

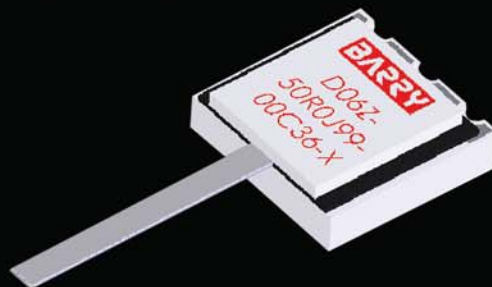
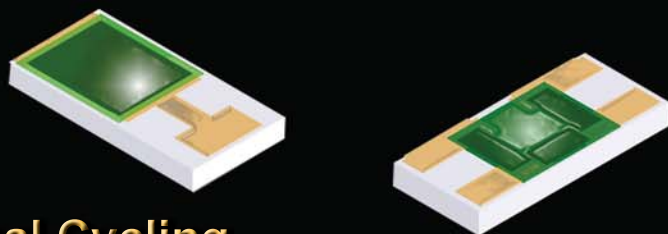
BARRY

www.barryind.com

Resistive Components

Terminations, Resistors and Attenuators

- Custom Precision Chips
- High Power Components
 - Flanged
 - Leaded
 - Chips
- Surface Mount
- Pulsed Power-High Thermal Cycling



RoHS Compliant



ISO 9001:2000 Certified

ITAR Registered

Barry Industries, Inc., 60 Walton Street, Attleboro, Massachusetts 02703 U.S.A.
Tel: +1-508-226-3350 Fax: +1-508-226-3317 E-mail: sales @barryind.com

About Us

Founded in 1977, Barry Industries is an internationally renowned supplier to the electronics and communications market. Our focus is to provide our customers with the highest level of product quality available, supported by world class customer service.

Barry Industries is an approved vendor to the leading manufacturers of military, commercial, aerospace, and medical products; the “Who’s Who?” in the marketplace. Barry’s products are used in telecommunications, space, and healthcare applications of all types.

We offer application assistance on your projects and leading edge technology to support your R&D efforts. With our extensive research and development capabilities, we believe that product development can be achieved in conjunction with your team, bringing the product you desire to reality.

Barry is ISO 9001:2000 Certified. We carry a complete line of of RoHS Compliant products. We are also ITAR Registered.

Vertical integration is the key to our quality and success. Total in-house control of the manufacturing process using our own machine shop, lasers, and state-of-the-art electroplating facilities means that we can avoid delays in product delivery.

We are your partner. We manufacture quality components that you need to make your programs a success.

Barry product offerings include... Low Power Precision Chips; High Power Terminations, Resistors, Attenuators and Surface Mount Products; Pulsed Power Devices; Low Capacitance Resistors; Semiconductor Packages-HTCC (High Temperature Co-Fired Ceramic); LTCC Products (Low Temperature Co-Fired Ceramic); Machining and Plating Services.

Carefully selected strategic alliances with best-of-breed leaders in manufacturing technology permit us to offer the broadest product line of high-reliability components available in the industry.

Barry’s worldwide network ensures that you will always have a Barry representative close at hand to speak with, in your own language and time zone. This is part of our continued commitment to customer service.

We invite you to visit our facility. We know that you will like what we have to show you.



Barry’s Product Warranty can be located on our web site: www.barryind.com



Barry Industries, Inc.
60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

Index

Your Ceramic Solutions Provider

Barry Industries welcomes custom requests and all customer specifications.

About Us _____ 2

Index _____ 3

Precision Chip Components _____ 4

RESISTOR SERIES (Precision Chip):

RP (Dual Wrap) _____	5
RK (Quarter Wrap) _____	6
RM (Flip Chip w/Back Metallization) _____	7
RS (Flip Chip, No Back Metallization) _____	8

TERMINATION SERIES (Precision Chip):

TV/TVC (Half Wrap) _____	9
--------------------------	---

ATTENUATOR SERIES (Precision Chip):

AP (Full Wrap) _____	10
AV/AVC (Half Wrap) _____	11
AK (Quarter Wrap) _____	12
AT/ATC (3-Sided Wrap) _____	13
AM (Flip Chip w/Back Metallization) _____	14
AS (Flip Chip, No Back Metallization) _____	15

High Power Components _____ 16

High Power Notes _____ 17

HIGH POWER PRODUCTS:

Flanged Terminations _____	18-19
Leaded Terminations _____	20-21
Power Chip Terminations _____	22-23
Flanged Resistors _____	24-25
Leaded Resistors _____	26
Power Chip Resistors _____	27
Flanged Attenuators _____	28-29
Leaded Attenuators _____	30-31
Power Chip Attenuators _____	32-33
Surface Mount Resistors and Terminations _____	34-35
Pulsed Power Attenuators, Resistors, Terminations _____	36-37

Reference Tools _____ 38-39



Barry Industries, Inc.
60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

Precision Chip Components

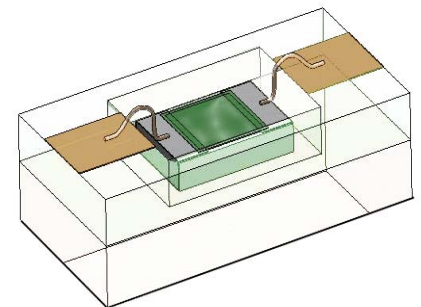
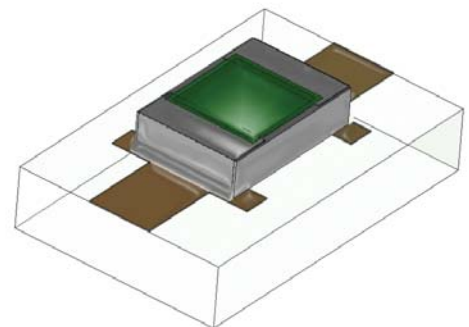
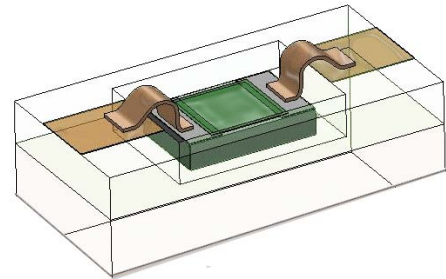
Chip components are the smallest and lowest cost components available. Ideal for surface mount applications and resistive elements for your custom designs. Custom requests are welcome.

- √ Custom resistor values ranging from 0.1 Ohm to 1.0 Gigohm
 - √ Custom attenuator values from 0.25 dB to 32 dB
 - √ Several metallization schemes
 - √ Multiple substrate choices
 - √ A variety of resistor configurations
 - √ Packaging options: Tape & Reel available on sizes 0402 through 3725
Waffle or bulk packing available for all chips
 - √ ITAR Registered
 - √ Many designs are RoHS Compliant.....
- √ ISO9001:2000 Certified by.....



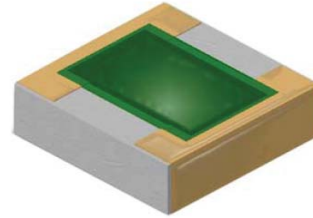
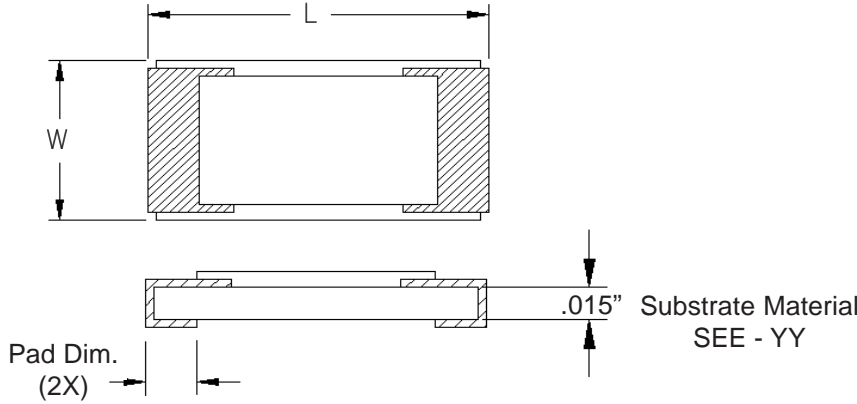
Several Package Styles to Select From:

Package	Description	Page #
RESISTORS - PRECISION CHIP		
RP	Dual Wrap	5
RK	Quarter Wrap	6
RM	Flip Chip w/Back Metallization	7
RS	Flip Chip, No Back Metallization	8
TERMINATIONS - PRECISION CHIP		
TV/TVC	Half Wrap	9
ATTENUATORS - PRECISION CHIP		
AP	Full Wrap Around	10
AV/AVC	Half Wrap	11
AK	Quarter Wrap	12
AT/ATC	3-Sided Wrap	13
AM	Flip Chip w/Back Metallization	14
AS	Flip Chip, No Back Metallization	15



Barry Industries, Inc.
60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

RP Resistor Series

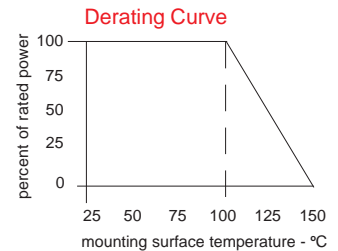


Dual Wrap Around Resistor

(Images for reference purposes only.)

RP	1005	ZZ	-	XXXX	W	N	-	YY
Dual Wrap Around Resistor	Example Size .100" x .050" (see table below)	Termination Material and Finish		.1 Ohms to 1 Gigohm (see examples below)	Tolerance	Normal Inspection		Substrates
	L x W	Pad Dim. (Min.)		0.5 R500 1 1R00 10 10R0 50 50R0 100 ... 1000 150 ... 1500 1K 1001 10K .. 1002 100K 1003 470K 4703 1M 1004	F 1% G 2% J 5% K 10% L 20%			91 ..... .015" Alumina 96 ..... .015" BeO 2Q ..... .015" AlN
RP	0302	.030" x .020"		.007"				
RP	0402	.040" x .020"		.011"				
RP	0502	.050" x .020"		.013"				
RP	0503	.050" x .030"		.012"				
RP	0504	.050" x .040"		.014"				
RP	0505	.050" x .050"		.012"				
RP	0603	.060" x .030"		.010"				
RP	0605	.060" x .050"		.012"				
RP	0805	.075" x .050"		.013"				
RP	1005	.100" x .050"		.012"				
RP	1010	.100" x .100"		.015"				
RP	1206	.120" x .060"		.025"				
RP	1505	.150" x .050"		.015"				
RP	2010	.200" x .100"		.019"				
RP	2512	.250" x .120"		.020"				

Part Number Example:
RP1005CB-50R0JN-91



Termination Material/Finish



BeO Alumina ALN Solder Epoxy Wirebond

Termination	BeO	Alumina	ALN	Solder	Epoxy	Wirebond
AS - Tin Lead over Platinum Palladium Gold	No	Yes	Yes	No	Yes	No
BA - Palladium Silver	Yes	No	Yes	Yes	No	No
CB - Tin Lead over Nickel over Silver	No	Yes	Yes	No	Yes	No
CT - Matte Tin over Nickel over Silver	Yes	Yes	Yes	Yes	No	No
GA - Gold	Yes	No	Yes	Yes	No	Yes
HA* - Gold over Plat.Palladium Gold I/O with Plat.Palladium Gold Ground	Yes	Yes	No	No	Yes (GND)	Yes (I/O)
JA - Gold over Platinum Palladium Gold	Yes	Yes	No	No	No	Yes

*I/O = Input/Output Pads

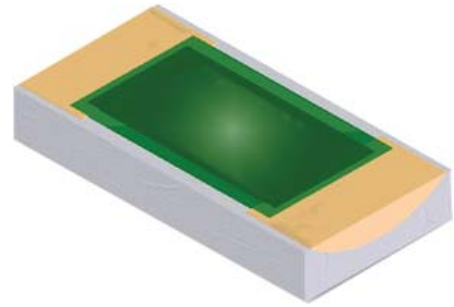
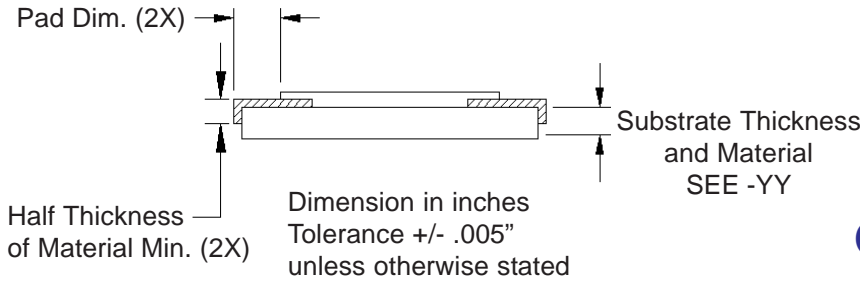
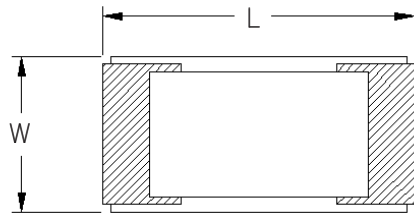


Barry Industries, Inc.

60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.

Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

RK Resistor Series



Quarter Wrap Resistor

(Images for reference purposes only.)

RK 1005 ZZ - XXXX W N - YY

Quarter Wrap Resistor

Example Size .100" x .050" (see table below)

Termination Material and Finish

.1 Ohms to 1 Gigohm (see examples below)

Tolerance

Normal Inspection

Substrates

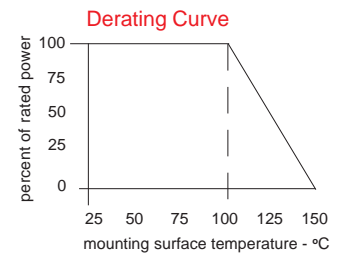
RK	Part No.	L x W	Pad Dim. (Min.)
RK	0302	.030" x .020"	.006"
RK	0402	.040" x .020"	.004"
RK	0502	.050" x .020"	.010"
RK	0503	.050" x .030"	.010"
RK	0504	.050" x .040"	.010"
RK	0505	.050" x .050"	.012"
RK	0603	.060" x .030"	.010"
RK	0805	.075" x .050"	.013"
RK	1005	.100" x .050"	.015"
RK	1010	.100" x .100"	.005"
RK	1206	.120" x .060"	.025"
RK	1505	.150" x .050"	.015"
RK	2010	.206" x .100"	.019"
RK	2512	.250" x .120"	.020"

- 0.5 R500
- 1 1R00
- 10 10R0
- 50 50R0
- 100 ... 1000
- 150 ... 1500
- 1K 1001
- 10K .. 1002
- 100K 1003
- 470K 4703
- 1M 1004

- F 1%
- G 2%
- J 5%
- K 10%
- L 20%

- 91015" Alumina
- 93025" Alumina
- 81015" BeO Free
- 83025" BeO Free
- 96015" BeO
- 98025" BeO
- 2Q015" AlN
- 2S025" AlN

Part Number Example:
RK1005CB-50R0JN-91



Termination Material/Finish



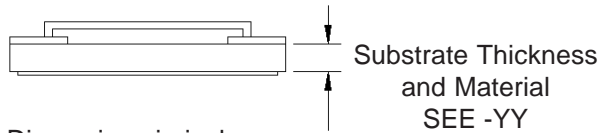
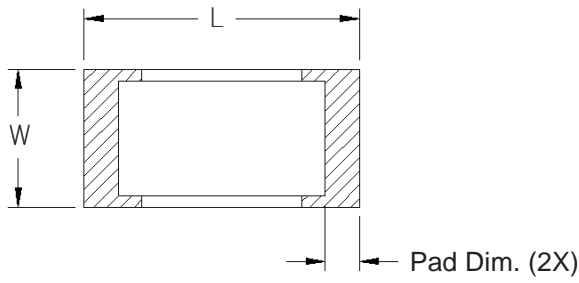
BeO Alumina ALN Solder Epoxy Wirebond

Termination	BeO	Alumina	ALN	Solder	Epoxy	Wirebond
AS - Tin Lead over Platinum Palladium Gold	No	Yes	Yes	No	Yes	No
BA - Palladium Silver	Yes	No	Yes	Yes	No	No
CB - Tin Lead over Nickel over Silver	No	Yes	Yes	No	Yes	No
CT - Matte Tin over Nickel over Silver	Yes	Yes	Yes	Yes	No	No
GA - Gold	Yes	No	Yes	Yes	No	Yes

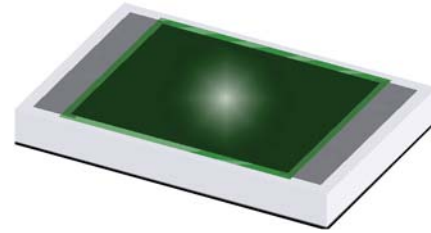


Barry Industries, Inc.
60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

RM Resistor Series



Dimensions in inches
Tolerance +/- .005"
unless otherwise stated

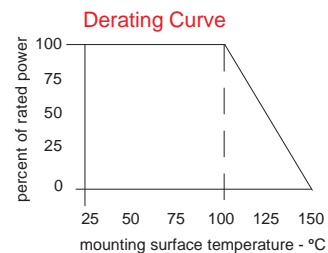


Flip Chip w/Back Metallization

(Images for reference purposes only.)

