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MMD-0426LPSM

GaAs MMIC Doubler 4 to 26 GHz Output Frequency

DEVICE OVERVIEW

General Description

The MMD-0426LPSM is a MMIC doubler fabricated with GaAs Schottky diodes. This part operates from 2 to 13 GHz input frequency range or a doubled output frequency range of 4 to 26 GHz. It features excellent conversion loss, fantastic isolation, and great harmonic suppressions across a broad bandwidth. It is available as a 2.29 x 3.86mm DFN and connectorized evaluation board.

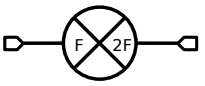
Features

- High Fundamental Rejection
- Low 2F Conversion Loss
- Compact DFN Package (2.29 x 3.8 mm)
- Low Input Drive

Applications

- Test and Measurement Equipment
- High frequency synthesis
- LO signal chain

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification
MMD-0426LPSM	GaAs MMIC Doubler 4 to 26 GHz Output Frequency	DFN	REACH RoHS	Released	EAR99
EVB-MMD-0426LP	Evaluation Board, GaAs MMIC 4 - 26 GHz Doubler	EVB	REACH RoHS	Released	EAR99

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Table Of Contents

Revision History

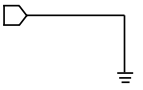
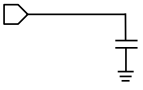
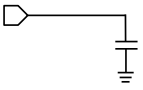
Revision Code	Revision Date	Comment
-	2026-04-21	Initial Release

Port Configuration and Functions

Port Diagram

A top-down x-ray view of the MMD-0426LPSM's PSM package outline drawing is shown below. The MMD-0426LPSM should only be used in the forward direction, with the input and output ports given in Port Functions.

Port Functions

Port	Function	Description	DC Equivalent Circuit
GND	Ground	PSM package ground path is provided through the ground paddle.	
Input	1F Input	Input 1x Frequency input port. This pin is DC open for the PSM package.	
Output	2F Output	Output 2x Frequency output port. This pin is DC open for the PSM package.	

Specifications

Absolute Maximum Ratings

The Absolute Maximum Ratings indicate limits beyond which damage may occur to the device. All Absolute Maximum Ratings are individual and should not be met in parallel. If these limits are exceeded or multiple are met in parallel the device may be inoperable or have a reduced lifetime.

Parameter	Maximum Rating	Unit
Maximum Operating Temperature	100	°C
Maximum Storage Temperature	125	°C
Minimum Operating Temperature	-55	°C
Minimum Storage Temperature	-65	°C
Power Handling, at any Port (25°C)	27	dBm

Package Information

Parameter	Details	Rating
ESD	250 to < 500 Volts	HBM Class 1A
Dimensions	-	2.29 x 3.86 mm
Moisture Sensitivity Level	-	MSL 1

Recommended Operating Conditions

The Recommended Operating Conditions indicate the limits, inside which the device should be operated, to guarantee the performance given in Electrical Specifications Operating outside these limits may not necessarily cause damage to the device, but the performance may degrade outside the limits of the electrical specifications. For limits, above which damage may occur, see Absolute Maximum Ratings.

Parameter	Min	Nominal	Max	Unit
Ambient Temperature	-55	25	100	°C
Input Power	6	10	14	dBm

Electrical Specifications

The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the connectorized EVB package doubler used in the forward direction with a +10 dBm sine wave input. Min and Max limits apply only to our connectorized units and are guaranteed at TA=+25°C.

