

Kyocera Module Production Timeline

1999 - Present

Off-Grid Solar Modules

THE NEW VALUE FRONTIER



Date: May 13, 2009
Subject: Kyocera Product Evolution

As the world leader in the development and application of high technology ceramic/silica materials, Kyocera offers a wide range of highly efficient and reliable crystalline silicon solar photovoltaic (PV) power modules. Kyocera began to extensively research PV technology in 1975 and commenced manufacturing operations in 1978. Since then, Kyocera has supplied millions of cells and modules throughout the world. Kyocera provides the highest quality PV power modules with years of experience and state-of-the-art technology in a range of sizes designed to meet the requirements of the most demanding energy and power users worldwide.

Kyocera Solar, Inc. was created in 1999 as the US-based headquarters for Kyocera's Solar Energy Group (SEG), and has been committed to providing our customers with products of the latest technological innovations. The attached *Kyocera Product Evolution* chart was created to assist in quick identification of modules through their continuous evolution.

Description of Technology

Introduction Date:	This is the date that Specification Sheet is released and the product enters the market.
Cell Size:	The physical size of a multi-crystalline cell is the result from casting of silicon ingot.
Cell Color:	Surface treatment to increase absorption, and improve efficiency.
No. of Bars:	The number of bus bars that line the individual cell
Frame Height:	The height of the edge of the frame length ways
Warranty:	The time in years that the warranty lasts
No. of Cells:	The number of individual multi-crystalline cells on the solar module

Example

The **KC120-1** module started out as Kyocera's primary stand alone systems module. It contains 36 blue 2 bus bar multi-crystalline cells. As technology evolved the **KC120-1** module was replaced by the **KC125TM** module, which incorporates the 36 d.Blue 3 bus bar multi-crystalline cells. The next upgrade went from the **KC125TM** to the **KC130TM**, which is one of our current module offerings.

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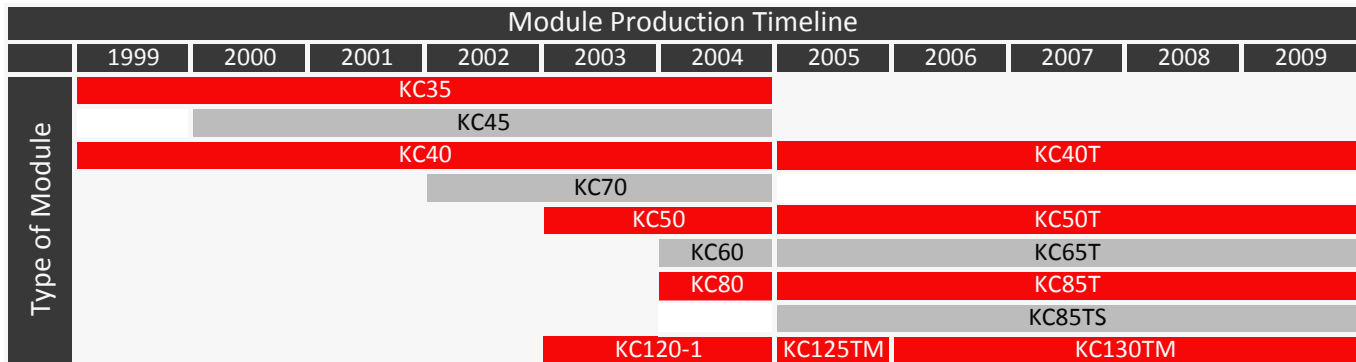
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Module Production Timeline



Reference Table

Module Type	Year Intro	Year Expired
KC40T	2005	Currently Available
KC50T	2005	Currently Available
KC65T	2005	Currently Available
KC85T	2005	Currently Available
KC85TS	2005	Currently Available
KC130TM	2005	Currently Available
KC35	1999	2005
KC45	2000	2005
KC40	1999	2005
KC70	2002	2005
KC50	2003	2005
KC60	2004	2005
KC80	2004	2005
KC120-1	2003	2005
KC125TM	2004	2005

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Kyocera Product Evolution

For modules introduced into the U.S. market by Kyocera Solar, Inc.

Cell Size		150 x 155 mm			156 x 156 mm	
Cell color		Blue	d.Blue			
No. of bus bars		2		3		
No. of Cells	Cell Cut	MODULE BY PRODUCT NAME				
32	1/3	KC35	>	X	X	X
	5/12	KC45	>	X	X	X
36	1/3	KC40	>	KC40T	>	>
	7/12	KC70	>	X	X	X
	5/12	KC50	>	KC50T	>	>
	1/2	KC60	>	KC65T	>	>
	2/3	KC80	>	KC85T	>	>
	FULL	LA51* KC120-1 KC125G	>	KC125TM KC125GT	KC130TM KC130GT	KD130GX
48	FULL	KC158G	KC167G	KC167GT KC170GT	KC175GT	KD180GX
54	FULL	X	KC187G	KC190GT	KC200GT	KD205GX KD210GX
72	1/3	X	X	KC85TS	>	X

* LA51 Module incorporated the 100 x 100 mm cell

X = Module not available (either before introduction or after discontinuation)

> = Module available at earlier introduction date

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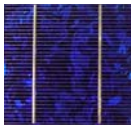
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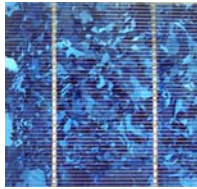
THE NEW VALUE FRONTIER



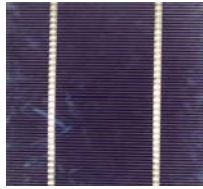
Kyocera Cell Technology Roadmap



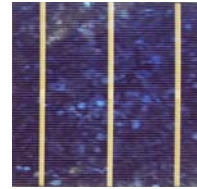
100 x 100 mm
Blue
2 Bus Bar



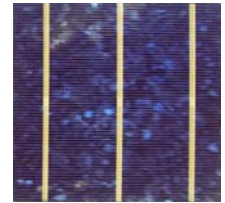
150 x 155 mm
Blue
2 Bus Bar



150 x 155 mm
d.Blue
2 Bus Bar



150 x 155 mm
d.Blue
3 Bus Bar



156 x 156 mm
d.Blue
3 Bus Bar