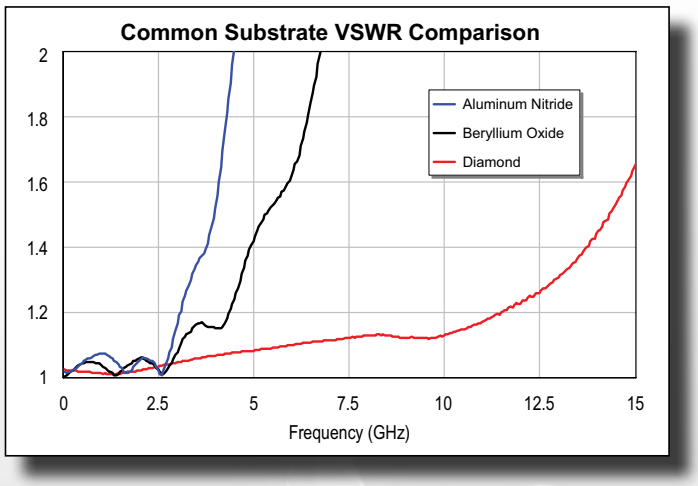
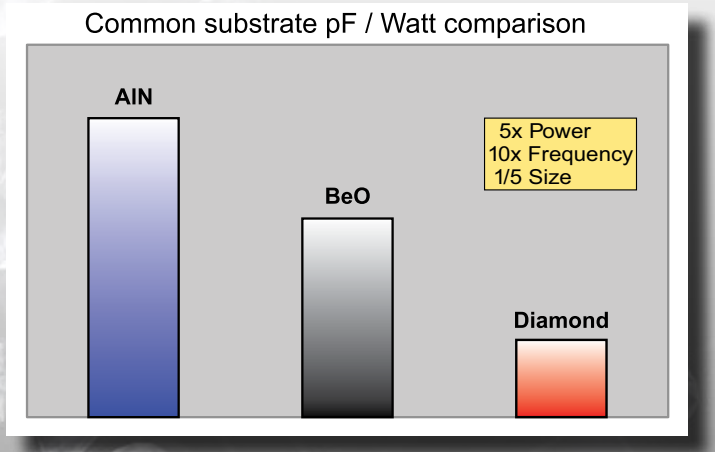
Diamond is the best thermal conductor on earth. Combined with a low dielectric constant, it is an excellent RF dielectric material for high-frequency applications in which thermal performance is equally critical.

By applying cutting-edge thin film process and extensive millimeter wave design experience, EMC Technology has created a high-performance line of resistive components. The resulting products, our Diamond Rf® resistors, terminations, and attenuators, are significantly reduced in size and unparalleled in average and peak power handling.





Quick Selector Chart

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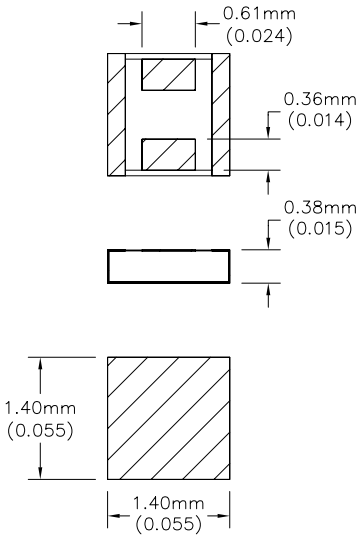
Diamond Rf Resistives®

Diamond Chip Attenuator

EMC Technology offers a line of CVD Diamond chip attenuators with extremely high power ratings. With operating frequency of DC to 26.5 GHz, these products are ideal for military and space applications because of their high power handling capability, broad frequency response and small footprint. The CA0505D are manufactured using all thin film construction. The gold finish on terminals is both wire-bondable and solderable. Standard chip and high reliability tested versions per Mil-PRF-55342 are available. Select from tape and reel or waffle packaging. These products are lead free, RoHS compliant and S-level approved. Standard available values are 1 through 10, 20, and 30 dB.

