

Jan 8, 2021

dal check

## Understanding and Configuring the Testpoint NO\_PROBE\_TOP Keepout Checks

<input type="checkbox"/> 7. Testpoint KO (min) tolerance.....	<span style="color: red;">+</span> height->	<span style="background-color: yellow;">0.0</span>	Find	Clear	HL	Chart	Option ->	?	MANUFACTURING/NO_PROBE_
<input type="checkbox"/> 8. Testpoint KO (max) tolerance.....	<span style="color: red;">+</span> height->	<span style="background-color: yellow;">0.0</span>	Find	Clear	HL	Chart	Option	?	MANUFACTURING/NO_PROBE_

The #7 Min check is used to verify that the shape on the NO\_PROBE\_TOP layer is **at least the size** of the expanded keepout of the place\_bound\_top shape based on the symbol height matrix per the env variables shown below. The no\_probe\_top shape normally needs to be bigger than the outline of the part based on its height to avoid clearance issues in the in-circuit test procedure.

The #8 Max check is used to verify that the no\_probe\_top **shape is not larger than the size** of the expanded keepout of the place\_bound\_top shape based on the symbol height matrix per the env variables show below. If the shape is larger than it needs to be it will make it more difficult for the designer to put in the testpoints. Therefore we need a way to verify it is not oversized.

The **Yellow box value** may be alternatively used for the symbol height if there is no PACKAGE\_HEIGHT\_MAX property defined in the symbol on the PLACE\_BOUND\_TOP shape. Some companies define the package\_height\_max property in the PCB design (.brd) and not the symbol (.dra). They do this so they may share the same footprint .dra symbol for part numbers that are the same except for the height. For example some caps and resistors are the same other than the height.

#The env variables control the min/max expanded distance between the package\_geometry/place\_bound\_top/DFA outline to the manufacturing/no\_prope\_top/bottom shape.

#The DTS\_NO\_PROBE\_MIN\_[MM/MILS] and DTS\_NO\_PROBE\_MAX\_[MM/MILS] env value controls the expansion distance depending on the package height.

#The value is a character string of different heights and distances.

#Separate each height-distance value by a colon (:). Separate each height-distance pair by a semicolon (;). For example:

#Set the variables in your \$localenv file or your company \$cds\_site file.

# For the MIN check:

#set DTS\_NO\_PROBE\_MIN\_[MM/MILS] =  
<height1>:<sep1>;<height2>:<sep2>;<height3>:<sep3>;<height4>:<sep4>

#Here are example env entries: [Ex: 0 - 0.127 pkhgt is (PBT + 0.762) and >3.81 pkhgt is (PBT + 2.54) ...]

```
#####  
#####
```

```
set DTS_NO_PROBE_MIN_MM = "0.127 mm:0.762 mm;3.81 mm:2.54 mm;6.477 mm:3.81 mm;25.4  
mm:5.08 mm"
```

```
#####  
#####
```

#and/or

```
#####  
#####
```

```
set DTS_NO_PROBE_MIN_MILS = "50 mils:30 mils;150 mils:100 mils;255 mils:150 mils;1 inch:200 mils"
```

```
#####  
#####
```

#

#To see the current setting from the command line type: echo \$DTS\_NO\_PROBE\_MIN\_MM or echo  
\$DTS\_NO\_PROBE\_MIN\_MILS

#

#

# For the MAX check:

```
#set DTS_NO_PROBE_MAX_[MM/MILS] =  
<height1>:<sep1>;<height2>:<sep2>;<height3>:<sep3>;<height4>:<sep4>
```

#

#Here are example env entries:

```
#####  
#####
```

```
set DTS_NO_PROBE_MAX_MM = "0.127 mm:0.763 mm;3.81 mm:2.55 mm;6.477 mm:3.82 mm;25.4  
mm:5.09 mm"
```

```
#####  
#####
```

#and/or

```
#####  
#####
```

```
set DTS_NO_PROBE_MAX_MILS = "50 mils:31 mils;150 mils:101 mils;255 mils:151 mils;1 inch:201 mils"
```

```
#####  
#####
```

```
#
```

```
#To see the current setting from the command line type: echo $DTS_NO_PROBE_MAX_MM or echo  
$DTS_NO_PROBE_MAX_MILS
```

```
#
```

```
#
```

```
#Hint: Use the option menu on the run line to automatically create the NO_PROBE shape area.
```

```
# or use dal zcopy to copy and expand the place bound shapes from the place bound to the  
no_prope_top layer. Be sure and use the *ALL_ARC expand type option.
```

```
#
```

```
#This tool functions in the symbol editor and in the pcb editor.
```

```
#
```

```
##*If you do not have the PACKAGE_HEIGHT_MAX defined in the symbol, you may use a non zero value  
entered in the Yellow box as the height value.
```

```
#
```