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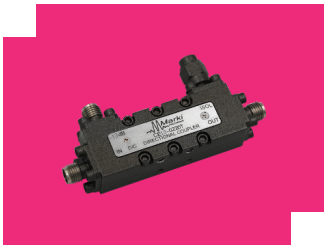
CE13-0220T

Elite 2-20 GHz Directional Coupler

DEVICE OVERVIEW

General Description

The CE13-0220T is a next generation broadband 2GHz to 20GHz, 13dB directional coupler from the Marki Elite Series. Conductive paint is applied to all Elite Series products to reduce EMI/RFI leakage and susceptibility. The CE13-0220T offers the best directivity, return loss, and coupling accuracy available on the market. Available as a three port directional coupler with included 50Ω termination on the isolated port, the CE13-0220T is an exceptional choice for broadband return loss measurements, power leveling,and signal monitoring applications. Sophisticated neural network design techniques combined with deep circuit knowledge and triplate stripline construction allow the Marki Elite Series of Couplers to provide superior performance to all other directional couplers available.



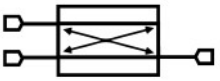
Features

- Broadband Performance
- Excellent Coupling Flatness
- High Directivity
- Low VSWR
- Conductive paint minimizes RF leakage

Applications

N/A

Functional Block Diagram



Part Ordering Options

Part Number	Description	Connectors	Green Status	Product Lifecycle	Export Classification
CE13-0220T	Elite 2-20 GHz Directional Coupler	Standard	REACH RoHS	Released	EAR99

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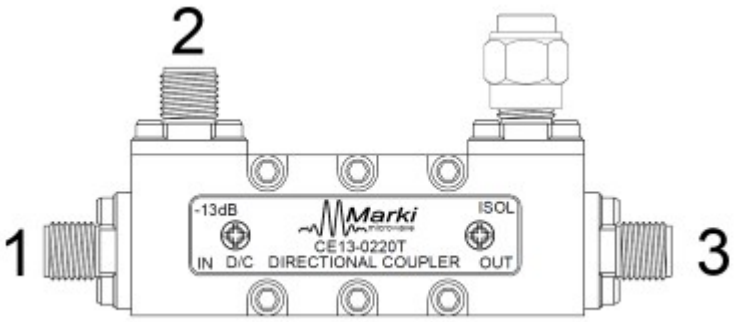
Revision History

Revision Code	Revision Date	Comment
-	2022-04-01	Initial Release Datasheet

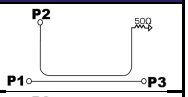
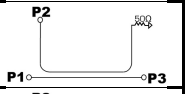
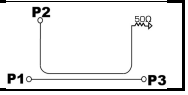
Port Configuration and Functions

Port Diagram

A side view of the CE13-0220T package outline drawing is shown below. The CE13-0220T has input and output ports given in Port Functions. The CE13-0220T can be used in the forward direction by configuring the coupler with the input signal into port 1, using port 2 for coupled port, and port 3 for output port.



Port Functions

Port	Function	Connector Type	Description	DC Equivalent Circuit
Port 1	Forward Power Input and Reflected Power Output	2.92F	The input port is DC short to the output port and open coupled port.	
Port 2	Coupled	2.92F	The coupled port is DC open to the input and output ports.	
Port 3	Forward Power Output And Reflected Power Input	2.92F	The output port is DC short to the input port and open coupled port	

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
RF Power Handling	20	W
Minimum Operating Temperature	-55	°C
Maximum Operating Temperature	100	°C
Minimum Storage Temperature	-65	°C
Maximum Storage Temperature	125	°C

Package Information

Parameter	Details	Rating
Dimensions	-	68.62 x 17.53 mm

Electrical Specifications

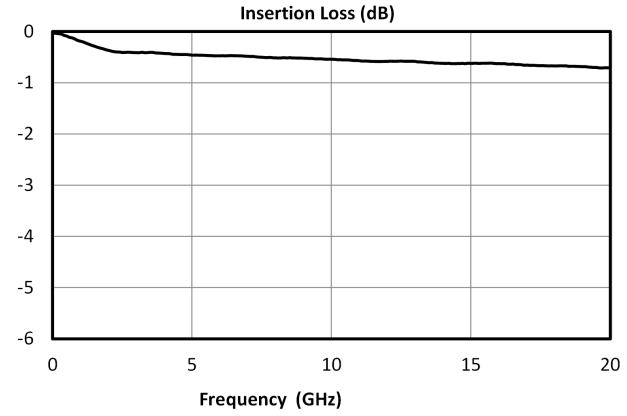
The electrical specifications apply at TA=+25°C in a 50Ω system

