

0.25mm Series 460 / 480 Drill Design Revision

Kyocera Tycom Corporation 4/24/06

Abstract

With the constant challenge of thicker panels, higher copper content, and growing number of holes, the drilling process demands improved capability; this includes tool design. Kyocera Tycom Corporation (KTC) introduces the latest design revision of the 0.25mm undercut product family (Series 460 and 480). This redesign provides improved hole location, hole quality, and strength while maintaining the ability to clear debris from the hole. This document offers the results of the work the Kyocera Tycom Development Lab and Applications Engineering Team performed in order to provide the PCB market with a higher performing 0.25mm Undercut Drill.

Product is currently available; KTC will work with customers to transition to the new product in a timely manner.

KTC offers the improved undercut drill designs in two flute lengths, 0.177" and 0.217"; their respective part numbers are:

	<i>ringed</i>	<i>ringless</i>
	460.0098.177	460-0098.177
	480.0098.217	480-0098.217

KTC Qualification (Series 460 Comparison)

Lab and beta site tests were conducted to ensure the product performed at an improved level that is both reliable and repeatable.

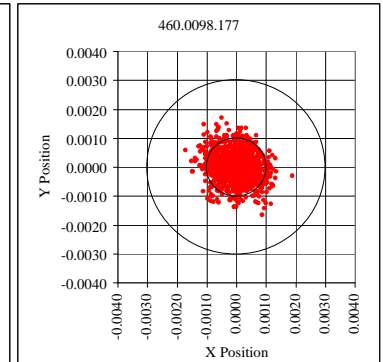
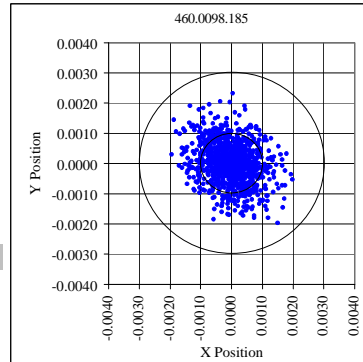
Parameters / Comparative Results

Hole Location

Material: High Tg
 Thickness: 0.093"
 Copper Content: 12 Layers

Hit Count: 1,500

		True Position Deviation		
	Part Number	Mean	StdDev	Median
	current 460.0098.185	0.00163	0.00081	0.00156
	proposed 460.0098.177	0.00144	0.00073	0.00138
	p-value:	0.000		

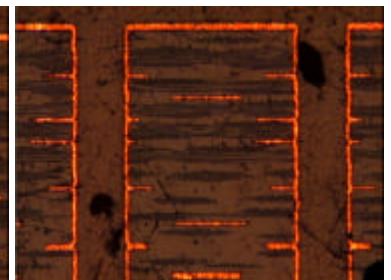
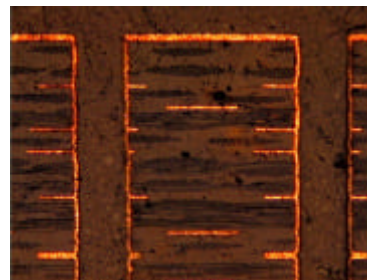


Hole Wall Quality

Material: High Tg
 Thickness: 0.093"
 Copper Content: 12 Layers

Hit Count: 1,500

	Ave Max Gouging (in)	Ave Max Nail Heading	Plugged Holes per Million
460.0098.185	0.00068	176%	69
460.0098.177	0.00046	166%	40
p-value	0.000	0.000	0.300



460.0098.185

460.0098.177

Tool Life / Robustness

Material: High Tg
 Thickness: 0.093"
 Copper Content: 18 Layers

		Infeed at Breakage	
	Mean	StdDev	
460.0098.185	32	10.3	
460.0098.177	386	58.2	
p-value	0.000		

