RESISTIVE PRODUCTS

Johanson High Power Resistive Products combine over 60 years of precision metal fabrication, ceramic processing, and assembly with proven design. Johanson offers complete design to manufacturing capabilities to provide standard and custom solutions to meet your needs.

PRODUCT TYPES

- Resistors
- Terminations

PRODUCT STYLES

- Surface Mount
- High Power Flangeless
- High Power Flanged
- Coaxial

PROCESS

- Thick Film (Standard)
- Thin Film

ELEMENT

- Proprietary Thick Film
- Nitride Tantalum

SUBSTRATE

- AlN
- BeO
- Al_2O_3

POWER

- Up to 1000 W

FREQUENCY

- DC to 12 GHz

APPLICATIONS

- Power Amplifiers
- Circulators
- Isolators
- Power Dividers / Combiners
- Couplers

Specifications provided are typical and for reference only. Specifications are subject to change, and may be discontinued without advance notice.

High power resistors

Package	Material	Power (max)	Capacitance (pF)	Maximum frequency (GHz)	VSWR (max)
SMD RS series	AlN	30	.3 to 2.0	3	1.25:1
	BeO	30	.3 to 2.0	3	1.25:1
Flangeless RL series	AlN	800	.9 to 4.2	6	1.5:1
	BeO	1000	.25 to 3.5	6	1.5:1
Flanged RF series	AlN	500	.9 to 4.2	6	1.5:1
	BeO	800	.75 to 9	6	1.5:1

High power terminations

Package	Material	Power (max)	Capacitance (pF)	Maximum frequency (GHz)	VSWR (max)
SMD TS series	AlN	30	.3 to 2.0	3	1.25:1
	BeO	30	.3 to 2.0	3	1.25:1
Flangeless TL series	AlN	800	.9 to 4.2	4	1.25:1
	BeO	1000	.25 to 3.5	6	1.25:1
Flanged TF series	AlN	500	.9 to 4.2	4	1.25:1
	BeO	800	.75 to 9	12	1.25:1
Coaxial TC series	AlN	500	—	12	1.35:1
	BeO	800	—	12	1.35:1

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GENERAL SPECIFICATIONS

ELECTRICAL

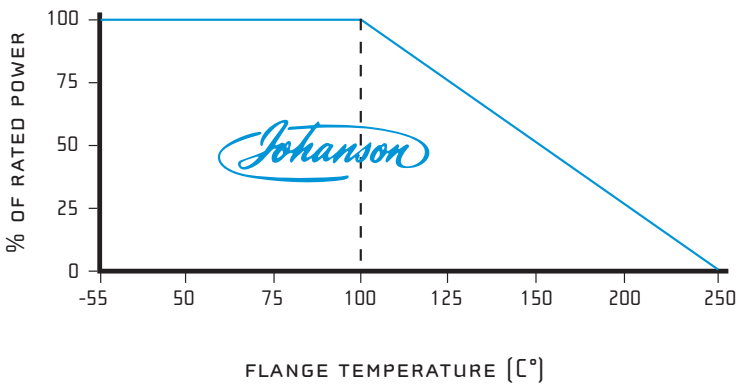
Resistance	25Ω, 50Ω, 75Ω, 100Ω, 150Ω, 200Ω and 250Ω are standard (custom values available)
Resistance Tolerance	±5% (1% and 2% Available)
Power Rating	100% at -55°C to +100°C, derated to 0% at 250°
Temperature Coefficient	±100 ppm/°C from -55°C to +150°C
Operating Temperature	-55°C to +100°C (Base plate)

MECHANICAL

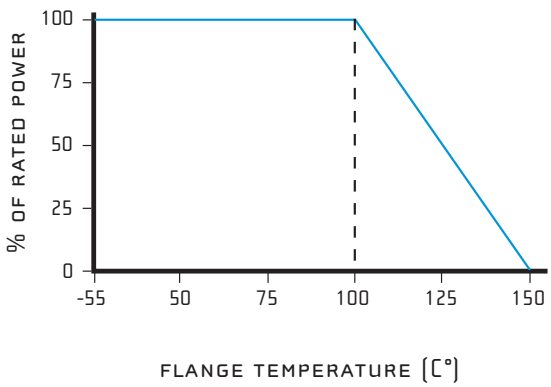
Package	SMD, Flangeless, Flanged, and Coaxial
Substrate	Aluminum Nitride (AIN), Beryllium Oxide (BeO), or Alumina (Al_2O_3)
Process	Thick Film (Standard), Thin Film (Available)
Resistive Film	Proprietary Thick Film (Standard) or Tantalum-Nitride
Terminals	99.99% Silver (Custom Terminals Available)
Mounting Flange	Nickel plated copper (Standard), Copper Tungsten available
Mechanical Tolerance	± 0.01" Typical
Cover	Alumina (96% Al_2O_{3v})

