MICROLITHIC™ DOUBLER MLD-0416SM

The MLD-0416SM is a Surface Mount Microlithic™ doubler. As with all Microlithic™ devices, it features excellent conversion loss and harmonic suppressions across a broad bandwidth and in a miniaturized form factor. Accurate, nonlinear software models are available for Microwave Office through the Marki Microwave PDK. The MLD-0416SM is a lead free, RoHS compliant package compatible with standard leaded and lead-free solder reflows. The MLD-0416SM is an excellent alternative to Marki Microwave doublers packaged in surface mount packages such as the EZ carrier.

Features

- Compact SMT Style Package (0.152" x 0.090" x 0.045")
- CAD Optimized for Superior Suppressions and Efficiency
- Excellent Unit-to-Unit Repeatability
- Fully nonlinear software models available with Marki PDK for Microwave Office
- RoHS Compliant

Suitable Alternative for Models
D-1505, D-0204, D0210, D-0308, D-0312, D-0510,

Electrical Specifications - Specifications guaranteed from -55 to +100°C, measured in a 50Ω system.

Parameter	Input (GHz)	Output (GHz)	Min	Typ	Max	Diode Option Input drive level (dBm)
2F (out) Conversion Loss (dB)	2.0-8.0	4.0-16.0		12	17	
Suppressions [1]						
1F (in) Fundamental				40		
3F (out) Third Harmonic				40		
4F (out) Fourth Harmonic				20		
Isolations [1]						
1F (in) Fundamental				52		
3F (out) Third Harmonic				52		
4F (out) Fourth Harmonic				32		
1F Input Level [2]			+6		+14	L-Version

[1] Suppression is relative to doubled output power. Isolation is defined as relative to the fundamental input power.
[2] For higher input power, alternative diode options may be available. Contact factory.

Part Number Options

Model Number	Description
MLD-0416LSM	Surface Mount, Low Barrier Diode
EVAL-MLD-0416L	Connectorized Evaluation Fixture, Low Barrier Diode

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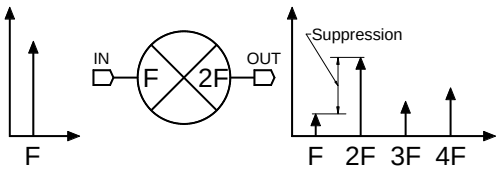
MICROLITHIC™ DOUBLER

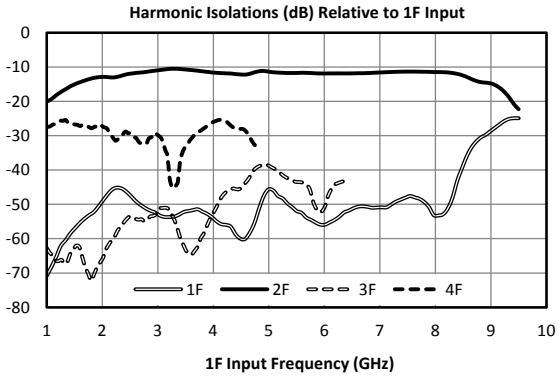
MLD-0416SM

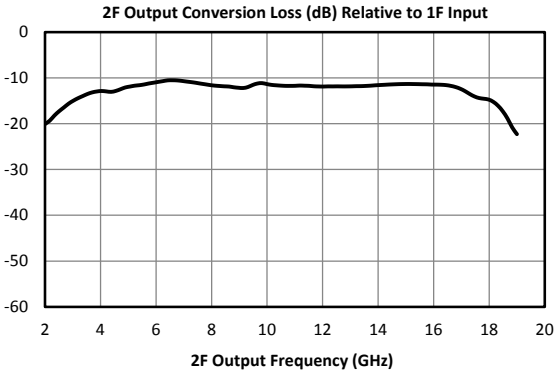
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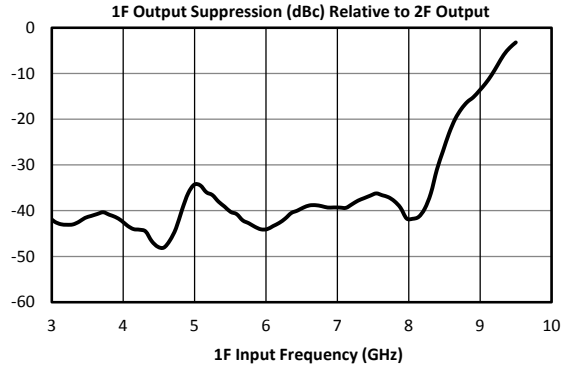
Input 2 to 8 GHz
Output 4 to 16 GHz

