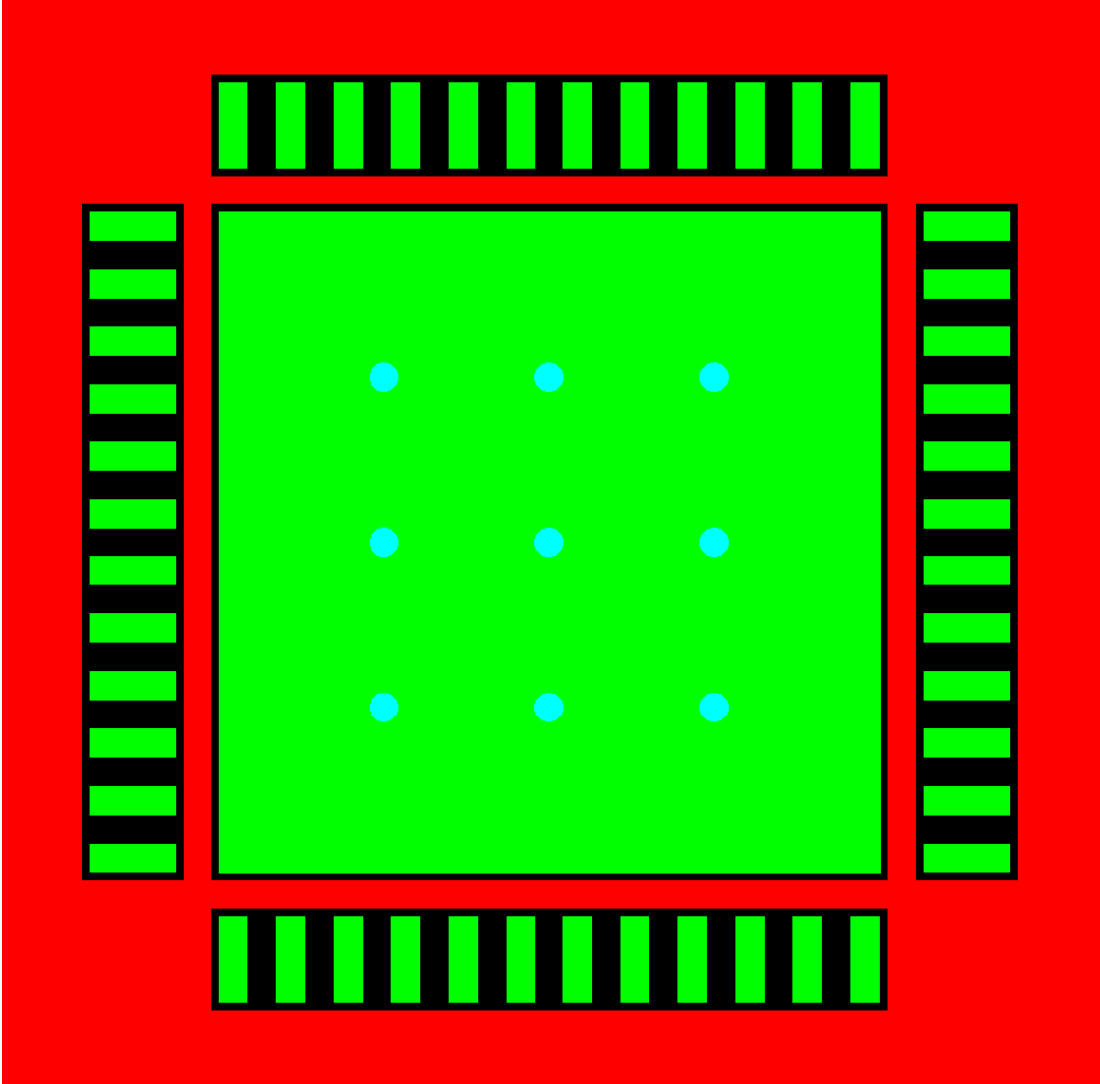
= Exposed metal



= Thermal Vias



= Mask over FR4



**TOP ETCH + SOLDERMASK + VIAS  
(Trench or Gang Openings)**



= Exposed FR4



= Exposed metal

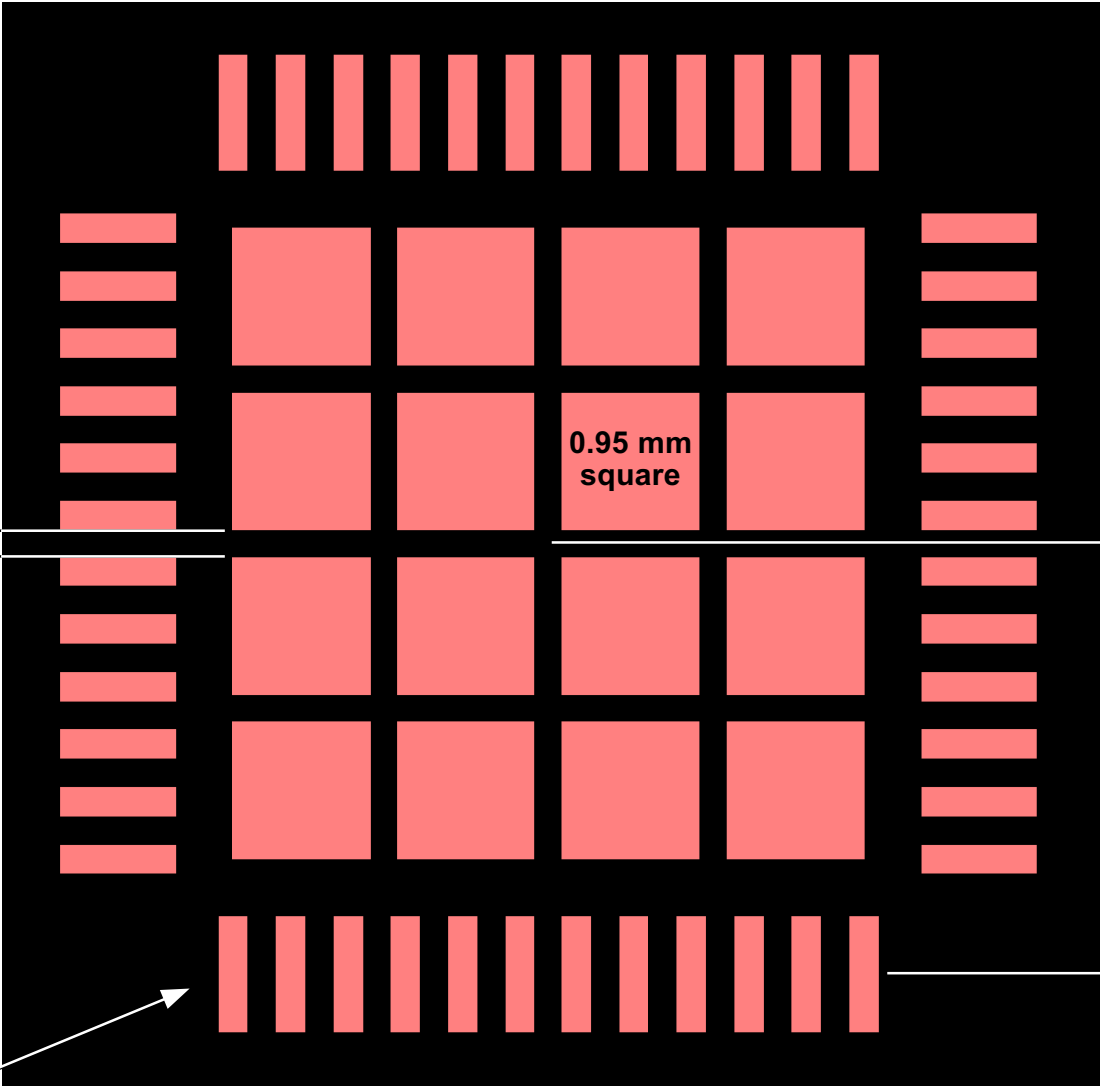


= Thermal Vias