POWER DERATING COMPARISON

JOHANSON PRODUCTS



INDUSTRY STANDARD



PART NUMBER

T	F	100	A	B	XX	–	YYY

TYPE
R = Resistor
T = Termination

PACKAGE
S = SMD
L = Leaded/Flangeless
F = Flanged
C = Coaxial

POWER (W)
2 = 002
50 = 050
100 = 100

TYPE
A = AlN
B = BeO
C = Alumina

OHM
A = 100
B = 50
C = 75
D = 200
E = 150
F = 25
G = 250
H = 300

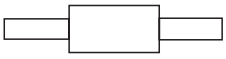
MULTIPLE CONFIGURATIONS
- Tabs & Flanges
- SMD Style
- Coaxial with Connectors

CUSTOM
(Optional)

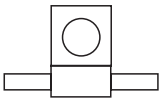
TYPICAL CONFIGURATIONS

RESISTORS

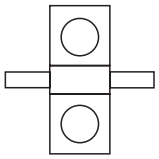
SMD
RS Series



FLANGELESS
RL Series



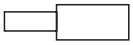
HALF FLANGE
RF Series



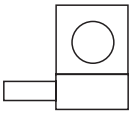
FULL FLANGE
RF Series

POWER TERMINATIONS

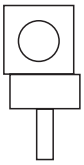
SMD
TS Series



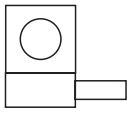
FLANGELESS
TL Series



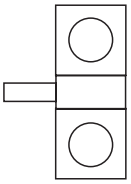
HALF FLANGE
TF Series



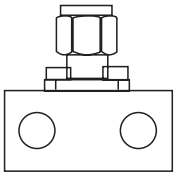
HALF FLANGE
TF Series



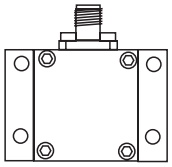
