

ELECTRO - PHOTONICS



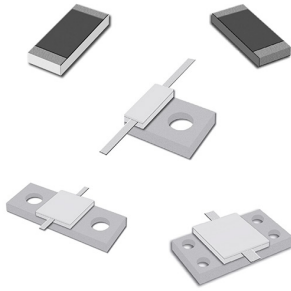
HIGH POWER RESISTIVE COMPONENTS

ELECTRO - PHOTONICS



Since 2009, Electro-Photonics LLC has been offering quality standard and custom products to satisfied customers in the US and around the world. Our customer base includes Fortune 500 companies, small businesses, and universities.

Electro-Photonics is a customer driven company with over 20 years of passive RF components design and manufacturing experience that focuses on as-promised delivery, and specializes in innovative custom designed high frequency components.

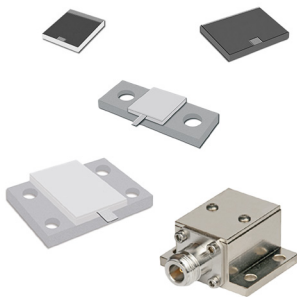


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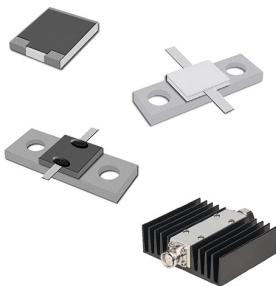
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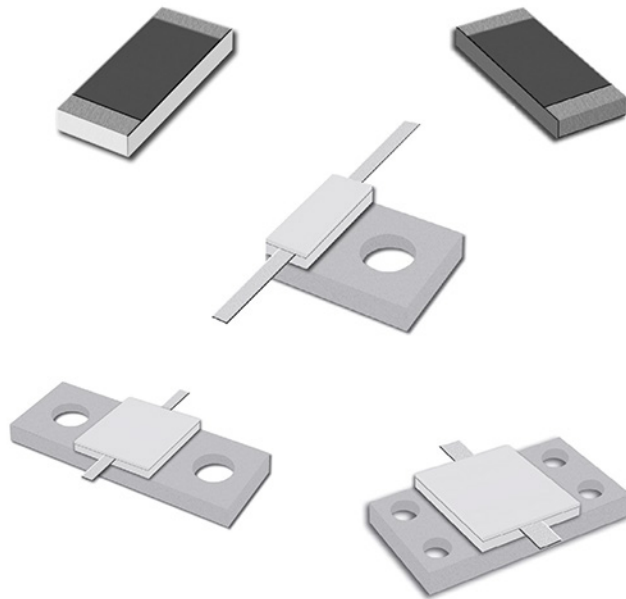
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High Power Resistors

FEATURES

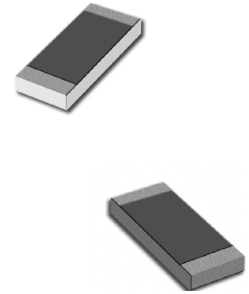
- Frequency Ranges from DC to 6 GHz.
- High Power Handling (up to 1650 W)
- Low Capacitance
- Materials: Aluminum Nitride (AlN) and Beryllium Oxide (BeO)
- RoHS Compliant







Chip Resistors

General Specifications

- Standard Resistance: 50 and 100 Ohms, $\pm 5\%$
- Frequency: DC – 4 GHz
- Substrate Material: BeO (Beryllium Oxide) and AlN (Aluminum Nitride)
- Resistive Film: Thick Film
- Terminals: PtAg and Tin over Nickel



PRODUCT IMAGE	PART NUMBER	FREQUENCY (GHZ)	POWER (W)	STANDARD RESISTANCE (Ω) $\pm 5\%$	CAPACITANCE (PF)	DIMENSIONS INCH	DIMENSIONS [MM]
	CRB-20-XXX	4	20	50 and 100	0.75	0.200 x 0.100 x 0.039	5.08 x 2.54 x 1.0
	CRB-20-XXX-R	4	20	50 and 100	0.75	0.200 x 0.100 x 0.039	5.08 x 2.54 x 1.0
	CRB-20-XXX-G	4	20	50 and 100	0.75	0.200 x 0.100 x 0.039	5.08 x 2.54 x 1.0
	CRN-10-XXX	4	10	50 and 100	0.75	0.200 x 0.100 x 0.039	5.08 x 2.54 x 1.0