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Input Frequency Range	-	-	-	2	-	13	GHz
Output Frequency Range	-	-	-	4	-	26	GHz
Input Power	-	-	-	6	10	14	dBm
Conversion Loss [1]	Second Harmonic Output	4	26	-	13	-	dB
Isolation, 1F [2]	Input = 2 – 13 GHz Output = 2 – 13 GHz	2	13	-	50	-	dB
Isolation, 3F [3]	Input = 2 – 8.66 GHz Output = 6 - 26 GHz	6	26	-	62	-	dB
Isolation, 4F [4]	Input = 2 – 6.5 GHz Output = 8 - 26 GHz	8	26	-	27	-	dB
Isolation, 5F [5]	Input = 2 – 5.2 GHz Output = 10 - 26 GHz	10	26	-	70	-	dB
Suppression, 1F [6]	Input = 2 – 13 GHz Output = 2 – 13 GHz	2	13	-	37	-	dBc
Suppression, 3F [7]	Input = 2 – 8.66 GHz Output = 6 - 26 GHz	6	26	-	50	-	dBc
Suppression, 4F [8]	Input = 2 – 6.5 GHz Output = 8 - 26 GHz	8	26	-	14	-	dBc
Suppression, 5F [9]	Input = 2 – 5.2 GHz Output = 10 - 26 GHz	10	26	-	55	-	dBc

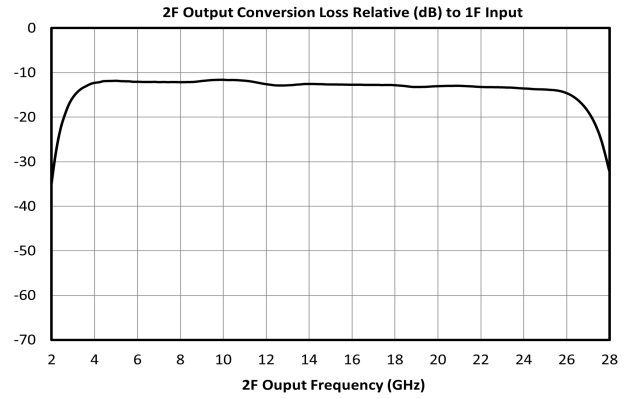
[1] with +10 dBm RF Input

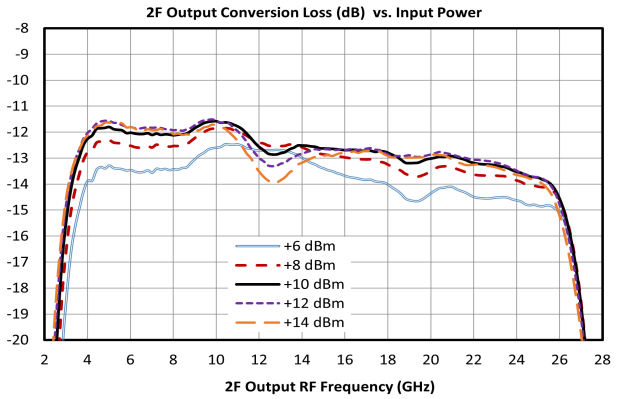
[2][3][4][5] Isolation is defined as the harmonic power relative to the 1F fundamental input power.

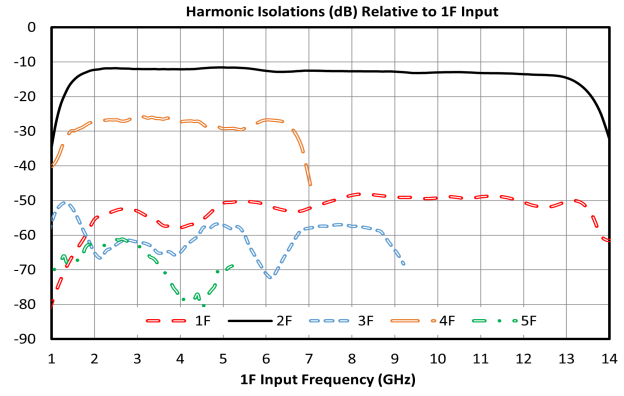
[6][7][8][9] Suppressions and isolations measured with an input source with >60dBc (relative to fundamental input) harmonic suppression. Suppression is defined as the harmonic power relative to the 2F doubled output power.