HALF FLANGE
TF Series



FULL FLANGE
TF Series



COAXIAL
TC Series

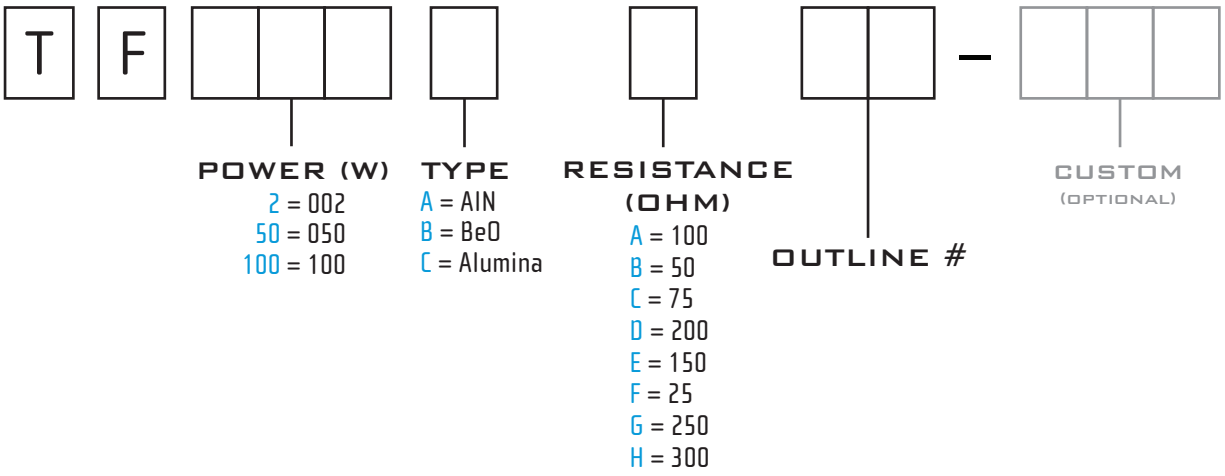


COAXIAL
TC Series

Flange Termination

Aluminum Nitride (AlN) P/N	Outline	Power (Watts, CW)	Beryllium Oxide (BeO) P/N	Outline
TF010AB1L	1L	10	TF010BB1L	1L
TF010AB1C	1C		TF010BB1C	1C
TF010AB1R	1R		TF010BB1R	1R
TF010AB02	02		TF010BB02	02
		20	TF020BB22	22
TF020AB3L	3L		TF020BB3L	3L
TF020AB3C	3C		TF020BB3C	3C
TF020AB3R	3R		TF020BB3R	3R
TF040AB04	04	40	TF040BB04	04
TF040AB05	05		TF040BB05	05
TF050AB6L	6L	50	TF050BB6L	6L
TF050AB6R	6R		TF050BB6R	6R
TF075AB08	08	75	TF075BB07	07
		100	TF100BB08	08
TF125AB09	09	125		
TF125AB10	10			
TF125AB11	11			
		150	TF150BB09	09
			TF150BB10	10
			TF150BB11	11
TF200AB12	12	200		
TF250AB12	12		TF250BB12	12
		400	TF400BB13	13
		500	TF500BB14	14
		800	TF800BB15	15

Ordering Information



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Contact Sales for Detail.

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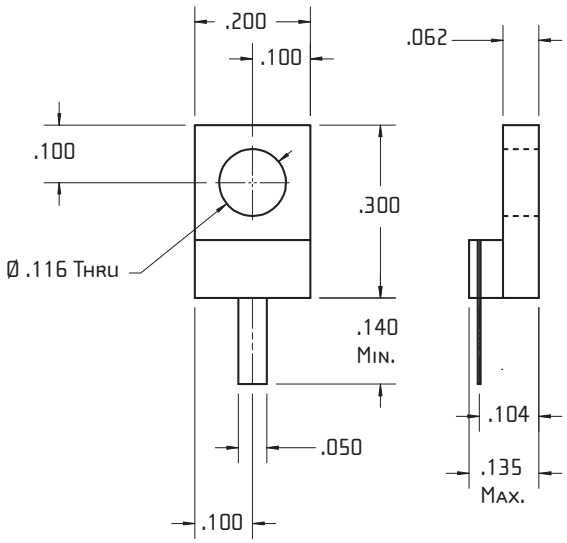
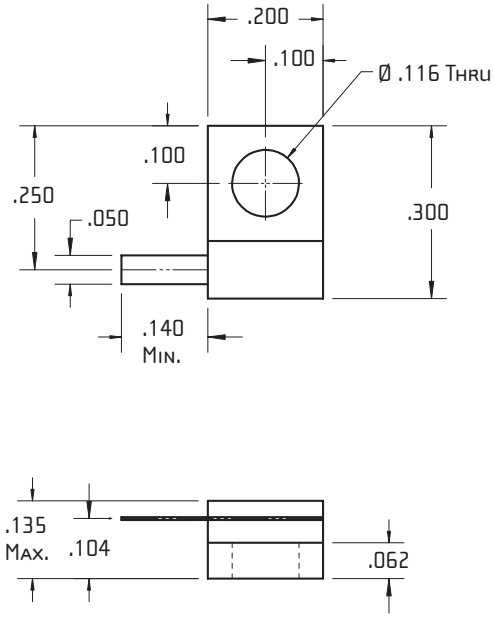
Flange Termination Outline Drawings

