

Custom Design/Manufacturer • High-Mix / Low Volume • HF through Ku Band • Multi-Media Expertise

About Power Dividers

Although the term power divider has been applied to various devices meant to distribute power to a number of outputs, the term here is used in a more restricted sense. A power divider has a single designated input port and more than one output port. All ports are theoretically matched and output ports are isolated from one another. It is usual, but not mandatory, for the transmission from the input port to be identical to all output ports. TRM applies stripline, coaxial, microstrip, Airstrip™ and lumped element circuit topographies to realize its designs.

Historically, power dividers have most often been 1:2N devices; that is to say that a single input was divided into 2, 4, 8, 16, etc. outputs. Such a device was structurally the interconnection of 0/180° hybrids whose difference ports were terminated, often internally. Three hybrids were required for a 1:4 device, seven for a 1:8 device and in general, 2N outputs required (2N-1) individual two-way divisions. It was early recognized that for large values of 2N, one or more outputs could be terminated without a large loss. For example, an 8-way power divider could be made to serve as a 7-way with something less than a 1 dB loss penalty over the theoretical 7-way splitting loss.

Parameter Definitions

Isolation: The difference in dB of the signal level measured between output ports with the input port properly terminated.

VSWR: Voltage Standing Wave Ratio is a measure of the deviation of impedance from the characteristic impedance of the power divider.

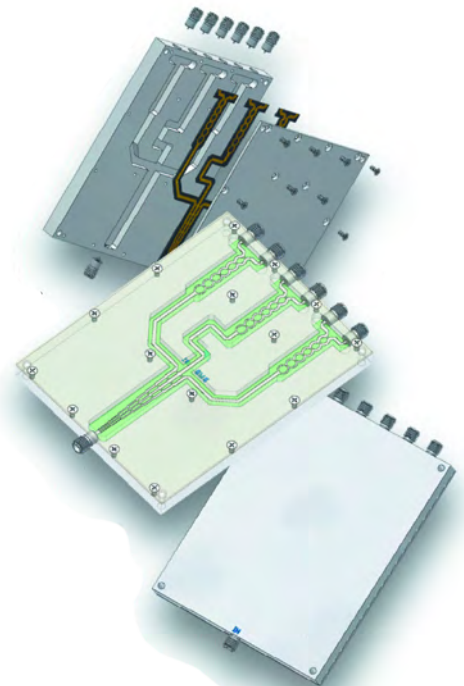
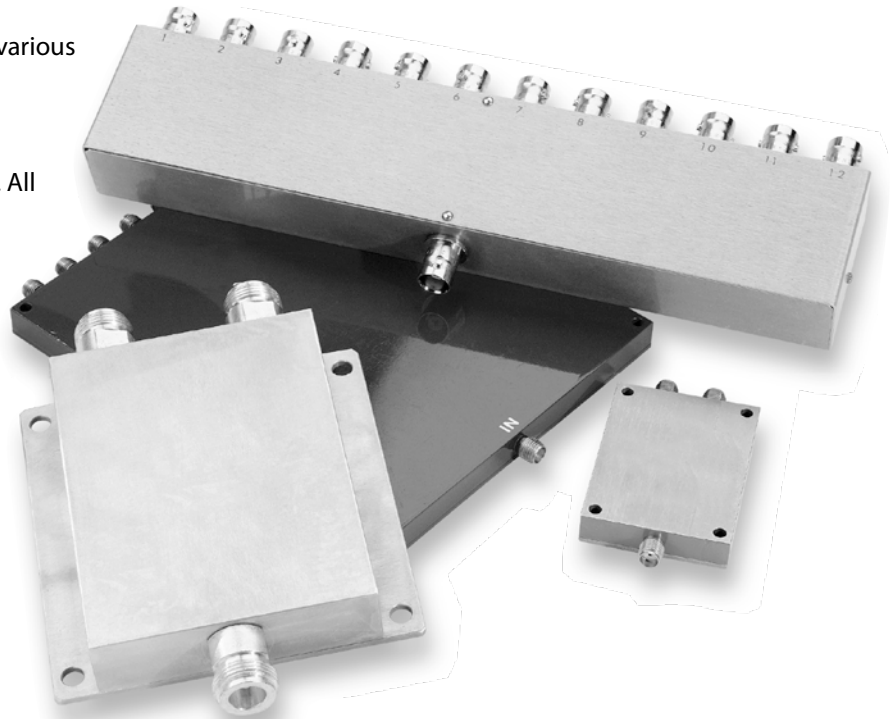
Amplitude Balance: The maximum peak-to-peak difference in amplitude (dB) between the output ports of the power divider over the specified frequency range.