Flange Resistors

- Standard Resistance: 50 and 100 Ohms, $\pm 5\%$
- Frequency: DC – 4 GHz
- Substrate Material: BeO (Beryllium Oxide), AlN (Aluminum Nitride)
- Power: 10 – 1650 W CW Lead-Free, RoHS certified

PRODUCT IMAGE	EP PART NUMBER	FREQUENCY (GHZ)	POWER (W)	STANDARD RESISTANCE (Ω) $\pm 5\%$	CAPACITANCE (PF)	DIMENSIONS INCH	DIMENSIONS [MM]
	EPFR-300-B10-XXX	4	10	50 and 100	0.8	0.300 x 0.200 x 0.146	7.62 x 5.08 x 3.7
	EPFR-516-B30-XXX	3	30	50 and 100	1	0.516 x 0.250 x 0.157	13.1 x 6.35 x 4.0
	EPFR-516-B100-XXX	3	100	50 and 100	1.2	0.516 x 0.250 x 0.137	13.1 x 6.35 x 3.50
	EPFR-800-B150-XXX	2.5	150	50 and 100	2	0.800 x 0.230 x 0.169	20.32 x 5.84 x 4.30
	EPFR-870-B150-XXX	2.5	150	50 and 100	2.2	0.870 x 0.375 x 0.169	22.10 x 9.53 x 4.30
	EPFR-975-B250-XXX	2.5	250	50 and 100	2	0.975 x 0.375 x 0.224	24.77 x 9.53 x 5.70
	EPFR-1100-B400-XXX	1	400	50 and 100	4.2	1.100 x 0.500 x 0.236	27.94 x 12.7 x 6.00
	EPFR-1250-B500-XXX	1	500	50 and 100	4.2	1.250 x 0.500 x 0.236	31.75 x 12.7 x 6.00
	EPFR-1900-B800-XXX	1	800	50 and 100	14	1.900 x 1.040 x 0.346	48.2 x 26.4 x 8.8
	EPFR-1900-B1000-XXX	1	1000	50 and 100	10	1.900 x 1.040 x 0.358	48.2 x 26.4 x 9.1


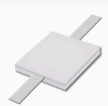
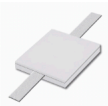
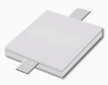
Flange Resistors

PRODUCT IMAGE	EP PART NUMBER	FREQUENCY (GHZ)	POWER (W)	STANDARD RESISTANCE (Ω) \pm 5%	CAPACITANCE (PF)	DIMENSIONS INCH	DIMENSIONS [MM]
	EPFR-1900-B1200-XXX	1	1200	50 and 100	8	1.900 x 1.040 x 0.398	48.2 x 26.4 x 10.1
	EPFR-1900-B1350-XXX	1	1350	50 and 100	11	1.900 x 1.040 x 0.398	48.2 x 26.4 x 10.1
	EPFR-1900-B1500-XXX	1	1500	50 and 100	11	1.900 x 1.260 x 0.398	48.2 x 32 x 10.1
	EPFR-1900-B1650-XXX	1	1650	50 and 100	13	1.900 x 1.260 x 0.398	48.2 x 32 x 10.1
	EPFR-300-N20-XXX	3	20	50 and 100	1	0.300 x 0.200 x 0.146	7.62 x 5.08 x 3.7
	EPFR-516-N60-XXX	2.5	60	50 and 100	2.5	0.516 x 0.250 x 0.101	13.1 x 6.35 x 2.57
	EPFR-975-N250-XXX	1	250	50 and 100	4.2	0.975 x 0.375 x 0.149	24.77 x 9.53 x 3.79
	EPFR-1250-N400-XXX	1.5	400	50 and 100	3.5	1.250 x 0.500 x 0.228	31.75 x 12.7 x 5.80
	EPFR-1900-N600-XXX	1	600	50 and 100	14	1.900 x 1.040 x 0.346	48.2 x 26.4 x 8.8
	EPFR-1900-N800-XXX	1	800	50 and 100	12	1.900 x 1.040 x 0.378	48.2 x 26.4 x 9.6
	EPFR-1900-N1000-XXX	1	1000	50 and 100	11	1.900 x 1.040 x 0.397	48.2 x 26.4 x 10.1