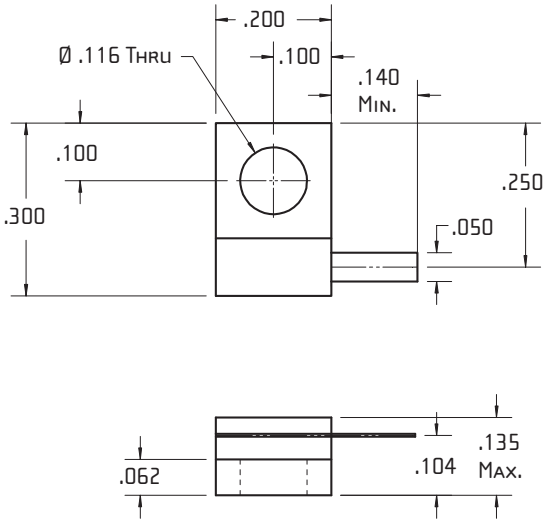
1C



1L



1R



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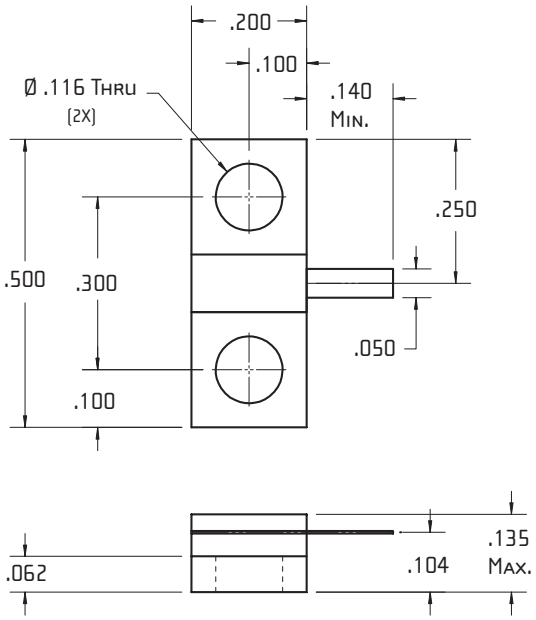

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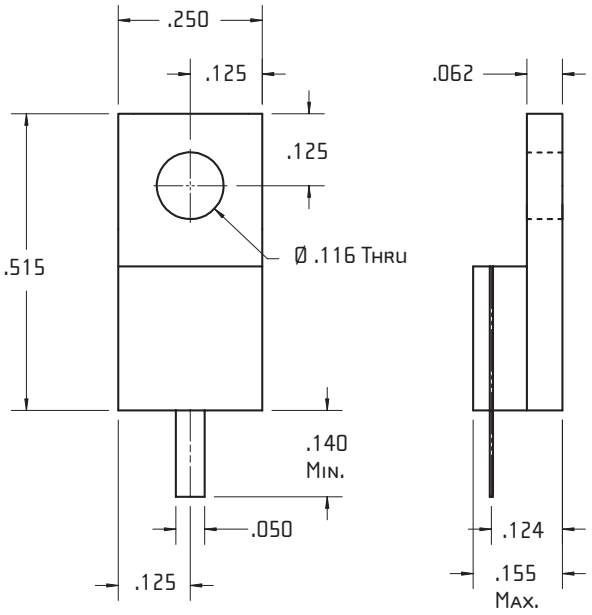
Flange Termination Outline Drawings

3C



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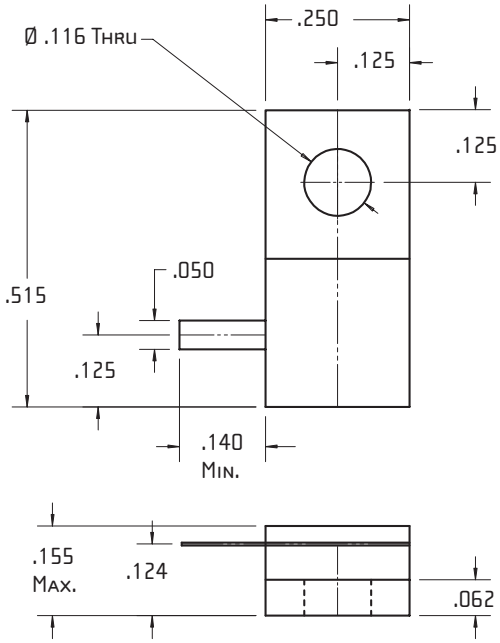
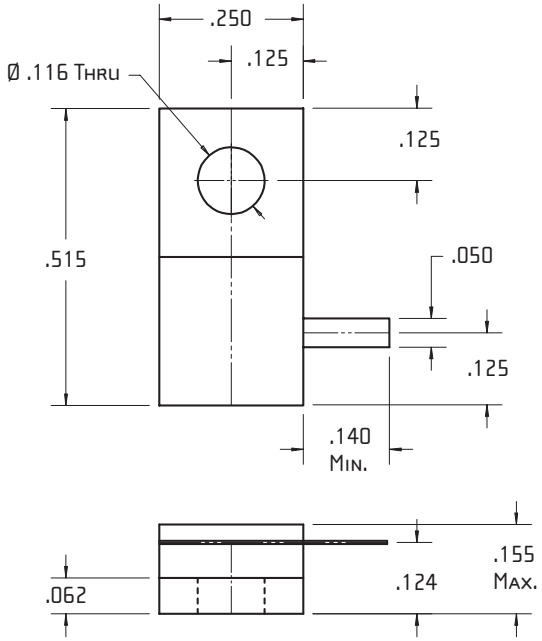