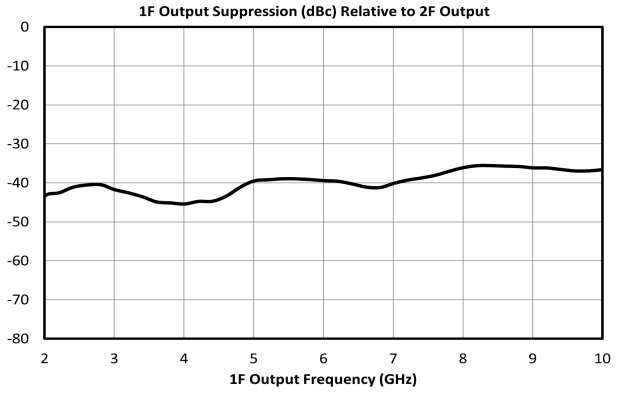
Typical Performance Plots

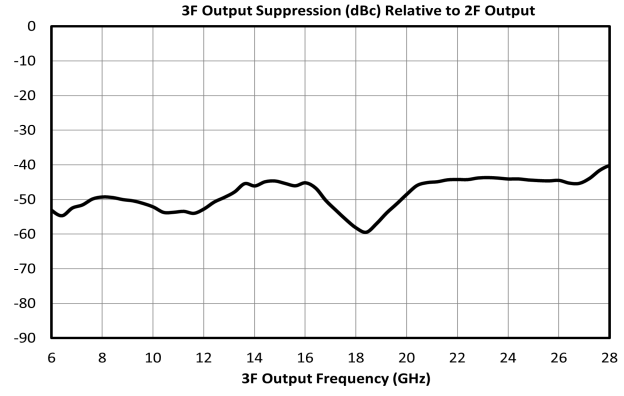
The EVB trace losses are de-embedded for the metrics has shown here.