Phase Balance: The maximum peak-to-peak difference in phase (in degrees) between the outputs of the power divider over the specified frequency range.

Input Power: The maximum power that may be supplied to the input port with all outputs properly terminated.

Insertion Loss: The net unrecoverable power loss in dB based on one way transmission through the power divider.

Power Rating: All ratings are as a divider. The power rating of devices used as a combiner are dependent on the coherence of the inputs.



Use any standard model as a starting point to build a custom component to your exact specifications.

TRM offers a complete series of standard in-phase units from 2-way to 24-way, in the frequency range of DC-26.5 GHz. These devices offer high isolation, low insertion loss, optimal VSWR and impressive power handling capabilities.

Packaging:
Connectorized,
Flatpak, Drop-in and
Surface Mount.

MIL-E-5400, class 3

2 Way Flatpack							
Part Number	Frequency MHz	Insertion Loss (dB Max.)	Isolation (dB Min.)	VSWR (Max.)	Amplitude Balance (dB Max.)	Phase Balance (Deg. Max.)	Input Power (Watts Max.)
DL232	0.2-200	0.5	26	1.30:1	0.2	2	1.5
DL233	5-500	0.5	25	1.30:1	0.2	2	1.5
DL235	1000-1500	1.3	18	1.60:1	0.4	6	1.5
DL235	1500-2000	1.8	12	1.80:1	0.6	8	1.5
DL235	20-1000	1.1	23	1.50:1	0.3	4	1.5
DL260	1-600	0.6	26	1.40:1	0.2	2	1.5
2-Way 50 Ohm							
DL201	.02-20	0.5	33	1.30:1	0.1	1	10
DL202	0.1-100	0.5	33	1.40:1	0.2	2	10
DL203	20-200	0.5	33	1.30:1	0.1	1	2.5
DL204	100-400	0.5	33	1.30:1	0.2	2	2.5
DL205	0.2-200	0.5	26	1.30:1	0.1	1	1.5
DL206	5-500	0.5	26	1.30:1	0.2	2	1.5
DL207	10-1000	0.8	25	1.50:1	0.2	2	1.5
DL208	20-2000	1.25	20	1.50:1	0.4	3	5
DL208F	20-2000	1.25	20	1.50:1	0.4	3	5
DL216	5-725	1	20	1.40:1	0.2	2	1.5
DL22030	20-3000	2	18	1.5:1	0.5	4	1
DL244	0.2-200	0.5	26	1.30:1	0.4	4	1.5
DL245	5-500	0.5	26	1.30:1	0.4	4	1.5
DL247	1-600	0.6	26	1.40:1	0.2	2	1.5
2-Way 75 Ohm							
DL271	0.2-20	0.7	26	1.50:1	0.2	2	10
DL272	0.1-100	0.6	30	1.50:1	0.2	1	10
DL273	20-200	0.7	26	1.50:1	0.2	2	10
DL274	100-400	0.7	26	1.50:1	0.2	2	2.5
DL275	0.2-200	0.8	25	1.50:1	0.2	1	1.5
DL276	5-500	0.8	25	1.50:1	0.2	2	1.5
DL277	20-1000	1.4	20	1.50:1	0.2	2	1.5
2-Way Multi-Octave							
DMS205	1-2	0.3	25	1.20:1	0.2	2	30
DMS206	2-4	0.4	23	1.20:1	0.2	2	30
DMS207	2.6-5.2	0.4	23	1.20:1	0.2	2	30
DMS208	4-8	0.4	23	1.20:1	0.2	2	30
DMS209	7-11	0.4	23	1.25:1	0.2	2	30
DMS210	8-12.4	0.4	23	1.25:1	0.2	2	30
DMS211	6-18	0.6	18	1.35:1	0.3	5	30
DMS212	12.4-18	0.6	20	1.30:1	0.2	3	30
DMS220	1-12.4	0.8	20	1.40:1	0.2	2	30

