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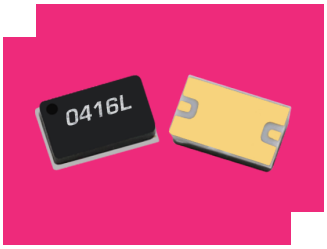
MLD-0416LSM

MICROLITHIC™ DOUBLER

DEVICE OVERVIEW

General Description

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.



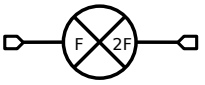
Features

- 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

Applications

N/A

Functional Block Diagram



END OF LIFE

Part Ordering Options

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification	Recommended Replacement
MLD-0416LSM	MICROLITHIC™ DOUBLER	SM	REACH RoHS	End of Life	EAR99	MMD-0415HPSM
EVAL-MLD-0416L	Evaluation Board, Microlithic Doubler 4 -16 GHz	EVAL	REACH RoHS	Obsolete	EAR99	-

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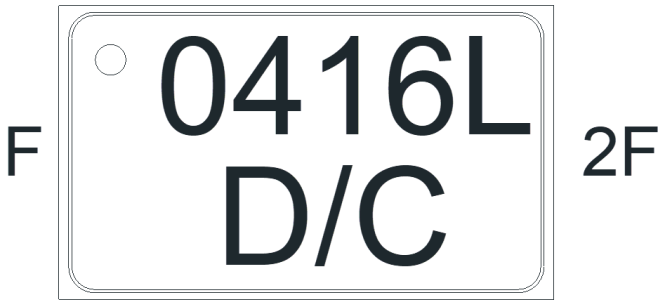
Revision History

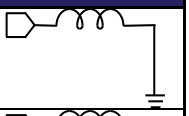
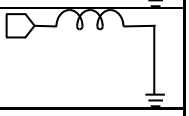
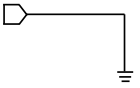
Revision Code	Revision Date	Comment
-	2024-07-31	Product Lifecycle Update to EOL

Port Configuration and Functions

Port Diagram



Port Functions

Port	Function	Description	DC Equivalent Circuit
2F	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.	
F	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.	
GND	Ground	Ground is provided through substrate ground paddle.	

Specifications

Absolute Maximum Ratings

The Absolute Maximum Ratings indicate limits beyond which damage may occur to the device. If these limits are exceeded, the device may be inoperable or have a reduced lifetime.

Parameter	Maximum Rating	Unit
DC Current	1	A
Maximum Operating Temperature	100	°C
Maximum Storage Temperature	125	°C
Minimum Operating Temperature	-55	°C
Minimum Storage Temperature	-65	°C
RF Power Handling, 100°C	20	dBm
RF Power Handling, 25°C	25	dBm

Package Information

Parameter	Details	Rating
Dimensions	-	3.86x2.29mm
Moisture Sensitivity Level	-	MSL 1

Electrical Specifications

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

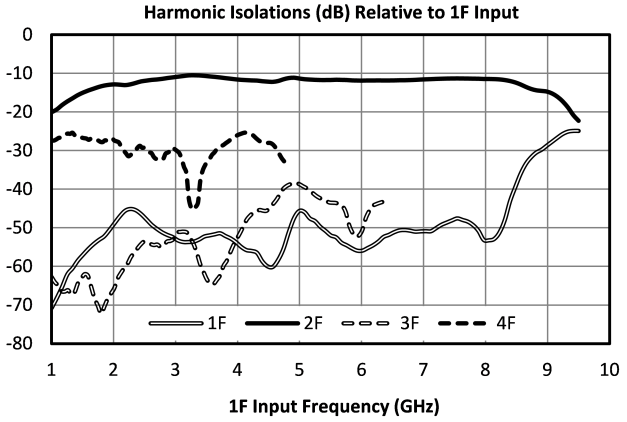
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Conversion Loss	Second Harmonic Output	-	-	-	12	17	dB
Input Frequency Range	-	-	-	2	-	8	GHz
Input Power [1]	-	-	-	6	-	14	dBm
Isolation, 1F	-	-	-	-	52	-	dB
Isolation, 3F	-	-	-	-	52	-	dB
Isolation, 4F	-	-	-	-	32	-	dB
Output Frequency Range	-	-	-	4	-	16	GHz
Suppression, 1F	-	-	-	-	40	-	dB
Suppression, 3F	-	-	-	-	40	-	dB
Suppression, 4F	-	-	-	-	20	-	dB