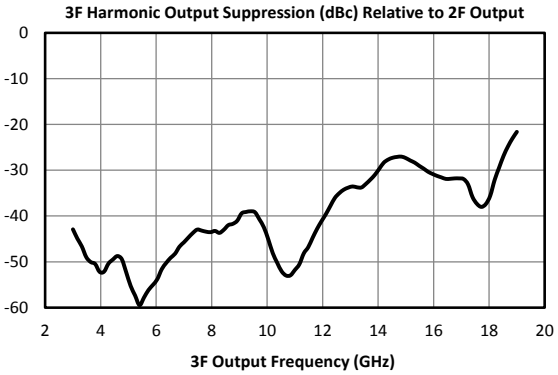
Typical Performance

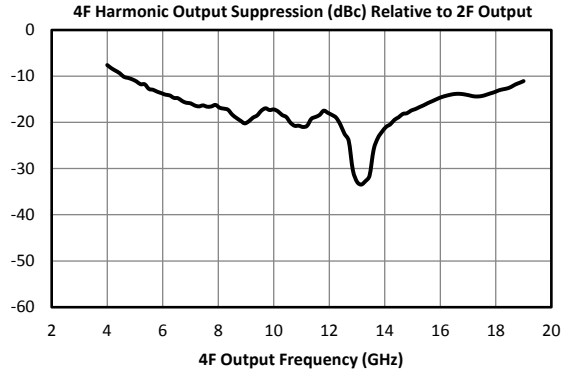


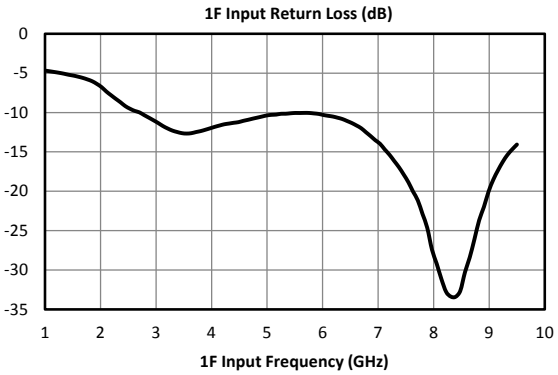


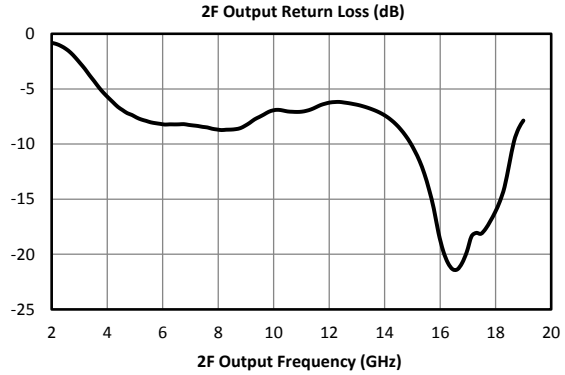








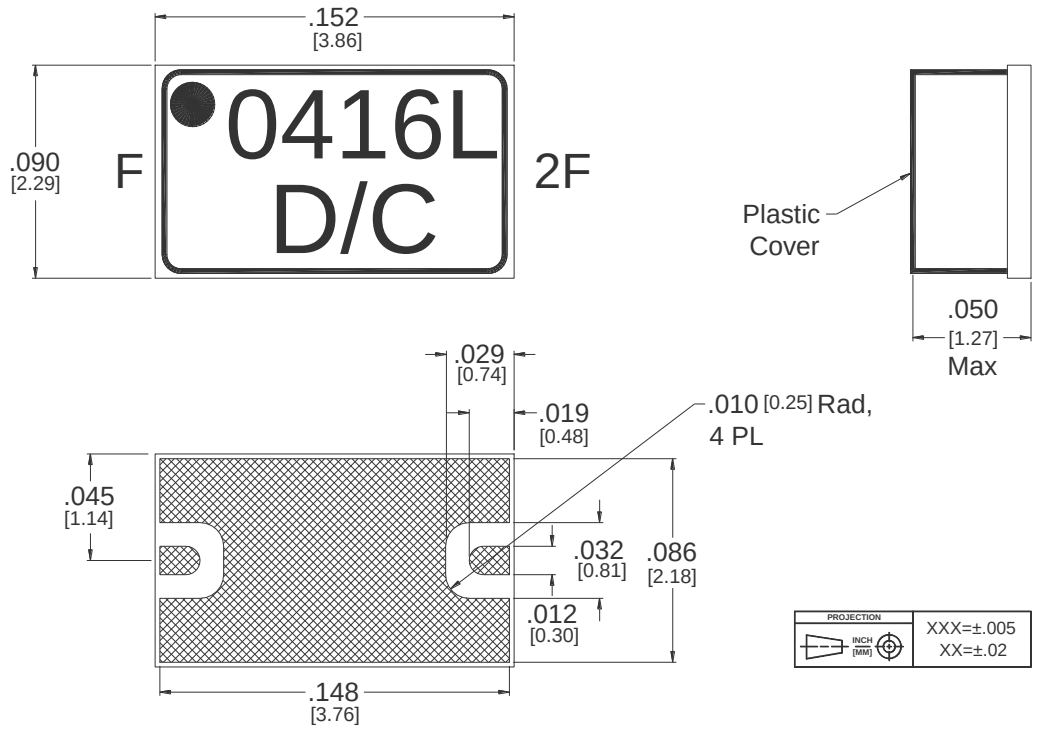




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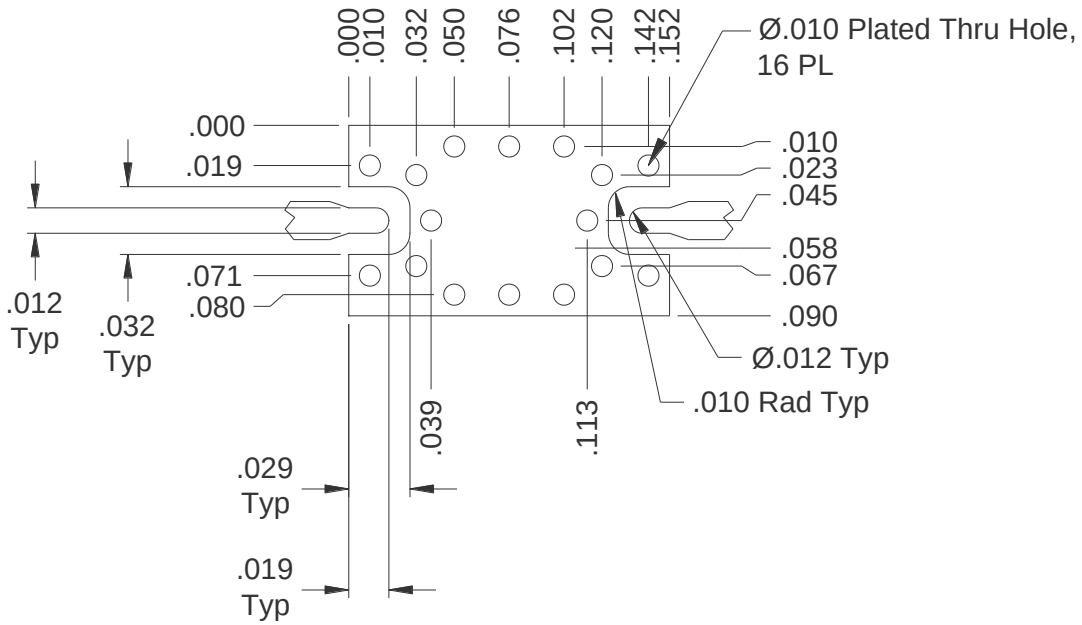
MLD-0416SM

Input 2 to 8 GHz
Output 4 to 16 GHz



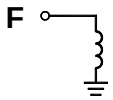
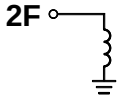
I/O traces and ground plane finish is TiWNiAu, 0.5 microns Au max over 0.15 microns Ni.

Outline Drawing – SMD Package



SMD-Package Surface-Mount System Circuit Footprint
Click here for a DXF of the above layout.
Click here for leaded solder reflow. Click here for lead-free solder reflow.

Input 2 to 8 GHz
Output 4 to 16 GHz

Port	Description	DC Interface Schematic
F Input	The input port is DC short to ground and AC matched to 50 Ohms from 2 to 8 GHz. Blocking capacitor is optional.	
2F Output	The output port is DC short to ground and AC matched to 50 Ohms from 4 to 16 GHz. Blocking capacitor is optional.	

Absolute Maximum Ratings	
Parameter	**Maximum Rating**
Input DC Current	1 Amp
Output DC Current	1 Amp
RF Power Handling	+25 dBm at +25°C, derated linearly to +20 dBm at +100°C
Operating Temperature	-55ºC to +100ºC
Storage Temperature	-65ºC to +125ºC

DATA SHEET NOTES:
1. Doubled Loss typically degrades less than 0.5 dB at +100°C and improves less than 0.5 dB at -55°C.
2. Unless otherwise specified, L-Diode data is taken with a +10 dBm input.
3. Specifications are subject to change without notice. Contact Marki Microwave for the most recent specifications and data sheets.
4. Catalog doubler circuits are continually improved. Configuration control requires custom model numbers and specifications.

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