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2-Way Multi-Octave							
Part Number	Frequency GHz	Insertion Loss (dB Max.)	Isolation (dB Min.)	VSWR (Max.)	Amplitude Balance (dB Max.)	Phase Balance (Deg. Max.)	Input Power (Watts Max.)
DMS221	2-18	1	20	1.50:1	0.4	6	30
DMS222	.5-2	0.5	20	1.20:1	0.2	2	30
DMS222/N	.5-2	0.5	23	1.20:1	0.2	2	30
DMS223	2-8	0.5	20	1.20:1	0.2	2	30
DMS224	1-4	0.5	20	1.20:1	0.2	2	30
DMS225	.5-4	0.7	20	1.30:1	0.2	2	30
DMS246	2-6	0.5	20	1.20:1	0.2	2	30
DMS247	6-18.5	0.6	20	1.30:1	0.2	5	30
2-Way Octave							
DMS201	.125-.250	0.25	20	1.20:1	0.2	1	30
DMS202	.225-.400	0.25	20	1.20:1	0.2	1	30
DMS203	.250-.500	0.25	20	1.20:1	0.2	1	30
DMS204	.5-1	0.25	25	1.20:1	0.2	2	30
3-Way Flatpack							
Part Number	Frequency MHz	Insertion Loss (dB Max.)	Isolation (dB Min.)	VSWR (Max.)	Amplitude Balance (dB Max.)	Phase Balance (Deg. Max.)	Input Power (Watts Max.)
DL131	5-500	0.7	23	1.30:1	0.2	3	1.5
DL332	.2-200	0.7	23	1.30:1	0.2	3	1.5
DL333	5-500	0.8	23	1.30:1	0.3	3	1.5
DL335	1000-1500	1.8	16	1.50:1	0.6	6	1.5
DL335	1500-2000	2.3	12	1.80:1	0.6	8	1.5
DL335	20-1000	1.2	20	1.50:1	0.6	4	1.5
DL360	1-600	0.8	26	1.40:1	0.2	3	1.5
3-Way Connectorized							
DL301	.02-20	0.5	30	1.30:1	0.2	3	10
DL302	0.1-100	0.7	30	1.30:1	0.2	3	10
DL303	20-200	0.5	30	1.30:1	0.2	3	2.5
DL304	100-400	0.7	26	1.30:1	0.2	3	2.5
DL305	1-200	0.7	26	1.30:1	0.2	3	1.5
DL306	5-500	0.7	26	1.30:1	0.2	3	1.5
DL307	20-1000	1	20	1.50:1	0.2	3	1.5
DL308	1000-1500	1.5	20	1.50:1	0.6	6	2.5
DL308	1500-2000	1.8	18	1.80:1	0.6	8	2.5
DL308	20-1000	1.3	23	1.40:1	0.4	4	2.5
DL309	1-20	1.8	15	1.50:1	0.5	1	1
DL309	20-1200	1.5	10	1.70:1	0.6	5	1
DL347	1-600	0.8	26	1.40:1	0.2	3	1