Flangeless Resistors

- **General Specifications**

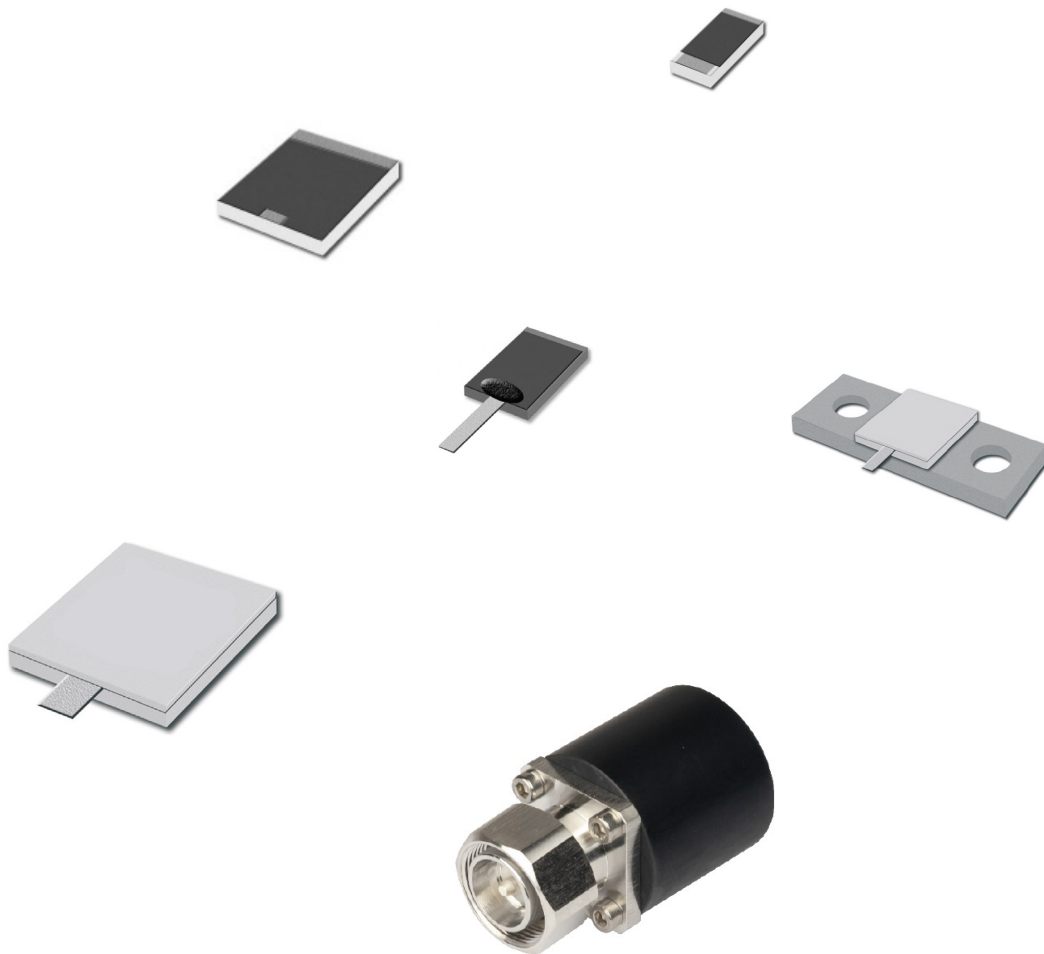
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- Standard Resistance: 50 and 100 Ohms, $\pm 5\%$
- Frequency: DC – 2.2 GHz
- Substrate Material: BeO (Beryllium Oxide), AlN (Aluminum Nitride)
- Resistive Film: Thick Film
- Power: 150 – 800 W CW
- Lead-Free, RoHS compliant