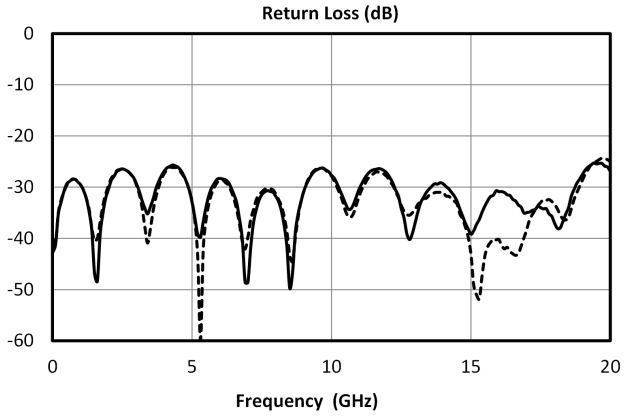
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Amplitude Flatness [1]	-	2	20	-	15	40	dB
Coupling Loss [2]	-	2	20	0.2	0.22	0.25	dB
Directivity	-	2	20	19	28	-	dB
Direct Line Insertion Loss	DC-20GHz	-	-	-	0.6	1	dB
Excess Insertion Loss (dB) [3]	DC-20GHz	-	-	-	0.35	0.75	dB
IL Corrected Directivity [4]	-	2	20	20	30	-	dB
Impedance	-	-	-	-	50	-	Ω
Maximum Coupling Deviation	-	2	20	-	50	1	dB
Mean Coupling	-	2	20	12.5	13	13.5	dB
Return Loss	DC-20GHz	-	-	20	30	-	dB
VSWR	DC-20GHz	-	-	-	1.07	1.22	

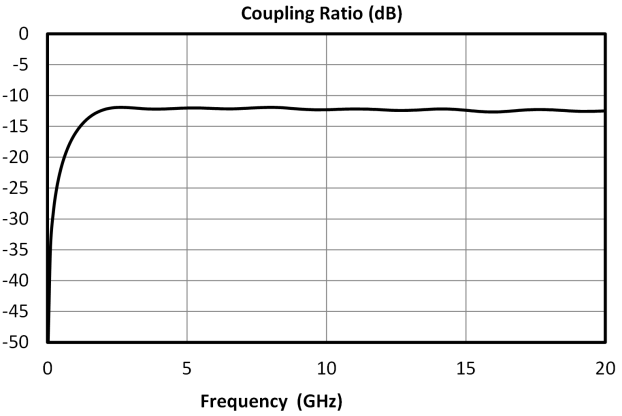
[1] Amplitude Flatness = Median value of ABS(Measured Coupling Power – Average Coupling Factor).
[2] Coupling loss based on average coupling factor – visit our website to learn more
[3] Excess Insertion Loss = (Input Port to Output Port Insertion Loss) – Coupling Loss
[4] IL Corrected Directivity = Directivity + Insertion Loss.

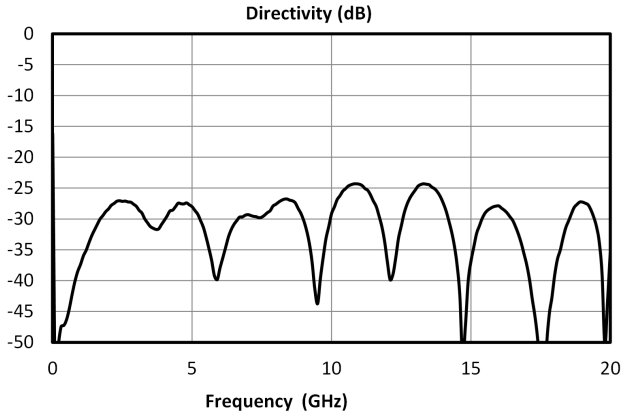
Typical Performance Plots

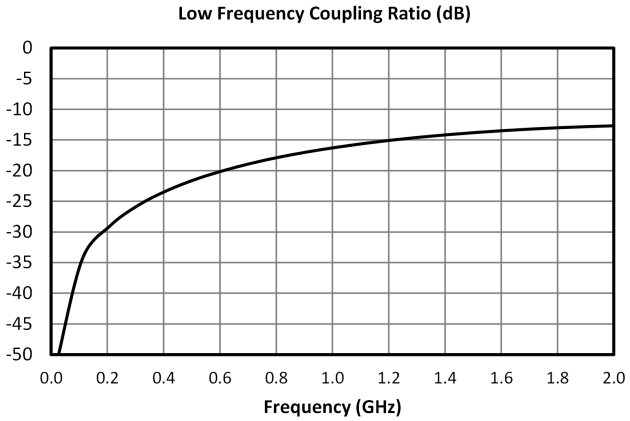
Insertion Loss, Return Loss, Coupled Port Power, and Directivity







