

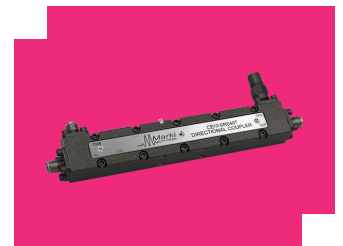
CE10-0R640T

Elite 0.6-40 GHz Directional Coupler

DEVICE OVERVIEW

General Description

The CE10-0R640 is a next generation broadband 600MHz to 40GHz, 10dB directional coupler from the Marki Elite Series. Conductive paint is applied to all Elite Series products to reduce EMI/RFI leakage and susceptibility. The CE10-0R640 offers the best directivity, return loss, and coupling accuracy available on the market. Available as both a three port directional coupler and a four port bidirectional coupler, the CE10-0R640 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.



[Download s-parameters here](#)

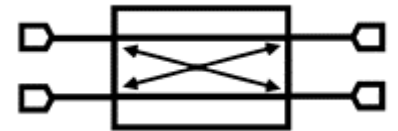
Features

- 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 |
|----------------------------|--------------------------------------|--------------------------|---------------|-------------------|-----------------------|
| CE10-0R640 | Elite 0.6-40 GHz Directional Coupler | Standard | REACH RoHS | Released | EAR99 |
| CE10-0R640T | Elite 0.6-40 GHz Directional Coupler | Standard | REACH RoHS | Released | EAR99 |

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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 | - | 110.5 x 17.5 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 | - | 0.6 | 40 | - | 0.2 | 0.5 | dB |
| Coupling Loss ² | - | 0.6 | 40 | 0.41 | 0.46 | 0.52 | dB |
| Directivity | - | 0.6 | 40 | 15 | 20 | - | dB |
| Direct Line Insertion Loss | DC-40 | - | - | - | 1.3 | 2.3 | dB |
| Excess Insertion Loss (dB) ³ | DC-40 | - | - | - | 0.85 | 1.8 | dB |
| IL Corrected Directivity ⁴ | - | 0.6 | 40 | 16 | 24 | - | dB |
| Impedance | - | - | - | - | 50 | - | Ω |
| Maximum Coupling Deviation | - | 0.6 | 40 | - | 0.8 | 1.5 | dB |
| Mean Coupling | - | 0.6 | 40 | 9.5 | 10 | 10.5 | dB |
| Return Loss | DC-40 | - | - | 19 | 30 | - | dB |
| VSWR | DC-40 | - | - | - | 1.07 | 1.25 | |

[1] Amplitude Flatness = Median value of ABS(Measured Coupling Power – Average Coupling Factor).

