

Surface Mount

# Power Splitter/Combiner

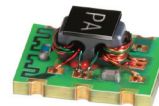
CDP-2-13-75+

2 Way-0° 75Ω

5 to 1000 MHz

## The Big Deal

- High performance at a very low cost
- Very small form size (0.250" x 0.310" x 0.133" high)



CASE STYLE: TT1491-1

## Product Overview

The CDP-2-13-75+ is a 2-way power splitter featuring a flat, laser-marked, "Top-Hat" cover for faster pick and place manufacturing throughput. Installed as a single component with a small footprint (0.255" x 0.310") and low height (0.133"), it utilizes square-core, all-welded construction to handle up to 1W RF power. The open-style case is aqueous washable and RoHS compliant.

| Feature                                      | Advantages   |
|--|--|
| Wide bandwidth at a low cost                 | 5-1000 MHz bandwidth accomodates forward & return CATV transmission bands                              |
| Low insertion loss,<br>Excellent return loss | Excellent VSWR (1.01-1.23 in/1.10-1.25 out) for low-loss performance in both directions                |
| Very good isolation                          | 20-25 dB for consistent performance under changing loads   |
| Very good amplitude and phase unbalance      | 0.2 dB typ. amplitude unbalance and 3.0° typ. phase unbalance help reduce unwanted noise and harmonics |

### Notes

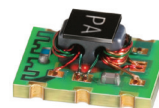
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top hat®  
Surface Mount  
**Power Splitter/Combiner**

**CDP-2-13-75+**

2 Way-0° 75Ω 5 to 1000 MHz



CASE STYLE: TT1491-1

### Maximum Ratings

|                             |                |
|-----------------------------|----------------|
| Operating Temperature       | -40°C to 85°C  |
| Storage Temperature         | -55°C to 100°C |
| Power Input (as a splitter) | 1W max.        |
| Internal Dissipation        | 0.125W max.    |

Permanent damage may occur if any of these limits are exceeded.

### Pin Connections

|          |     |
|----------|-----|
| SUM PORT | 1   |
| PORT 1   | 3   |
| PORT 2   | 4   |
| GROUND   | 6   |
| NOT USED | 2,5 |

### Features

- wideband, 5 to 1000 MHz
- low insertion loss, 0.6 dB typ.
- excellent matching return loss, 20 dB typ.
- aqueous washable

### Applications

- cellular
- VHF/UHF
- communication systems
- CATV

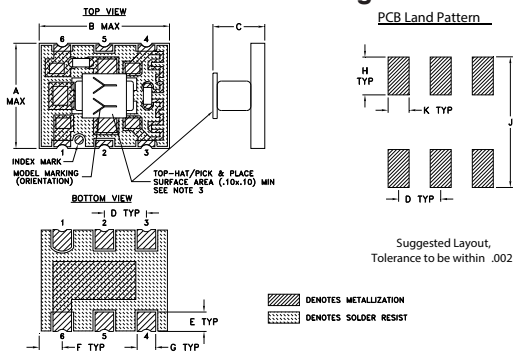
#### +RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

### Electrical Specifications at 25°C

| Parameter                   | Frequency (MHz)            | Min.           | Typ.                 | Max.              | Unit   |
|-----------------------------|----------------------------|----------------|----------------------|-------------------|--------|
| Frequency Range             |                            | 5              |                      | 1000              | MHz    |
| Insertion Loss Above 3.0 dB | 5-50<br>50-500<br>500-1000 | —<br>—<br>—    | 0.2<br>0.6<br>0.8    | 0.5<br>0.7<br>1.1 | dB     |
| Isolation                   | 5-50<br>50-500<br>500-1000 | 20<br>20<br>18 | 24<br>25<br>20       | —<br>—<br>—       | dB     |
| Phase Unbalance             | 5-50<br>50-500<br>500-1000 | —<br>—<br>—    | —<br>—<br>—          | 2.0<br>3.0<br>5.0 | Degree |
| Amplitude Unbalance         | 5-50<br>50-500<br>500-1000 | —<br>—<br>—    | —<br>—<br>—          | 0.3<br>0.3<br>0.3 | dB     |
| VSWR (Port S)               | 5-50<br>50-500<br>500-1000 | —<br>—<br>—    | 1.05<br>1.10<br>1.25 | 1.2<br>1.3<br>1.4 | :1     |
| VSWR (Port 1-2)             | 5-50<br>50-500<br>500-1000 | —<br>—<br>—    | 1.20<br>1.15<br>1.10 | 1.5<br>1.3<br>1.3 | :1     |

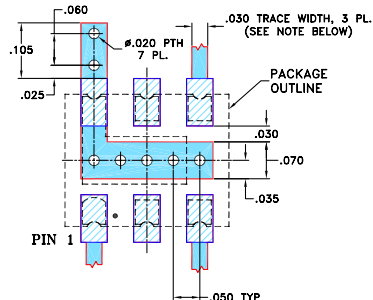
### Outline Drawing



### Outline Dimensions (inch/mm)

| A    | B    | C    | D    | E    | F    | G    | H    | J    | K    | wt.   |
|------|------|------|------|------|------|------|------|------|------|-------|
| .255 | .310 | .133 | .100 | .050 | .055 | .044 | .090 | .310 | .050 | grams |
| 6.48 | 7.87 | 3.38 | 2.54 | 1.27 | 1.40 | 1.12 | 2.29 | 7.87 | 1.27 | 0.35  |