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Packaging:
Connectorized,
Flatpak, Drop-in and
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3-Way Octave							
Part Number	Frequency GHz	Insertion Loss (dB Max.)	Isolation (dB Min.)	VSWR (Max.)	Amplitude Balance (dB Max.)	Phase Balance (Deg. Max.)	Input Power (Watts Max.)
DMS322	.5-2	0.5	18	1.30:1	0.2	2	5
DMS324	1-4	0.7	18	1.50:1	0.3	4	5
DMS346	2-6	0.5	18	1.40:1	0.3	3	5
DMS347	6-18.5	1	15	2.00:1	0.5	5	5
4-Way Flatpack							
DL140	.2-200	0.75	26	1.30:1	0.2	2	1.5
DL141	5-500	0.75	26	1.30:1	0.2	2	1.5
DL142	10-700	1	24	1.30:1	0.25	3	1.5
DL432	.2-200	0.75	23	1.30:1	0.3	4	1.5
DL433	5-500	0.75	23	1.30:1	0.3	4	1.5
DL460	1-600	1	23	1.40:1	0.3	4	1
4-Way Connectorized							
Part Number	Frequency MHz	Insertion Loss (dB Max.)	Isolation (dB Min.)	VSWR (Max.)	Amplitude Balance (dB Max.)	Phase Balance (Deg. Max.)	Input Power (Watts Max.)
DL401F	.02-20	0.5	30	1.30:1	0.2	2	5
DL402F	.1-100	0.5	26	1.30:1	0.2	4	5
DL406F	5-500	0.75	26	1.30:1	0.2	2	1.5
DL408F	10-2000	1.5	23	1.70:1	0.8	8	5
DL42030	20-3000	2.25	15	1.5:1	0.3	2	1
DL444	0.2-200	0.7	26	1.30:1	0.2	2	1.5
DL445	5-500	0.8	25	1.30:1	0.2	2	1.5
DL447F	1-600	1	23	1.40:1	0.3	4	1
4-Way Multi-Octave							
Part Number	Frequency GHz	Insertion Loss (dB Max.)	Isolation (dB Min.)	VSWR (Max.)	Amplitude Balance (dB Max.)	Phase Balance (Deg. Max.)	Input Power (Watts Max.)
DMS420	1-12.4	1.5	15	1.70:1	0.5	5	30
DMS421	2-18	1.75	20	1.50:1	0.5	8	30
DMS422	.5-2	0.8	20	1.25:1	0.3	3	30
DMS4225	1.5-3.0	0.5	20	1.30:1	0.3	2	30
DMS423	2-8	1	20	1.30:1	0.3	6	30
DMS424	1-4	0.7	20	1.30:1	0.3	3	30
DMS425	.5-4	1.25	20	1.50:1	0.2	2	30
DMS4319	.38 - .55	1.5	14	1.8:1	0.3	4	30
DMS4319	.55 - 6	1.5	18	1.8:1	0.3	4	30
DMS446	6-Feb	1	20	1.30:1	0.3	6	30
DMS447	6-18.5	1.25	15	1.60:1	0.3	8	30
DMS485	20-Feb	1.8	10	2.00:1	0.8	8	30

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4-Way Octave							
Part Number	Frequency GHz	Insertion Loss (dB Max.)	Isolation (dB Min.)	VSWR (Max.)	Amplitude Balance (dB Max.)	Phase Balance (Deg. Max.)	Input Power (Watts Max.)
DMS401	.125-.250	0.5	25	1.20:1	0.3	3	30
DMS402	.225-.400	0.4	25	1.20:1	0.3	3	30
DMS403	.250-.500	0.5	20	1.25:1	0.3	3	30
DMS404	.5-1	0.5	23	1.25:1	0.2	3	30
DMS405	1-2	0.4	25	1.20:1	0.2	2	30
DMS406	2-4	0.5	25	1.30:1	0.2	4	30
DMS407	2.6-5.2	0.6	20	1.30:1	0.3	3	30
DMS408	4-8	0.6	20	1.30:1	0.3	4	30
DMS409	7-11	0.8	20	1.30:1	0.2	4	30
DMS410	8-12.4	0.8	20	1.30:1	0.3	4	30
DMS411	6-18	1.25	15	1.60:1	0.3	10	30
DMS412	12.4-18	1.25	15	1.60:1	0.3	10	30
6-Way Connectorized							
Part Number	Frequency MHz	Insertion Loss (dB Max.)	Isolation (dB Min.)	VSWR (Max.)	Amplitude Balance (dB Max.)	Phase Balance (Deg. Max.)	Input Power (Watts Max.)
DL62030	20-3000	5	18	1.8:1	1	5	30
6-Way Multi-Octave							
Part Number	Frequency GHz	Insertion Loss (dB Max.)	Isolation (dB Min.)	VSWR (Max.)	Amplitude Balance (dB Max.)	Phase Balance (Deg. Max.)	Input Power (Watts Max.)
DMS621	2-18	3	15	2.00:1	1	15	30
6-Way Octave							
DMS605	1-2	1	20	1.30:1	0.15	5	30
DMS608	4-8	1.5	17	1.70:1	0.5	5	30
DMS646	2-6	1.5	18	1.60:1	1	3	30
DMS647	8-18	1.5	15	1.70:1	0.6	8	30
DMS648	6-18	2	15	2.00:1	1	5	30
8-Way Connectorized							
Part Number	Frequency MHz	Insertion Loss (dB Max.)	Isolation (dB Min.)	VSWR (Max.)	Amplitude Balance (dB Max.)	Phase Balance (Deg. Max.)	Input Power (Watts Max.)
DL802F	.1-100	1	30	1.30:1	0.2	3	2.5
DL803F	20-200	1	25	1.30:1	0.2	3	2.5
DL806F	5-500	1.2	26	1.30:1	0.2	3	1.5
DL808F	20-2000	2.8	20	1.50:1	1	10	5
DL8120	20-1200	1.75	22	1.30:1	0.5	2	2.5
DL82030	20-3000	4.5	18	1.5:1	±0.4	±4	2
DL844	.2-200	1.5	23	1.50:1	0.2	6	1.5
DL845	5-500	1.5	23	1.50:1	0.2	6	1.5