RM	1005	ZZ	XXXX	W	N	YY
Flip Chip w/Back Metallization	Example Size .100" x .050" (see table below)	Termination Material and Finish	.1 Ohms to 1 Gighom (see examples below)	Tolerance	Normal Inspection	Substrates
	L x W	Pad Dim. (Min.)	0.5 R500 1 1R00 10 10R0 50 50R0 100 ... 1000 150 ... 1500 1K 1001 10K .. 1002 100K 1003 470K 4703 1M 1004	F 1% G 2% J 5% K 10% L 20%		90 ..... .010" Alumina 91 ..... .015" Alumina 93 ..... .025" Alumina 94 ..... .040" Alumina 95 ..... .010" BeO 96 ..... .015" BeO 98 ..... .025" BeO 99 ..... .040" BeO 9F ..... .060" BeO 2S ..... .025" AlN 2T ..... .040" AlN
RM 0202	.025" x .025"	.007"				
RM 0302	.030" x .020"	.005"				
RM 0402	.040" x .020"	.010"				
RM 0502	.050" x .020"	.009"				
RM 0503	.050" x .030"	.010"				
RM 0505	.050" x .050"	.009"				
RM 0603	.060" x .030"	.008"				
RM 0605	.060" x .050"	.010"				
RM 0802	.080" x .020"	.018"				
RM 0805	.075" x .050"	.015"				
RM 1005	.100" x .050"	.010"				
RM 1010	.100" x .100"	.015"				
RM 1206	.120" x .060"	.025"				
RM 1505	.150" x .050"	.015"				
RM 2010	.200" x .100"	**				
RM 2335	.230" x .350"	**				
RM 2510	.250" x .100"	**				
RM 2512	.250" x .125"	.020"				
RM 2525	.250" x .250"	.045"				
RM 3725	.375" x .250"	**				
RM 3737	.375" x .375"	**				

Part Number Example:
RM1005CB-50R0JN-90



Termination Material/Finish



BeO Alumina ALN Solder Epoxy Wirebond

Termination Material/Finish	BeO	Alumina	ALN	Solder	Epoxy	Wirebond
AS - Tin Lead over Platinum Palladium Gold	No	Yes	Yes	No	Yes	No
BA - Palladium Silver	Yes	No	Yes	Yes	No	Yes
CB - Tin Lead over Nickel over Silver	No	Yes	Yes	No	Yes	No
CT - Matte Tin over Nickel over Silver	Yes	Yes	Yes	Yes	Yes	No
EA* - Gold I/O with Palladium Silver Ground	Yes	No	Yes	No	Yes (GND)	Yes (I/O)
FA* - Gold I/O with Platinum Palladium Gold Ground	Yes	No	Yes	No	Yes (GND)	Yes (I/O)
GA - Gold	Yes	No	Yes	Yes	No	Yes
HA* - Gold over Plat.Palladium Gold I/O with Plat.Palladium Gold Ground	Yes	Yes	No	No	Yes (GND)	Yes (I/O)
JA - Gold over Platinum Palladium Gold	Yes	Yes	No	No	No	Yes

*I/O = Input/Output Pads

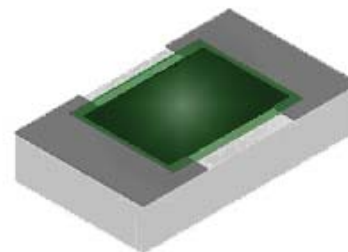
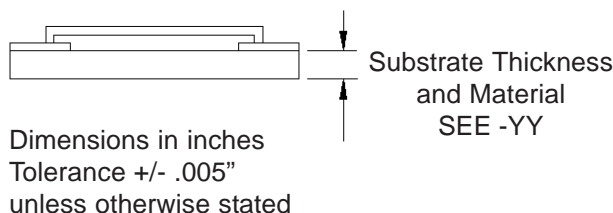
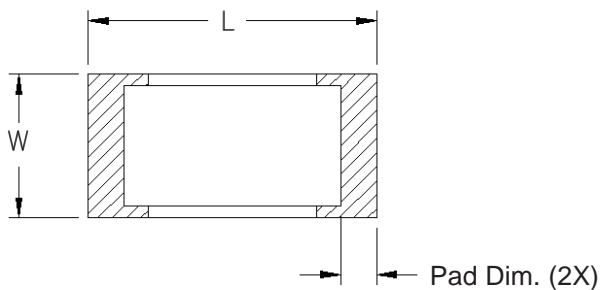


Barry Industries, Inc.

60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.

Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

RS Resistor Series



Flip Chip-No Back Metallization

(Images for reference purposes only.)

RS 1005 ZZ - XXXX W N - YY

Flip Chip
No Back Metal

Example Size
.100" x .050"
(see table below)

Termination
Material and
Finish

.1 Ohms to 1 Gigohm
(see examples below)

Tolerance

Normal
Inspection

Substrates

RS	Part No.	L x W	Pad Dim. (Min.)
RS	0202	.025" x .025"	.007"
RS	0302	.030" x .020"	.005"
RS	0402	.040" x .020"	.010"
RS	0502	.050" x .020"	.009"
RS	0503	.050" x .030"	.010"
RS	0505	.050" x .050"	.009"
RS	0603	.060" x .030"	.008"
RS	0605	.060" x .050"	.010"
RS	0802	.080" x .020"	.018"
RS	0805	.075" x .050"	.015"
RS	1005	.100" x .050"	.010"
RS	1010	.100" x .100"	.015"
RS	1206	.120" x .060"	.025"
RS	1505	.150" x .050"	.015"
RS	2010	.200" x .100"	**
RS	2207	.220" x .070"	**
RS	2335	.230" x .350"	**
RS	2512	.250" x .120"	.020"
RS	2525	.250" x .250"	.045"
RS	3725	.375" x .250"	**
RS	3737	.375" x .375"	**

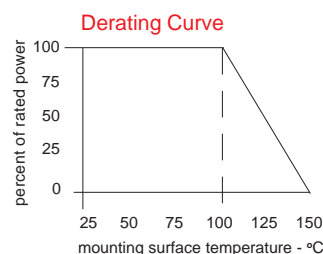
- 0.5 R500
- 1 1R00
- 10 10R0
- 50 50R0
- 100 ... 1000
- 150 ... 1500
- 1K 1001
- 10K .. 1002
- 100K 1003
- 470K 4703
- 1M 1004

- F 1%
- G 2%
- J 5%
- K 10%
- L 20%

- 90010" Alumina
- 91015" Alumina
- 93025" Alumina
- 94040" Alumina
- 95010" BeO
- 96015" BeO
- 98025" BeO
- 99040" BeO
- 9F060" BeO
- 2S025" AlN
- 2T040" AlN

** Varies: Request Data Sheet-Pad Dimensions based on Substrate/M etallization

**Part Number Example:
RS1005CB-50R0JN-90**



Termination Material/Finish



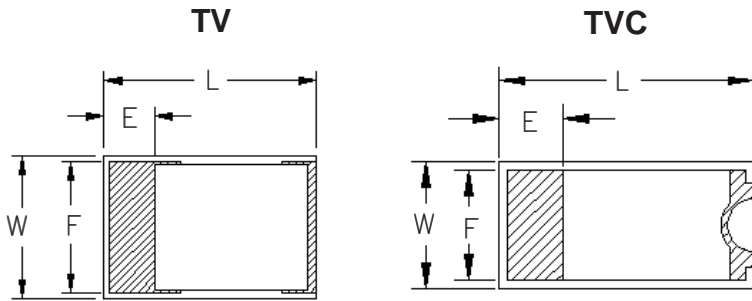
BeO Alumina ALN Solder Epoxy Wirebond

Termination	BeO	Alumina	ALN	Solder	Epoxy	Wirebond
AS - Tin Lead over Platinum Palladium Gold	No	Yes	Yes	No	Yes	No
BA - Palladium Silver	Yes	No	Yes	Yes	No	No
CB - Tin Lead over Nickel over Silver	No	Yes	Yes	No	Yes	No
CT - Matte Tin over Nickel over Silver	Yes	Yes	Yes	Yes	No	No
GA - Gold	Yes	No	Yes	Yes	No	Yes



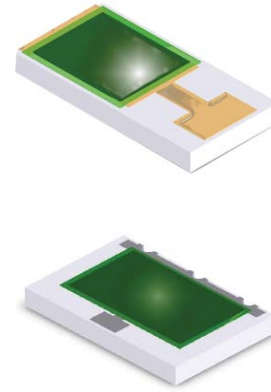
Barry Industries, Inc.
60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

TV/TVC Termination Series



Dimensions in inches
Tolerance +/- .005"
unless otherwise stated

Substrate Thickness
and Material
SEE -YY



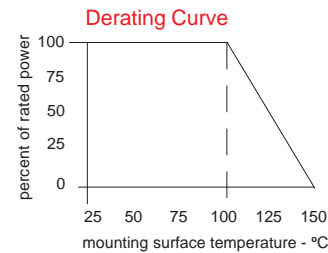
Half Wrap Around Termination

(Images for reference purposes only.)

TV TVC	0505	ZZ	XXXX	W	N	YY
Half Wrap Around Termination	Example Size .050" x .050" (see table below)	Termination Material and Finish	.1 Ohms to 1 Gigohm (see examples below)	Tolerance	Normal Inspection	Substrates
	L x W	E	F	F 1%		90 ..... .010" Alumina
TV 0202	.020" x .020"	.003"	.016"	G 2%		91 ..... .015" Alumina
TV 0402	.040" x .022"	.012"	.020"	J 5%		93 ..... .025" Alumina
TV 0502	.050" x .020"	.013"	.020"	K 10%		94 ..... .040" Alumina
TV 0505	.050" x .050"	.011"	.046"	L 20%		95 ..... .010" BeO
TV 0605	.065" x .055"	.020"	.048"			96 ..... .015" BeO
TV 0805	.075" x .050"	.018"	.046"			98 ..... .025" BeO
TV 1005	.100" x .050"	**	**			99 ..... .040" BeO
TVC 1206	.120" x .060"	.030"	.052"			9F ..... .060 BeO
TVC 1812	.180" x .120"	.035"	.060"			83 ..... .025" BeO Free
TVC 1835	.180" x .350"	.030"	.060"			84 ..... .040" BeO Free
TVC 2010	.200" x .100"	**	**			2P ..... .010" AlN
TVC 2335	.230" x .350"	**	**			2Q ..... .015" AlN
TV 2510	.250" x .100"	.040"	.095"			2S ..... .025" AlN
TVC 2525	.250" x .250"	**	**			2T ..... .040" AlN
TVC 3020	.300" x .200"	.030"	.190"			2U ..... .060" AlN
TVC 3725	.375" x .250"	**	**			
TVC 3737	.375" x .375"	**	**			

** Varies: Request Data Sheet-Pad Dimensions based on Substrate/Metallization

Part Number Examples:
TV0605CB-50R0JN-90 or
TVC1206CB-50R0JN-99



Termination Material/Finish



BeO Alumina ALN Solder Epoxy Wirebond

Termination Material/Finish	RoHS COMPLIANT	BeO	Alumina	ALN	Solder	Epoxy	Wirebond
AS - Tin Lead over Platinum Palladium Gold	No	Yes	Yes	No	Yes	No	No
BA - Palladium Silver	Yes	No	Yes	Yes	No	Yes	No
CB - Tin Lead over Nickel over Silver	No	Yes	Yes	No	Yes	No	No
CT - Matte Tin over Nickel over Silver	Yes	Yes	Yes	Yes	Yes	No	No
EA* - Gold I/O with Palladium Silver Ground	Yes	No	Yes	Yes	Yes (GND)	Yes	Yes (I/O)
FA* - Gold I/O with Platinum Palladium Gold Ground	Yes	No	Yes	Yes	Yes (GND)	Yes	Yes (I/O)
GA - Gold	Yes	No	Yes	Yes	No	Yes	Yes
HA* - Gold over Plat.Palladium Gold I/O with Plat.Palladium Gold Ground	Yes	Yes	No	No	Yes (GND)	Yes	Yes (I/O)
JA - Gold over Platinum Palladium Gold	Yes	Yes	No	No	No	Yes	Yes

*I/O = Input/Output Pads

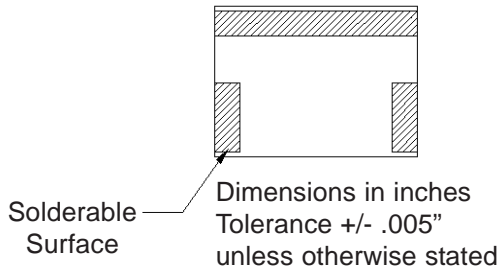
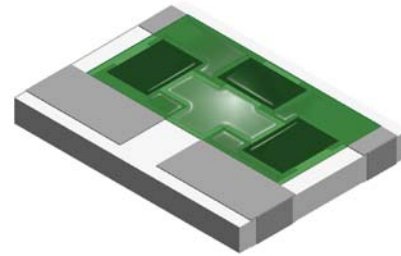
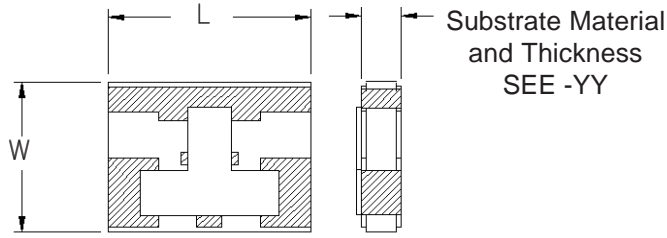


Barry Industries, Inc.

60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.

Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

AP Attenuator Series

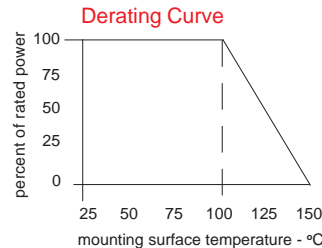


Full Wrap Around

(Images for reference purposes only.)