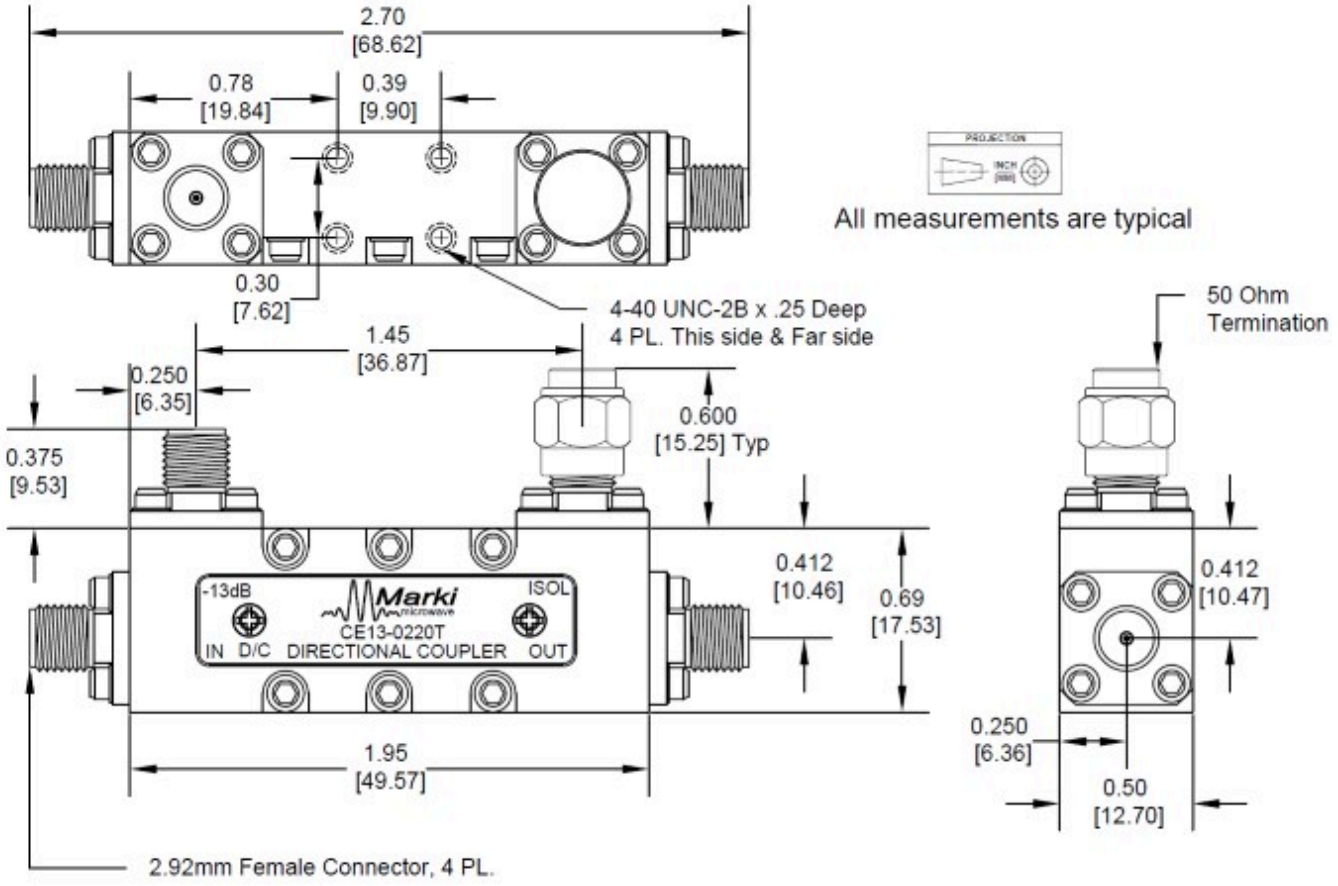




Mechanical Data

Outline Drawing

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



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