[1] L-Version

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

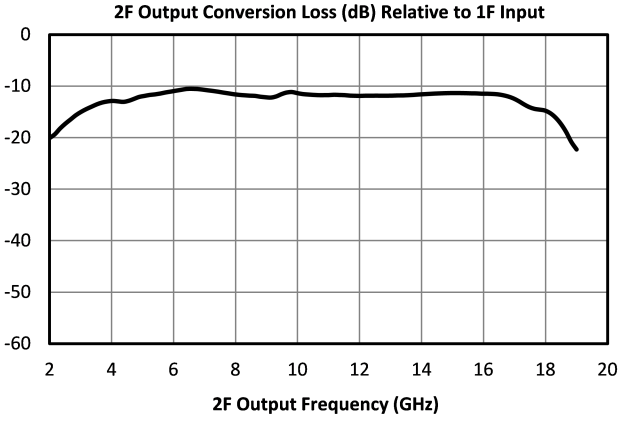
Typical Performance Plots

Harmonic Isolations (dB) Relative to 1F Input



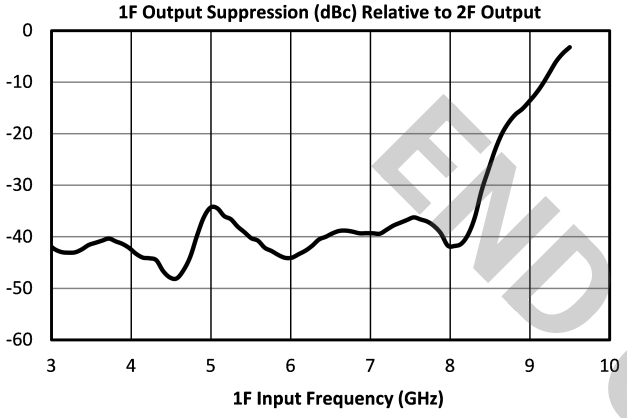
1F Input Frequency (GHz)

2F Output Conversion Loss (dB) Relative to 1F Input



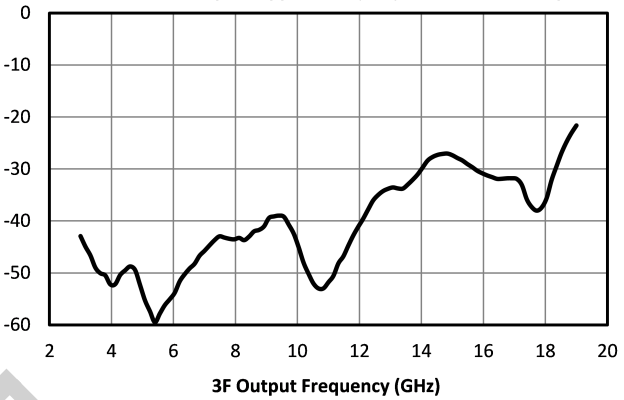
2F Output Frequency (GHz)

1F Output Suppression (dBc) Relative to 2F Output



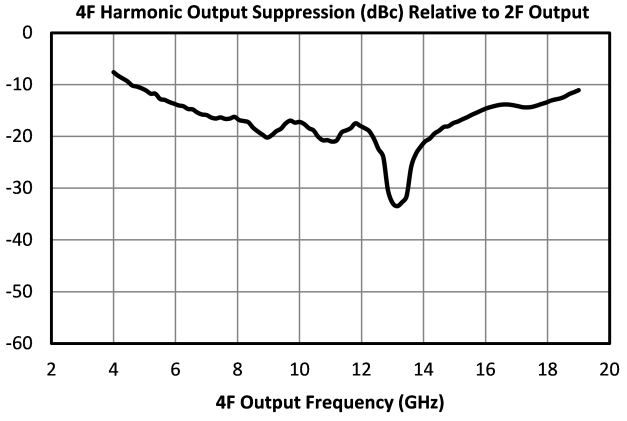
1F Input Frequency (GHz)

3F Harmonic Output Suppression (dBc) Relative to 2F Output



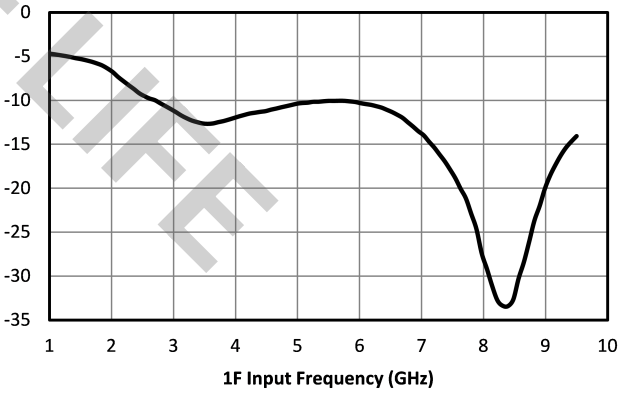
3F Output Frequency (GHz)

4F Harmonic Output Suppression (dBc) Relative to 2F Output



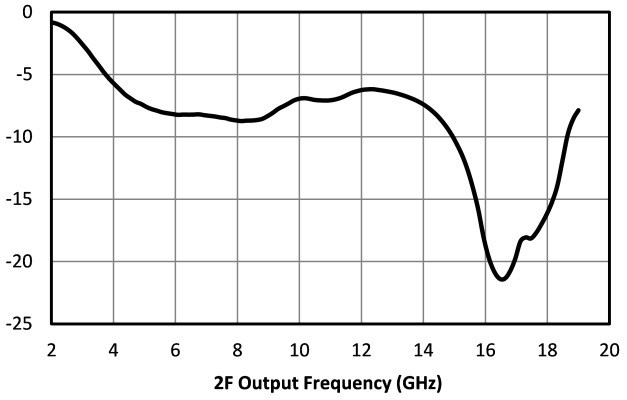
4F Output Frequency (GHz)