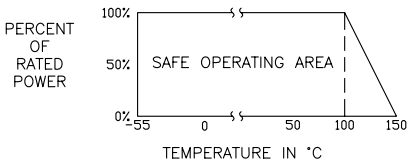
CA0505D



Specifications

Nominal Impedance	50 Ohms
Frequency Range	DC to 26.5 GHz
Attenuation Values	1 thru 10, 20 and 30 dB
Power Rating	20 Watts
Operating Temperature	-55 °C to 150 °C
Resistive Material	Thin Film
Terminal Material	Thin Film, Gold Solderable or Bondable Finish

Power Rating and Derating



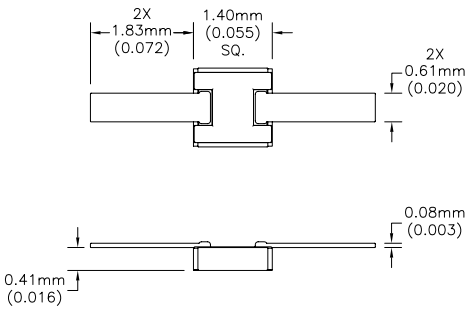
Attenuation Accuracy (dB)				
dB VALUE	DC - 8 GHz	8 -12.4 GHz	12.4 - 18 GHz	18 - 26.5 GHz
0	+ 0.25	+ 0.30	+ 0.50	+ 0.70
1 - 3	± 0.25	± 0.30	± 0.50	± 0.50
4 - 6	± 0.25	± 0.30	± 0.50	± 0.75
7 - 10	± 0.25	± 0.30	± 0.50	± 1.00
20	± 0.50	± 0.50	± 0.75	± 1.00
30	± 0.50	± 0.50	± 1.00	± 1.50

VSWR (Max)				
dB VALUE	DC - 8 GHz	8 -12.4 GHz	12.4 - 18 GHz	18 - 26.5 GHz
0	1.25	1.30	1.40	1.50
1-10	1.25	1.30	1.40	1.50
20	1.25	1.30	1.40	1.50
30	1.25	1.30	1.40	1.50

Part Numbering Code

C A	0 5	0 5	D	X X
TYPE	LENGTH	WIDTH	SUBSTRATE	dB VALUE
CA = Chip Attenuator	05 = 0.05"	05 = 0.05"	Diamond	01 - 10 00 -30

CA0505D T

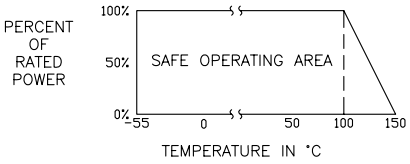


EMC Technology offers a line of CVD Diamond chip attenuators with extreme high power ratings. With operating frequency of DC to 26.5 GHz, these products are ideal for military and space applications because of their high power handling capability, broad frequency response and small footprint. The CA0505D T are manufactured using all thin film construction and have a thin film gold terminations. These units have a gold plated copper tab for ease of installation. Standard chip and high reliability tested versions based on Mil-PRF-55342 are available. Select from tape and reel or waffle packaging. These products are lead free, RoHS compliant and S-level approved. Standard available values are 0 through 10, 20, and 30 dB.

Specifications

Nominal Impedance	50 Ohms
Frequency Range	DC to 26.5 GHz
Attenuation Values	0 thru 10, 20 and 30 dB
Power Rating	20 Watts
Operating Temperature	-55 °C to 150 °C
Resistive Material	Thin Film
Terminal Material	Thin Film, Gold Solderable or Bondable Finish
Tab	Copper, gold plated

Power Rating and Derating



Attenuation Accuracy (dB)				
dB VALUE	DC - 8 GHz	8 -12.4 GHz	12.4 - 18 GHz	18 - 26.5 GHz
0	+ 0.25	+ 0.30	+ 0.50	+ 0.70
1 - 3	± 0.25	± 0.30	± 0.50	± 0.50
4 - 6	± 0.25	± 0.30	± 0.50	± 0.75
7 - 10	± 0.25	± 0.30	± 0.50	± 1.00
20	± 0.50	± 0.50	± 0.75	± 1.00
30	± 0.50	± 0.50	± 1.00	± 1.50

VSWR (Max)				
dB VALUE	DC - 8 GHz	8 -12.4 GHz	12.4 - 18 GHz	18 - 26.5 GHz
0	1.25	1.30	1.40	1.50
1-10	1.25	1.30	1.40	1.50
20	1.25	1.30	1.40	1.50
30	1.25	1.30	1.40	1.50