PRODUCT IMAGE	EP PART NUMBER	FREQUENCY (GHZ)	POWER (W)	STANDARD RESISTANCE ($\Omega \pm 5\%$)	CAPACITANCE (PF)	DIMENSIONS INCH	DIMENSIONS [MM]
	EPFLR-B150-XXX	2.2	150	100	2.2	0.375 x 0.250 x 0.110	9.53 x 6.35 x 2.8
	EPFLR-B250-XXX	2	250	50, 100	3.7	0.375 x 0.375 x 0.110	9.53 x 9.53 x 2.8
	EPFLR-B500-XXX	1	500	50 -100	3.1	0.500 x 0.500 x 0.122	12.7 x 12.7 x 3.1
	EPFLR-B800-XXX	0.25	800	50 -100	14	1.000 x 1.000 x 0.110	25.4 x 25.4 x 2.8

High Power Terminations


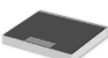

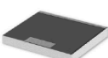



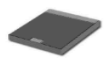


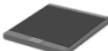
FEATURES

- Frequency Ranges from DC to 22GHz.
- High Power Handling (up to 1650 W)
- Excellent VSWR
- Materials: AlN, BeO and Alumina
- RoHS Compliant



Chip Terminations

- Standard Resistance: 50 Ohms \pm 5%
- Frequency: DC - 22 GHz
- Substrate Material: BeO (Beryllium Oxide), AlN (Aluminum Nitride), or Alumina
- Power: 5 - 500 W CW
- Lead-Free, RoHS certified

PRODUCT IMAGE	EP PART NUMBER	FREQUENCY (GHZ)	POWER (W)	VSWR (MAX)	RESISTANCE (Ω) \pm 5%	DIMENSIONS INCH	DIMENSIONS [MM]
	CTB-5-50	22	5	1.15	50	0.067 x 0.067 x 0.020	1.7 x 1.7 x 0.381
	CTB-10-50	18	10	1.3	50	0.100 x 0.121 x 0.025	2.54 x 3.08 x 0.635
	CTB-15-50	4	15	1.25	50	0.100 x 0.05 x 0.010	2.54 x 1.27 x 0.254
	CTB-400-50	2	400	1.15	50	0.500 x 0.500 x 0.075	12.7 x 12.7 x 1.9
	CTN-10-50	3	10	1.2	50	0.200 x 0.100 x 0.025	5.08 x 2.54 x 0.635
	CTN-20-50	14	20	1.3	50	0.125 x 0.125 x 0.025	3.17 x 3.17 x 0.635
	CTN-35-50	11	35	1.3	50	0.166 x 0.250 x 0.025	4.23 x 6.35 x 0.635
	CTN-100-50	6	100	1.2	50	0.200 x 0.200 x 0.039	5.08 x 5.08 x 1
	CTN-150-50	4	150	1.2	50	0.370 x 0.250 x 0.047	9.4 x 6.35 x 1.2
	CTN-50-50	8	50	1.3	50	0.125 x 0.200 x 0.635	3.17 x 5.08 x 0.635
	CTN-250-50	2.2	250	1.15	50	0.374 x 0.374 x 0.039	9.5 x 9.5 x 1



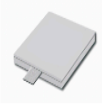


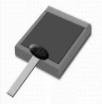

Flange Terminations

- Standard Resistance: 50 Ohms \pm 5%
- Frequency: DC – 18 GHz
- Substrate Material: BeO (Beryllium Oxide), AlN (Aluminum Nitride)
- Power: 10 – 1650 W CW
- Lead-Free, RoHS certified