AP	0405	ZZ	XXXX	W	N	YY																																																																		
Wrap Around Attenuator	Example Size .040" x .050" (see table below)	Termination Material and Finish	Values in Decibels 0.25 dB to 32 dB (see examples below)	Tolerance	Normal Inspection	Substrates																																																																		
<table border="1"> <tr><td>AP</td><td>0405</td><td>.040" x .050"</td></tr> <tr><td>AP</td><td>0706</td><td>.070" x .060"</td></tr> <tr><td>AP</td><td>1005</td><td>.100" x .050"</td></tr> <tr><td>AP</td><td>1007</td><td>.100" x .075"</td></tr> <tr><td>AP</td><td>1612</td><td>.160" x .120"</td></tr> </table>	AP	0405	.040" x .050"	AP	0706	.070" x .060"	AP	1005	.100" x .050"	AP	1007	.100" x .075"	AP	1612	.160" x .120"	<table border="1"> <tr><td>1</td><td>.....</td><td>0100</td></tr> <tr><td>2.5</td><td>....</td><td>0250</td></tr> <tr><td>12</td><td>.....</td><td>1200</td></tr> <tr><td>18.5</td><td>..</td><td>1850</td></tr> </table>	1	0100	2.5	0250	12	1200	18.5	..	1850	<table border="1"> <tr><td>F</td><td>.....</td><td>+/- 0.25 dB</td></tr> <tr><td>G</td><td>....</td><td>+/- 0.50 dB</td></tr> <tr><td>J</td><td>.....</td><td>+/- 1.00 dB</td></tr> <tr><td>K</td><td>.....</td><td>+/- 1.50 dB</td></tr> <tr><td>L</td><td>.....</td><td>+/- 2.00 dB</td></tr> </table> <p><i>For frequency dependent tolerance specifications, please request individual data sheets.</i></p>	F	+/- 0.25 dB	G	+/- 0.50 dB	J	+/- 1.00 dB	K	+/- 1.50 dB	L	+/- 2.00 dB	<table border="1"> <tr><td>90</td><td>.....</td><td>.010" Alumina</td></tr> <tr><td>91</td><td>.....</td><td>.015" Alumina</td></tr> <tr><td>93</td><td>.....</td><td>.025" Alumin</td></tr> <tr><td>94</td><td>.....</td><td>.040 Alumina</td></tr> <tr><td>95</td><td>.....</td><td>.010" BeO</td></tr> <tr><td>96</td><td>.....</td><td>.015" BeO</td></tr> <tr><td>98</td><td>.....</td><td>.025" BeO</td></tr> <tr><td>99</td><td>.....</td><td>.040" BeO</td></tr> <tr><td>2S</td><td>.....</td><td>.025" AlN</td></tr> </table>	90010" Alumina	91015" Alumina	93025" Alumin	94040 Alumina	95010" BeO	96015" BeO	98025" BeO	99040" BeO	2S025" AlN
AP	0405	.040" x .050"																																																																						
AP	0706	.070" x .060"																																																																						
AP	1005	.100" x .050"																																																																						
AP	1007	.100" x .075"																																																																						
AP	1612	.160" x .120"																																																																						
1	0100																																																																						
2.5	0250																																																																						
12	1200																																																																						
18.5	..	1850																																																																						
F	+/- 0.25 dB																																																																						
G	+/- 0.50 dB																																																																						
J	+/- 1.00 dB																																																																						
K	+/- 1.50 dB																																																																						
L	+/- 2.00 dB																																																																						
90010" Alumina																																																																						
91015" Alumina																																																																						
93025" Alumin																																																																						
94040 Alumina																																																																						
95010" BeO																																																																						
96015" BeO																																																																						
98025" BeO																																																																						
99040" BeO																																																																						
2S025" AlN																																																																						

Part Number Example:
AP1612CB-1000JN-90



Termination Material/Finish



BeO Alumina ALN Solder Epoxy Wirebond

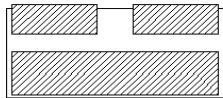
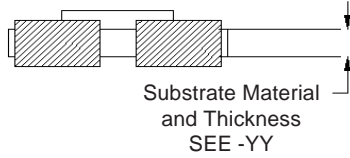
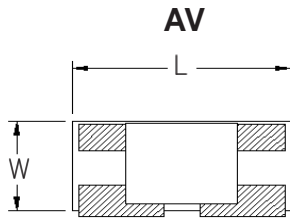
Termination Material/Finish	BeO	Alumina	ALN	Solder	Epoxy	Wirebond
AS - Tin Lead over Platinum Palladium Gold	No	Yes	Yes	No	Yes	No
BA - Palladium Silver	Yes	No	Yes	Yes	No	Yes
CB - Tin Lead over Nickel over Silver	No	Yes	Yes	No	Yes	No
EA* - Gold I/O with Palladium Silver Ground	Yes	No	Yes	No	Yes (GND)	Yes (I/O)
FA* - Gold I/O with Platinum Palladium Gold Ground	Yes	No	Yes	No	Yes (GND)	Yes (I/O)
GA - Gold	Yes	No	Yes	No	No	Yes

*I/O = Input/Output Pads



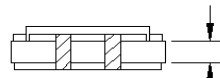
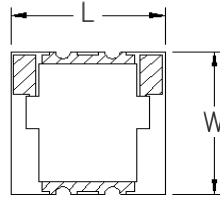
Barry Industries, Inc.
60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

AV/AVC Attenuator Series

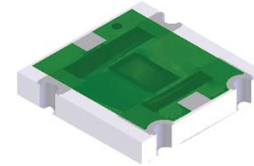
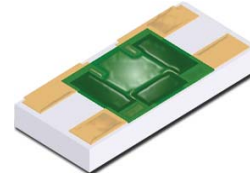


Dimensions in inches
Tolerance +/- .005"
unless otherwise stated

AVC



Substrate Material and Thickness
SEE -YY



Half Wrap Attenuator

(Images for reference purposes only.)

AV AVC

Half Wrap
Attenuator

0405

Example Size
.040" x .050"
(see table below)

ZZ

Termination
Material and
Finish

XXXX

Values in Decibels
0.25 dB to 32 dB
(see examples below)

W

Tolerance

N

Normal
Inspection

YY

Substrates

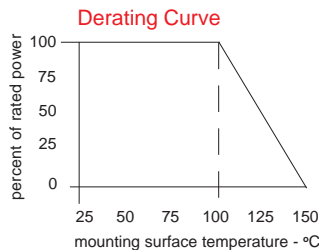
AV	0405	.040" x .050"
AV	0604	.060" x .040"
AV	0706	.070" x .060"
AV	0904	.090" x .040"
AV	0905	.090" x .050"
AV	1005	.100" x .050"
AV	1612	.160" x .120"
AVC	2335	.230" x .350"
AVC	2525	.250" x .250"
AVC	3725	.375" x .250"
AVC	3737	.375" x .375"

1 0100
2.5 0250
12 1200
18.5 .. 1850

F +/- 0.25 dB
G +/- 0.50 dB
J +/- 1.00 dB
K +/- 1.50 dB
L +/- 2.00 dB

*For frequency dependent
tolerance specifications,
please request individual
data sheets.*

90010" Alumina
91015" Alumina
93025" Alumina
94040" Alumina
95010" BeO
96015" BeO
98025" BeO
99040" BeO
9F060" BeO
2S025" AlN
2T040" AlN



Part Number Examples:

AV0405CB-0100JN-91

AVC2335CB-0100JN-98

Termination Material/Finish



BeO Alumina ALN Solder Epoxy Wirebond

Termination Material/Finish	RoHS COMPLIANT	BeO	Alumina	ALN	Solder	Epoxy	Wirebond
AS - Tin Lead over Platinum Palladium Gold	No	Yes	Yes	No	Yes	No	No
BA - Palladium Silver	Yes	No	Yes	Yes	No	Yes	No
CB - Tin Lead over Nickel over Silver	No	Yes	Yes	No	Yes	No	No
CT - Matte Tin over Nickel over Silver	Yes	Yes	Yes	Yes	Yes	No	No
EA* - Gold I/O with Palladium Silver Ground	Yes	No	Yes	Yes	Yes (GND)	Yes	Yes (I/O)
FA* - Gold I/O with Platinum Palladium Gold Ground	Yes	No	Yes	Yes	Yes (GND)	Yes	Yes (I/O)
GA - Gold	Yes	No	Yes	No	No	Yes	Yes
HA* - Gold over Plat.Palladium Gold I/O with Plat.Palladium Gold Gr	Yes	Yes	No	No	Yes (GND)	Yes	Yes (I/O)
JA - Gold over Platinum Palladium Gold	Yes	Yes	No	No	No	Yes	Yes

*I/O = Input/Output Pads

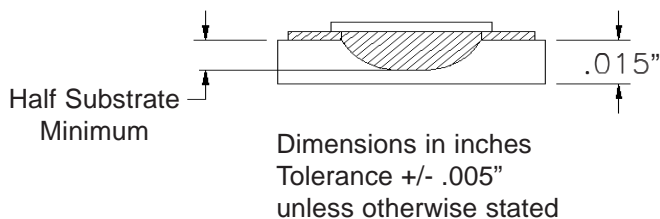
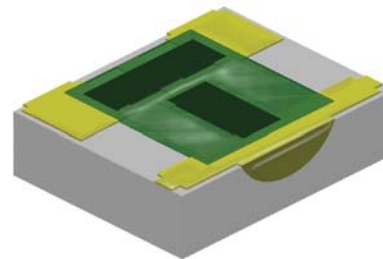
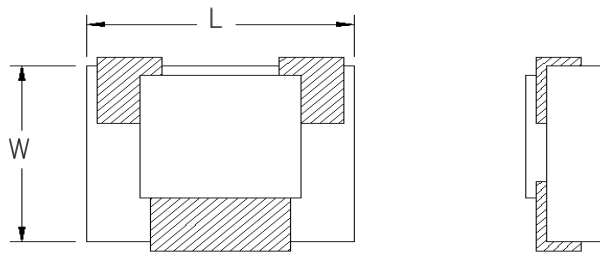


Barry Industries, Inc.

60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.

Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

AK Attenuator Series

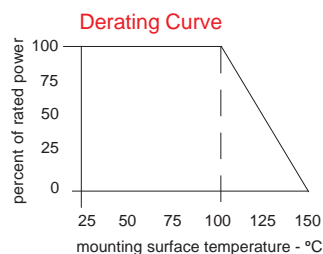


Quarter Wrap Around

(Images for reference purposes only.)

AK	0405	ZZ	-	XXXX	W	N	-	YY
Quarter Wrap Attenuator	Size .040" x .050"	Termination Material and Finish		Values in Decibels 0.25 dB to 32 dB (see examples below)	Tolerance	Normal Inspection		Substrates
				1 0100 2.5 0250 12 1200 18.5 .. 1850	F +/- 0.25 dB G +/- 0.50 dB J +/- 1.00 dB K +/- 1.50 dB L +/- 2.00 dB <i>For frequency dependent tolerance specifications, please request individual data sheets.</i>			91 ..... .015" Alumina

Part Number Example:
AK0405CB-0500JN-91



Termination Material/Finish



Alumina

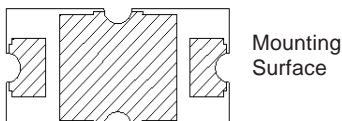
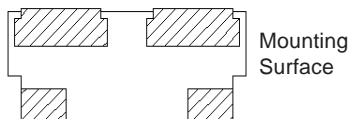
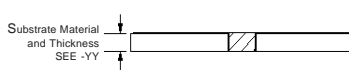
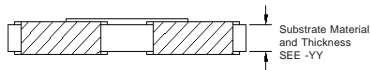
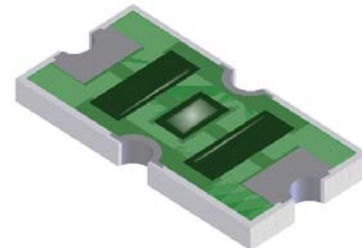
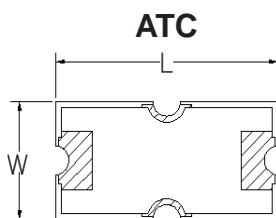
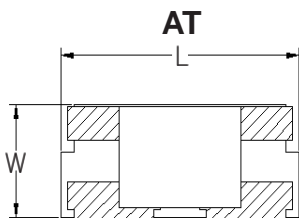
Solder

AS - Tin Lead over Platinum Palladium Gold	No	Yes	Yes
CB - Tin Lead over Nickel over Silver	No	Yes	Yes



Barry Industries, Inc.
60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

AT/ATC Attenuator Series

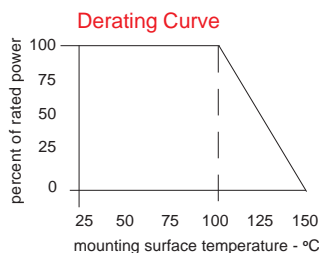


Dimensions in inches
Tolerance +/- .005"
unless otherwise stated

3-Sided Wrap
(Images for reference purposes only.)

AT ATC	0405	ZZ	XXXX	W	N	YY
3-Sided Wrap Attenuator	Example Size .040" x .050" (see table below)	Termination Material and Finish	Values in Decibels 0.25 dB to 32 dB (see examples below)	Tolerance	Normal Inspection	Substrates
AT	0405	.040" x .050"	1 0100	F +/- 0.25 dB		90 ..... .010" Alumina
AT	0706	.075" x .060"	2.5 0250	G +/- 0.50 dB		91 ..... .015" Alumina
AT	0904	.090" x .040"	12 1200	J +/- 1.00 dB		93 ..... .025" Alumina
ATC	2010	.200" x .010"	18.5 .. 1850	K +/- 1.50 dB		94 ..... .040" Alumina
ATC	2525	.250" x .250"		L +/- 2.00 dB		95 ..... .010" BeO
				<i>For frequency dependent tolerance specifications, please request individual data sheets.</i>		96 ..... .015" BeO
						98 ..... .025" BeO
						99 ..... .040" BeO
						9F ..... .060" BeO
						2S ..... .025" AlN
						2T ..... .040" AlN

Part Number Examples:
AT0405CB-0100JN-91
ATC2010CT-0100JN-98



Termination Material/Finish



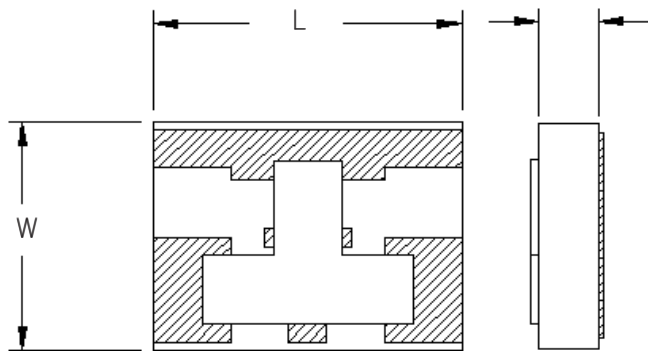
BeO Alumina ALN Solder Epoxy Wirebond

Termination	BeO	Alumina	ALN	Solder	Epoxy	Wirebond
AS - Tin Lead over Platinum Palladium Gold	No	Yes	Yes	No	Yes	No
BA - Palladium Silver	Yes	No	Yes	Yes	No	Yes
CB - Tin Lead over Nickel over Silver	No	Yes	Yes	No	Yes	No
CT - Matte Tin over Nickel over Silver	Yes	Yes	Yes	Yes	Yes	No
GA - Gold	Yes	No	Yes	No	No	Yes

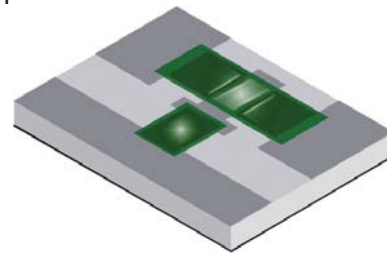


Barry Industries, Inc.
60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

AM Attenuator Series



Substrate Thickness and Material
See Below -YY



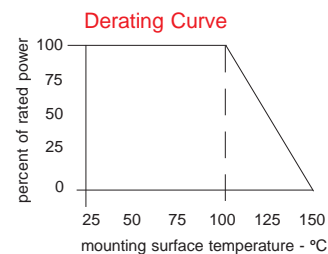
Dimensions in inches
Tolerance +/- .005"
unless otherwise stated

Flip Chip w/Back Metallization

(Images for reference purposes only.)

