

**MC1-AN008**

- Documents: RF/Microwave Prototyping Product Selection Guide

## **Introduction for RF/Microwave Prototyping Products**

MicroWaveCells offers both PCB cells and mechanical cells for rapid RF, Microwave and Millimeter wave product prototyping and integration. There are total four categories under this rapid prototyping product family. Including:

- 1) Circuit PCB Cells;
- 2) Mechanical Cell Kit;
- 3) Miscellaneous Parts;
- 4) Application Examples

**Circuit PCB Cells:** To provide all of single cell PCBs. It has total 21 categories and the detail including:

- 1) Amplifier cells;
- 2) Mixer cells;
- 3) Attenuator cells;
- 4) VCO cells;
- 5) Phase shift cells;
- 6) Phase detector cells;
- 7) Multiplier cells;
- 8) Prescaler cells;
- 9) Switch cells;
- 10) Splitter and coupler cells;
- 11) Synthesizer cells;
- 12) PLL cells;
- 13) Detector cells;
- 14) Filter cells;
- 15) DC block and bias tee cells;
- 16) Regular cells;
- 17) Transition and launch cells;
- 18) Op-amp application cells;
- 19) Miscellaneous cells;
- 20) Modulator/Demodulator cells;
- 21) ADC/DAC cells.

In each circuit PCB category, we are offering the popular footprints which device vendors are providing, as an example, in the amplifier cells, we offer initial 21 common footprint PCB cells. It covers hundreds of devices. We are in the process introducing more standard cells.

SORT BY PART NUMBER SORT BY PCB FOOTPRINT

PCB Part Number	Application note	PCB Footprint	Device Selection	
MC1-AM01A	<a href="#">View</a>	SOT363	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM02A	<a href="#">View</a>	SOT-86, Micro-X and WW107	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM03A	<a href="#">View</a>	SOT-89	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM04A	<a href="#">View</a>	SOIC8	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM05A	<a href="#">View</a>	SOT343	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM06A	<a href="#">View</a>	SOT143	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM07A	<a href="#">View</a>	SOT-23-5	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM08A	<a href="#">View</a>	LP3	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM09A	<a href="#">View</a>	LP3	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM10A	<a href="#">View</a>	LP3	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM11A	<a href="#">View</a>	LP5	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM12A	<a href="#">View</a>	LP5	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM13A	<a href="#">View</a>	LC4	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM14A	<a href="#">View</a>	QAG	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM15A	<a href="#">View</a>	QDG	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM16A	<a href="#">View</a>	5x5mm	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM17A	<a href="#">View</a>	4x4 QFN	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM18A	<a href="#">View</a>	3x3 QFN	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM19A	<a href="#">View</a>	LP3	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM20A	<a href="#">View</a>	LP5	<a href="#">view part list</a>	<a href="#">Order</a>
MC1-AM21A	<a href="#">View</a>	5x5mm	<a href="#">view part list</a>	<a href="#">Order</a>

To view the datasheet for each PCB cell

To view the covered devices for each package

Each cell has its own application note by clicking the View link; It shows the corresponding datasheet. Each datasheet contains the selected device footprint with pin allocation, the suggested schematics, layouts, assembly drawing, applied devices with vendor information and suggested BOM. Sometimes it also includes the typical applications. By clicking the view part list, it shows the covered devices or the device series and its vendor name.

Besides some traditional single function cells, such as amplifiers, mixers, attenuators, VCOs, switches, etc. MWC offers a series functions for application purposes, such as op-amp cells and synthesizers cells. In op-amp cells, the PCB cell is designed not for the purpose of verifying for various op-amp chips, while it mainly designs for its application purposes using the most common off-the-shelf op-amp chips. The application note MC1-AN004 shows the detail application using each op-amp cell PCB. Synthesizer cell is designed uniquely for the combination of PLL and VCO selection. By selecting the most common PLL chip with various VCOs, the complete complicated synthesizer can be built in hours for many applications. The filter cells and DC-block and bias tee cells designed

for many practical applications. The transition and launch cells are more designed for integration purposes, it offers the flexibility for the purposes of side and middle RF launch for the system integration. By various combinations, this is truly designed for unlimited applications.

**Mechanical Cell Kits:** To provide various dynamic mechanical cells, incorporating with PCB cells, to build rapid prototypes, subsystems and systems for RF, Microwave and Millimeter wave industry.

There are total four sub categories under Mechanical Cell Kits:

- Single Mechanical Cells;
- 5x5 Array Mechanical Cells;
- Dynamic Cells;
- Mechanical Kits.

Single Mechanical Cells provide all the parts, even includes screws, connectors, DC/Control cables and all mechanical parts for customers to build their own microwave modules as shown in Fig.1.

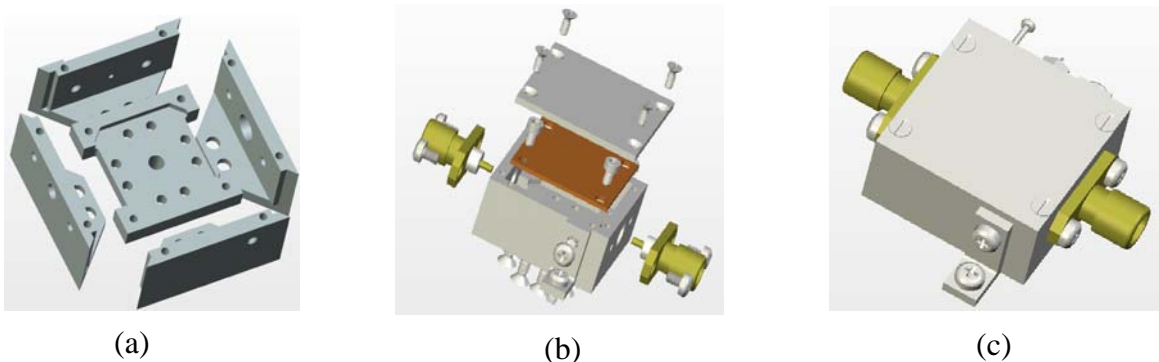


Fig.1: Dynamic module assembly example

Single Mechanical Cells also provide the parts for customers to build the needed mechanics for single PCB cells as shown in Fig.2 and Fig.3.