Part Numbering Code

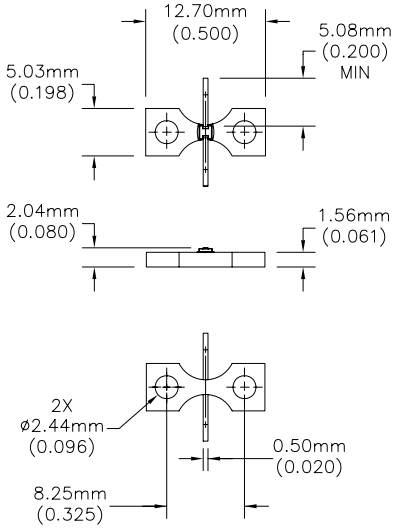
C A	0 5	0 5	D	X X	F T
TYPE	LENGTH	WIDTH	SUBSTRATE	dB VALUE	MOUNTING
CA = Chip Attenuator	05 = 0.05"	05 = 0.05"	Diamond	01 - 10	(blank) = Chip FT = Flange & Tab T = Tab

Diamond Rf Resistives®

Diamond Flange Attenuator

EMC Technology offers a line of CVD Diamond chip attenuators with extreme high power ratings. With operating frequency of DC to 26.5 GHz, these products are ideal for military and space applications because of their high power handling capability, broad frequency response and small footprint. The CA0505D FT is manufactured using all thin film construction with gold finish. These units are equipped with a gold plated copper tab and integrated heat sink for ease of installation. Standard chip and high reliability tested versions based on MIL-PRF-55342 are available. Select from tape and reel or waffle packaging. These products are lead free, RoHS compliant and S-level approved. Standard available values are 1 through 10, 20 and 30 dB.

CA0505D FT



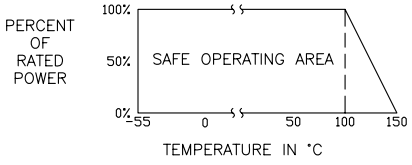
Specifications

Nominal Impedance	50 Ohms
Frequency Range	DC to 26.5 GHz
Attenuation Values	1 thru 10, 20 and 30 dB
Power Rating	20 Watts
Operating Temperature	-55 °C to 150 °C
Resistive Material	Thin Film
Terminal Material	Thin Film, Gold Solderable or Bondable Finish
Tab	Copper, gold plated
Heat Sink	Copper, gold plated

Attenuation Accuracy (dB)				
dB VALUE	DC - 8 GHz	8 -12.4 GHz	12.4 - 18 GHz	18 - 26.5 GHz
0	+ 0.25	+ 0.30	+ 0.50	+ 0.70
1 – 3	± 0.25	± 0.30	± 0.50	± 0.50
4 – 6	± 0.25	± 0.30	± 0.50	± 0.75
7 - 10	± 0.25	± 0.30	± 0.50	± 1.00
20	± 0.50	± 0.50	± 0.75	± 1.00
30	± 0.50	± 0.50	± 1.00	± 1.50

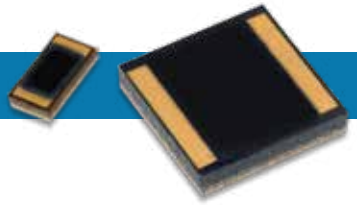
VSWR (Max)				
dB VALUE	DC - 8 GHz	8 -12.4 GHz	12.4 - 18 GHz	18 - 26.5 GHz
0	1.25	1.30	1.40	1.50
1-10	1.25	1.30	1.40	1.50
20	1.25	1.30	1.40	1.50
30	1.25	1.30	1.40	1.50