AM	0706	ZZ	-	XXXX	W	N	-	YY												
Flip Chip w/Back Metallization	Example Size .070" x .060" (see table below)	Termination Material and Finish		Values in Decibels 0.25 dB to 32 dB (see examples below)	Tolerance	Normal Inspection		Substrates												
<table border="1"> <tr><td>AM</td><td>0706</td><td>.070" x .060"</td></tr> <tr><td>AM</td><td>0904</td><td>.092" x .045"</td></tr> <tr><td>AM</td><td>0905</td><td>.090" x .050"</td></tr> <tr><td>AM</td><td>1005</td><td>.100" x .050"</td></tr> <tr><td>AM</td><td>1612</td><td>.160" x .120"</td></tr> </table>	AM	0706	.070" x .060"	AM	0904	.092" x .045"	AM	0905	.090" x .050"	AM	1005	.100" x .050"	AM	1612	.160" x .120"			1 0100 2.5 0250 12 1200 18.5 .. 1850	F +/- 0.25 dB G +/- 0.50 dB J +/- 1.00 dB K +/- 1.50 dB L +/- 2.00 dB <i>For frequency dependent tolerance specifications, please request individual data sheets.</i>	90010" Alumina 91015" Alumina 95010" BeO 96015" BeO
AM	0706	.070" x .060"																		
AM	0904	.092" x .045"																		
AM	0905	.090" x .050"																		
AM	1005	.100" x .050"																		
AM	1612	.160" x .120"																		

Part Number Example:
AM0706CB-0100JN-90



Termination Material/Finish



BeO Alumina Solder Epoxy Wirebond

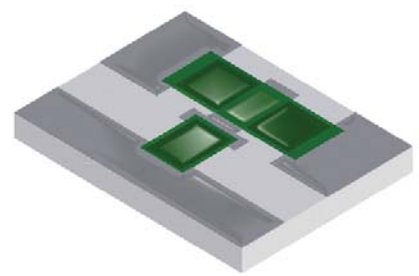
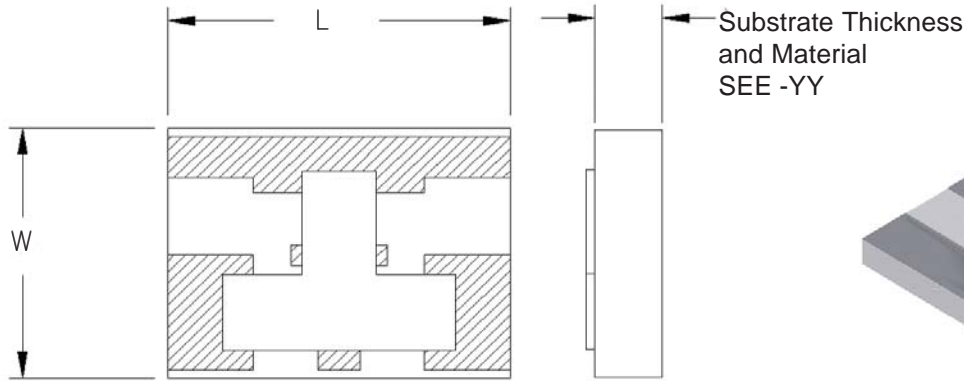
Termination Material/Finish	BeO	Alumina	Solder	Epoxy	Wirebond
AS - Tin Lead over Platinum Palladium Gold	No	Yes	Yes	No	No
BA - Palladium Silver	Yes	No	No	Yes	No
CB - Tin Lead over Nickel over Silver	No	Yes	Yes	No	No
CT - Matte Tin over Nickel over Silver	Yes	Yes	Yes	No	No
EA* - Gold I/O with Palladium Silver Ground	No	Yes	Yes (GND)	Yes	Yes (I/O)
FA* - Gold I/O with Platinum Gold Ground	No	Yes	Yes (GND)	Yes	Yes (I/O)
GA - Gold	No	Yes	No	Yes	Yes
HA* - Ground	Yes	No	Yes (GND)	Yes	Yes (I/O)
JA - Gold over Platinum Palladium Gold	Yes	No	No	Yes	Yes

*I/O = Input/Output Pads



Barry Industries, Inc.
60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

AS Attenuator Series



Dimensions in inches
Tolerance +/- .005"
unless otherwise stated

Flip Chip-No Back Metallization

(Images for reference purposes only.)

AS 0706 ZZ - XXXX W N - YY

Flip Chip
No Back
Metallization

Example Size
.070" x .060"
(see table below)

Termination
Material and
Finish

Values in Decibels
0.25 dB to 32 dB
(see examples below)

Tolerance

Normal
Inspection

Substrates

AS	0706	.070" x .060"
AS	0904	.092" x .045"
AS	0905	.090" x .050"
AS	1005	.100" x .050"
AS	1612	.160" x .120"
AS	2525	.250" x .250"

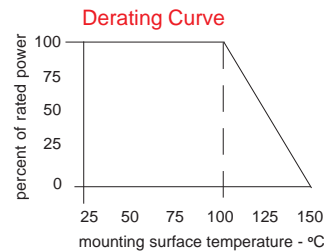
1	.....	0100
2.5	....	0250
12	.....	1200
18.5	..	1850

F	.....	+/- 0.25 dB
G	.....	+/- 0.50 dB
J	.....	+/- 1.00 dB
K	.....	+/- 1.50 dB
L	.....	+/- 2.00 dB

For frequency dependent tolerance specifications, please request individual data sheets.

90	.....	.010" Alumina
91	.....	.015" Alumina
95	.....	.010" BeO
96	.....	.015" BeO
2S	.....	.025" AlN

**Part Number Example:
AS0706BA-0100JN-91**



Termination Material/Finish



BeO Alumina ALN Solder Epoxy Wirebond

AS -	Tin Lead over Platinum Palladium Gold	No	Yes	Yes	No	Yes	No	No
BA -	Palladium Silver	Yes	No	Yes	Yes	No	Yes	No
CB -	Tin Lead over Nickel over Silver	No	Yes	Yes	No	Yes	No	No
CT -	Matte Tin over Nickel over Silver	Yes	Yes	Yes	Yes	Yes	No	No
GA -	Gold	Yes	No	Yes	No	No	Yes	Yes



Barry Industries, Inc.
60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

High Power Components

High Power components offer high reliability and the highest levels of power dissipation in a variety of packages to meet your new or existing designs. Custom requests are welcome.

Please reference High Power Notes on next page.

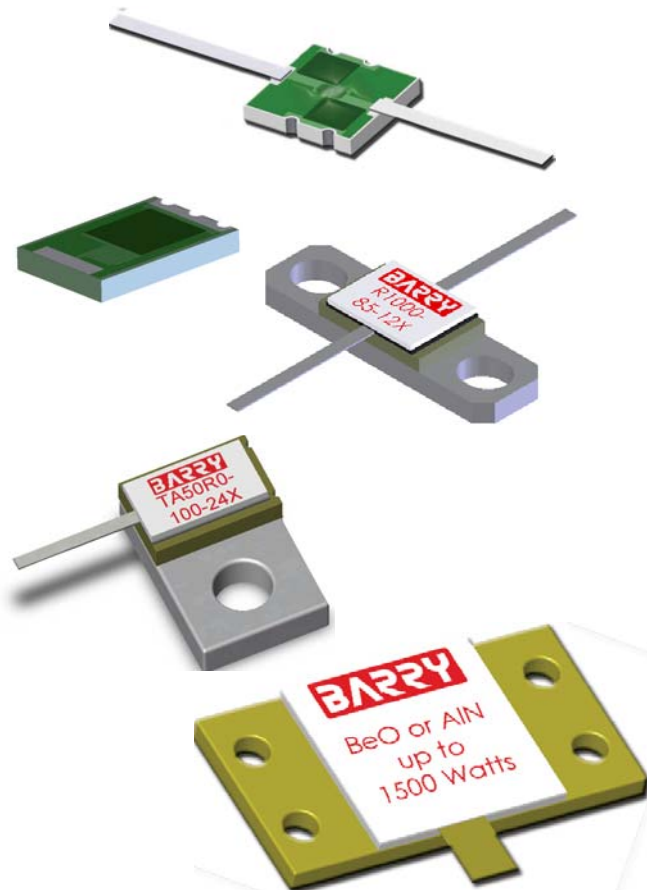
- √ Custom resistor values ranging from 0.1 Ohm to 1.0 Gigohm
- √ Custom attenuator values from 0.25 dB to 32 dB
- √ Available in a variety of configurations:
 - Flanged
 - Leaded
 - Chip
- √ BeO, Aluminum Nitride & BeO Free
- √ ITAR Registered
- √ All designs are RoHS Compliant.....



- √ ISO9001:2000 Certified by.....

Several Package Styles to Select From:

Package	Page #'s
TERMINATIONS - HIGH POWER	
Flanged	18-19
Leaded	20-21
Chips	22-23
RESISTORS - HIGH POWER	
Flanged	24-25
Leaded	26
Chips	27
ATTENUATORS - HIGH POWER	
Flanged	28-29
Leaded	30-31
Chips	32-33
SURFACE MOUNT RESISTORS & TERMINATIONS - HIGH POWER	
Chips	34-35
PULSED POWER COMPONENTS FOR HIGH THERMAL CYCLING	
Flanged Attenuators, Resistors and Terminations	36-37



Barry Industries, Inc.
 60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
 Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

High Power Notes

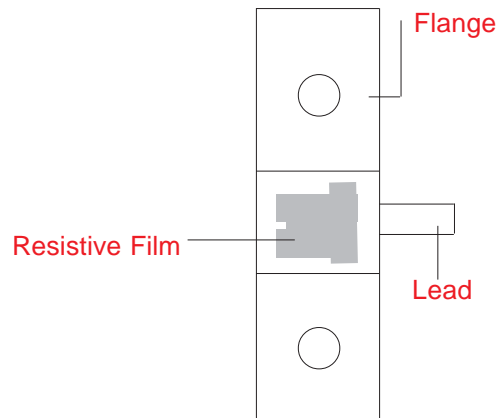
Heat Sink Characteristics: The primary thermal transfer mechanism for these devices is conduction through the mounting flange. The derating curve for each device shows the effect of elevated temperature on power handling capability. It is imperative that the heat sink be designed to maintain the design temperature while accepting the power dissipated by the device.

Circuit Construction: The electrical performance of these resistive products can vary significantly depending upon the parameters of the stripline or microstrip circuitry to which they are connected. Barry Industries has extensive experience in the design of high frequency circuits in many media and can provide assistance if desired.

Mounting Method: The use of a thermal conducting compound or preform between the mounting flange and the heat sink surface is strongly recommended. This greatly decreases the thermal resistance and therefore, the film temperature of the device. Make sure that the devices are mounted on flat surfaces, .001" under the device, to optimize the heat transfer. Drill and tap the heat sink for the appropriate thread size to be used. Position device on mounting surface and secure using socket head screws, flat and split washers. Torque screws to the appropriate value. Make sure that the device is flat against the heat sink.

Care should be taken to avoid upward pressure of the leads. Form leads to allow a small strain relief and solder leads in place using a 60/40 type solder with a temperature controlled soldering iron (210°C). Keep lead length as short as possible for RF applications. Use minimal amounts of flux and remove with solvent.

Film Temperature: As power is dissipated in the resistive film, its temperature increases until thermal equilibrium is reached. Excessive film temperature is the principal cause of device failure. Maintaining the temperature at the bottom of the flange, at or below the rated value, will ensure that the film temperature is maintained at an acceptable value.



Typical Resistive Device

These notes apply to products for CONTINUOUS WAVE applications, pages 18 thru 35 of this catalog.

For applications requiring PULSED POWER or CYCLED products, see pages 36-37 of this catalog. It is also recommended that you consult sales@barryind.com with your design requirements so that we may recommend the product best suited for your PULSED POWER or CYCLED application.



Barry Industries, Inc.
60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

Flanged Terminations - BeO

CW Power Rating	CFG	A	B	C	D	E	F	G	H	J	K	Frequency Range	Typical VSWR	Part Number
10 watts	B	.300	.200	.100	.100	.040	.105	.140 max	.062	.116	.370 max	DC-2.0 GHz 2.0-4.0 GHz	1.30:1 1.50:1	T 50R0-10-1X
10 watts	A	.500	.200	.100	.300	.040	.105	.140 max	.062	.116	.370 max	DC-2.0 GHz 2.0-4.0 GHz	1.30:1 1.50:1	T 50R0-10-3X
30 watts	B	.515	.250	.250	.125	.060	.105	.140 max	.062	.130	.370 max	DC-6.0 GHz	1.30:1	T 50R0-30-10X
40 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	DC-2.0 GHz	1.20:1	T 50R0-40-1X
60 watts	B	.515	.250	.250	.125	.060	.105	.140 max	.062	.130	.370 max	DC-6.0 GHz	1.30:1	T 50R0-60-3X
100 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	DC-2.0 GHz 2.0-2.5 GHz	1.20:1 1.30:1	T 50R0-100-2X
150 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	DC-2.0 GHz 2.0-2.5 GHz	1.20:1 1.30:1	T 50R0-150-10X
150 watts	A	.870	.375	.250	.560	.040	.105	.140 max	.062	.160	.370 max	DC-4.0 GHz	1.20:1	T 50R0-150-25X
250 watts	A	.975	.375	.375	.725	.120	.105	.140 max	.062	.130	.370 max	DC-2.5 GHz 2.5-4.0 GHz	1.20:1 1.40:1	T 50R0-250-12X
350 watts					Contact Factory for Data Sheet							DC-1.0 GHz	1.10:1	T 50R0-350-1X
800 watts					Contact Factory for Data Sheet							DC-1.0 GHz	1.20:1	T 50R0-800-11X
1,000 watts					Contact Factory for Data Sheet							DC-1.0 GHz	1.20:1	T 50R0-1000-3X
1,500 watts					Contact Factory for Data Sheet							DC-123 MHz	1.06:1	T 50R0-1500-2X

Flanged Terminations - Aluminum Nitride

CW Power Rating	CFG	A	B	C	D	E	F	G	H	J	K	Frequency Range	Typical VSWR	Part Number
30 watts	B	.515	.250	.250	.125	.060	.105	.140 max	.062	.130	.370 max	DC-2.5 GHz	1.15:1	TA 50R0-30-10X
40 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	DC-2.5 GHz	1.20:1	TA 50R0-40-1X
60 watts	B	.515	.250	.250	.125	.060	.105	.140 max	.062	.130	.370 max	DC-2.5 GHz	1.15:1	TA 50R0-60-3X
100 watts	B	.560	.375	.250	.155	.040	.105	.140 max	.062	.160	.370 max	DC-2.0 GHz 2.0-3.5 GHz	1.20:1 1.10:1	TA 50R0-100-24X*
100 watts	B	.560	.375	.250	.155	.040	.105	.140 max	.062	.160	.370 max	DC-2.0 GHz 2.0-3.5 GHz	1.20:1 1.10:1	TA 50R0-100-25X**
100 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	DC-4.5 GHz 4.5-6.0 GHz	1.15:1 1.30:1	TA50R0-100-27X
150 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	DC-3.0 GHz	1.10:1	TA 50R0-150-10X
150 watts	A	.870	.375	.250	.560-.600	.040	.105	.140 max	.062	.160	.370 max	DC-2.0 GHz 2.0-3.5 GHz	1.20:1 1.10:1	TA 50R0-150-25X
250 watts	A	.870	.375	.250	.560-.600	.040	.105	.140 max	.062	.160	.370 max	DC-2.5 GHz	1.25:1	TA 50R0-250-21X
250 watts	A	.975	.375	.375	.725	.120	.105	.140 max	.062	.130	.370 max	DC-3.0 GHz	1.25:1	TA 50R0-250-12X
800 watts					Contact Factory for Data Sheet							DC-860 MHz 860 MHz-1 GHz	1.10:1 1.20:1	TA 50R0-800-10X
1,000 watts					Contact Factory for Data Sheet							DC-860 MHz 860 MHz-1 GHz	1.10:1 1.20:1	TA 50R0-1000-2X

* Lead comes off the left. ** Lead comes off the right.