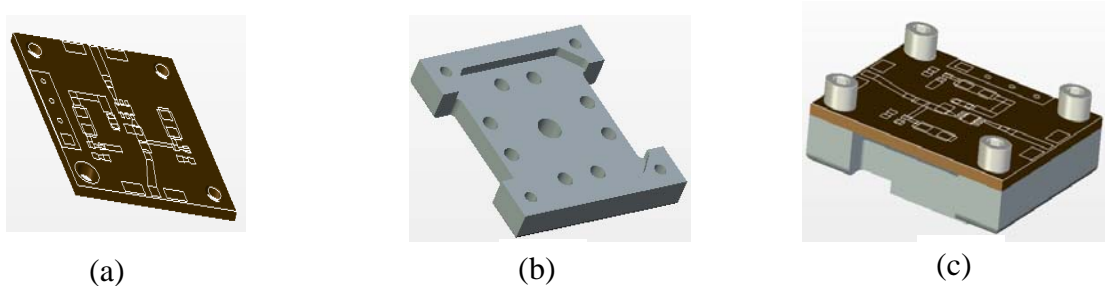


Fig.2: Single (1x1) cell assembly example

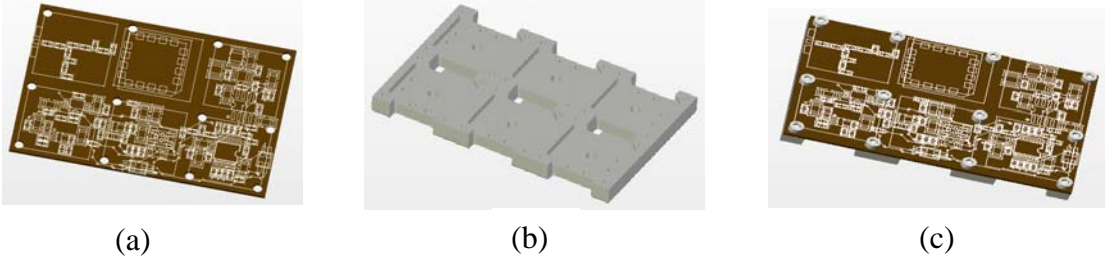


Fig.3: Synthesizer (2x3) cell assembly example

Single Mechanical Cells include the following parts:

Products Home > Products > RF Microwave Prototyping > Mechanical cell kit > Single mechanical cell

Element	Description	Ass Drawing	
M-BJ01A	Single Cell Joint	View	<a href="#">Order</a>
M-BS01A	Single Cell Base	View	<a href="#">Order</a>
M-BS02A	Half Cell Base	View	<a href="#">Order</a>
M-CV01A	Cover	View	<a href="#">Order</a>
M-CV02A	Cover w/ one DC Cut	View	<a href="#">Order</a>
M-CV03A	Cover w/ two DC cuts	View	<a href="#">Order</a>
M-MB01A	Mounting Bracket	View	<a href="#">Order</a>
M-SF163	Screw Flat M1.6x3	View	<a href="#">Order</a>
M-SF204	Screw Flat M2x4	View	<a href="#">Order</a>
M-SP163	Screw Pan M1.6x3	View	<a href="#">Order</a>
M-SP204	Screw PAN M2x4	View	<a href="#">Order</a>
M-WL01A	Side Wall w/ SMA	View	<a href="#">Order</a>
M-WL02A	Side Wall w/ K Connector	View	<a href="#">Order</a>
M-WL03A	Side Wall w/ feedthru & GND solder terminal	View	<a href="#">Order</a>
M-WL04A	Side Wall w/ Mounting Hole	View	<a href="#">Order</a>
M-WL05A	Side Wall	View	<a href="#">Order</a>

Datasheet for each part

Assembly examples

Each part has its own datasheet by clicking the Element part number or the View link to see the assembly examples.

5x5 Array Mechanical Cells provide all the parts for customers to build their very larger system. It is designed to be a low cost rapid prototype mechanical kit. The array application concept is shown in Fig.4.

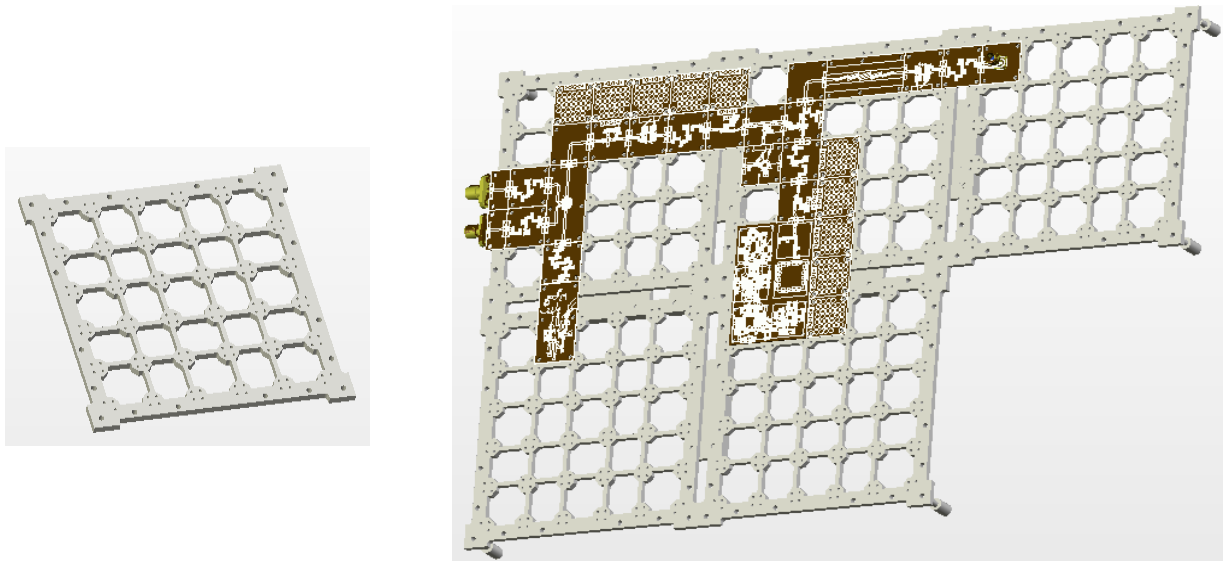


Fig.4: 5x5 Array cell and its expansion

5x5 Array Mechanical Cells include the following parts:

Element	Description	Ass Drawing	
M-AV01A	Array Module Cover	View	<input type="button" value="Order"/>
M-AW01A	Array Module Sidewall	View	<input type="button" value="Order"/>
M-BA01A	5x5 Array Cell Base	View	<input type="button" value="Order"/>
M-BJ02A	Array Cell Joint	View	<input type="button" value="Order"/>
M-SD303	Standoff M3-3	View	<input type="button" value="Order"/>
M-SF305	Screw Flat M3x5	View	<input type="button" value="Order"/>
M-SP163	Screw Pan M1.6x3	View	<input type="button" value="Order"/>

For customer's easy building their multi-cell system, MWC also introduces dynamic 5x5 module as shown in Fig.5. Customer can easily and quickly build their system as its final enclosed format to deliver for actual use.

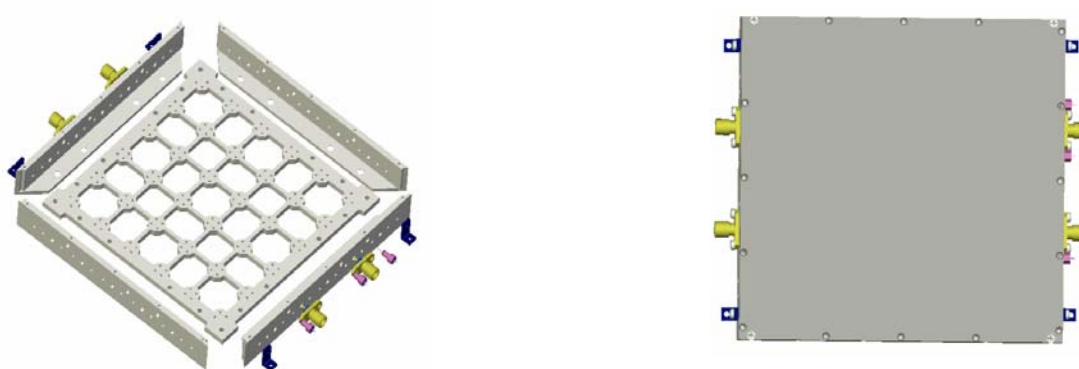


Fig.5 Dynamic 5x5 Array Module

Dynamic Cells provide the truly unlimited possibilities. The single mechanical cell (M-BS01A) with single joint cell (M-BJ01A) can be extended to any forms and shapes based on customer's requirement. Fig.6 shows a simple example by using M-BS01A and M-BJ01A. For a better RF launch, it also uses the half cell (M-BS02A).