PRODUCT IMAGE	EP PART NUMBER	FREQUENCY (GHZ)	POWER (W)	VSWR (MAX)	RESISTANCE (Ω) \pm 5%	DIMENSIONS INCH	DIMENSIONS [MM]
	EPFT-1900-BE1000-50-5	2.4 -2.5	1000	1.15	50	1.898 x 1.040 x 0.295	48.20 x 26.40 x 7.5
	EPFT-975-B250-50-5	4	250	1.2	50	0.975 x 0.375 x 0.193	24.77 x 9.53 x 4.92
	EPFT-1250-B500-50-5	4	500	1.2	50	1.250 x 0.500 x 0.236	31.75 x 12.70 x 6.00
	EPFT-1900-B1650-50-5	1.5	1650	1.3	50	1.897 x 1.260 x 0.398	48.20 x 32.00 10.10
	EPFT-300-N10-50-5	18	10	1.35	50	0.300 x 0.200 x 0.102	7.62 x 5.08 x 2.60
	EPFT-516-N40-50-5	9	40	1.25	50	0.516 x 0.250 x 0.087	13.1 x 6.35 x 2.20
	EPFT-516-N80-50-5	6	80	1.2	50	0.516 x 0.250 x 0.101	13.1 x 6.35 x 2.57
	EPFT-516-N100-50-5	5	100	1.2	50	0.516 x 0.250 x 0.150	13.1 x 6.35 x 3.80
	EPFT-870-N150-50-5	4	150	1.2	50	0.870 x 0.375 x 0.121	22.1 x 9.53 x 3.07
	EPFT-1250-N400-50-5	1	400	1.1	50	1.250 x 0.500 x 0.228	31.75 x 12.70 x 5.80
	EPFT-1900-N800-50-5	1	800	1.25	50	1.898 x 1.040 x 0.378	48.20 x 26.40 x 9.60
	EPFT-1900-N1000-50-5	1	1000	1.1	50	1.898 x 1.040 x 0.421	48.20 x 26.4 x 10.70

Flangeless Terminations

- Standard Resistance: 50 Ohms \pm 5%
- Frequency: DC – 12 GHz
- Substrate Material: BeO (Beryllium Oxide), AlN (Aluminum Nitride)
- Power up to 800W CW
- Lead-Free, RoHS certified

PRODUCT IMAGE	PART NUMBER	FREQUENCY (GHZ)	POWER (W)	VSWR	IMPEDANCE (Ω) \pm 5%	DIMENSIONS INCH	DIMENSIONS MM
	EPFLT-B250-50-5	3	250	1.25	50	0.370 x 0.370 x 0.083	9.4 x 9.4 x 2.1
	EPFLT-B500-50-5	4	500	1.2	50	0.500 x 0.500 x 0.098	12.7 x 12.7 x 2.5
	EPFLT-B800-50-5	1	800	1.2	50	1.00 x 1.00 x 0.106	25.4 x 25.4 x 2.7
	EPFLT-N10-50-5	12	10	1.35	50	0.100 x 0.200 x 0.028	2.54 x 5.08 x 0.7
	EPFLT-N25-50-5	4	25	1.2	50	0.200 x 0.100 x 0.025	5.08 x 2.54 x 0.635
	EPFLT-N100-50-5	4	100	1.25	50	0.250 x 0.250 x 0.059	6.35 x 6.35 x 1.5
	EPFLT-N150-50-5	4	150	1.2	50	0.370 x 0.250 x 0.047	9.4 x 6.35 x 1.2

Coaxia Terminations

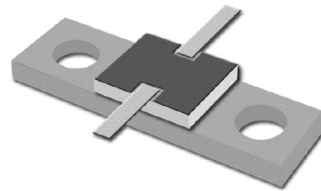
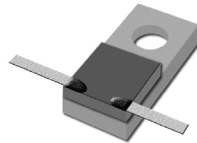
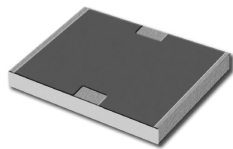
- Standard Resistance: 50 Ohms \pm 5%
- Frequency: DC – 6 GHz
- Power up to 250W CW
- Lead-Free, RoHS certified

PRODUCT IMAGE	EP PART NUMBER	FREQUENCY (GHZ)	POWER (W)	VSWR (MAX)	IMPEDANCE (Ω) \pm 5%	CONNECTOR
	EPTC-10-50-NM	5	10	1.2	50	N (m)
	EPTC-6-50-4.3-10M	4	6	1.2	50	4.3-10 (m or f)
	EPTC-25-50-NM	4	25	1.2	50	N- male
	EPTC-60-50-NF	6	60	1.2	50	N -female
	EPTC-250-50-NM	6	250	1.25	50	N- male
	EPCRT-150-2-50-5	2	150	1.06	50	SMA

High Power Attenuators

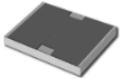
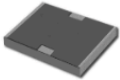
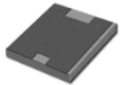
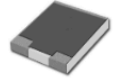
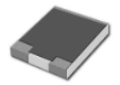
FEATURES