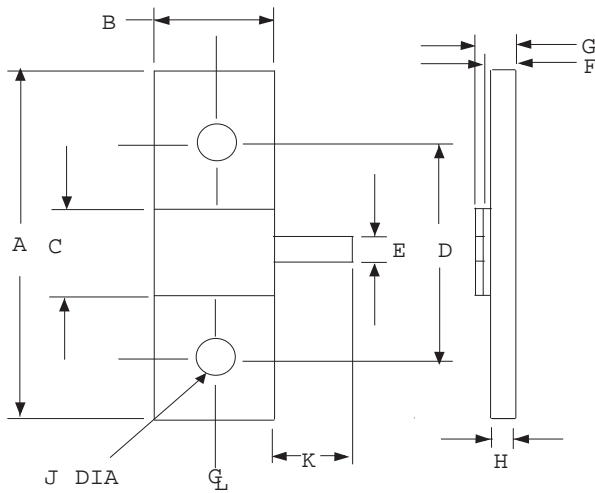


Barry Industries, Inc.
60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

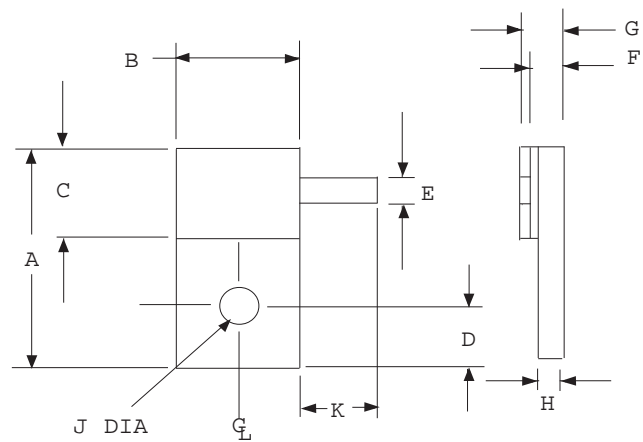
Flanged Terminations - BeO Free

CW Power Rating	CFG	A	B	C	D	E	F	G	H	J	K	Frequency Range	Typical VSWR	Part Number
30 watts	B	.515	.250	.250	.125	.040	.105	.140 max	.062	.130	.370 max	DC-2.5 GHz	1.15:1	T 50R0-30-27X
40 watts	B	.515	.250	.250	.125	.040	.105	.140 max	.062	.130	.370 max	DC-5.0 GHz	1.20:1	T 50R0-40-13X
40 watts	A	.800	.230	.350	.560-.600	.040	.090	.125 max	.062	.130	.370 max	DC-2.5 GHz	1.20:1	T 50R0-40-14X
50 watts	B	.515	.250	.250	.125	.040	.090	.125 max	.062	.130	.370 max	DC-5.0 GHz	1.20:1	T 50R0-50-14X
50 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	DC-2.0 GHz	1.20:1	T 50R0-50-15X
70 watts	A	.870	.375	.250	.560-.600	.040	.090	.125 max	.062	.160	.370 max	DC-2.75 GHz	1.10:1	T 50R0-70-16X
100 watts	A	.870	.375	.250	.560	.040	.090	.125 max	.062	.160	.370 max	DC-2.0 GHz	1.10:1	T 50R0-100-22X

Configuration A



Configuration B



General Specifications -

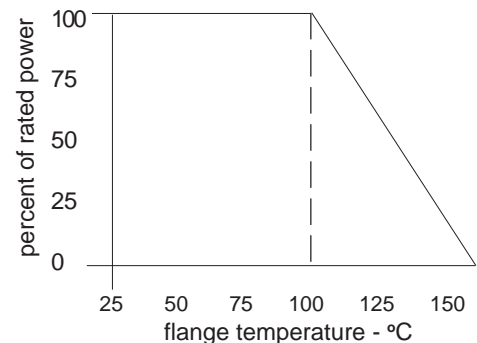
- Resistive Element Proprietary Thick Film
- Substrate BeO, ALN or BeO Free
- Mounting Flange Copper Silver Plated
- Leads Copper (.005" thick) Silver Plated

General Notes -

- All power ratings assume an operating base plate temperature of 100°C
- All dimension are in inches.
- Resistance Tolerance: standard is +/- 5%; +/-2% available.
- Resistance Range: 0.5 to 20,000 ohms. Standard values: 50 & 100 ohms.
- Mechanical Tolerance: +/- .010, unless otherwise specified.
- Minimum lead length on all devices is .125 inches.
- Individual drawings available upon request.
- Other configurations available, custom requests welcome.



Derating Curve



For operations outside the derating curve, please consult with one of BARRY's application engineers.



Barry Industries, Inc.
 60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
 Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

Leaded Terminations - BeO

CW Power Rating	A	B	C	D	E	Frequency Range	Typical VSWR	Part Number
20 watts	.100	.050	.015	.025	.370 max	DC-18 GHz	1.30:1	A01Z-50R0J96-01A36-Y
20 watts	.120	.060	.025	.040	.370 max	DC-4.0 GHz	1.20:1	B02Z-50R0J98-00C36-Y
60 watts	.200	.100	.040	.040	.370 max	DC-2.0 GHz	1.20:1	D04Z-50R0J99-01C36-X
100 watts	.230	.350	.040	.040	.370 max	DC-3.0 GHz	1.15:1	D05Z-50R0J99-02C36-X
100 watts	.250	.250	.040	.040	.370 max	DC-6.0 GHz	1.20:1	D06Z-50R0J99-00C36-X
150 watts	.375	.250	.040	.040	.370 max	DC-4.0 GHz	1.20:1	D07Z-50R0J99-03C36-X
250 watts	.375	.375	.040	.040	.370 max	DC-2.5 GHz 2.5-4.0 GHz	1.20:1 1.40:1	D08Z-50R0J99-00C36-X

Leaded Terminations - Aluminum Nitride

CW Power Rating	A	B	C	D	E	Frequency Range	Typical VSWR	Part Number
10 watts	.100	.050	.015	.025	.370 max	DC-3.0 GHz	1.15:1	A01Z-50R0J2Q-01A36-Y
20 watts	.120	.060	.025	.040	.370 max	DC-3.0 GHz	1.20:1	B02Z-50R0J2S-00C36-Y
30 watts	.200	.100	.040	.040	.370 max	DC-2.0 GHz	1.15:1	D04Z-50R0J2T-01C36-X
100 watts	.230	.350	.040	.040	.370 max	DC-4.5 GHz 4.5-6.0 GHz	1.15:1 1.30:1	D05Z-50R0J2T-14C36-X
150 watts	.250	.250	.040	.040	.370 max	DC-2.5 GHz	1.15:1	D06Z-50R0J2T-04C36-X
150 watts	.230	.350	.040	.040	.370 max	DC-2.5 GHz	1.15:1	D05Z-50R0J2T-05C36-X
150 watts	.375	.250	.040	.040	.370 max	DC-2.0 GHz 2.0-3.5 GHz	1.20:1 1.10:1	D07Z-50R0J2T-01C36-X
250 watts	.375	.250	.040	.040	.370 max	DC-2.5 GHz	1.25:1	D07Z-50R0J2T-09C36-X
250 watts	.370	.370	.040	.040	.370 max	DC-3.0 GHz	1.25:1	D08Z-50R0J2T-04C36-X



General Specifications -

Resistive Element Proprietary Thick Film
 Substrate BeO, ALN or BeO Free
 Leads Copper (.005" thick) Silver Plated

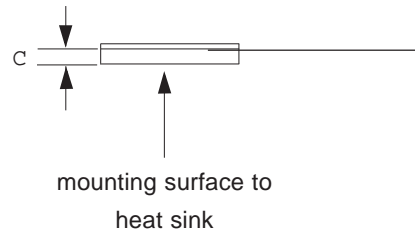
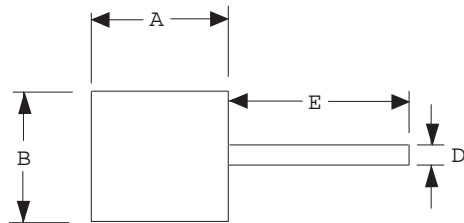
Y at the end of part # Indicates part does not take a cover, but may include a dab of epoxy



Barry Industries, Inc.
 60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
 Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

Leaded Terminations - BeO Free

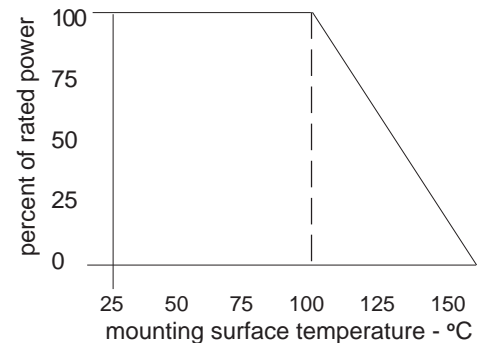
CW Power Rating	A	B	C	D	E	Frequency Range	Typical VSWR	Part Number
30 watts	.250	.250	.025	.040	.370 max	DC -2.5 GHz	1.15:1	D06Z-50R0J83-02C 36-X
40 watts	.230	.350	.025	.040	.370 max	DC -2.5 GHz	1.20:1	D05Z-50R0J83-03C 36-X
50 watts	.230	.350	.025	.040	.370 max	DC -2.0 GHz	1.20:1	D05Z-50R0J83-07C 36-X
60 watts	.250	.250	.025	.040	.370 max	DC -5.0 GHz	1.20:1	D06Z-50R0J83-03C 36-X
100 watts	.370	.370	.025	.040	.370 max	DC -2.0 GHz	1.20:1	D08Z-50R0J83-03C 36-X



General Notes -

- All power ratings assume an operating base plate temperature of 100°C
- All dimension are in inches.
- Resistance Tolerance: standard is +/- 5%; +/-2% available.
- Resistance Range: 0.5 to 20,000 ohms. Standard values: 50 & 100 ohms.
- Mechanical Tolerance: +/- .010, unless otherwise specified.
- Minimum lead length on all devices is .125 inches.
- Individual drawings available upon request.
- *Outline depicts a covered device, castellations where used are not shown.*
- *Power ratings over 250 watts available upon request, contact sales@barryind.com.*
- Other configurations available, custom requests welcome.

Derating Curve



For operations outside the derating curve, please consult with one of BARRY's application engineers.



Barry Industries, Inc.
 60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
 Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

Power Chip Terminations - BeO

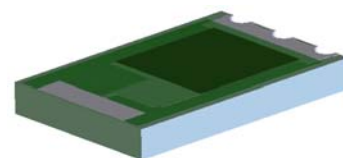
CW Power Rating	A	B	C	Frequency Range	Typical VSWR	Part Number
20 watts	.100	.050	.015	DC -18 GHz	1.30:1	TV1005CT-50R0JN-96-01
20 watts	.120	.060	.025	DC -4.0 GHz	1.20:1	TVC1206CT-50R0JN-98
60 watts	.200	.100	.040	DC -2.0 GHz	1.20:1	TVC2010CT-50R0JN-99-01
100 watts	.230	.350	.040	DC -3.0 GHz	1.15:1	TVC2335CT-50R0JN-99-02
100 watts	.250	.250	.040	DC -6.0 GHz	1.20:1	TVC2525CT-50R0JN-99
150 watts	.375	.250	.040	DC -4.0 GHz	1.20:1	TVC3725CT-50R0JN-99-03
250 watts	.375	.375	.040	DC -2.5 GHz 2.5-4.0 GHz	1.20:1 1.40:1	TVC3737CT-50R0JN-99

Power Chip Terminations - Aluminum Nitride

CW Power Rating	A	B	C	Frequency Range	Typical VSWR	Part Number
10 watts	.100	.050	.015	DC -3.0 GHz	1.15:1	TV1005CT-50R0JN-2Q-01
20 watts	.120	.060	.025	DC -3.0 GHz	1.20:1	TVC1206CT-50R0JN-2S
30 watts	.200	.100	.040	DC -2.0 GHz	1.15:1	TVC2010CT-50R0JN-2T-01
150 watts	.250	.250	.040	DC -2.5 GHz	1.15:1	TVC2525CT-50R0JN-2T-04
150 watts	.230	.350	.040	DC -2.5 GHz	1.15:1	TVC2335CT-50R0JN-2T-05
150 watts	.375	.250	.040	DC -2.0 GHz 2.0-3.5 GHz	1.20:1 1.10:1	TVC3725CT-50R0JN-2T-01
250 watts	.375	.250	.040	DC -2.5 GHz	1.25:1	TVC3725CT-50R0JN-2T-09
250 watts	.375	.375	.040	DC -3.0 GHz	1.25:1	TVC3737CT-50R0JN-2T-04

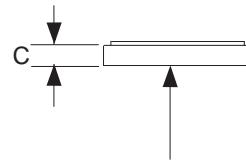
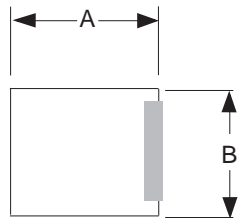
General Specifications -

Resistive Element Proprietary Thick Film
 Contact Pads Silver
 CT = Solderable Finish, Matte Tin over Nickel over Silver
 Substrate BeO, ALN or BeO Free



Power Chip Terminations - BeO Free

CW Power Rating	A	B	C	Frequency Range	Typical VSWR	Part Number
5 watts	.060	.050	.025	DC-4.0 GHz	1.20:1	TV0605CT-XXXXJN-83
5 watts	.100	.050	.025	DC-4.0 GHz	1.20:1	TV1005CT-XXXXJN-83
5 watts	.120	.060	.025	DC-4.0 GHz	1.20:1	TVC 1206CT-XXXXJN-83
10 watts	.190	.075	.025	DC-3.0 GHz	1.25:1	TVC 1907CT-XXXXJN-83
12 watts	.190	.075	.025	DC-2.0 GHz	1.20:1	TVC 1907CT-XXXXJN-83-01
20 watts	.180	.120	.025	DC-2.0 GHz	1.30:1	TVC 1812CT-XXXXJN-83
30 watts	.250	.250	.025	DC-2.5 GHz	1.15:1	TVC 2525CT-XXXXJN-83-02
40 watts	.230	.350	.025	DC-2.5 GHz	1.20:1	TVC 2335CT-XXXXJN-83-03
50 watts	.250	.250	.025	DC-5.0 GHz	1.20:1	TVC 2525CT-XXXXJN-83-03
50 watts	.230	.350	.025	DC-2.0 GHz	1.20:1	TVC 2335CT-XXXXJN-83-07
70 watts	.350	.180	.025	DC-1.0 GHz	1.20:1	TVC 1835CT-XXXXJN-83
100 watts	.370	.370	.025	DC-2.0 GHz	1.20:1	TVC 3737CT-XXXXJN-83-03

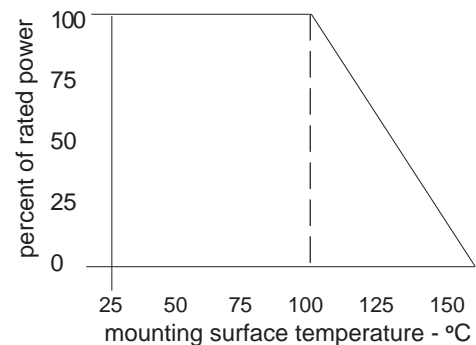


mounting surface to heat sink

General Notes -

- All power ratings assume an operating base plate temperature of 100°C
- All dimension are in inches.
- Resistance Tolerance: standard is +/- 5%; +/-2% available.
- Resistance Range: 0.5 to 20,000 ohms. Standard values: 50 & 100 ohms.
- Mechanical Tolerance: +/- .010, unless otherwise specified.
- Individual drawings available upon request.
- *Outline depicts a basic chip, castellations where used are not shown.*
- *Power ratings over 250 watts available upon request, contact sales@barryind.com.*
- Other configurations available, custom requests welcome.

Derating Curve



For operations outside the derating curve, please consult with one of BARRY's application engineers.