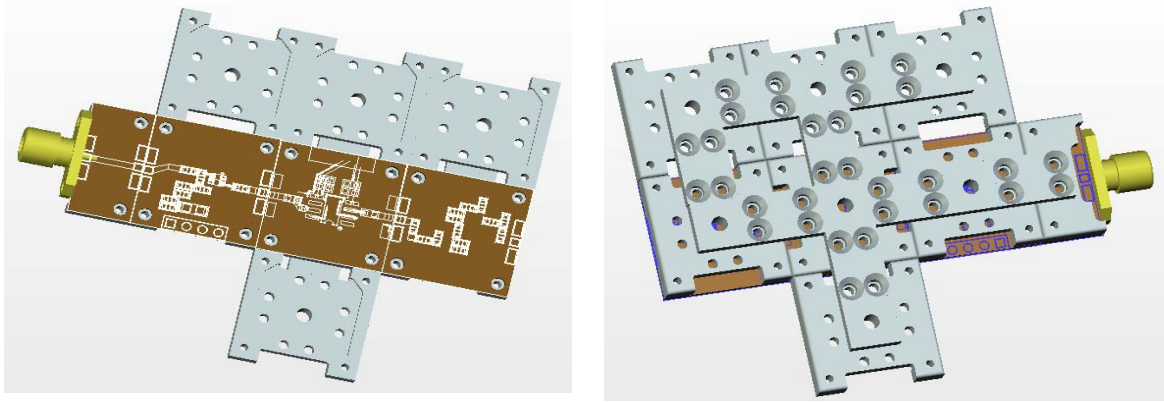


Fig.6: Dynamic cell concept (front and back)

Dynamic Cells include the following cells:

**Products** Home > Products > RF Microwave Prototyping > Mechanical cell kit > Dynamic cell

Elemnet	Description	Ass Drawing	
M-BJ01A	Single Cell Joint	View	<a href="#">Order</a>
M-BS01A	Single Cell Base	View	<a href="#">Order</a>
M-BS02A	Half Cell Base	View	<a href="#">Order</a>
M-SD303	Standoff M3-3	View	<a href="#">Order</a>
M-SF204	Screw Flat M2x4	View	<a href="#">Order</a>
M-SP163	Screw Pan M1.6x3	View	<a href="#">Order</a>

M-SD303 is the standoff which used for support the module to stand.

Mechanical Kits provide the common kits for the convenience of customers to order. It offers four common mechanical kits with 15% discount price comparing if order individually:

**Products** Home > Products > RF Microwave Prototyping > Mechanical cell kit > Mechanical kit

Elemnet	Description	Ass Drawing	
M-MK01A	Dynamic Cell Mechanical Kit	View	<a href="#">Order</a>
M-MK02A	Dynamic Module Mechanical Kit	View	<a href="#">Order</a>
M-MK03A	Dynamic Array Mechanical Kit	View	<a href="#">Order</a>
M-MK04A	Dynamic Module Array Kit	View	<a href="#">Order</a>

**Miscellaneous Parts:** To provide all necessary parts which customer may need when used for integration, such as DC/Control pin with connector, feed through capacitor, SMA connector and K connector, etc. Detail includes:

**Products** Home > Products > RF/Microwave Prototyping > Mis. Parts

Element	Description	Ass Drawing	
P-CB01A	1x4 Connector with Cable	View	<a href="#">Order</a>
P-CD001	Pin for 1x4 Connector	View	<a href="#">Order</a>
P-CD14A	1x4 Connector (0.1)	View	<a href="#">Order</a>
P-CD14B	1x4 Connector Base (0.1)	View	<a href="#">Order</a>
P-CN01K	Connector K (2.92mm)	View	<a href="#">Order</a>
P-CN01S	Connector SMA	View	<a href="#">Order</a>
P-CN02K	Center Pin for K (2.92mm)	View	<a href="#">Order</a>
P-FT01A	Feed Through	View	<a href="#">Order</a>
P-GD01A	GND Solder Terminal	View	<a href="#">Order</a>

As all other parts, each miscellaneous part has its detail datasheet which includes the vendor part number if we use part which is directly from the vendor.

**Application Examples:** To provide the application examples, inventory list, MWC usage manual, newsletter etc.

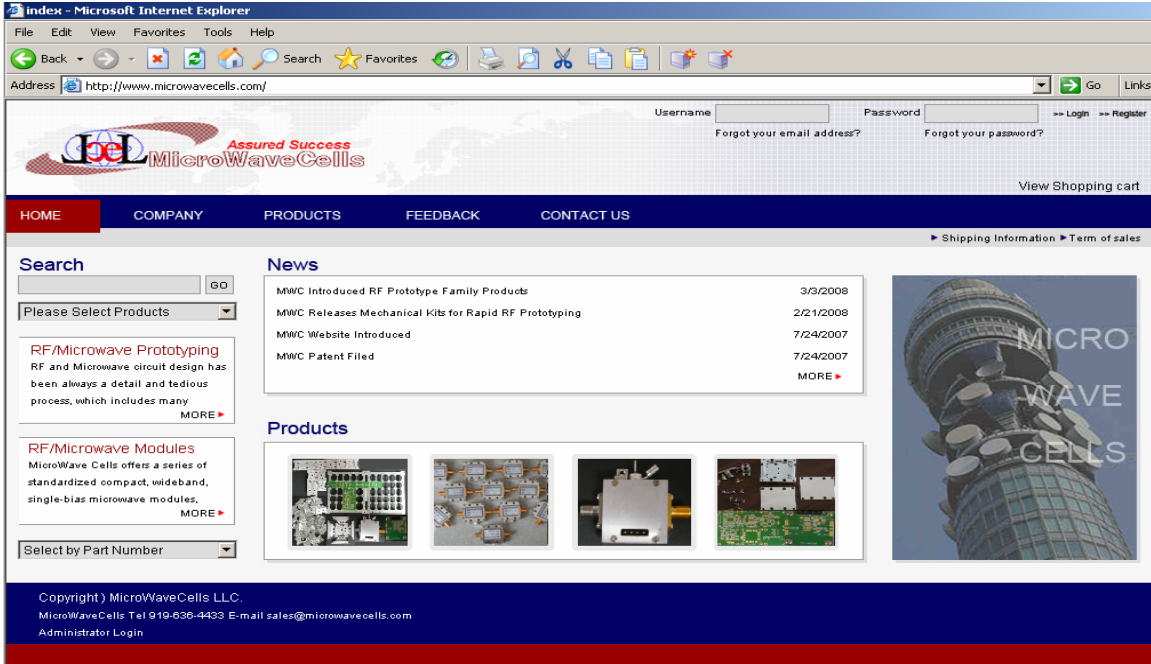
**Products** Home > Products > RF/Microwave Prototyping > Application Examples