= Mask over FR4

0.2 mm  
spacing  
typ



0.95 mm  
square

3.0 mm  
typ

⌀

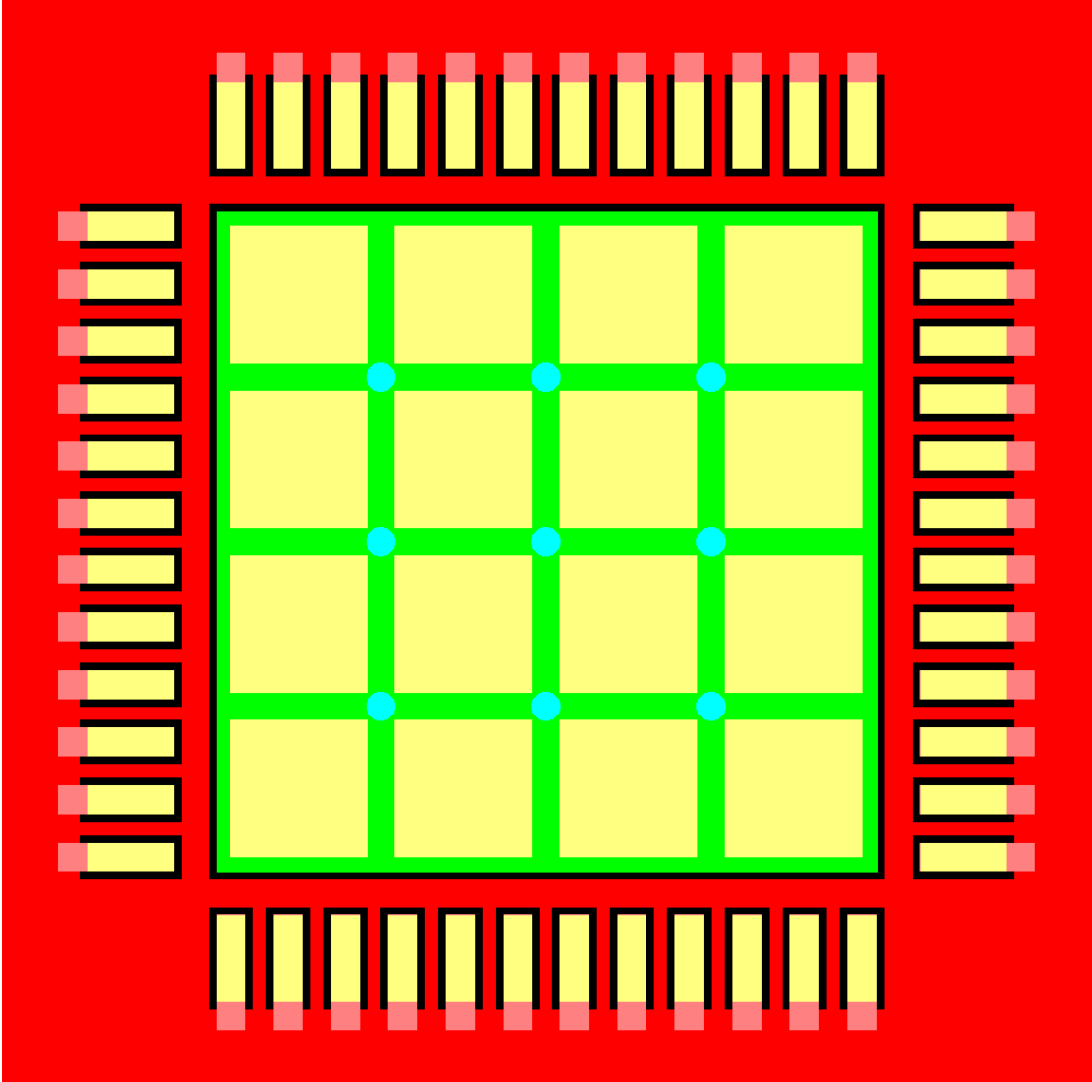
⌀

0.2  
x  
0.8 mm  
typ 48 places

# TOP SOLDERPASTE

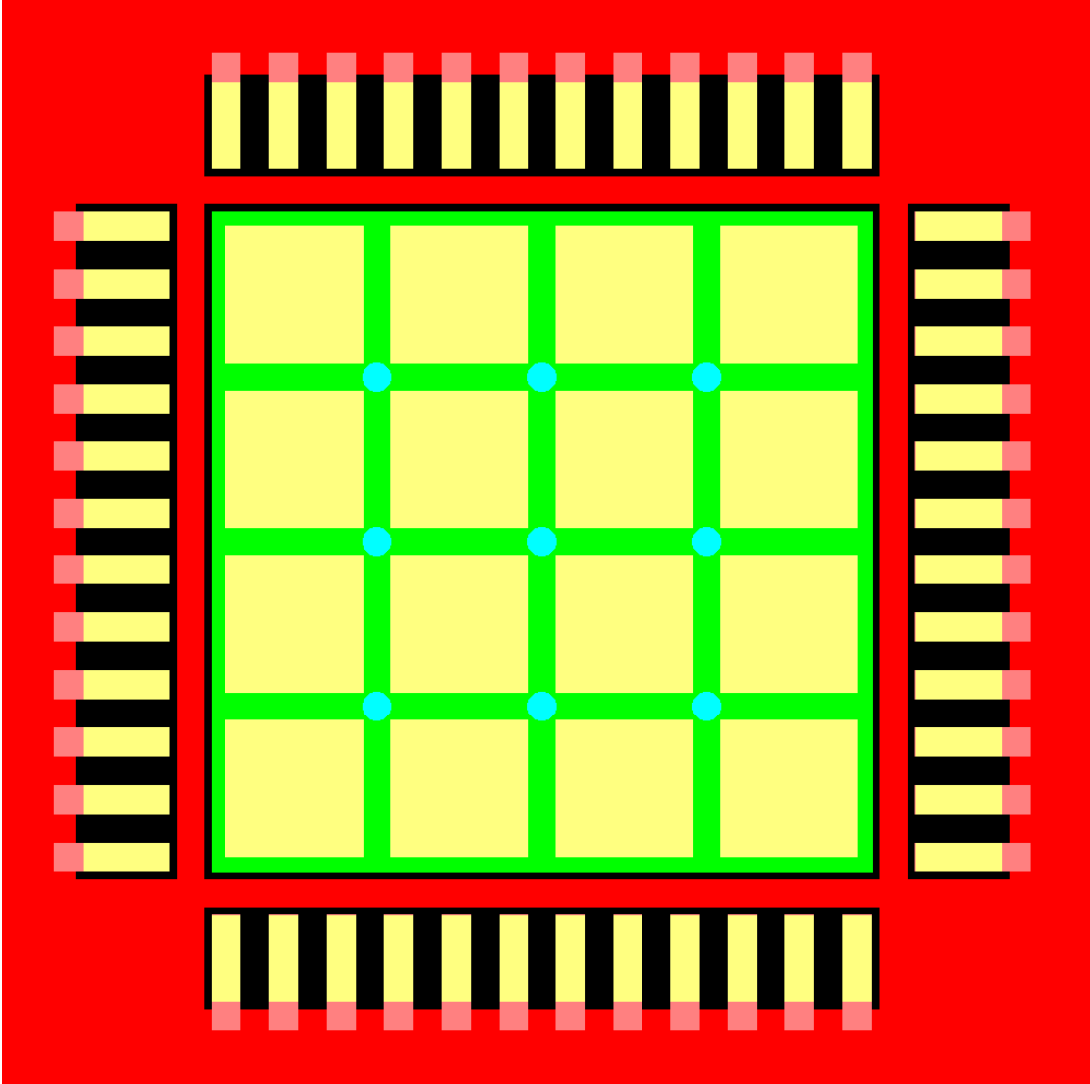
Note:  
Recommended stencil thickness is  
of 0.1mm (0.004") to allow proper  
deposition of the solderpaste.

 = Paste



**TOP ETCH + SOLDERMASK + SOLDERPASTE + VIAS  
(Individual Mask Openings)**

- = Exposed FR4
- = Exposed metal
- = Paste over FR4 (0.2mm offset)
- = Thermal Vias
- = Mask over FR4
- = Paste over Metal



**TOP ETCH + SOLDERMASK + SOLDERPASTE + VIAS  
(Trench or Gang Mask Openings)**

- = Exposed FR4
- = Exposed metal
- = Paste over FR4 (0.2mm offset)
- = Thermal Vias
- = Mask over FR4
- = Paste over Metal