3R



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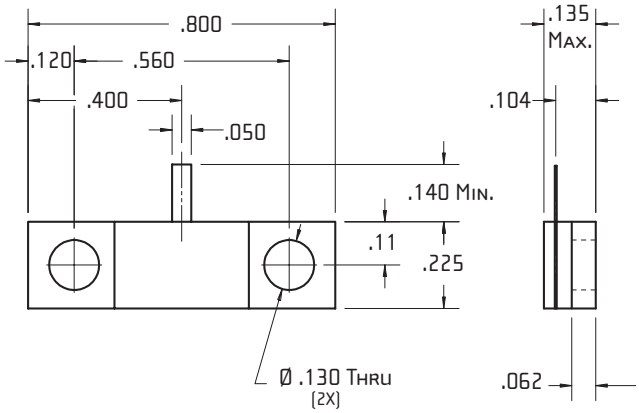

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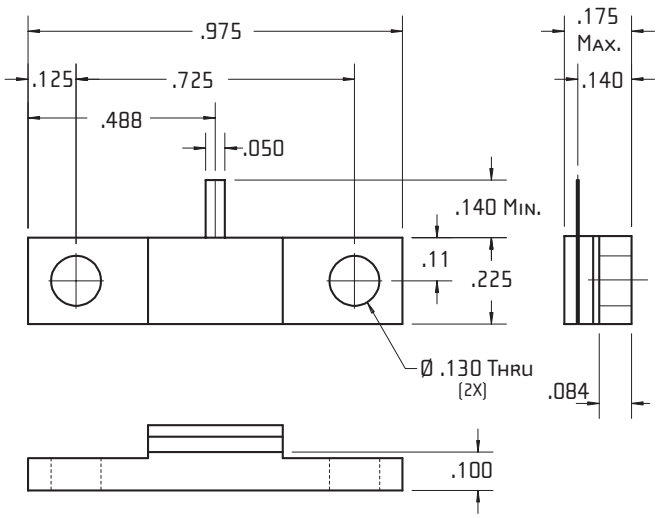
Flange Termination Outline Drawings

05



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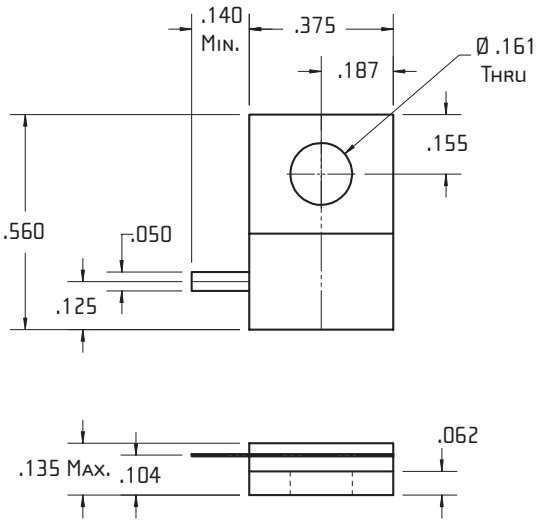

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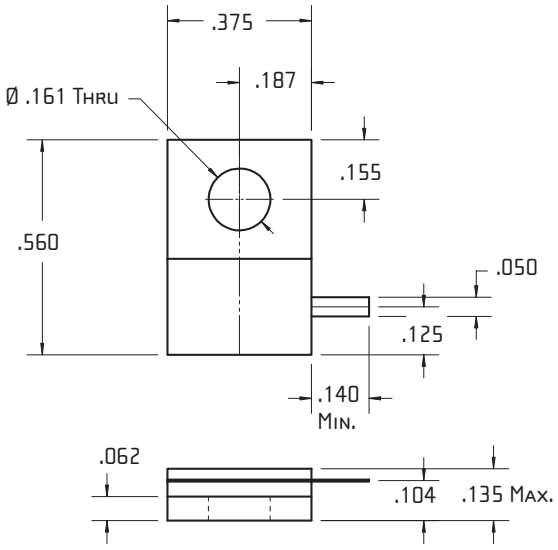