SORT BY EXAMPLE SORT BY DISCRPTION

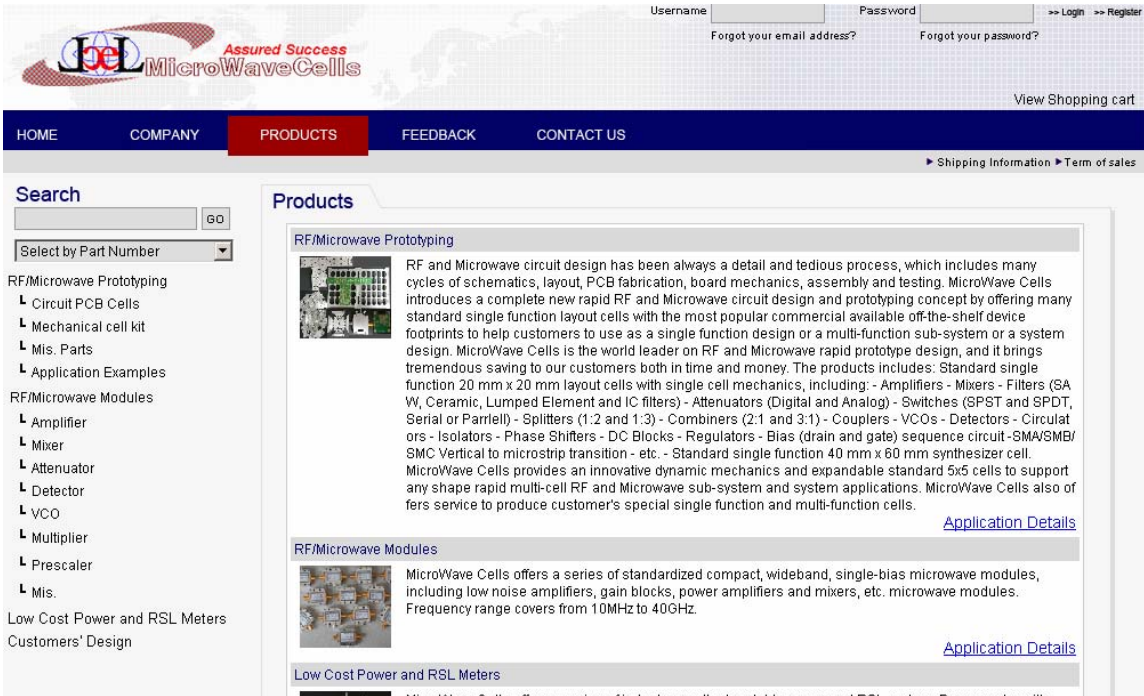
Example	Description	Application note
MC1-AN001	Dynamic Cell Applications	<a href="#">View</a>
MC1-AN002	Transmitter Applications	<a href="#">View</a>
MC1-AN003	Synthesizer Applications	<a href="#">View</a>
MC1-AN004	Op-Amp Applications	<a href="#">View</a>
MC1-AN005	PCB Cell Inventory	<a href="#">View</a>
MC1-AN006	Mechanical Cell Inventory	<a href="#">View</a>
MC1-AN007	Miscellaneous Part Inventory	<a href="#">View</a>
MC1-AN008	Rapid Prototyping Manual	<a href="#">View</a>
MWC-NL001	MWC News Letter (Oct.14_07)	<a href="#">View</a>

## Annex A: How to find detail information of each PCB cell in RF/Microwave Prototyping Products?

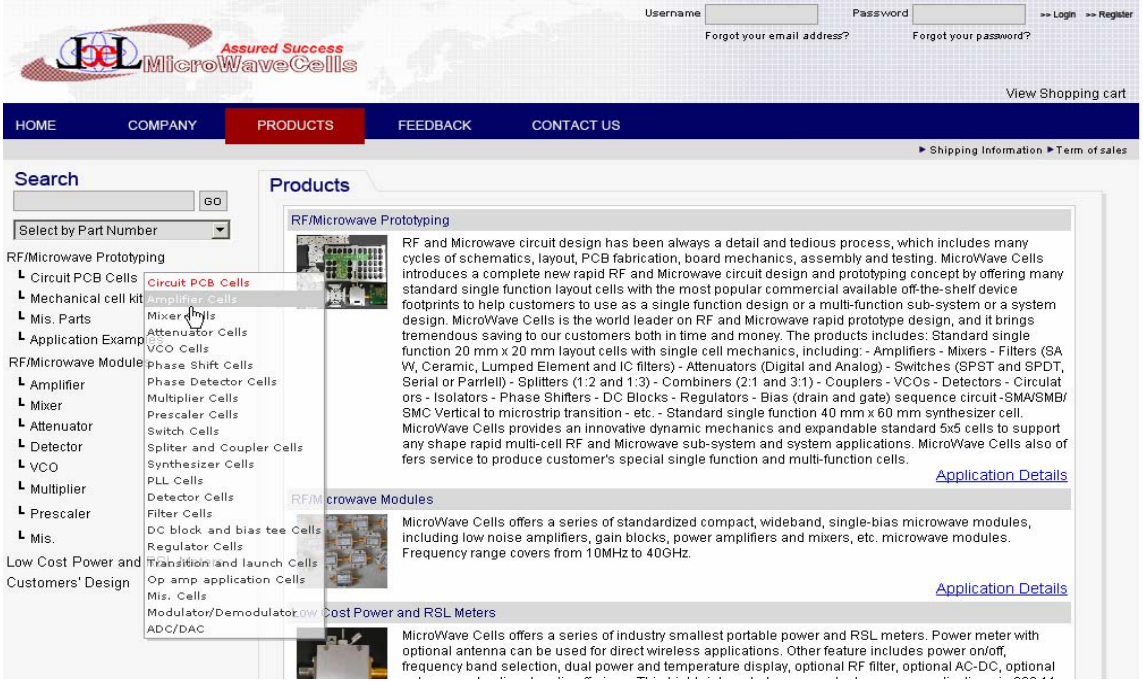
a. Go to [www.microwavecells.com](http://www.microwavecells.com) in Internet Explorer