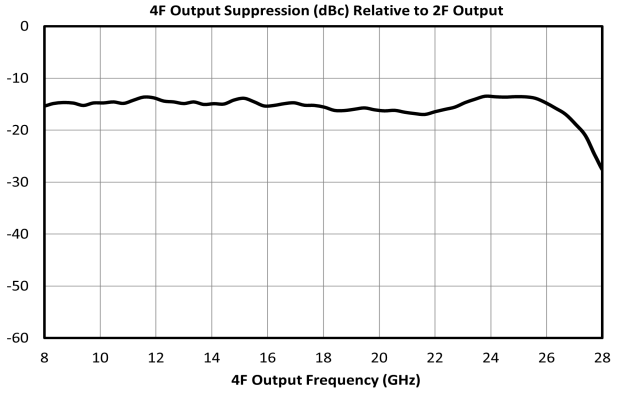


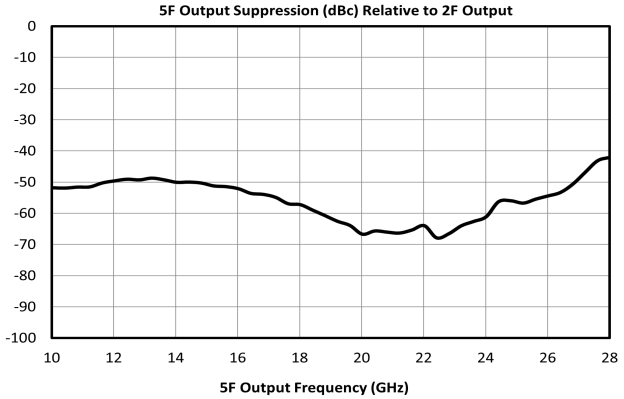


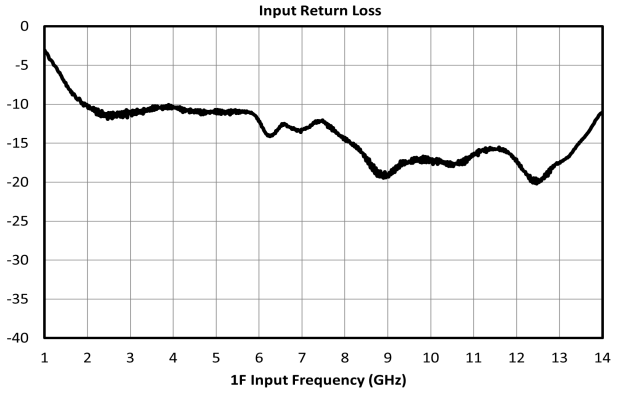












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