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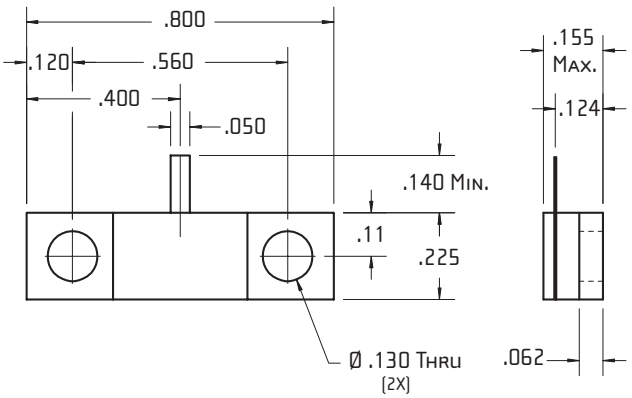

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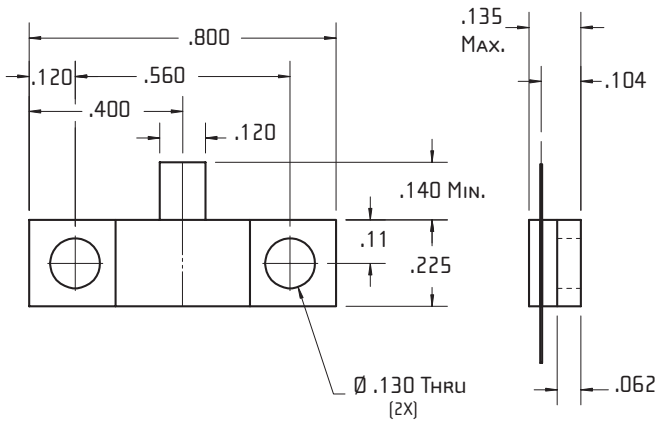
Flange Termination Outline Drawings

09



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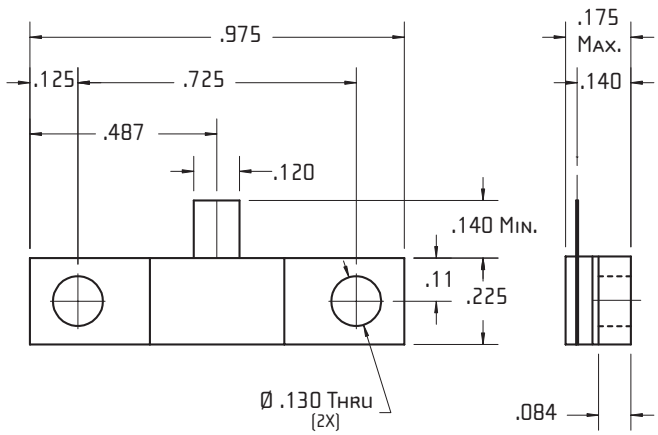

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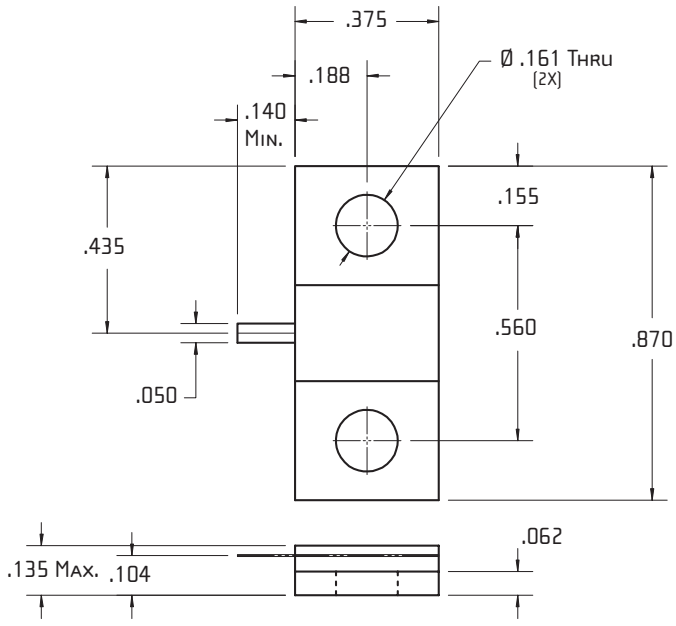