b. Click the **PRODUCTS** Tab

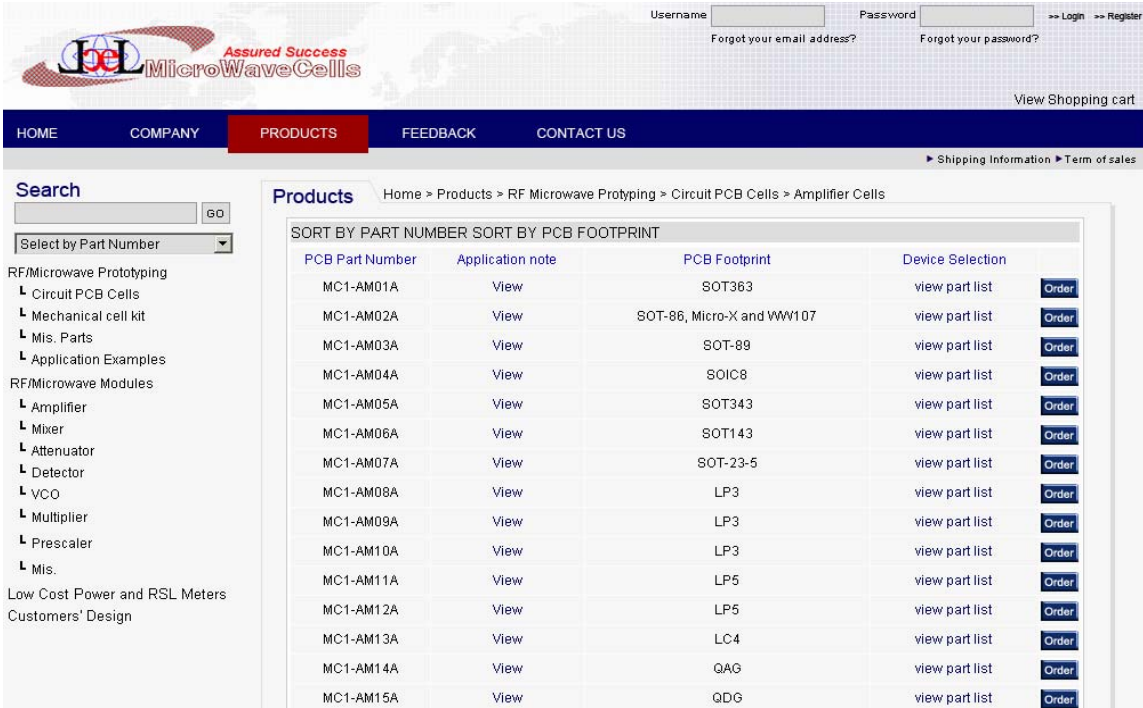


c. Move the cursor as shown below to the proper category: Circuit PCB cells; Mechanical cell kits; Miscellanies parts; or Application examples. A sub-selection window will come up.



The screenshot shows the website's navigation bar with 'PRODUCTS' highlighted. A search bar is on the left. The main content area displays 'RF/Microwave Prototyping' with a detailed description and 'Application Details' link. Below it, 'RF/Microwave Modules' and 'Low Cost Power and RSL Meters' are also listed with descriptions and links. A dropdown menu is open under 'Circuit PCB Cells', showing sub-categories like Amplifier Cells, Attenuator Cells, VCO Cells, etc.

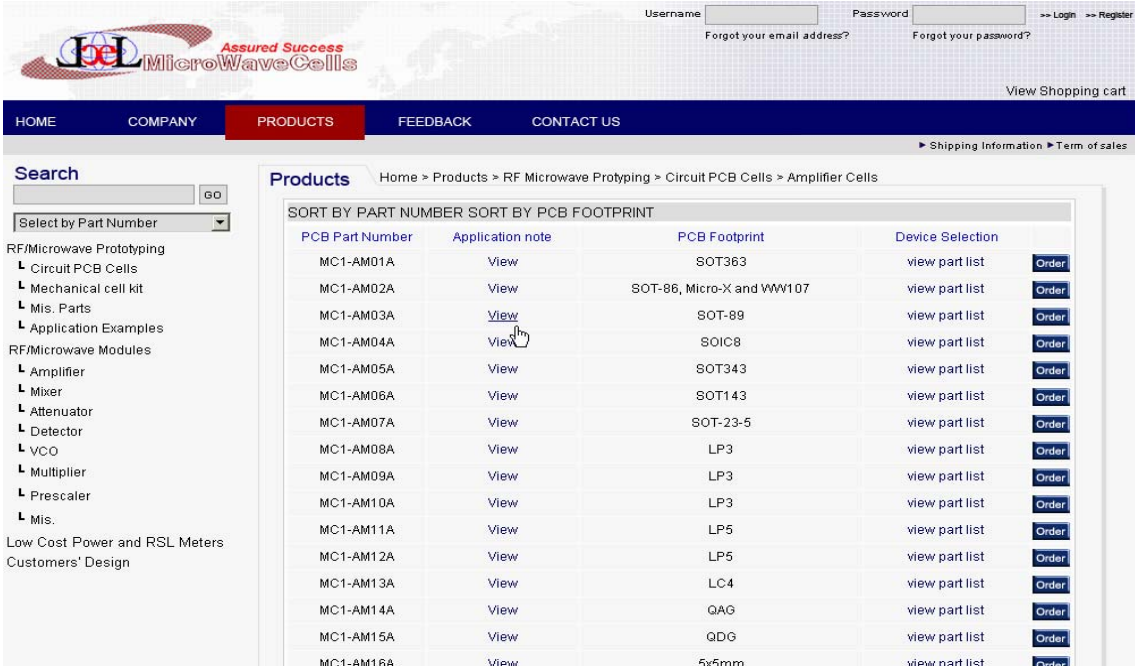
d. Click the selected circuit PCB function cells.



The screenshot shows the website's navigation bar with 'PRODUCTS' highlighted. The breadcrumb trail reads: Home > Products > RF Microwave Prototyping > Circuit PCB Cells > Amplifier Cells. Below the breadcrumb, there are two sorting options: 'SORT BY PART NUMBER' and 'SORT BY PCB FOOTPRINT'. A table lists various circuit PCB function cells with columns for PCB Part Number, Application note, PCB Footprint, and Device Selection. Each row includes a 'view part list' link and an 'Order' button.

PCB Part Number	Application note	PCB Footprint	Device Selection
MC1-AM01A	<a href="#">View</a>	SOT363	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM02A	<a href="#">View</a>	SOT-86, Micro-X and VW107	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM03A	<a href="#">View</a>	SOT-89	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM04A	<a href="#">View</a>	SOIC8	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM05A	<a href="#">View</a>	SOT343	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM06A	<a href="#">View</a>	SOT143	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM07A	<a href="#">View</a>	SOT-23-5	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM08A	<a href="#">View</a>	LP3	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM09A	<a href="#">View</a>	LP3	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM10A	<a href="#">View</a>	LP3	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM11A	<a href="#">View</a>	LP5	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM12A	<a href="#">View</a>	LP5	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM13A	<a href="#">View</a>	LC4	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM14A	<a href="#">View</a>	QA6	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM15A	<a href="#">View</a>	QDG	<a href="#">view part list</a> <a href="#">Order</a>

e. Based on the device footprint to select corresponding PCB cell information, example select amplifier with footprint SOT-89.