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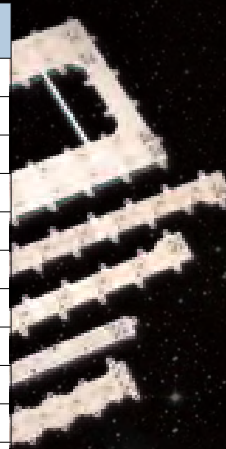
Packaging:
Connectorized,
Flatpak, Drop-in and
Surface Mount.

MIL-E-5400, class 3

8-Way Multi-Octave							
Part Number	Frequency GHz	Insertion Loss (dB Max.)	Isolation (dB Min.)	VSWR (Max.)	Amplitude Balance (dB Max.)	Phase Balance (Deg. Max.)	Input Power (Watts Max.)
DMM8518	.5-6	4	14	2.40:1	1	14	30
DMM8518	.6-8	4	14	1.70:1	1	14	30
DMM8518	8-18	7	14	1.70:1	1	14	30
DMS821	2-18	3	15	1.70:1	0.8	8	30
DMS822	.5-2	1.5	20	1.40:1	0.3	6	30
DMS823	2-8	1.25	20	1.40:1	0.3	6	30
DMS825	.5-4	1.8	20	1.50:1	0.5	2	30
8-Way Octave							
DMS805	1-2	0.75	20	1.50:1	0.25	4	30
DMS806	2-4	0.9	18	1.50:1	0.4	5	30
DMS811	6-18	1.5	15	1.70:1	0.5	5	30
DMS812	12.4-18	1.5	15	1.70:1	0.5	5	30
DMS8225	1.5-3.0	0.8	20	1.40:1	0.3	3	30
DMS8783	7.25-8.40	1	20	1.30:1	0.3	4	30
16-Way Connectorized							
Part Number	Frequency MHz	Insertion Loss (dB Max.)	Isolation (dB Min.)	VSWR (Max.)	Amplitude Balance (dB Max.)	Phase Balance (Deg. Max.)	Input Power (Watts Max.)
DL162030	20-3000	4.5	18	1.6:1	0.8	±10	20
Part Number	Frequency GHz	Insertion Loss (dB Max.)	Isolation (dB Min.)	VSWR (Max.)	Amplitude Balance (dB Max.)	Phase Balance (Deg. Max.)	Input Power (Watts Max.)
DMS1645	2.5 - 6.5	1.8	20	1.5:1	±0.5	8	30

- Extensive Flight Heritage
- Designs are Optimized for Specific Application Need
- Low Risk Heritage Technology