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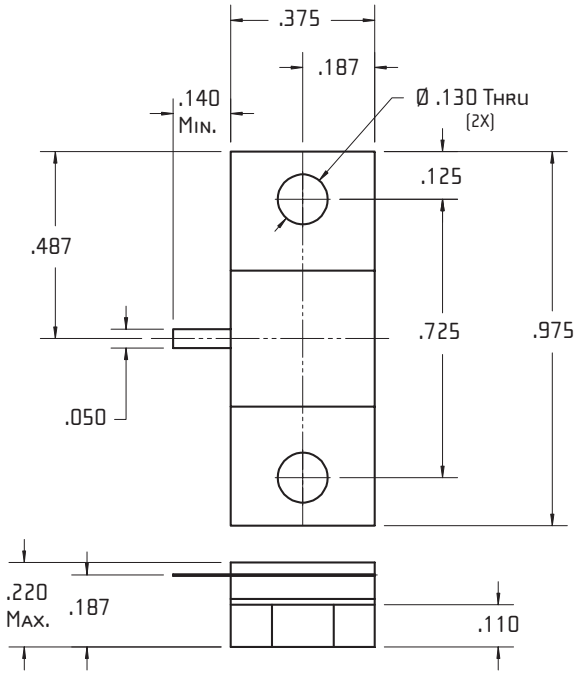

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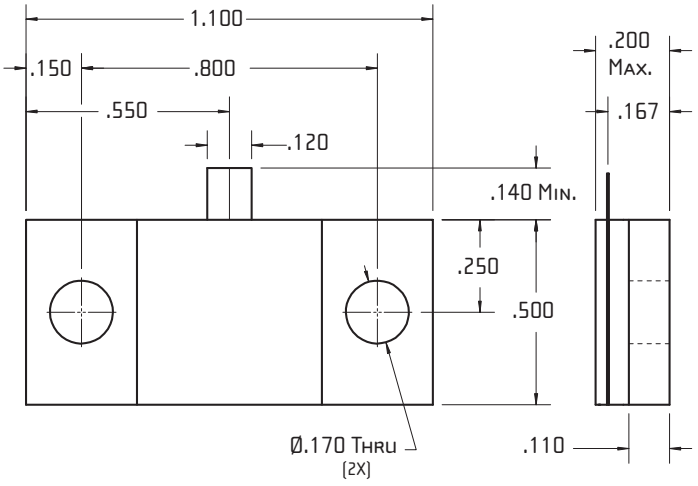
Flange Termination Outline Drawings

13



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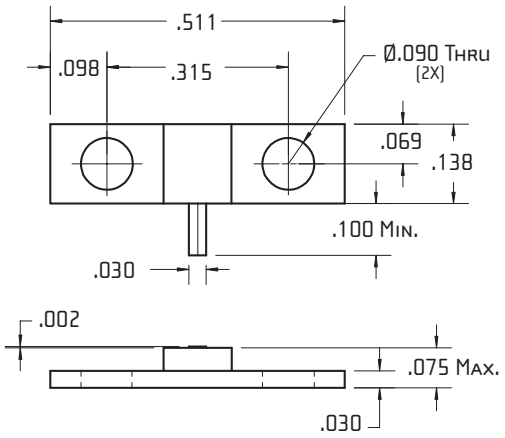