Power Rating and Derating

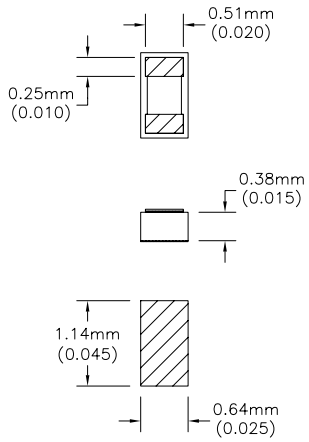


Part Numbering Code

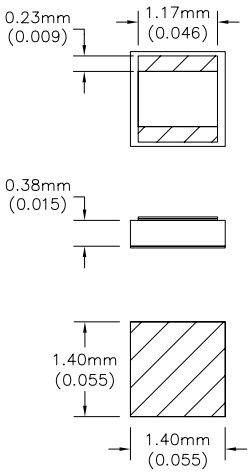
C A	0 5	0 5	D	X X	F T
TYPE	LENGTH	WIDTH	SUBSTRATE	dB VALUE	MOUNTING
CA = Chip Attenuator	05 = 0.05"	05 = 0.05"	Diamond	01 - 10	(blank) = Chip FT = Flange & Tab T = Tab



CR0402D



CR0505D

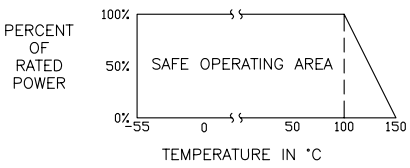


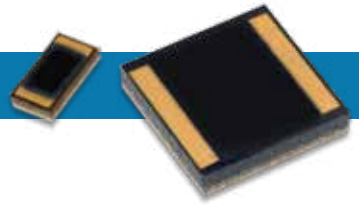
EMC Technology surface mount (CR) chip resistors with extreme high power ratings may be used in applications from DC to 30.0 GHz and are ideal for military and space applications because of their high power capability, broad frequency response and small, light-weight size. They are manufactured using all thin film construction and have a thin film gold finish that is both wire bondable and solderable. Because of their total thin film construction they are ideal for peak power applications. Standard chip and high reliability tested versions based on Mil-PRF-55342 are also available. Select from tape and reel, bulk, or waffle packaging. These products are lead free, RoHS complaint and S-level approved. Standard available values are 50 & 100 ohms. Contact us directly for non-standard resistance values.

Specifications

Resistance Values	Part Series	50 and 100 Ohms +/-5%
Frequency Range	CR0402D/W2	DC to 30 GHz
	CR0505D	DC - 18.0 GHz
	CR0603D	DC - 18.0 GHz
	CR1010D	DC - 18.0 GHz
Power Rating	CR0402D/W2	20 Watts
	CR0505D	50 Watts
	CR0603D	50 Watts
	CR1010D	125 Watts
Typical Capacitance	CR0402D/W2	0.09pF
	CR0505D	0.1pF
	CR0603D	0.19pF
	CR1010D	0.8pF
Operating Temperature	All	-55 °C to 150 °C
Resistive Material	All	Thin Film
Terminal Material	All	Thin Film, Gold Solderable or Bondable Finish

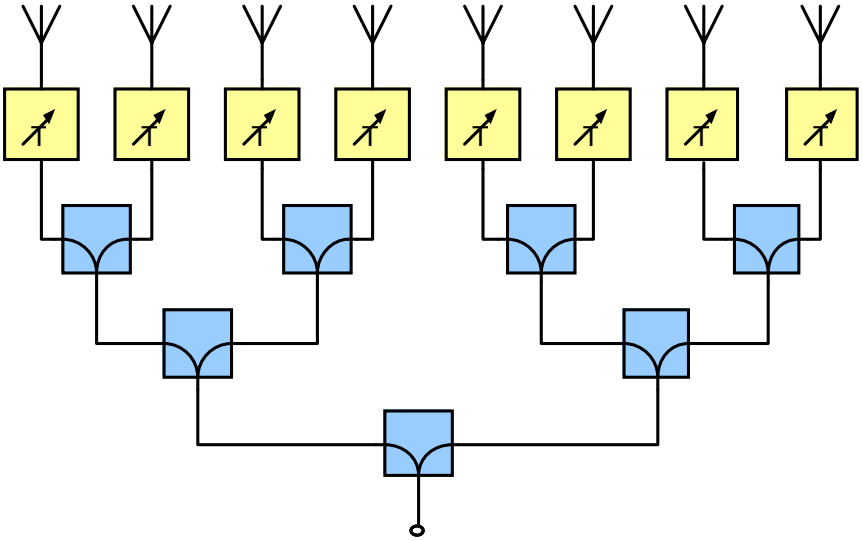
Power Rating and Derating





Reduce the Size and Weight of Phased Array Radar Feed Network Easily

Corporate-feed networks in phased array radars have benefited from the small footprint, high power handling, and excellent high-frequency characteristics of Diamond Rf resistors. The use of Diamond Rf resistors such as CR0505D, in place of the traditionally larger components, has significantly reduced the size and weight of the feed network without compromising power handling and thermal performance.