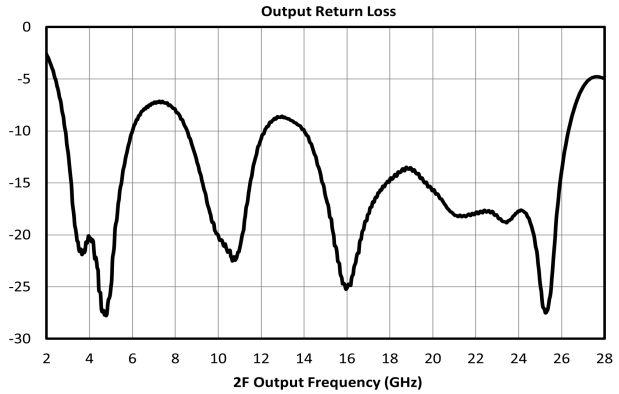

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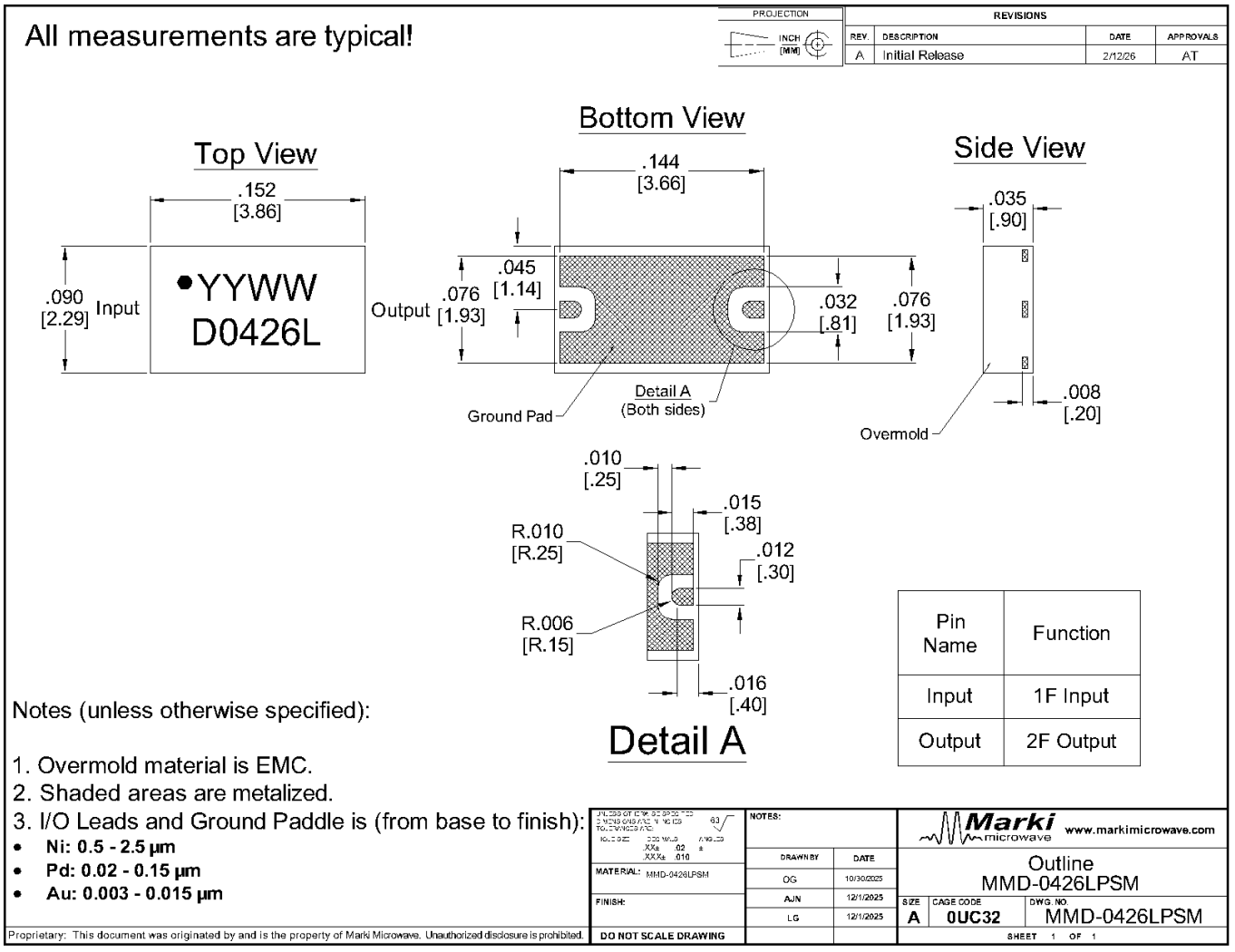
GaAs MMIC Doubler 4 to 26 GHz Output Frequency