Barry Industries, Inc.
 60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
 Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

Low Capacitance Flanged Resistors - BeO

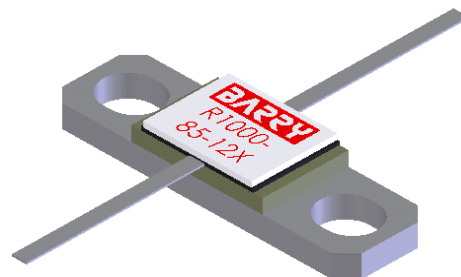
CW Power Rating	CFG	A	B	C	D	E	F	G	H	J	K	Capacitance at 1 MHz	Part Number
20 watts	B	.300	.200	.100	.100	.040	.105	.140 max	.062	.116	.375 max	.70	R 1000-20-10X
50 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	1.42	R 1000-50-12X
85 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	1.42	R 1000-85-12X
100 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	1.73	R 1000-100-10X
150 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	1.73	R 1000-150-10X
200 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	2.15	R 1000-200-7X

Low Capacitance Flanged Resistors - Aluminum Nitride

CW Power Rating	CFG	A	B	C	D	E	F	G	H	J	K	Capacitance at 1 MHz	Part Number
20 watts	B	.300	.200	.100	.100	.040	.105	.140 max	.062	.116	.375 max	.73	RA 1000-20-8X
50 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	1.37	RA 1000-50-10X
50 watts	A	.800	.230	.350	.560-.600	.040	.125	.170 max	.062	.130	.370 max	1.42	RA 1000-50-11X
50 watts	B	.575	.230	.350	.100-.120	.040	.105	.140 max	.062	.130	.370 max	1.37	RA 1000-50-13X
50 watts	B	.575	.230	.350	.100-.120	.040	.125	.170 max	.062	.130	.370 max	1.37	RA 1000-50-14X
100 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	1.73	RA 1000-100-8X
100 watts	A	.800	.230	.350	.560-.600	.040	.125	.170 max	.062	.130	.370 max	1.58	RA 1000-100-9X

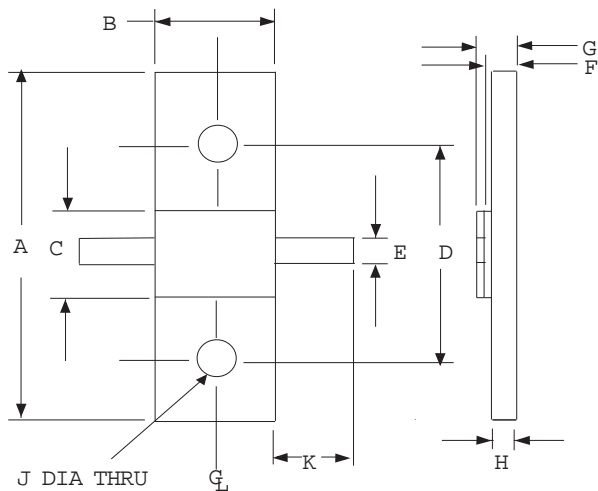
General Specifications -

Resistive Element Proprietary Thick Film
 Substrate BeO or ALN
 Mounting Flange Copper Silver Plated
 Leads Copper (.005" thick) Silver Plated

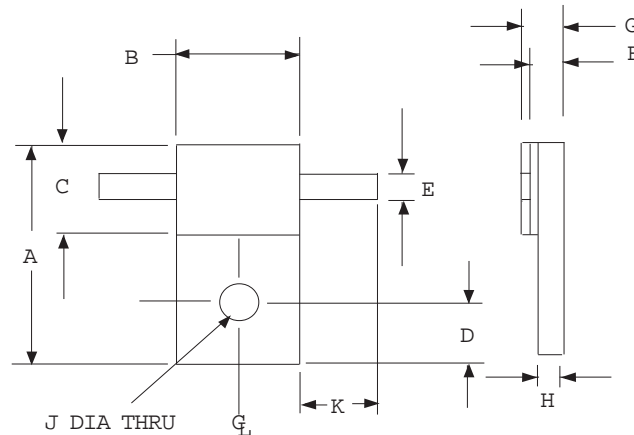


Low Capacitance Flanged Resistor Notes:

Configuration A



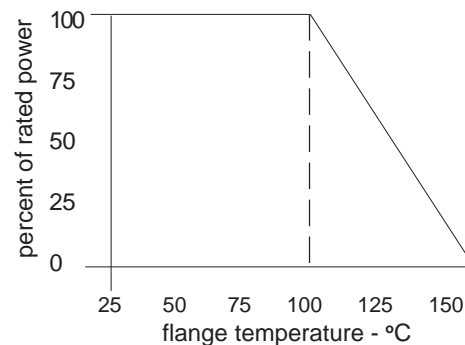
Configuration B



General Notes -

- All power ratings assume an operating base plate temperature of 100°C
- All dimension are in inches.
- Resistance Tolerance: standard is +/- 5%; +/-2% available.
- Resistance Range: 0.5 to 20,000 ohms. Standard values: 50 & 100 ohms.
- Mechanical Tolerance: +/- .010, unless otherwise specified.
- Minimum lead length on all devices is .125 inches.
- Individual drawings available upon request.
- *Power ratings over 200 watts available upon request, contact sales@barryind.com.*
- Other configurations available, custom requests welcome.

Derating Curve



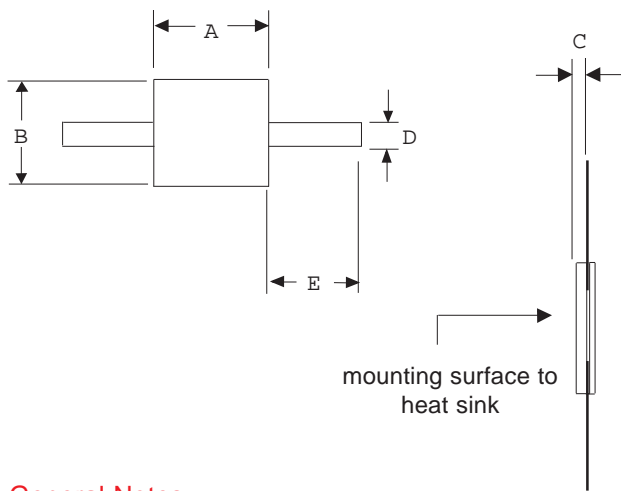
For operations outside the derating curve, please consult with one of BARRY's application engineers.

Low Capacitance Leaded Resistors - BeO

CW Power Rating	A	B	C	D	E	Capacitance at 1 MHz	Part Number
40 watts	.200	.100	.040	.040	.375 max	.70	K04Z-1000G99-02C 36-X
50 - 85 watts	.230	.350	.040	.040	.370 max	1.42	K05Z-1000G99-05C 36-X
100 - 150 watts	.230	.350	.040	.040	.370 max	1.73	K05Z-1000G99-01C 36-X
200 watts	.230	.350	.040	.040	.370 max	2.15	K05Z-1000G99-06C 36-X

Low Capacitance Leaded Resistors - Aluminum Nitride

CW Power Rating	A	B	C	D	E	Capacitance at 1 MHz	Part Number
20 watts	.200	.100	.040	.040	.375 max	.73	K04Z-1000G2T-02C 36-X
50 watts	.230	.350	.040	.040	.370 max	1.34	K05Z-1000G2T-05C 36-X
50 watts	.230	.350	.060	.040	.370 max	1.00	K05Z-1000G2U-02C 36-X
100 watts	.230	.350	.040	.040	.370 max	1.73	K05Z-1000G2T-01C 36-X
100 watts	.230	.350	.060	.040	.370 max	1.73	K05Z-1000G2U-03C 36-X



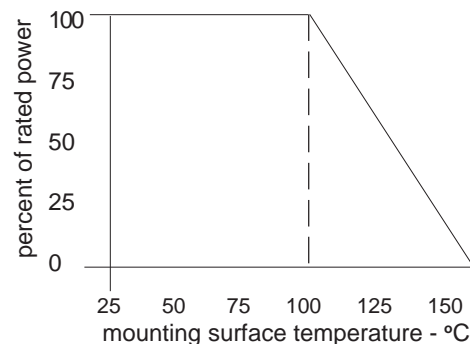
General Specifications -

Resistive Element Proprietary Thick Film
 Substrate BeO or ALN
 Leads Copper (.005" thick) Silver Plated

General Notes -

- All power ratings assume an operating base plate temperature of 100°C
- All dimension are in inches.
- Resistance Tolerance: standard is +/- 5%; +/-2% available.
- Resistance Range: 0.5 to 20,000 ohms. Standard values: 50 & 100 ohms.
- Mechanical Tolerance: +/- .010, unless otherwise specified.
- Minimum lead length on all devices is .125 inches.
- Individual drawings available upon request.
- *Power ratings over 200 watts available upon request, contact sales@barryind.com.*
- Other configurations available, custom requests welcome.

Derating Curve



For operations outside the derating curve, please consult with one of BARRY's application engineers.



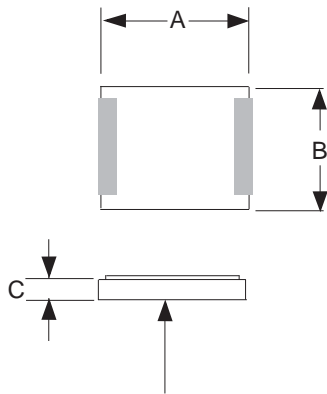
Barry Industries, Inc.
 60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
 Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

Low Capacitance Chip Resistors - BeO

CW Power Rating	A	B	C	Capacitance at 1 MHz	Part Number
40 watts	.200	.100	.040	.70	RM2010CT-1000GN-99-02
50-85 watts	.230	.350	.040	1.42	RM2335CT-1000GN-99-05
100-150 watts	.230	.350	.040	1.73	RM2335CT-1000GN-99-01
200 watts	.230	.350	.040	2.15	RM2335CT-1000GN-99-06

Low Capacitance Chip Resistors - Aluminum Nitride

CW Power Rating	A	B	C	Capacitance at 1 MHz	Part Number
20 watts	.200	.100	.040	.73	RM2010CT-1000GN-2T-02
50 watts	.230	.350	.040	1.34	RM2335CT-1000GN-2T-05
50 watts	.230	.350	.060	1.00	RM2335CT-1000-GN-2U-02
100 watts	.230	.350	.040	1.73	RM2335CT-1000GN-2T-01
100 watts	.230	.350	.060	1.73	RM2335CT-1000GN-2U-03



mounting surface to heat sink

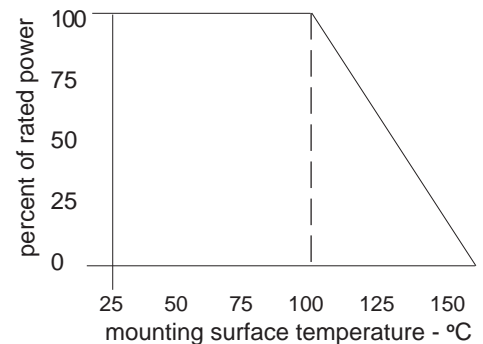
General Specifications -

Resistive Element	Proprietary Thick Film
Contact Pads	Silver
CT =	Solderable Finish, Matte Tin over Nickel over Silver
Substrate	BeO or ALN

General Notes -

- All power ratings assume an operating base plate temperature of 100°C
- All dimension are in inches.
- Resistance Tolerance: standard is +/- 5%; +/-2% available.
- Resistance Range: 0.5 to 20,000 ohms. Standard values: 50 & 100 ohms.
- Mechanical Tolerance: +/- .010, unless otherwise specified.
- Individual drawings available upon request.
- *Outline depicts a basic chip, castellations where used are not shown.*
- *Power ratings over 200 watts available upon request, contact sales@barryind.com.*
- Other configurations available, custom requests welcome.

Derating Curve



For operations outside the derating curve, please consult with one of BARRY's application engineers.



Barry Industries, Inc.
60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

Flanged Attenuators - BeO

CW Power Rating	CFG	A	B	C	D	E	F	G	H	J	K	*Frequency Range	*Typical VSWR	Part Number	Values
10 watts	B	.300	.200	.100	.100	.040	.105	.140 max	.062	.116	.370 max	DC-4.0 GHz	1.20:1	A XXXX-10-6X	1 - 30 dB
** 20 watts	B	.515	.250	.250	.125	.048	.105	.140 max	.062	.116	.370 max	DC-2.0 GHz	1.25:1	A XXXX-20-3X	1 - 20 dB
** 40 watts	B	.515	.250	.250	.125	.048	.105	.140 max	.062	.116	.370 max	DC-2.0 GHz	1.25:1	A XXXX-40-3X	1 - 20 dB
40 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	DC-2.5 GHz	1.25:1	A XXXX-40-1X	1 - 30 dB
100 watts	A	.975	.375	.375	.725	.040	.167	.210 max	.125	.130	.370 max	DC-2.0 GHz	1.10:1	A XXXX-100-2X	1 - 30 dB
150 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	DC-2.5 GHz	1.25:1	A XXXX-150-1X	20 - 30 dB
250 watts	A	.870	.375	.250	.560	.060	.105	.150 max	.062	.161	.370 max	DC-2.0 GHz	1.25:1	A 3000-250-4X	30 dB

* Representative only, varies by frequency range and dB value.

** Leads are off center.

Flanged Attenuators - Aluminum Nitride

CW Power Rating	CFG	A	B	C	D	E	F	G	H	J	K	*Frequency Range	*Typical VSWR	Part Number	Values
10 watts	B	.300	.200	.100	.100	.040	.105	.140 max	.062	.116	.370 max	DC-3.0 GHz	1.30:1	AA XXXX-10-3X	1 - 30 dB
20 watts	B	.515	.250	.250	.125	.048	.105	.140 max	.062	.116	.370 max	DC-3.0 GHz	1.20:1	AA XXXX-20-3X	1 - 30 dB
40 watts	B	.515	.250	.250	.125	.048	.105	.140 max	.062	.116	.370 max	DC-2.0 GHz	1.25:1	AA XXXX-40-3X	1 - 5 dB, 11-30 dB
100 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	DC-2.0 GHz	1.20:1	AA XXXX-100-9X	1 - 10 dB
100 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	DC-2.0 GHz	1.20:1	AA XXXX-100-8X	11 - 30 dB
150 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	DC-2.0 GHz	1.20:1	AA XXXX-150-1X	1-3, 15 & 20 dB
150 watts	A	.800	.230	.350	.560-.600	.040	.105	.140 max	.062	.130	.370 max	DC-2.5 GHz	1.10:1	AA 3000-150-5X	30 dB
250 watts	a	.975	.375	.375	.725	.040	.125	.170 max	.062	.130	.370 max	DC-2.5 GHz	1.17:1	AA 0500-250-10X	5 dB
250 watts	A	.975	.375	.375	.725	.040	.105	.140 max	.062	.130	.370 max	DC-2.0 GHz	1.30:1	AA 3000-250-6X	30 dB

* Representative only, varies by frequency range and dB value.

General Specifications -

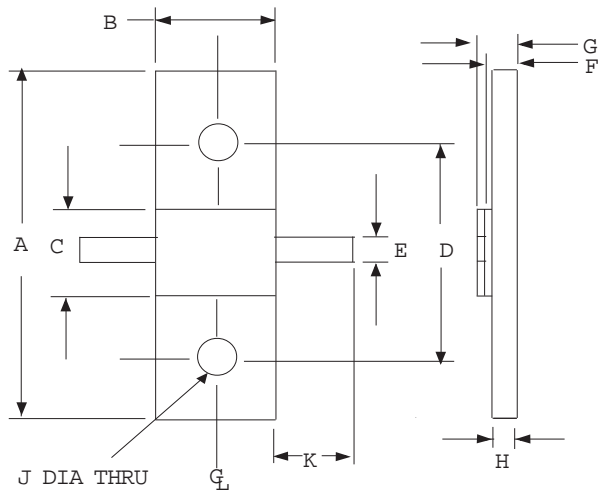
Resistive Element Proprietary Thick Film
 Substrate BeO or ALN
 Mounting Flange Copper Silver Plated
 Leads Copper (.005" thick) Silver Plated



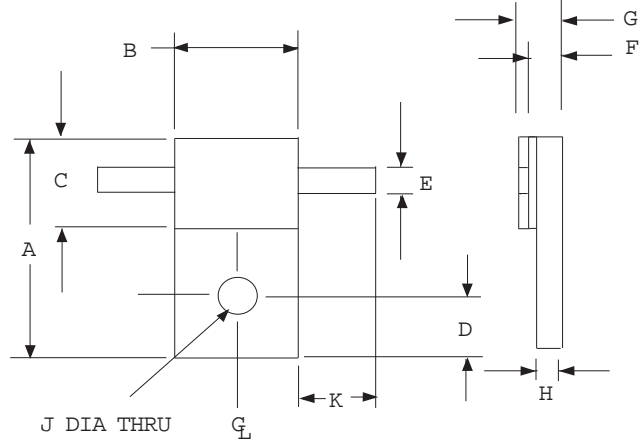
Barry Industries, Inc.
 60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
 Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

Flanged Attenuator Configurations:

Configuration A



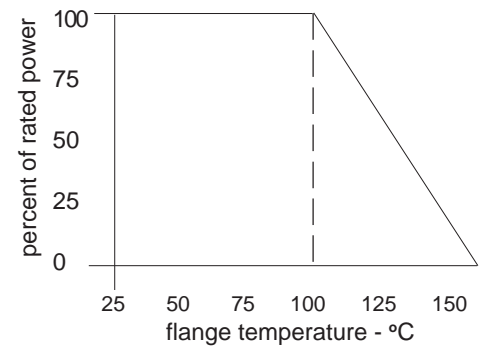
Configuration B



General Notes -

- All power ratings assume an operating base plate temperature of 100°C
- All dimension are in inches.
- Resistance Tolerance: standard is +/- 5%; +/-2% available.
- XXXX = Value in decibels (2000=20dB; 3000=30dB; 0300=3dB)
- Mechanical Tolerance: +/- .010, unless otherwise specified.
- Minimum lead length on all devices is .125 inches.
- Individual drawings available upon request.
- *Power ratings over 250 watts available upon request, contact sales@barryind.com.*
- Other configurations available, custom requests welcome.