Search:  GO

Select by Part Number:

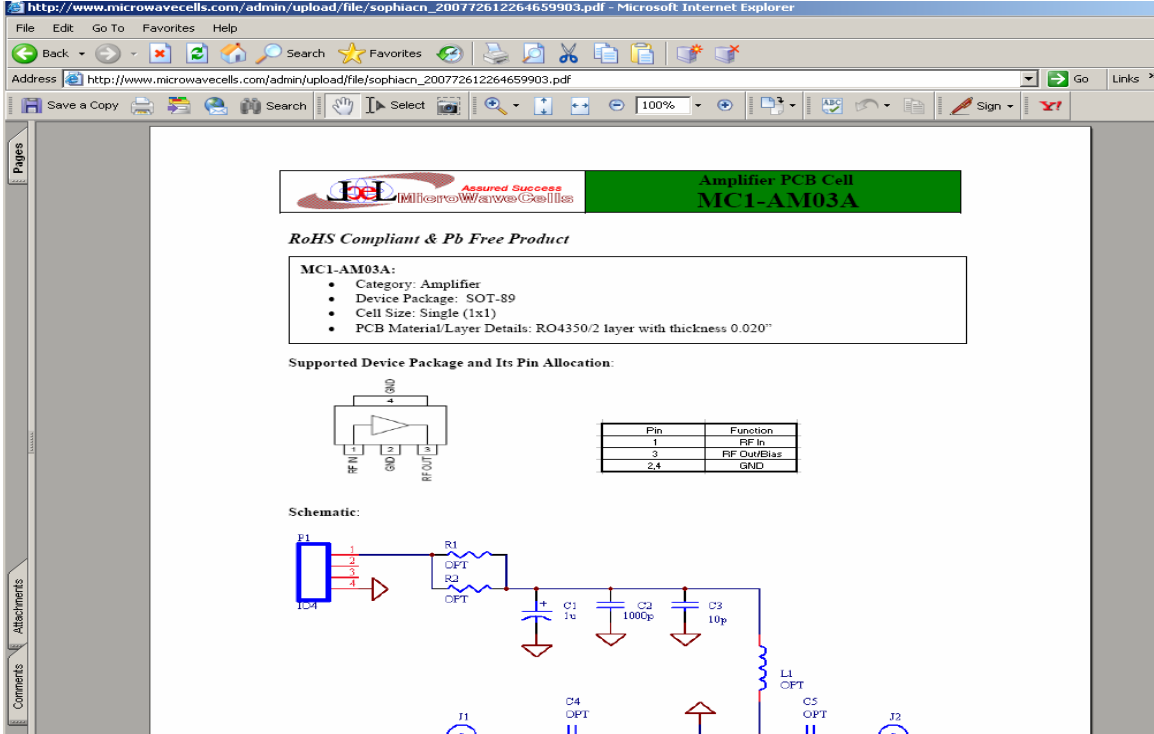
- RF/Microwave Prototyping
  - └ Circuit PCB Cells
  - └ Mechanical cell kit
  - └ Mis. Parts
  - └ Application Examples
- RF/Microwave Modules
  - └ Amplifier
  - └ Mixer
  - └ Attenuator
  - └ Detector
  - └ VCO
  - └ Multiplier
  - └ Prescaler
  - └ Mis.
- Low Cost Power and RSL Meters
- Customers' Design

**Products** Home > Products > RF Microwave Prototyping > Circuit PCB Cells > Amplifier Cells

**SORT BY PART NUMBER SORT BY PCB FOOTPRINT**

PCB Part Number	Application note	PCB Footprint	Device Selection
MC1-AM01A	<a href="#">View</a>	SOT363	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM02A	<a href="#">View</a>	SOT-86, Micro-X and WW107	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM03A	<a href="#">View</a>	SOT-89	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM04A	<a href="#">View</a>	SOIC8	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM05A	<a href="#">View</a>	SOT343	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM06A	<a href="#">View</a>	SOT143	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM07A	<a href="#">View</a>	SOT-23-5	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM08A	<a href="#">View</a>	LP3	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM09A	<a href="#">View</a>	LP3	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM10A	<a href="#">View</a>	LP3	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM11A	<a href="#">View</a>	LP5	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM12A	<a href="#">View</a>	LP5	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM13A	<a href="#">View</a>	LC4	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM14A	<a href="#">View</a>	QAG	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM15A	<a href="#">View</a>	QDG	<a href="#">view part list</a> <a href="#">Order</a>
MC1-AM16A	<a href="#">View</a>	5x5mm	<a href="#">view part list</a> <a href="#">Order</a>

f. Click the corresponding view, the corresponding MC1-AM03A datasheet will come up.



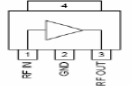
**Amplifier PCB Cell MC1-AM03A**

*RoHS Compliant & Pb Free Product*

**MC1-AM03A:**

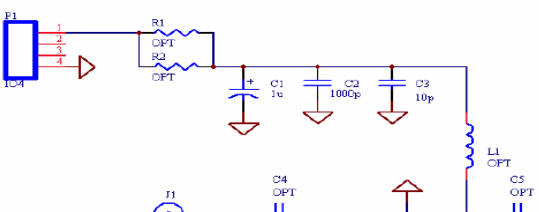
- Category: Amplifier
- Device Package: SOT-89
- Cell Size: Single (1x1)
- PCB Material/Layer Details: RO4350/2 layer with thickness 0.020"