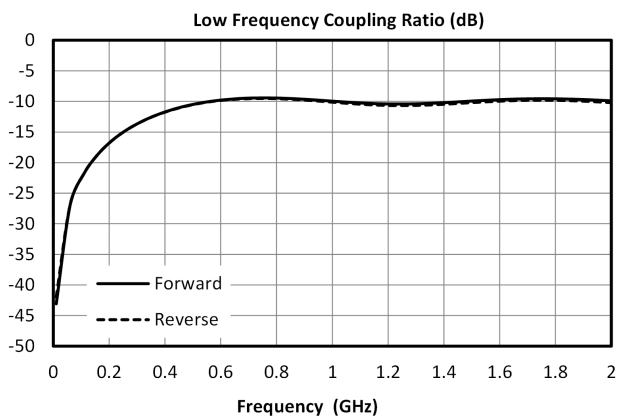
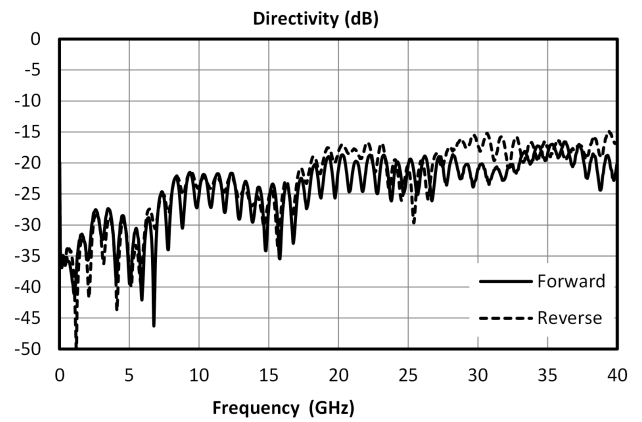
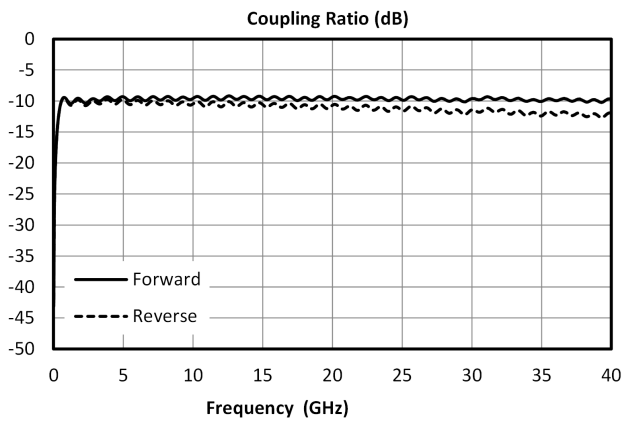
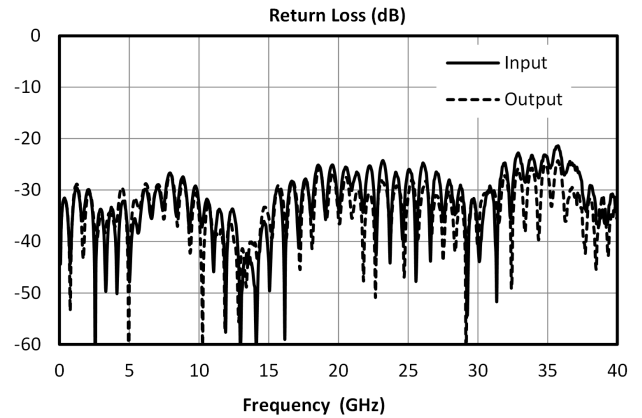
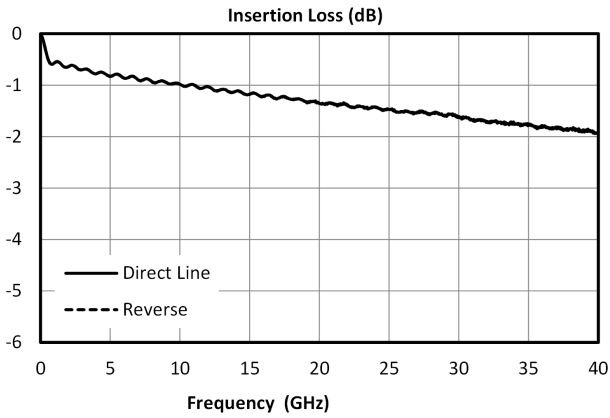
[2] Coupling loss based on average coupling factor.

[3] Excess Insertion Loss = (Input Port to Output Port Insertion Loss) – Coupling Loss.