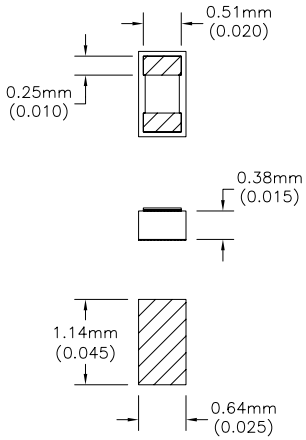


Part Numbering Code

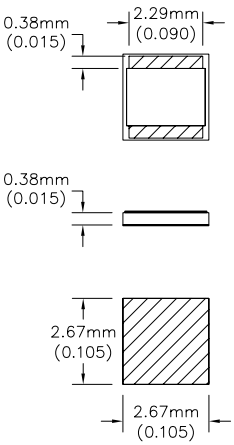
C R	1 0	1 0	D	5 0 , 5	W 2
TYPE	LENGTH	WIDTH	SUBSTRATE MATERIAL	OHMS / TOLERANCE	
CR = Chip Resistor	04 = 0.04" 05 = 0.05" 06 = 0.06" 10 = 0.10"	02 = 0.02" 05 = 0.05" 03 = 0.03" 10 = 0.10"	D = CVD Diamond	50 = 50 OHMS 100 = 100 OHMS 5 = 5%	(blank) = Chip Only W2 = Double Wrap

Note: Other ohms values available on request. Please contact our Sales department.

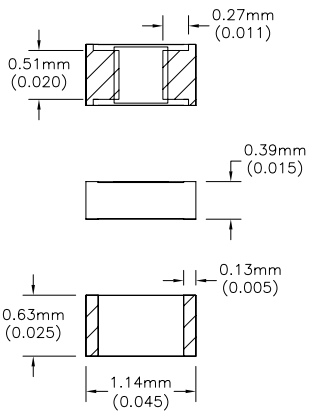
CR0603D



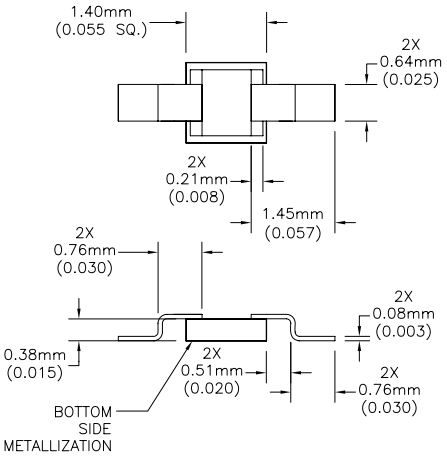
CR1010D



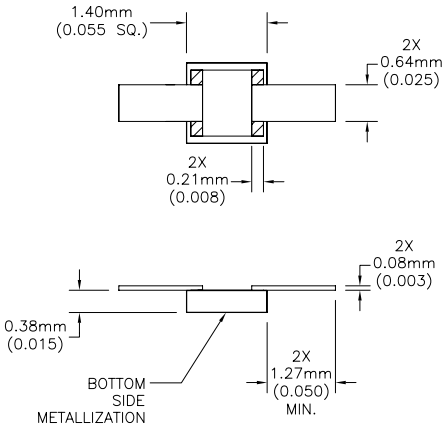
CR0402D W2



CR0505DTB



CR0505DT2

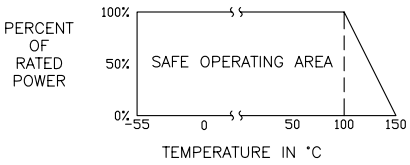


CVD Diamond surface mount (CR) chip resistors with extreme high power ratings. These resistors may be used in applications from DC to 30.0 GHz and are ideal for military and space applications because of their high power capability, broad frequency response and small, light-weight size. These terminations are available in easy to mount double wrap and tab mount units. They are manufactured using all thin film construction and have a pure thin film gold finish that is both wire bondable and solderable. They can be supplied with or without solderable tabs.