- Frequency: DC - 6 GHz
- Power up to 200 W
- Materials: AlN, BeO and Alumina



Chip Attenuators

- Standard Attenuation Values: 1 – 30 dB
- Frequency: DC – 3.5 GHz
- Substrate Material: BeO (Beryllium Oxide), AlN (Aluminum Nitride), and Alumina
- Resistive Film: Thick Film
- Terminals: PtAg and Tin over Nickel
- Lead-Free, RoHS compliant

PRODUCT IMAGE	EP PART NUMBER	FREQUENCY (GHZ)	POWER (W)	VSWR (MAX)	DIMENSIONS [INCH]	DIMENSIONS [MM]
	CAB-50-XX	3	50	1.25	0.350 x 0.230 x 0.040	8.89 x 5.84 x 1.0
	CAB-10-XX	3.5	10	1.25	0.250 x 0.250 x 0.025	6.35 x 6.35 x 0.635
	CAN-100-XX	3	100	1.2	0.350 x 0.225 x 0.040	8.89 x 5.71 x 1.0
	CAN-200-XX	2.2	200	1.2	0.374 x 0.374 x 0.040	9.50 x 9.50 x 1.00
	CAN-10-XX	3.5	10	1.25	0.250 x 0.250 x 0.025	6.35 x 6.35 x 0.635
	CAA-3-XX	2	3	1.2	0.250 x 0.250 x 0.025	6.35 x 6.35 x 0.635


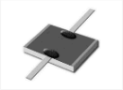

Flange Attenuators

- Standard Attenuation Values: 1 – 30dB
- Frequency: DC – 4 GHz
- Substrate Material: BeO (Beryllium Oxide), AlN (Aluminum Nitride)
- Resistive Film: Thick Film
- Power: 10 – 100 W CW
- Lead-Free, RoHS certified

PRODUCT IMAGE	EP PART NUMBER	FREQUENCY (GHZ)	POWER (W)	VSWR (MAX)	DIMENSIONS [INCH]	DIMENSIONS [MM]
	EPFA-300-B10-XXX	4	10	1.25	0.300 x 0.200 x 0.146	7.62 x 5.08 x 3.7
	EPFA-516-B20-XXX	3	20	1.25	0.516 x 0.250 x 0.157	13.1 x 6.35 x 4.0
	EPFA-516-B50-XXX	3	50	1.25	0.516 x 0.250 x 0.153	13.1 x 6.35 x 3.9
	EPFA-800-B50-XXX	3	50	1.25	0.800 x 0.230 x 0.101	20.32 x 5.84 x 2.58
	EPFA-800-B100-XXX	3	100	1.2	0.800 x 0.230 x 0.152	20.32 x 5.84 x 3.8
	EPFA-516-N50-XXX	3	50	1.25	0.516 x 0.250 x 0.101	13.1 x 6.35 x 2.57
	EPFA-800-N100-XXX	3	100	1.2	0.800 x 0.230 x 0.101	20.32 x 5.84 x 2.58

Flangeless Attenuators

- Standard Attenuation Values: 1 – 30dB
- Frequency: DC – 3 GHz
- Substrate Material: BeO (Beryllium Oxide), AlN (Aluminum Nitride)
- Resistive Film: Thick Film
- Power: 20 – 100 W CW
- Lead-Free, RoHS compliant


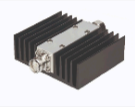
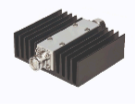

PRODUCT IMAGE	EP PART NUMBER	FREQUENCY (GHZ)	POWER (W)	VSWR (MAX)	DIMENSIONS [INCH]	DIMENSIONS [MM]
	EPFLA-250-B20-XXX	3	20	1.25	0.250 x 0.250 x 0.083	6.35 x 6.35 x 2.1
	EPFLA-350-B50-XXX	3	50	1.25	0.350 x 0.230 x 0.043	8.89 x 5.84 x 1.1
	EPFLA-350-B100-XXX	3	100	1.2	0.350 x 0.225 x 0.043	8.89 x 5.71 x 1.1