### Demo Board MCL P/N: TB-565+ Suggested PCB Layout (PL-327)



NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

### Electrical Schematic



#### Notes

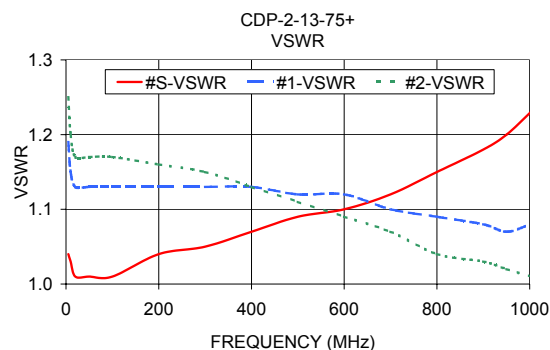
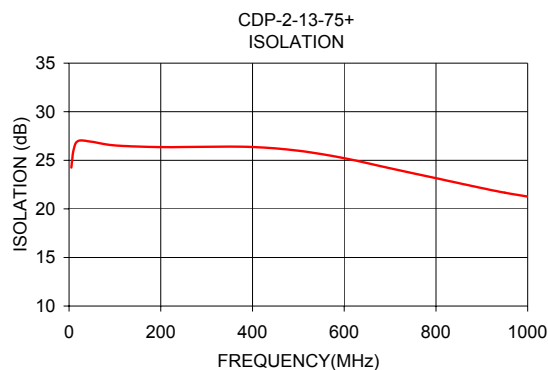
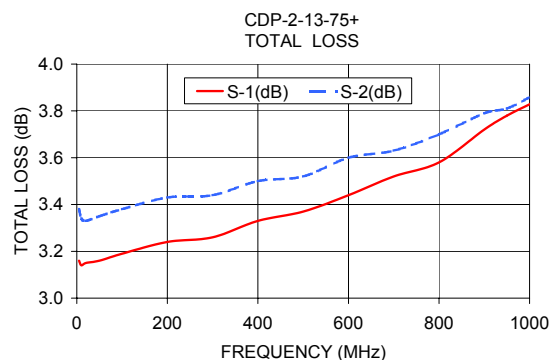
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## Typical Performance Data

| Frequency<br>(MHz) | Total Loss <sup>1</sup><br>(dB) |      | Amplitude<br>Unbalance<br>(dB) | Isolation<br>(dB) | Phase<br>Unbalance<br>(deg.) | VSWR<br>S | VSWR<br>1 | VSWR<br>2 |
|--------------------|---------------------------------|------|--------------------------------|-------------------|------------------------------|-----------|-----------|-----------|
|                    | S-1                             | S-2  |                                |                   |                              |           |           |           |
| 5.00               | 3.16                            | 3.38 | 0.22                           | 24.25             | 0.59                         | 1.04      | 1.19      | 1.25      |
| 10.00              | 3.14                            | 3.34 | 0.20                           | 26.11             | 0.36                         | 1.03      | 1.15      | 1.20      |
| 20.00              | 3.15                            | 3.33 | 0.18                           | 27.00             | 0.15                         | 1.01      | 1.13      | 1.17      |
| 50.00              | 3.16                            | 3.35 | 0.18                           | 26.91             | 0.05                         | 1.01      | 1.13      | 1.17      |
| 100.00             | 3.19                            | 3.38 | 0.19                           | 26.53             | 0.20                         | 1.01      | 1.13      | 1.17      |
| 200.00             | 3.24                            | 3.43 | 0.19                           | 26.36             | 0.40                         | 1.04      | 1.13      | 1.16      |
| 300.00             | 3.26                            | 3.44 | 0.18                           | 26.39             | 0.51                         | 1.05      | 1.13      | 1.15      |
| 400.00             | 3.33                            | 3.50 | 0.18                           | 26.37             | 0.77                         | 1.07      | 1.13      | 1.13      |
| 500.00             | 3.37                            | 3.52 | 0.15                           | 25.99             | 0.75                         | 1.09      | 1.12      | 1.11      |
| 600.00             | 3.44                            | 3.60 | 0.16                           | 25.22             | 0.88                         | 1.10      | 1.12      | 1.09      |
| 700.00             | 3.52                            | 3.63 | 0.11                           | 24.18             | 0.96                         | 1.12      | 1.10      | 1.07      |
| 800.00             | 3.58                            | 3.70 | 0.12                           | 23.16             | 0.71                         | 1.15      | 1.09      | 1.04      |
| 900.00             | 3.72                            | 3.79 | 0.07                           | 22.14             | 0.84                         | 1.18      | 1.08      | 1.03      |
| 950.00             | 3.78                            | 3.81 | 0.03                           | 21.67             | 0.51                         | 1.20      | 1.07      | 1.02      |
| 1002.00            | 3.83                            | 3.86 | 0.03                           | 21.25             | 0.17                         | 1.23      | 1.08      | 1.01      |

1. Total Loss = Insertion Loss + 3dB splitter loss.



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