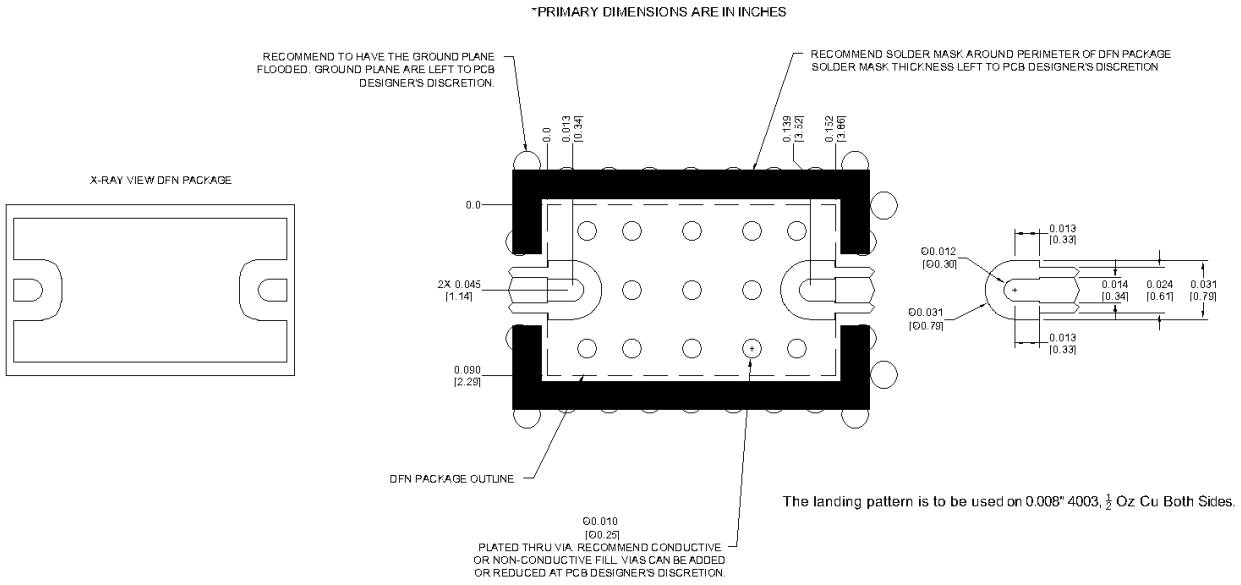
Mechanical Data

Outline Drawing

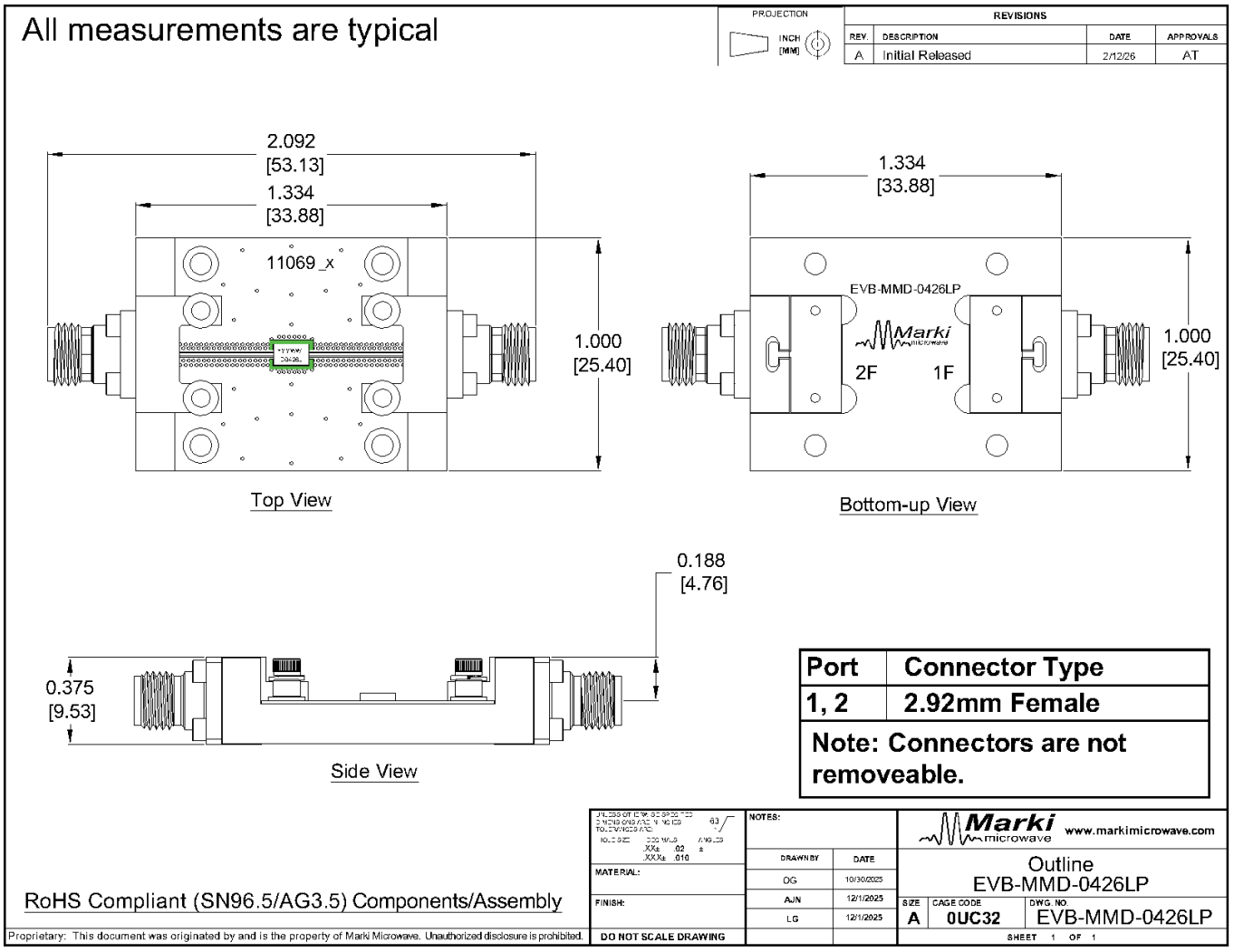
Download : Outline 2D Drawing



Footprint Image



Evaluation Board - Outline Drawing



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