**Supported Device Package and Its Pin Allocation:**

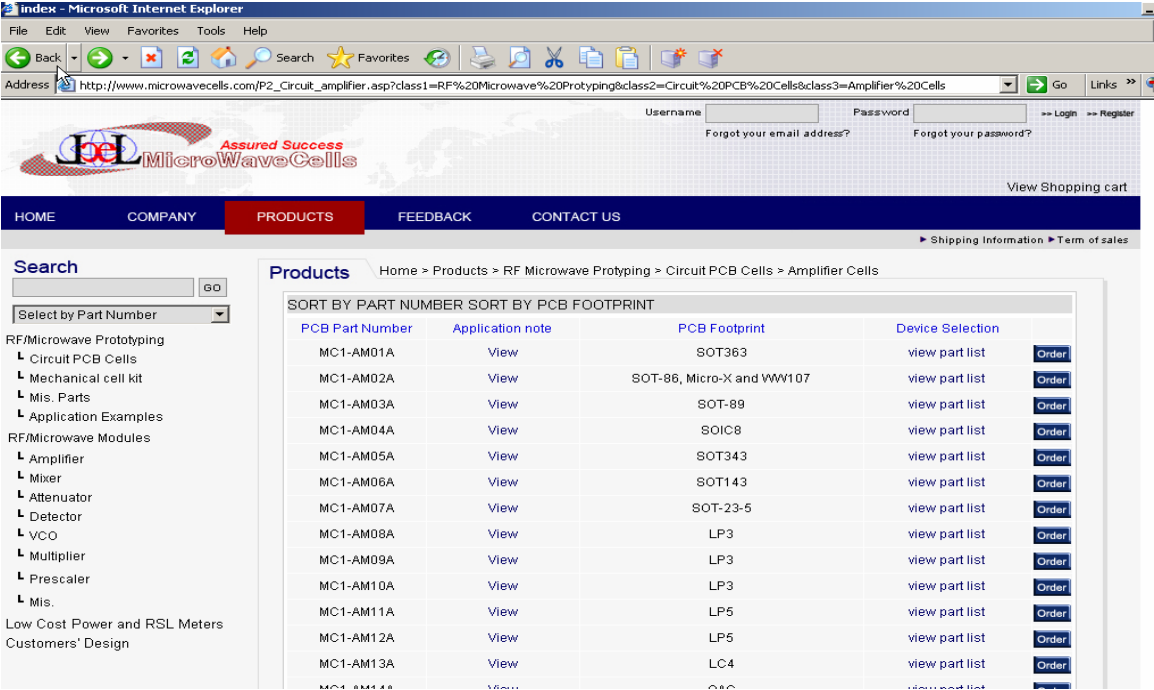


Pin	Function
1	RF In
3	RF Out/Bias
2,4	GND

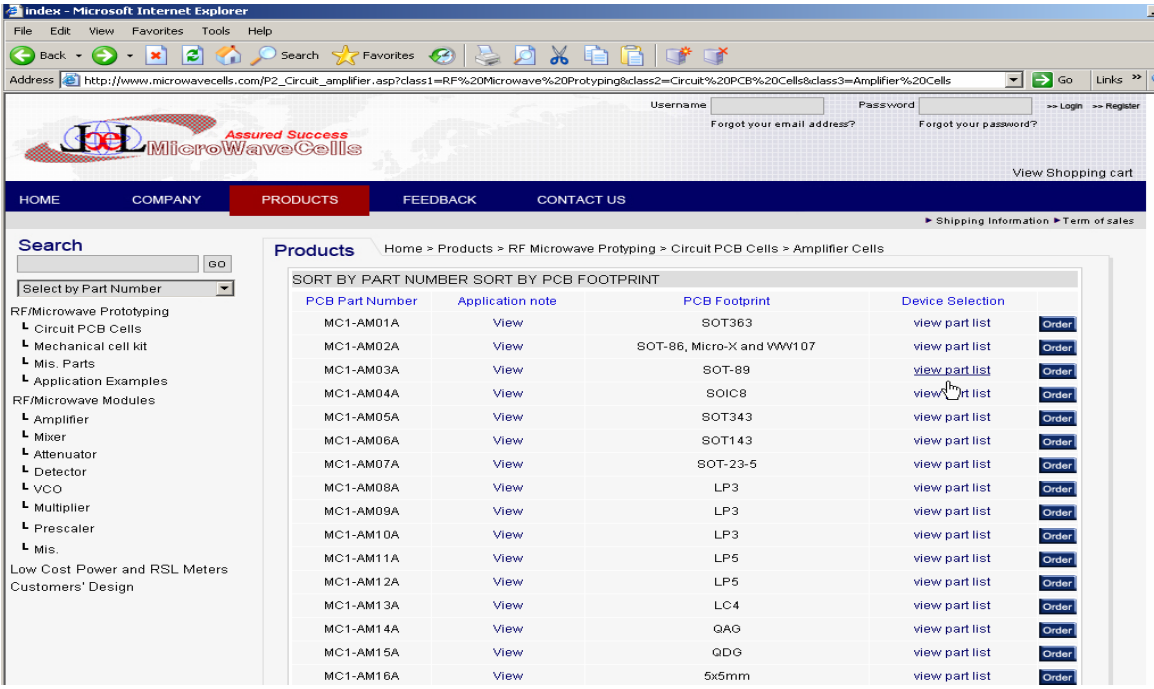
**Schematic:**

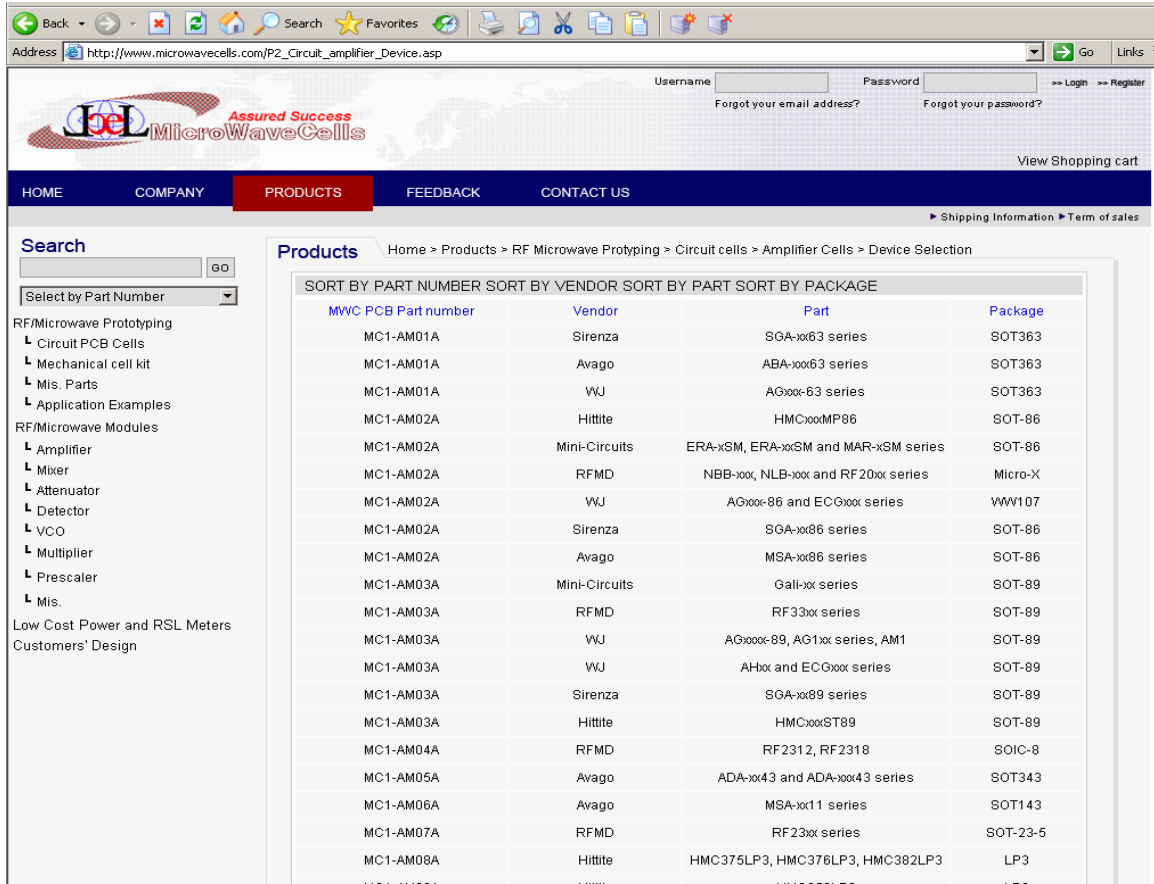


g. Click the back button and returns to the previous selection page.



h. Click the view part lists under device selection, you can find what each devices and vendors are each footprint supports. Sometimes there are many same footprints while supports different devices such as MC1-AM08A, MC1-AM09A and MC1-AM10A, all supports LP3 package while supports different devices.