Derating Curve



For operations outside the derating curve, please consult with one of BARRY's application engineers.



Barry Industries, Inc.
 60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
 Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

Leaded Attenuators - BeO

CW Power Rating	CFG	A	B	C	D	E	*Frequency Range	*Typical VSWR	Part Number	Values
10 watts	A	.200	.100	.025	.040	.370 max	DC-4.0 GHz	1.35:1	H04Z-XXXXJ98-XX***C36-X	1 - 30 dB
**20-40 watts	B	.250	.250	.048	.040	.370 max	DC-2.0 GHz	1.25:1	H06Z-XXXXJ99-00C36-X	1 - 20 dB
40 watts	A	.230	.350	.040	.040	.370 max	DC-2.5 GHz	1.25:1	H05Z-XXXXJ99-00C36-X	1 - 30 dB
100 watts	A	.375	.375	.040	.040	.370 max	DC-2.0 GHz	1.25:1	H08Z-XXXXJ99-00C36-X	1 - 30 dB
150 watts	A	.230	.350	.040	.040	.370 max	DC-2.5 GHz	1.25:1	H05Z-XXXXJ99-00C36-X	20 - 30 dB
250 watts	A	.375	.250	.060	.040	.370 max	DC-2.0 GHz	1.25:1	H07Z-3000J99-13C36-X	30 dB

* Representative only, varies by frequency range and dB value.

** Leads are off center.

*** XX = Design number assigned by Engineering.

Leaded Attenuators - Aluminum Nitride

CW Power Rating	CFG	A	B	C	D	E	*Frequency Range	*Typical VSWR	Part Number	Values
10 watts	A	.200	.100	.040	.040	.370 max	DC-3.0 GHz	1.30:1	H04Z-XXXXJ2T-00C36-X	1-30 dB
20 watts	A	.250	.250	.040	.040	.370max	DC-3.0 GHz	1.20:1	H06Z-XXXXJ2T-XX***C36-X	1-30 dB
40 watts	A	.250	.250	.040	.040	.370 max	DC-2.0 GHz	1.25:1	H06Z-XXXXJ2T-XX***C36-X	1- 5 dB, 11-30 dB
100 watts	A	.230	.350	.040	.040	.370 max	DC-2.0 GHz	1.20:1	H05Z-XXXXJ2T-23C36-X	1-10 dB
100 watts	A	.230	.350	.040	.040	.370 max	DC-2.0 GHz	1.20:1	H05Z-XXXXJ2T-04C36-X	11-30 dB
150 watts	A	.230	.350	.040	.040	.370 max	DC-2.0 GHz	1.20:1	H05Z-XXXXJ2T-04C36-X	1-3 dB
150 watts	A	.230	.350	.040	.040	.370 max	DC-2.0 GHz	1.20:1	H05Z-1500J2T-10C36-X	15 dB
150 watts	A	.230	.350	.040	.040	.370 max	DC-2.0 GHz	1.20:1	H05Z-2000J2T-03C36-X	20 dB
150 watts	A	.230	.350	.040	.040	.370 max	DC-2.5 GHz	1.20:1	H05Z-3000J2T-09C36-X	30 dB
150 watts	A	.230	.350	.040	.040	.370 max	DC-3.0 GHz	1.20:1	H05Z-3000J2T-17C36-X	30 dB
250 watts	A	.375	.375	.040	.040	.370 max	DC-2.0 GHz	1.30:1	H08Z-3000J2T-02C36-X	30 dB

* Representative only, varies by frequency range and dB value.

*** XX = Design number assigned by Engineering.



General Specifications -

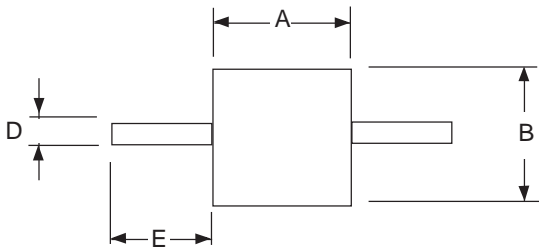
Resistive Element Proprietary Thick Film
 Substrate BeO or ALN
 Leads Copper (.005" thick) Silver Plated



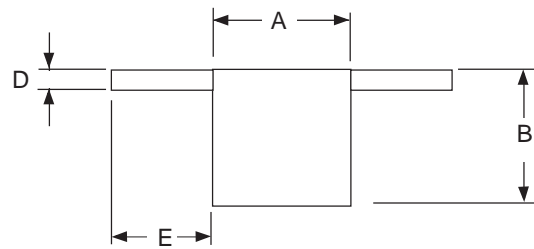
Barry Industries, Inc.
 60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
 Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

Leaded Attenuator Configurations:

Configuration A



Configuration B

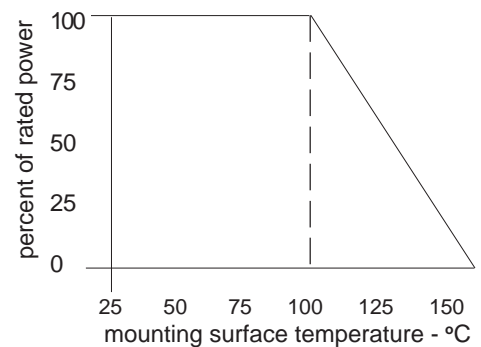


mounting surface to
heat sink

General Notes -

- All power ratings assume an operating base plate temperature of 100°C
- All dimension are in inches.
- Resistance Tolerance: standard is +/- 5%; +/-2% available.
- XXXX = Value in decibels (2000=20dB; 3000=30dB; 0300=3dB)
- Mechanical Tolerance: +/- .010, unless otherwise specified.
- Minimum lead length on all devices is .125 inches.
- Individual drawings available upon request.
- *Power ratings over 250 watts available upon request, contact sales@barryind.com.*
- Other configurations available, custom requests welcome.

Derating Curve



For operations outside the derating curve, please consult with one of BARRY's application engineers.



Barry Industries, Inc.
60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

Chip Attenuators - BeO

CW Power Rating	CFG	A	B	C	*Frequency Range	*Typical VSWR	Part Number	Values
10 watts	A	.200	.100	.025	DC-4.0 GHz	1.35:1	ABC2010CT - XXXX JN - 98-XX***	1 - 30 dB
**20-40 watts	B	.250	.250	.048	DC-2.0 GHz	1.25:1	AVC2525CT - XXXX JN - 99	1 - 20 dB
40 watts	A	.230	.350	.040	DC-2.5 GHz	1.25:1	ABC2335CT - XXXX JN - 99	1 - 30 dB
100 watts	A	.375	.375	.040	DC-2.0 GHz	1.25:1	ABC3737CT - XXXX JN - 99	1 - 30 dB
150 watts	A	.230	.350	.040	DC-2.5 GHz	1.25:1	ABC2335CT - XXXX JN - 99	20 - 30 dB
250 watts	A	.375	.250	.040	DC-2.0 GHz	1.25:1	AVC3725CT - 3000 JN - 99-13	30 dB

* Representative only, varies by frequency range and dB value.

** Contact Pads are off center.

*** XX = Design number assigned by Engineering.

Chip Attenuators - Aluminum Nitride

CW Power Rating	CFG	A	B	C	*Frequency Range	*Typical VSWR	Part Number	Values
10 watts	A	.200	.100	.040	DC-3.0 GHz	1.30:1	ABC2010CT - XXXXJN - 2T	1-30 dB
20 watts	A	.250	.250	.040	DC-3.0 GHz	1.20:1	AVC2525CT - XXXXJN -2T-XX***	1-30 dB
40 watts	A	.250	.250	.040	DC-2.0 GHz	1.25:1	AVC2525CT - XXXXJN -2T-XX***	1-5 dB, 11-30 dB
100 watts	A	.230	.350	.040	DC-2.0 GHz	1.20:1	AVC2335CT - XXXXJN - 2T-23	1-10 dB
100 watts	A	.230	.350	.040	DC-2.0 GHz	1.20:1	AVC2335CT - XXXXJN - 2T-04	11-30 dB
150 watts	A	.230	.350	.040	DC-2.0 GHz	1.20:1	AVC2335CT - XXXXJN - 2T-04	1-3 dB
150 watts	A	.230	.350	.040	DC-2.0 GHz	1.20:1	AVC2335CT - 1500JN - 2T-10	15 dB
150 watts	A	.230	.350	.040	DC-2.0 GHz	1.20:1	AVC2335CT - 2000JN - 2T-03	20 dB
150 watts	A	.230	.350	.040	DC-2.5 GHz	1.20:1	AVC2335CT - 3000JN - 2T-09	30 dB
150 watts	A	.230	.350	.040	DC-3.0 GHz	1.20:1	AVC2335CT - 3000JN - 2T-17	30 dB
150 watts	A	.375	.250	.040	DC-2.0 GHz	1.06:1	AVC3725CT - 3000JN - 2T - 07	30 dB
250 watts	A	.375	.375	.040	DC-2.0 GHz	1.30:1	AVC3737CT - 3000JN - 2T-02	30 dB

* Representative only, varies by frequency range and dB value.

*** XX = Design number assigned by Engineering.

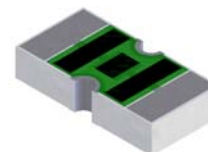
General Specifications -

Resistive Element Proprietary Thick Film

Contact Pads Silver

CT = Solderable Finish, Matte Tin over Nickel over Silver

Substrate BeO or ALN



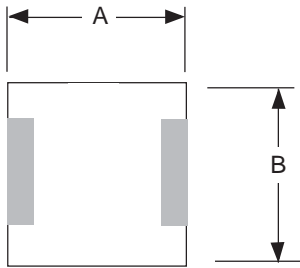
Barry Industries, Inc.

60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.

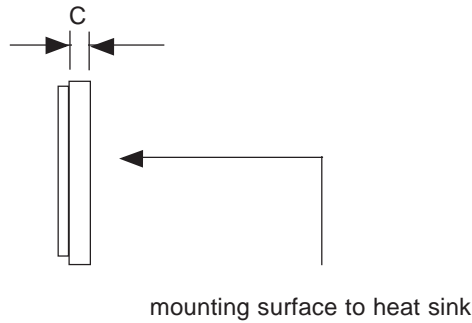
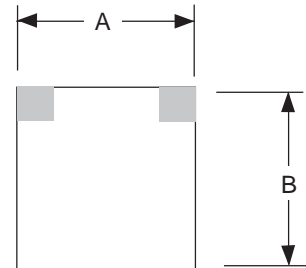
Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

Attenuator Chip Configurations:

Configuration A



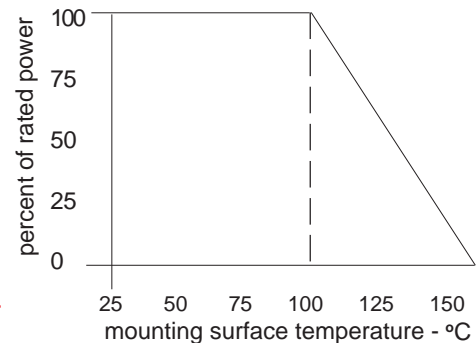
Configuration B



General Notes -

- All power ratings assume an operating base plate temperature of 100°C
- All dimension are in inches.
- Resistance Tolerance: standard is +/- 5%; +/-2% available.
- XXXX = Value in decibels (2000=20 dB; 3000=30 dB; 0300=3 dB)
- Mechanical Tolerance: +/- .010, unless otherwise specified.
- Individual drawings available upon request.
- *Outline depicts a basic chip, castellations where used are not shown.*
- *Power ratings over 250 watts available upon request, contact sales@barryind.com.*
- Other configurations available, custom requests welcome.

Derating Curve



For operations outside the derating curve, please consult with one of BARRY's application engineers.



Barry Industries, Inc.
60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

Power Surface Mount Resistors and Terminations - BeO



CW Power Rating	CFG	A	B	C	D	E	F	G	H	Part Number
5 watts	RY	.080	.050	.048	.013	.020	.014	.025	_	RY0805CT- XXXX JN-98
5 watts	RZ	.080	.050	.048	.013	.020	.047	.025	_	RZ0805CT- XXXX JN-98
5 watts	RE	.080	.050	.048	.030	.020	_	.025	_	RE0805CT- XXXX JN-98
8 watts	RY	.100	.050	.046	.015	.025	.020	.025	_	RY1005CT- XXXX JN-98
8 watts	RZ	.100	.050	.046	.015	.025	.060	.025	_	RZ1005CT- XXXX JN-98
8 watts	RE	.100	.050	.046	.0375	.025	_	.025	_	RE1005CT- XXXX JN-98
12 watts	RYC	.120	.062	.060	.018	.025	.034	.025	_	RYC1206CT- XXXX JN-98
12 watts	RZC	.120	.062	.060	.018	.025	.077	.025	_	RZC1206CT- XXXX JN-98
12 watts	REC	.120	.062	.060	.0475	.025	_	.025	_	REC1206CT- XXXX JN-98
30 watts	RYC	.206	.100	.090	.035	.030	.070	.040	_	RYC2010CT- XXXX JN-99
30 watts	REC	.206	.100	.090	.085	.030	_	.040	_	REC2010CT- XXXX JN-99
30 watts	RZC	.206	.100	.090	.020	.035	.151	.040	_	RZC2010CT- XXXX JN-99
100 watts	TZC	.250	.250	.240	.030	.040	.180	.040	.120	TZC2525CT- XXXX JN-99
150 watts	TZC	.375	.250	.240	.050	.050	.275	.040	.135	TZC3725CT- XXXX JN-99

Power Surface Mount Resistors and Terminations - AlN

CW Power Rating	CFG	A	B	C	D	E	F	G	H	Part Number
5 watts	RY	.080	.050	.048	.013	.020	.014	.025	_	RY0805CT- XXXX JN-2S
5 watts	RZ	.080	.050	.048	.013	.020	.047	.025	_	RZ0805CT- XXXX JN-2S
5 watts	RE	.080	.050	.048	.030	.020	_	.025	_	RE0805CT- XXXX JN-2S
8 watts	RY	.100	.050	.046	.015	.025	.020	.025	_	RY1005CT- XXXX JN-2S
8 watts	RZ	.100	.050	.046	.015	.025	.060	.025	_	RZ1005CT- XXXX JN-2S
8 watts	RE	.100	.050	.046	.0375	.025	_	.025	_	RE1005CT- XXXX JN-2S
10 watts	RYC	.120	.062	.060	.018	.025	.034	.025	_	RYC1206CT- XXXX JN-2S
10 watts	RZC	.120	.062	.060	.018	.025	.077	.025	_	RZC1206CT- XXXX JN-2S
10 watts	REC	.120	.062	.060	.0475	.025	_	.025	_	REC1206CT- XXXX JN-2S
30 watts	RYC	.206	.100	.090	.035	.030	.070	.040	_	RYC2010CT- XXXX JN-2T
30 watts	RZC	.206	.100	.090	.020	.035	.151	.040	_	RZC2010CT- XXXX JN-2T
30 watts	REC	.206	.100	.090	.085	.030	_	.040	_	REC2010CT- XXXX JN-2T
100 watts	TZC	.250	.250	.240	.030	.040	.180	.040	.120	TZC2525CT- XXXX JN-2T-02
150 watts	TZC	.375	.250	.240	.050	.050	.275	.040	.135	TZC3725CT- XXXX JN-2T-01