1F Input Return Loss (dB)



1F Input Frequency (GHz)

2F Output Return Loss (dB)

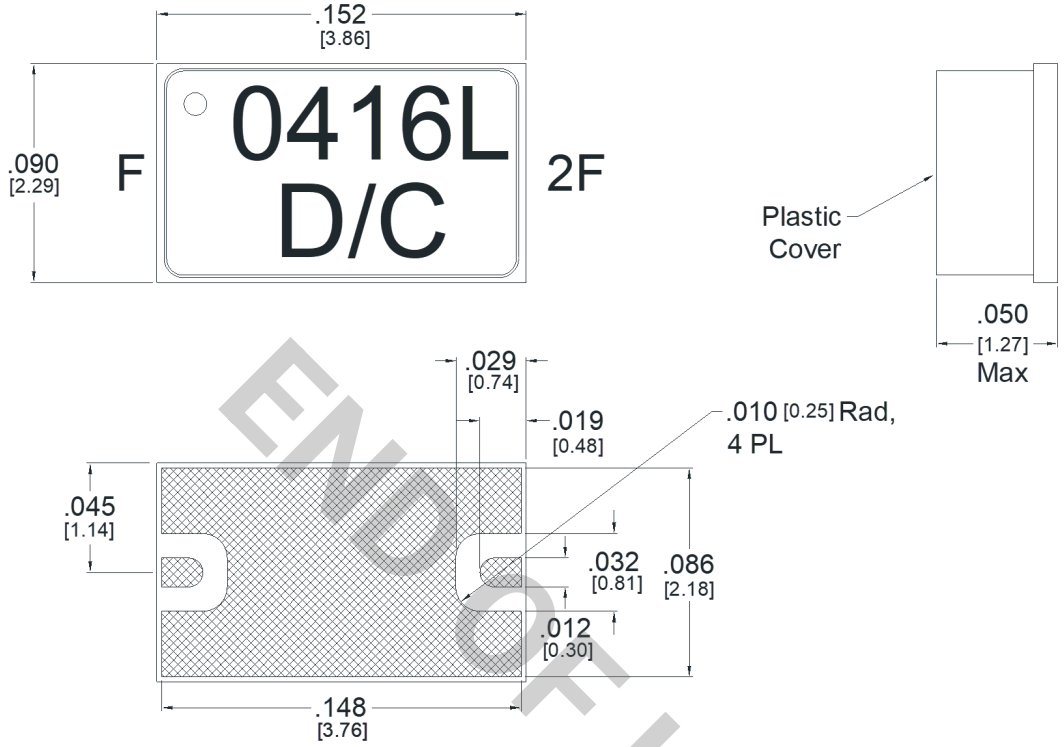


2F Output Frequency (GHz)

Mechanical Data

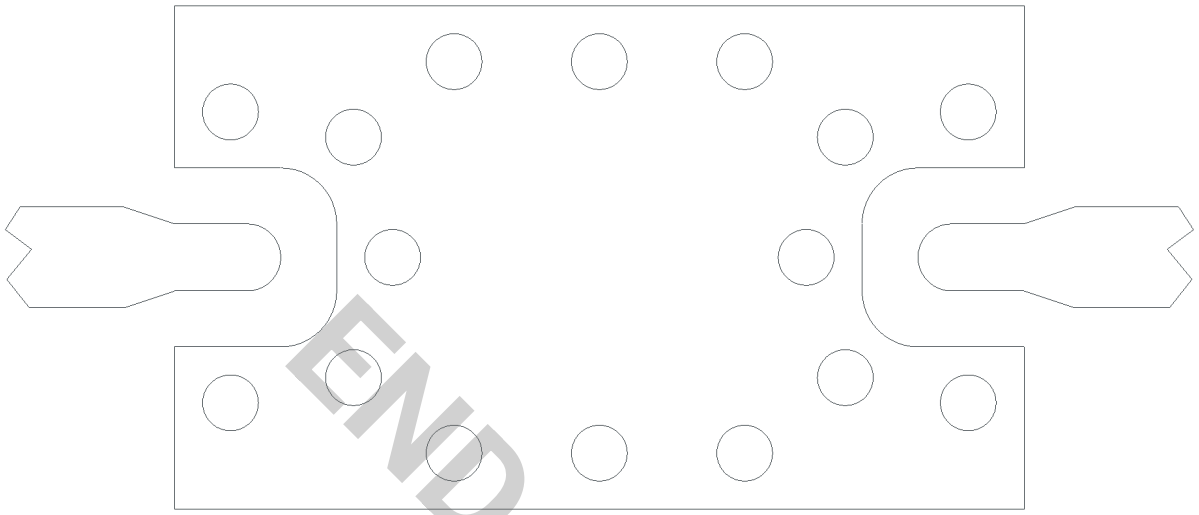
Outline Drawing

Download : Outline 2D Drawing | Outline 3D Drawing | Outline 3D STP



Footprint Image

Download : Footprint Drawing



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