Specifications

Resistance Values	50 and 100 Ohms +/-5%
Frequency Range	30.0 GHz
Power Rating	50 Watts
Typical Capacitance	0.1pF
Operating Temperature	-55 °C to 150 °C
Resistive Material	Thin Film
Terminal Material	Thin Film, Gold Solderable or Bondable Finish
Tab	Copper, Gold Plated

Power Rating and Derating



Part Numbering Code

C R	1 0	1 0	D	5 0 , 5	T B
TYPE	LENGTH	WIDTH	SUBSTRATE MATERIAL	OHMS / TOLERANCE	
CR = Chip Resistor	04 = 0.04" 05 = 0.05" 06 = 0.06" 10 = 0.10"	02 = 0.02" 05 = 0.05" 03 = 0.03" 10 = 0.10"	D = CVD Diamond	50 = 50 OHMS 100 = 100 OHMS TOLERANCE 5 = 5%	(blank) = Chip Only T2 = Tabs TB = Tabs Bent

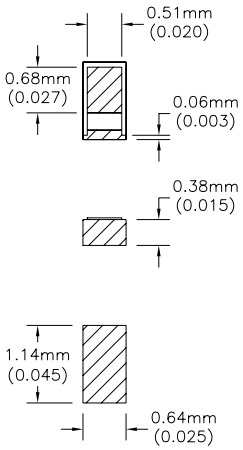
Note: Other ohm values available on request. Please contact our Sales department.

Diamond Rf Resistives®

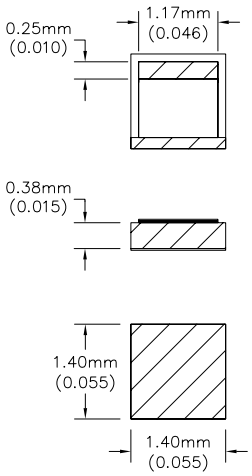
Diamond Chip Termination

Our exclusive line of CVD Diamond chip terminations offers a unique combination of extreme high power ratings in very small packages. These terminations may be used in applications from DC to 28.0 GHz and are ideal for military and space applications because of their high power capability and small, light-weight package size. The terminations are manufactured using all thin film construction and have a gold finish that is both wire bondable and solderable. This total thin film construction also makes them ideal for peak power applications. High reliability tested versions based on Mil-PRF-55342 are also available. Select from tape and reel, bulk, or waffle packaging. These products are also lead free, RoHS compliant and S-level approved.

CT0402D



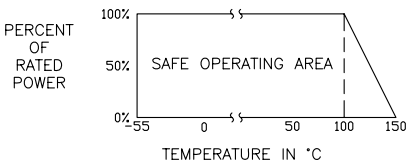
CT0505D



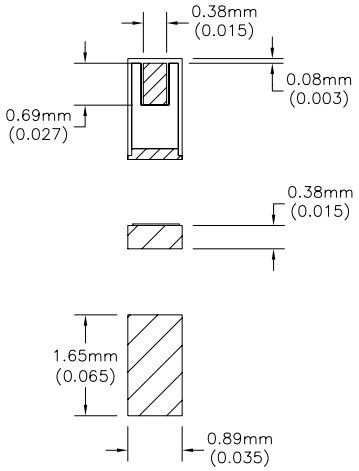
Specifications

Impedance	Part Series	50 Ohms +/-5%
Frequency Range	CT0402D	DC to 26.5 GHz
	CT0505D	DC to 20 GHz
	CT0603D	DC to 28 GHz
	CT1310D	DC to 14 GHz
Power Rating	CT0402D	10 Watts
	CT0505D	50 Watts
	CT0603D	50 Watts
	CT1310D	150 Watts
VSWR	All	1.6:1 Max
Operating Temperature	All	-55 °C to 150 °C
Resistive Material	All	Thin Film
Terminal Material	All	Thin Film, Gold Solderable or Bondable Finish