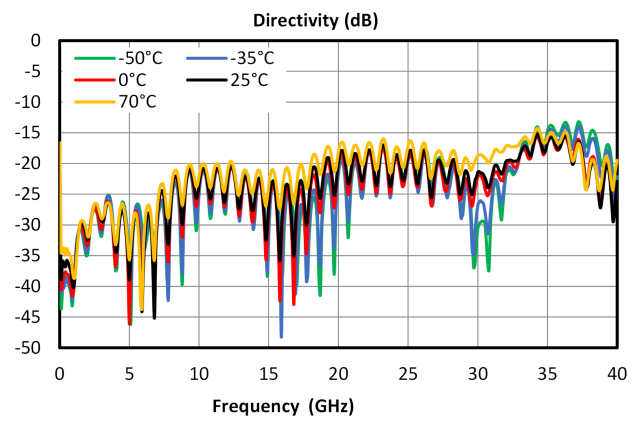
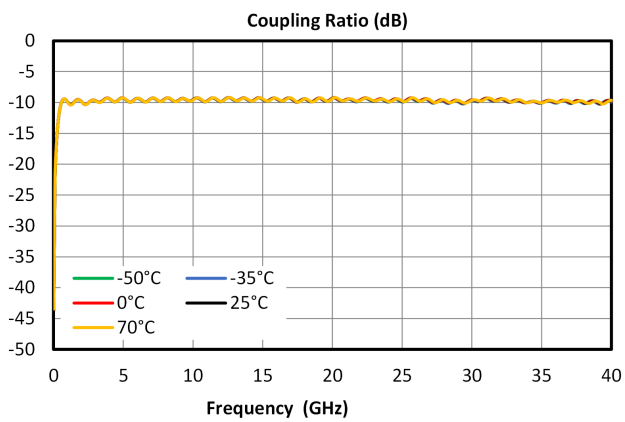
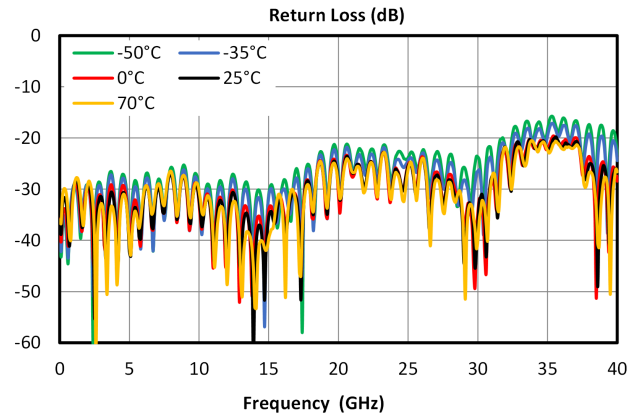
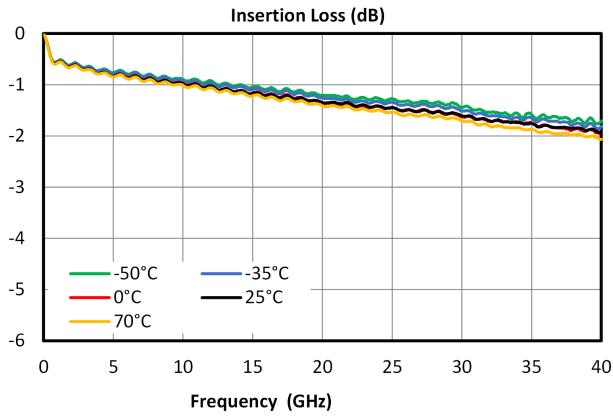
[4] IL Corrected Directivity = Directivity + Insertion Loss.

Typical Performance Plots

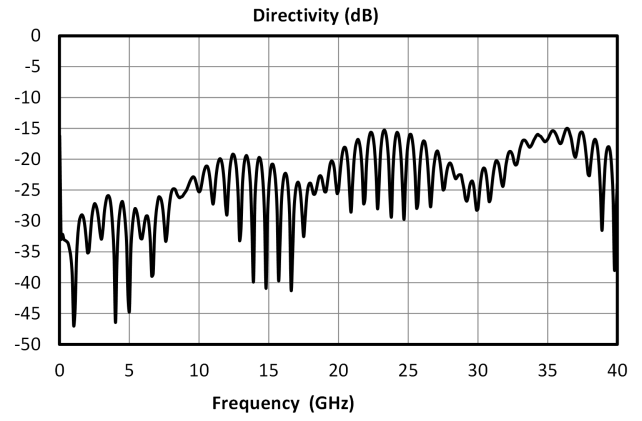
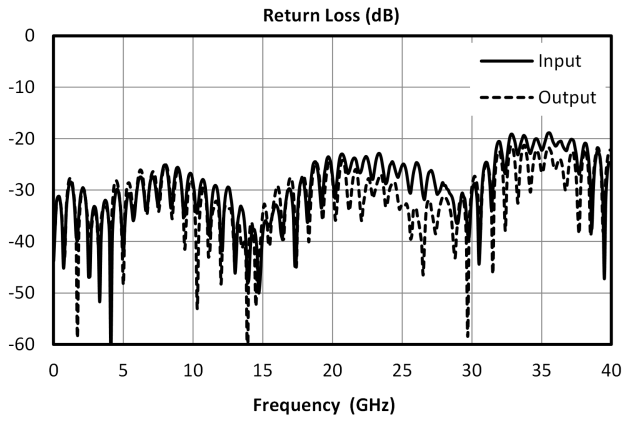
Insertion Loss, Return Loss, Coupled Port Power, and Directivity



Performance Over Temperature



Terminated Return Loss and Directivity



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