Coaxial Attenuators

Standard Attenuation Values: 1 – 30dB

Frequency: DC – 6 GHz

Power: up to 100W

PRODUCT IMAGE	EP PART NUMBER	FREQUENCY (GHZ)	POWER (W)	VSWR (MAX)
	EPAC-25-XX-NM	6	25	1.3
	EPAC-40-XX-7-16	4	40	1.3
	EPAC-60-XX-NM	6	60	1.3
	EPAC-100-XX-NM	6	100	1.3

Power Conversion Table

dBm	Watts	dBm	Watts	dBm	Watts
30.0	1.00	36.8	4.79	43.6	22.91
30.2	1.05	37.0	5.01	43.8	23.99
30.4	1.10	37.2	5.25	44.0	25.12
30.6	1.15	37.4	5.50	44.2	26.30
30.8	1.20	37.6	5.75	44.4	27.54
31.0	1.26	37.8	6.03	44.6	28.84
31.2	1.32	38.0	6.31	44.8	30.20
31.4	1.38	38.2	6.61	45.0	31.62
31.6	1.45	38.4	6.92	45.2	33.11
31.8	1.51	38.6	7.24	45.4	34.67
32.0	1.58	38.8	7.59	45.6	36.31
32.2	1.66	39.0	7.94	45.8	38.02
32.4	1.74	39.2	8.32	46.0	39.81
32.6	1.82	39.4	8.71	46.2	41.69
32.8	1.91	39.6	9.12	46.4	43.65
33.0	2.00	39.8	9.55	46.6	45.71
33.2	2.09	40.0	10.00	46.8	47.86
33.4	2.19	40.2	10.47	47.0	50.12
33.6	2.29	40.4	10.96	47.2	52.48
33.8	2.40	40.6	11.48	47.4	54.95
34.0	2.51	40.8	12.02	47.6	57.54
34.2	2.63	41.0	12.59	47.8	60.26
34.4	2.75	41.2	13.18	48.0	63.10
34.6	2.88	41.4	13.80	48.2	66.07
34.8	3.02	41.6	14.45	48.4	69.18
35.0	3.16	41.8	15.14	48.6	72.44
35.2	3.31	42.0	15.85	48.8	75.86
35.4	3.47	42.2	16.60	49.0	79.43
35.6	3.63	42.4	17.38	49.2	83.18
35.8	3.80	42.6	18.20	49.4	87.10
36.0	3.98	42.8	19.05	49.6	91.20
36.2	4.17	43.0	19.95	49.8	95.50
36.4	4.37	43.2	20.89	50.0	100.00
36.6	4.57	43.4	21.88	50.2	105.00

Power Conversion Table

dBm	Watts	dBm	Watts	dBm	Watts
50.4	110	57.0	501	63.6	2291
50.6	115	57.2	525	63.8	2399
50.8	120	57.4	550	64.0	2512
51.0	126	57.6	575	64.2	2630
51.2	132	57.8	603	64.4	2754
51.4	138	58.0	631	64.6	2884
51.6	145	58.2	661	64.8	3020
51.8	151	58.4	692	65.0	3162
52.0	158	58.6	724	65.2	3311
52.2	166	58.8	759	65.4	3467
52.4	174	59.0	794	65.6	3631
52.6	182	59.2	832	65.8	3802
52.8	191	59.4	871	66.0	3981
53.0	200	59.6	912	66.2	4169
53.2	209	59.8	955	66.4	4365
53.4	219	60.0	1000	66.6	4571
53.6	229	60.2	1047	66.8	4786
53.8	240	60.4	1096	67.0	5012
54.0	251	60.6	1148	67.2	5248
54.2	263	60.8	1202	67.4	5495
54.4	275	61.0	1259	67.6	5754
54.6	288	61.2	1318	67.8	6026
54.8	302	61.4	1380	68.0	6310
55.0	316	61.6	1445	68.2	6607
55.2	331	61.8	1514	68.4	6918
55.4	347	62.0	1585	68.6	7244
55.6	363	62.2	1660	68.8	7586
55.8	380	62.4	1738	69.0	7943
56.0	398	62.6	1820	69.2	8318
56.2	417	62.8	1905	69.4	8710
56.4	437	63.0	1995	69.6	9120
56.6	457	63.2	2089	69.8	9550
56.8	479	63.4	2188	70.0	10000

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