The screenshot shows a web browser window with the address [http://www.microwavecells.com/P2\\_Circuit\\_amplifier\\_Device.asp](http://www.microwavecells.com/P2_Circuit_amplifier_Device.asp). The page features a navigation menu with 'PRODUCTS' highlighted. A search bar is on the left, and a product list is on the right. The product list is sorted by package and includes the following data:

MWC PCB Part number	Vendor	Part	Package
MC1-AM01A	Sirenza	SGA-xx83 series	SOT363
MC1-AM01A	Avago	ABA-xx83 series	SOT363
MC1-AM01A	WJ	AGxx-83 series	SOT363
MC1-AM02A	Hittite	HMCxxMP86	SOT-86
MC1-AM02A	Mini-Circuits	ERA-xxSM, ERA-xxSM and MAR-xxSM series	SOT-86
MC1-AM02A	RFMD	NBB-xx, NLB-xx and RF20xx series	Micro-X
MC1-AM02A	WJ	AGxx-86 and ECGxx series	VWV107
MC1-AM02A	Sirenza	SGA-xx86 series	SOT-86
MC1-AM02A	Avago	MSA-xx86 series	SOT-86
MC1-AM03A	Mini-Circuits	Gali-xx series	SOT-89
MC1-AM03A	RFMD	RF33xx series	SOT-89
MC1-AM03A	WJ	AGxx-89, AG1xx series, AM1	SOT-89
MC1-AM03A	WJ	AHxx and ECGxx series	SOT-89
MC1-AM03A	Sirenza	SGA-xx89 series	SOT-89
MC1-AM03A	Hittite	HMCxxST89	SOT-89
MC1-AM04A	RFMD	RF2312, RF2318	SOIC-8
MC1-AM05A	Avago	ADA-xx43 and ADA-xx43 series	SOT343
MC1-AM06A	Avago	MSA-xx11 series	SOT143
MC1-AM07A	RFMD	RF23xx series	SOT-23-5
MC1-AM08A	Hittite	HMC375LP3, HMC376LP3, HMC382LP3	LP3

## Annex B: How to select a PCB cell?

Typically there are two methods, one is based on designers' known device to select the corresponding PCB cell and the other is based on the available offered footprint under each function category.

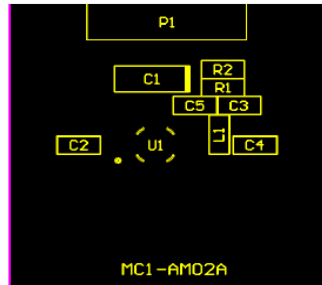
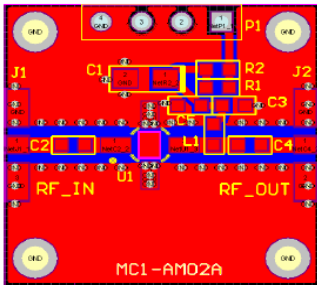
- a. Based on designers' known device

Example, designer selects NBB-300 with Micro-X footprint based on his requirement, then he should go to PCB cells under amplifier function cells, and select Micro-X package to see whether NBB-300 device are covered or not?

- Select by Part Number
- RF/Microwave Prototyping
  - Circuit PCB Cells
  - Mechanical cell kit
  - Mis. Parts
  - Application Examples
- RF/Microwave Modules
  - Amplifier
  - Mixer
  - Attenuator
  - Detector
  - VCO
  - Multiplier
  - Prescaler
  - Mis.
- Low Cost Power and RSL Meters
- Customers' Design

SORT BY PART NUMBER SORT BY PCB FOOTPRINT

PCB Part Number	Application note	PCB Footprint	Device Selection	
MC1-AM01A	<a href="#">View</a>	SOT363	<a href="#">view part list</a>	<input type="button" value="Order"/>
MC1-AM02A	<a href="#">View</a>	SOT-86, Micro-X and VVV107	<a href="#">view part list</a>	<input type="button" value="Order"/>
MC1-AM03A	<a href="#">View</a>	SOT-89	<a href="#">view part list</a>	<input type="button" value="Order"/>
MC1-AM04A	<a href="#">View</a>	SOIC8	<a href="#">view part list</a>	<input type="button" value="Order"/>
MC1-AM05A	<a href="#">View</a>	SOT343	<a href="#">view part list</a>	<input type="button" value="Order"/>
MC1-AM06A	<a href="#">View</a>	SOT143	<a href="#">view part list</a>	<input type="button" value="Order"/>
MC1-AM07A	<a href="#">View</a>	SOT-23-5	<a href="#">view part list</a>	<input type="button" value="Order"/>
MC1-AM08A	<a href="#">View</a>	LP3	<a href="#">view part list</a>	<input type="button" value="Order"/>
MC1-AM09A	<a href="#">View</a>	LP3	<a href="#">view part list</a>	<input type="button" value="Order"/>
MC1-AM10A	<a href="#">View</a>	LP3	<a href="#">view part list</a>	<input type="button" value="Order"/>
MC1-AM11A	<a href="#">View</a>	LP5	<a href="#">view part list</a>	<input type="button" value="Order"/>
MC1-AM12A	<a href="#">View</a>	LP5	<a href="#">view part list</a>	<input type="button" value="Order"/>
MC1-AM13A	<a href="#">View</a>	LC4	<a href="#">view part list</a>	<input type="button" value="Order"/>
MC1-AM14A	<a href="#">View</a>	D&G	<a href="#">view part list</a>	<input type="button" value="Order"/>



**Minimum supported devices and its vendors:**

Mini-circuits	RFMD	WJ	Sirenza	Avago
ERA-1SM	NBB-300	AG201-86	SGA-2486	MSA-0236
ERA-21SM	NBB-310	AG202-86	SGA-3286	MSA-0286
ERA-2SM	NBB-400	AG203-86	SGA-3386	MSA-0336
ERA-33SM	NBB-500	AG302-86	SGA-3486	MSA-0386
ERA-3SM		AG303-86	SGA-3586	MSA-0436
ERA-8SM	NLB-300	AG402-86	SGA-4186	MSA-0486
ERA-6SM	NLB-310	AG403-86	SGA-4286	MSA-0636
ERA-4SM	NLB-400	AG503-86	SGA-4386	MSA-0686
ERA-4XSM		AG602-86	SGA-4486	MSA-0736
ERA-5XSM	RF2044	AG603-86	SGA-4586	MSA-0786
ERA-51SM	RF2045	AG604-86	SGA-5286	MSA-0836
ERA-5SM	RF2046		SGA-5386	MSA-0886
ERA-50SM	RF2047	ECG001	SGA-5486	MSA-0986
	RF2048	ECG004	SGA-5586	MSA-2036
MAR-1SM		ECG005	SGA-6286	MSA-3186
MAR-2SM		ECG006	SGA-6386	
MAR-3SM		ECG008	SGA-6486	
MAR-4SM		ECG040	SGA-6586	
MAR-6SM		ECG050		
MAR-7SM		ECG055		

And it confirms NBB-300 do covered by MC1-AM02A cell.

b. based on designer's function and select corresponding PCB cells

Example, designer would like to select a mixer cell to fix for his application. This approach will be a little time consuming, he will need to check back and forth based on device vendor's datasheet and microwavecell.com offered mixer PCB cells to decide. The concept is still the same.

We have very limited PCB cell offering as of initial release, however, with our on-going release of new PCB cells and the idea to convince all device vendors to adopt our design concept, we believe that one day we will standardize for this rapid prototyping business and cover every device which every device vendor offers. Also, please don't have any hesitation to write us for the device which you would like us to offer.

**Order Cells Today and Build Systems Tomorrow!!!**

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