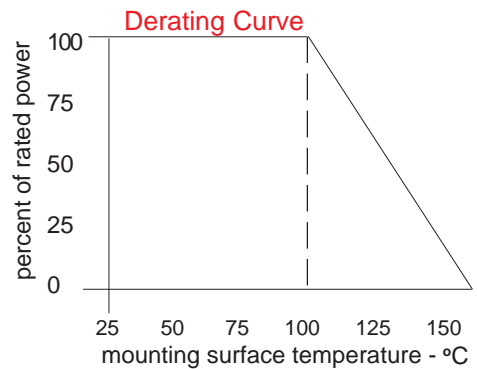
Power Surface Mount Resistors and Terminations- BeO Free

CW Power Rating	CFG	A	B	C	D	E	F	G	H	Part Number
1 watt	RY	.080	.050	.048	.013	.020	.014	.025	—	RY0805CT- XXXX JN-83
1 watt	RZ	.080	.050	.048	.013	.020	.047	.025	—	RZ0805CT- XXXX JN-83
1 watt	RE	.080	.050	.048	.030	.020	—	.025	—	RE0805CT- XXXX JN-83
5 watts	RYC	.120	.062	.060	.018	.025	.034	.025	—	RYC1206CT- XXXX JN-83
5 watts	RZC	.120	.062	.060	.018	.025	.077	.025	—	RZC1206CT- XXXX JN-83
5 watts	REC	.120	.062	.060	.048	.025	—	.025	—	REC1206CT- XXXX JN-83
10 watts	RYC	.206	.100	.090	.035	.030	.070	.040	—	RYC2010CT- XXXX JN-83
10 watts	RZC	.206	.100	.090	.020	.035	.151	.040	—	RZC2010CT- XXXX JN-83
10 watts	REC	.206	.100	.090	.085	.030	—	.040	—	REC2010CT- XXXX JN-83
40 watts	RYC	.250	.250	.240	.035	.040	.090	.025	.070	RYC2525CT- XXXX JN-83
50 watts	TZC	.250	.250	.240	.030	.040	.180	.025	.120	TZC2525CT- XXXX JN-83-01

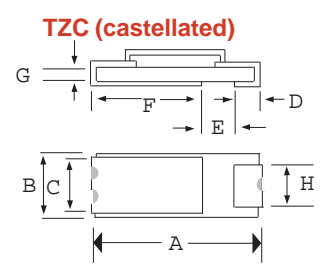
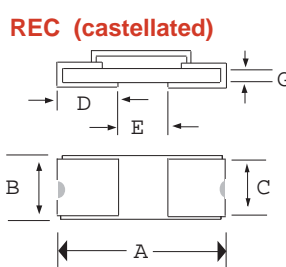
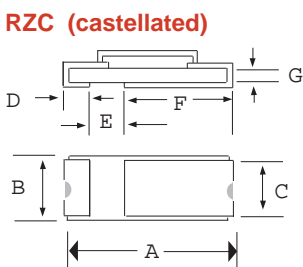
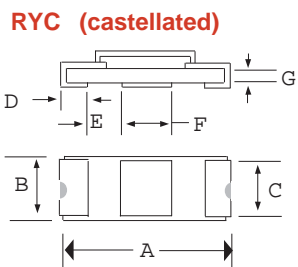
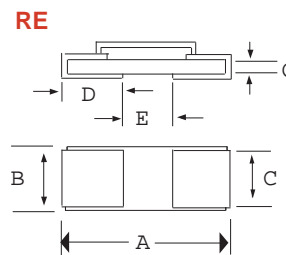
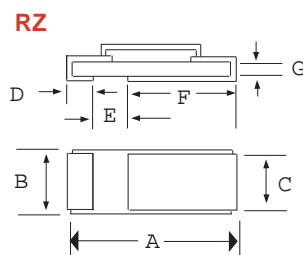
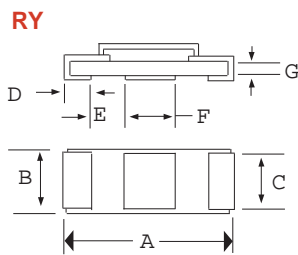
50 ohm and 100 ohm are standard values; other values and substrate thicknesses available.
 XXXX = Values in ohms (50R0 = 50 ohms; 1000 = 100 ohms)
 Available in bulk, waffle pack  or tape and reel. 

General Notes

- Power rating assumes that the PC board thermal resistance is such that mounting surface is maintained at or below the temperature indicated in the derating curve, while dissipating the rated (CW) power.
- Circuit land areas should be designed in accordance with IPC-SM-782.
- Solder joint design should assure a maximum solder thickness of .002" and voids not to exceed 30%.



For operations outside the derating curve, please consult with one of BARRY's application engineers.



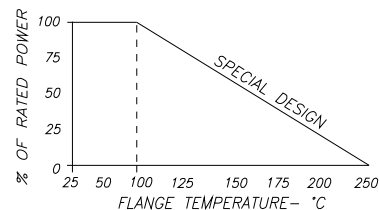
Barry Industries, Inc.
 60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
 Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

Pulsed Power Product - Attenuators/Resistors

Please contact factory for individual data sheets.

Utilizing a proprietary flange composite, Barry offers BeO Resistors and Terminations that are ideal for Pulsed Power/Cycled Applications. The devices feature all brazed construction which ensure that the assembly stays intact during interface. Devices are rated for operation at full power to 100°C and derated to 250°C.

DERATING CURVE:








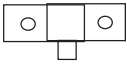
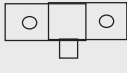
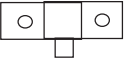
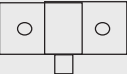
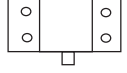

Device Type	Watts	CFG.	Flange Length	Flange Width	Flange Thickness	Chip Dimensions	Max. Height	Lead Width	Hole Dim.	Part Number
Attenuator	40		.515	.250	.062	.250 x .250	.140	.048	.130	A 3000 - 40 - 3E
Attenuator	100		.800	.230	.062	.230 x .350	.140	.040		A 0100 - 100 - 3E
Resistor	30		.515	.250	.062	.250 x .250	.140	.060	.130	R XXXX - 30 - 3E
Resistor	50		.560	.375	.125	.375 x .250	.200	.120	.161	R XXXX - 50 - 2E
Resistor	50		.515	.250	.062	.250 x .250	.140	.060	.130	R XXXX - 50 - 3E
Resistor	50		.515	.250	.125	.250 x .250	.200	.060	.130	R XXXX - 50 - 5E
Resistor	80		.515	.250	.062	.250 x .250	.160	.060	.130	R XXXX - 80 - 3E
Resistor	150		.800	.230	.062	.230 x .350	.140	.120		R XXXX - 150 - 4E
Resistor	150		.870	.375	.062	.375 x .250	.140	.120	.161	R XXXX - 150 - 8E
Resistor	150		.975	.250	.062	.375 x .250	.140	.120		R XXXX - 150 - 15E
Resistor	250		.975	.375	.125	.375 x .375	.190	.120	.130	R XXXX - 250 - 5E
Resistor	400		1.100	.500	.125	.500 x .500	.200	.250	.170	R XXXX - 400 - 1E
Resistor	800		1.900	1.04	.125	1.00 x 1.04	.250	.250	.170	R XXXX - 800 - 1E



Barry Industries, Inc.
 60 Walton Street . Attleboro . Massachusetts . 02703 U.S.A.
 Tel: +1-508-226-3350 . Fax: +1-508-226-3317 . E-mail: sales@barryind.com

Pulsed Power Product - Terminations

The use of Copper Tungsten flanges provides a good thermal expansion match between the ceramic and the flange. As power levels – and hence ceramic chip size – increase, this matching becomes more critical. This becomes even more important if the part is subject to power or temperature cycling. The all brazed Barry Copper Tungsten device solves this problem and provides the highest reliability part for all applications.

Device Type	Watts	CFG.	Flange Length	Flange Width	Flange Thickness	Chip Dimensions	Max. Height	Lead Width	Hole Dim.	Part Number
Termination	60		.515	.250	.062	.250 x .250	.140	.060	.130	T XXXX - 60 - 49E
Termination	60		.515	.250	.062	.250 x .250	.140	.060	.130	T XXXX - 60 - 50E
Termination	100		.515	.250	.062	.250 x .250	.140	.040	.130	T XXXX - 100-21E
Termination	100		.560	.375	.062	.375 x .250	.140	.040	.161	T XXXX - 100-28E
Termination	100		.560	.375	.062	.375 x .250	.140	.040	.161	T XXXX - 100 - 29E
Termination	150		.800	.230	.062	.230 x .350	.140	.040		T XXXX - 150 - 10E
Termination	200		.800	.230	.062	.230 x .350	.140	.040	.130	T XXXX - 200 - 1E
Termination	250		.975	.375	.062	.375 x .375	.140	.040	.130	T XXXX - 250 - 23E
Termination	350		1.10	.500	.125	.500 x .500	.200	.060	.170	T XXXX - 350 - 1E
Termination	800		1.900	1.04	.125	1.00 x 1.04	.250	.250	.170	T XXXX - 800- 1E
Termination	1500		1.900	1.64	.125	1.00 x 1.50	.220	.240	.170	T XXXX - 1500 - 1E

Barry Reference Tools

+ dB	POWER	VOLTAGE
0.0	1.00	1.00
1.0	1.26	1.12
2.0	1.59	1.26
3.0	2.00	1.41
4.0	2.51	1.59
5.0	3.16	1.78
6.0	3.98	2.00
7.0	5.01	2.24
8.0	6.31	2.51
9.0	7.94	2.82
10.0	10.00	3.16
11.0	12.59	3.55
12.0	15.85	3.98
13.0	19.95	4.47
14.0	25.12	5.01
15.0	31.62	5.62
16.0	39.81	6.31
17.0	50.12	7.08
18.0	63.10	7.94
19.0	79.43	8.91
20.0	100.0	10.0
21.0	125.9	11.2
22.0	158.5	12.6
23.0	200.0	14.1
24.0	251.2	15.9
25.0	316.2	17.8
26.0	398.1	20.0
27.0	501.2	22.4
28.0	631.0	25.1
29.0	794.3	28.2
30.0	1000	31.6
31.0	1259	35.5
32.0	1585	39.8
33.0	1995	44.7
34.0	2512	50.1
35.0	3162	56.2
36.0	3981	63.1
37.0	5012	70.8
38.0	6310	79.4
39.0	7943	89.1
40.0	10000	100.0
41.0	12590	112.2
42.0	15850	125.9
43.0	19950	141.3
44.0	25120	158.5
45.0	31620	177.8
46.0	39810	199.5
47.0	50120	223.9
48.0	63100	251.2
49.0	79430	281.8
50.0	100000	316.2
51.0	125900	354.8
52.0	158500	398.1
53.0	199500	446.7
54.0	251200	501.2
55.0	316200	562.3
56.0	398100	631.0
57.0	501200	707.9
58.0	631000	794.3
59.0	794300	891.3
60.0	1000000	1000.0



OHM'S LAW REFERENCE

$$P = EI \quad P = E^2 / R$$

$$P = I^2R$$

$$R = E / I \quad R = E^2 / P$$

$$R = P / I^2$$

$$I = E / R \quad I = P / E$$

$$I = \sqrt{P / R}$$

$$E = IR \quad E = P / I$$

$$E = \sqrt{PR}$$

SERIES

$$RT = R1 + R2 + R3...$$

PARALLEL

$$RT = \frac{1}{\frac{1}{R1} + \frac{1}{R2} + \frac{1}{R3}}$$

PHONETIC ALPHABET

A - ALPHA	N - NOVEMBER
B - BRAVO	O - OSCAR
C - CHARLIE	P - PAPA
D - DELTA	Q - QUEBEC
E - ECHO	R - ROMEO
F - FOXTROT	S - SIERRA
G - GOLF	T - TANGO
H - HOTEL	U - UNIFORM
I - INDIA	V - VICTOR
J - JULIETTE	W - WHISKEY
K - KILO	X - X-RAY
L - LIMA	Y - YANKEE
M - MIKE	Z - ZULU

DECIBEL (dB)

Compares one value to a reference value (1) using common logarithms of their ratio.

$$\text{Power: dB} = 10 \log (P_2 / P_1)$$

$$\text{Voltage: dB} = 20 \log ((E_2 \sqrt{Z_1}) / (E_1 \sqrt{Z_2}))$$

$$\text{Current: dB} = 20 \log ((I_2 \sqrt{Z_2}) / (I_1 \sqrt{Z_1}))$$

The NEPER (Np), which is also called the Napier, is used by some in place of the decibel.

The conversions are:

$$Np = 8.686 \times \text{dB}$$

$$\text{dB} = 0.1151 \times Np$$

VOLTAGE STANDING-WAVE RATIO (VSWR)

	RETURN LOSS	TRANS. LOSS	VOLT. REFL. COEF.	POWER REFL. %	POWER TRANS. %
VSWR	dB	dB			
1.00	∞	.000	.00	.0	100.0
1.01	46.1	.000	.00	.0	100.0
1.02	40.1	.000	.01	.0	100.0
1.03	36.6	.001	.01	.0	100.0
1.04	34.2	.002	.02	.0	100.0
1.05	32.3	.003	.02	.1	99.9
1.06	30.7	.004	.03	.1	99.9
1.07	29.4	.005	.03	.1	99.9
1.08	28.3	.006	.04	.1	99.9
1.09	27.3	.008	.04	.2	99.8
1.10	26.4	.010	.05	.2	99.8
1.11	25.7	.012	.05	.3	99.7
1.12	24.9	.014	.06	.3	99.7
1.13	24.3	.016	.06	.4	99.6
1.14	23.7	.019	.07	.4	99.6
1.15	23.1	.021	.07	.5	99.5
1.16	22.6	.024	.07	.5	99.5
1.17	22.1	.027	.08	.6	99.4
1.18	21.7	.030	.08	.7	99.3
1.19	21.2	.033	.09	.8	99.2
1.20	20.8	.036	.09	.8	99.2
1.25	19.1	.054	.11	1.2	98.8
1.30	17.7	.075	.13	1.7	98.3
1.40	15.6	.122	.17	2.8	97.2
1.50	14.0	.177	.20	4.0	96.0
1.60	12.7	.238	.23	5.3	94.7
1.70	11.7	.302	.26	6.7	93.3
1.80	10.9	.370	.29	8.2	91.8
1.90	10.2	.440	.31	9.6	90.4
2.00	9.5	.512	.33	11.1	88.9
3.00	6.0	1.249	.50	25.0	75.0
4.00	4.4	1.938	.60	36.0	64.0
5.00	3.5	2.553	.67	44.4	55.6
10.00	1.7	4.807	.82	66.9	33.1
20.00	0.9	7.413	.90	81.9	18.1

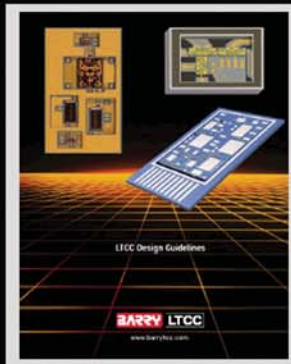
DECIMAL-INCHES (SMALL DIV. = .050")
CENTIMETERS (SMALL DIV. = 1mm)

OTHER BARRY PRODUCTS:

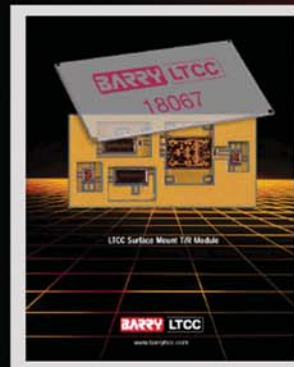
Barry LTCC
www.barryltcc.com

Semiconductor Enclosures, Inc.
www.semiconductorenclosures.com

Barry Machining
Barry Plating
www.barryind.com



LTCC Design Guidelines



LTCC T/R Module



Pulsed Power Applications



Semiconductor Packaging

BARRY

Passive Resistive Components

Barry Industries, Inc.

60 Walton Street, Attleboro, MA 02703 U.S.A.

T: +1-508-226-3350 F: +1-508-226-3317

E-mail: sales@barryind.com

www.barryind.com