Split	Band	Input	Output	Technology
1 x 2	VHF/UHF	Surface	Surface	Ferrite / Flatpack
1x4	S, UHF	Surface	Surface	Ferrite
1x7	UHF	Surface	Surface	Ferrite/microstrip
2 x 3	X	SMA	SMA	Stripline
2 x 4	X, C, Ku	SMA, SMP	SMP	Stripline
2 x 6	X, Ku	SMA, SMP	SMP	Stripline
2 x 8	UHF	SMA	SMA	Stripline / Ferrite
2 x 8	L	SMA	SMA	Stripline / Ferrite
2 x 8	X	SMA, SMP	SMP	Stripline
2 x 10	X	SMA	SMP	Stripline
2 x12	X	SMA	SMP	Stripline
2 x 18	L, UHF	SMA	SMA	Ferrite
2 x 26	S	SMA	SMA	Stripline
2 x 24	S	SMA	SMP	Stripline
2 x 24	L	SMA	SMP	Stripline
2 x 30	L, S	SMA	SMP	Stripline
2 x 32	S	SMA	SMP	Stripline
2 x 32	VHF	SMA	SMP	Ferrite
2x32 Dual	S/X	SMA	SMP	Stripline
3 x 1	Ku	SMA	SMA	Stripline
3x4	C, S	SMP	SMP	Stripline
3x10	X	SMP	SMP	Stripline
3x12	X	SMP	SMP	Stripline
3x16	Ku	SMP	SMP	Stripline
3 x 24	HF	Surface	Surface	Ferrite / Flatpack
12 x 8	X	MSSS	MSSS	AirStrip
15 x 8	X	MSSS	MSSS	AirStrip
16 x 8	X	MSSS	MSSS	AirStrip
17 x 8	X	MSSS	MSSS	AirStrip
18 x 8	X	MSSS	MSSS	AirStrip
19 x 8	X	MSSS	MSSS	AirStrip
20 x 8	X	MSSS	MSSS	AirStrip



About TRM Microwave

TRM is a global leader in the design and manufacture of custom high-reliability RF and microwave components, integrated assemblies and subsystems solutions for space, defense and commercial markets. Utilizing the best combination of core technologies including ferrite, coaxial, microstrip, stripline and Airstrip™, TRM offers custom and standard power dividers, directional couplers, hybrids, beamformers, baluns, switched combiners, image reject mixers, phase comparators and space qualified components. TRM's base of proven products provides the building blocks required to supply higher level integrated assemblies.

Founded in 1970, TRM Microwave is located in Bedford, NH and its products are promoted through a dedicated, experienced and knowledgeable team of independent field sales representatives throughout the US and international markets.

CONTACT INFORMATION

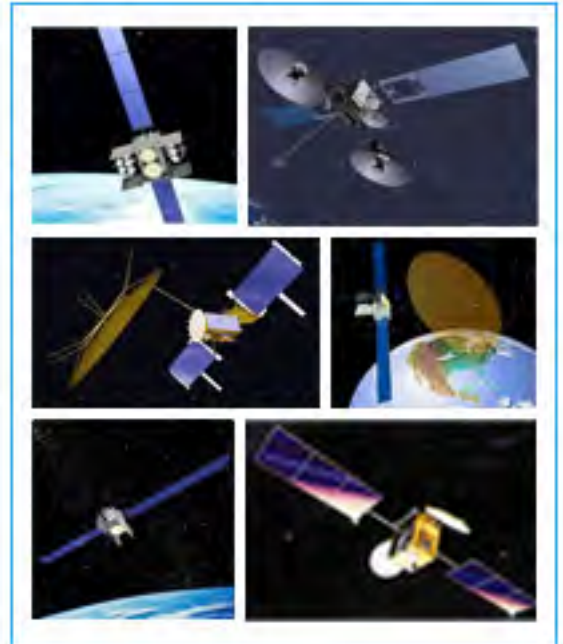
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Southwest Research Institute
Teledyne
ViaSat



TRM will customize component screening levels to meet your specific space qual requirements.



TRM is ISO 9001:2008 certified and is an ITAR compliant facility.