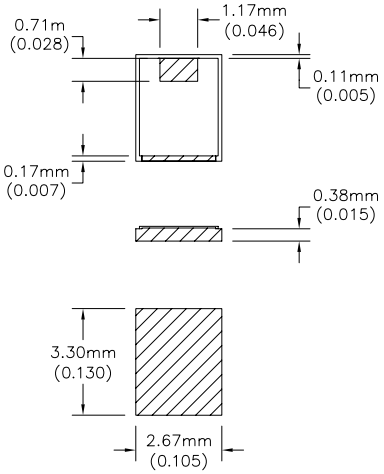
Power Rating and Derating



CT0603D



CT1310D



Part Numbering Code

C T	1 3	1 0	D
TYPE	LENGTH	WIDTH	SUBSTRATE
CT = Chip Terminations	04 = 0.04”	02 = 0.02”	D = CVD Diamond
	05 = 0.05"	03 = 0.03"	
	06 = 0.06”	05 = 0.05”	
	13 = 0.13"	10 = 0.10"	

Note: Not every combination of size is available.

Diamond Rf Resistives®

Diamond Flange & Tabbed Termination

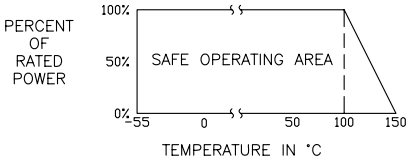
Our exclusive line of CVD Diamond chip terminations offers a unique combination of extreme high power ratings in very small packages. These terminations may be used in applications from DC to 26.5 GHz and are ideal for military and space applications because of their high power capability, broad frequency response and small, light-weight package size. These terminations are available in easy to mount tab and flange mount units.

They are ideal for peak power applications. They are manufactured using all thin film construction and have a pure thin film gold finish that is both wire bondable and solderable. They can be supplied with or without solderable tabs. High reliability tested versions based on MIL-PRF-55342 are also available. These products are lead free, RoHS compliant and S-level approved. They also meet NASA out-gassing requirements for space applications.

Specifications

Impedance	50 Ohms +/-5%
Frequency Range	DC to 20 GHz
Power Rating	50 - 150 Watts
VSWR	1.6:1 Max
Operating Temperature	-55 °C to 150 °C
Resistive Material	Thin Film
Terminal Material	Thin Film, Gold Solderable or Bondable Finish
Tab	Copper, gold plated
Heat sink [HT only]	Copper, gold plated

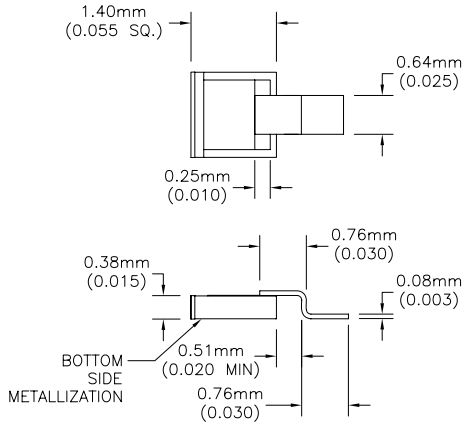
Power Rating and Derating



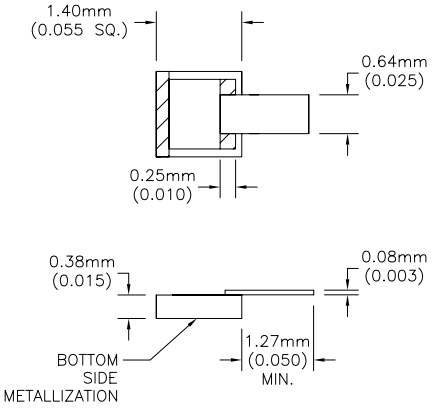
Part Numbering Code

C T	0 5	0 5	D	H T
TYPE	LENGTH	WIDTH	SUBSTRATE	
CT = Chip Terminations	05 = 0.05" 13 = 0.13"	05 = 0.05" 10 = 0.10"	D = CVD Diamond	(blank) = Chip Only T = Input Tab HT = Heat Sink and Tab TB = Tab Bent

CT0505DTB



CT0505DT



CT0505DHT