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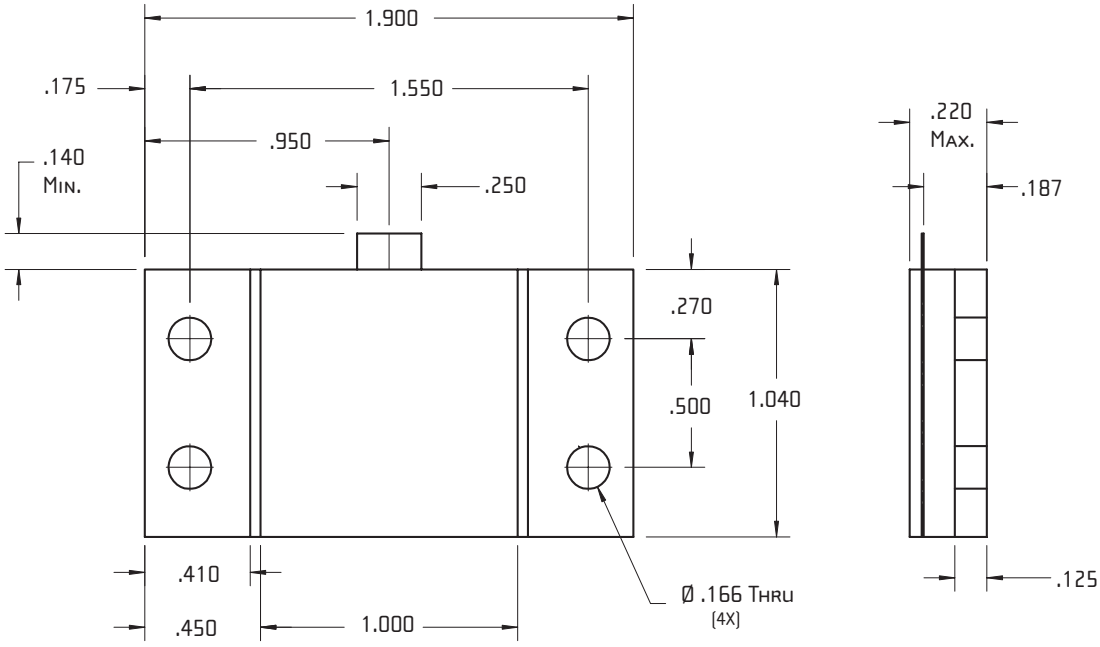

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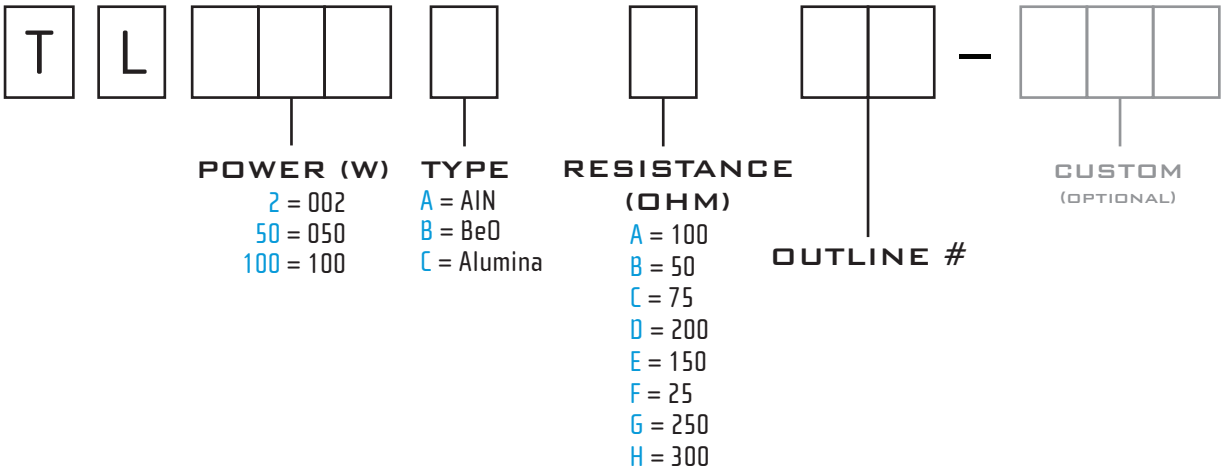
Flangeless Termination

Aluminum Nitride (AlN) P/N	Outline	Power (Watts, CW)	Beryllium Oxide (BeO) P/N	Outline
TL030AA16	16	30	TL030BA16	16
TL030AB16	16		TL030BB16	16
TL030AA0C	0C		TL030BA0C	0C
TL030AB0C	0C		TL030BB0C	0C
TL040AA17	17	40	TL040BA17	17
TL040AB17	17		TL040BB17	17
TL100AA18	18	100		
TL100AB18	18			
TL125AA19	19	125	TL125BA18	18
TL125AB19	19		TL125BB18	18
TL150AA20	20	150	TL150BA19	19
TL150AB20	20		TL150BB19	19
TL200AA21	21	200	TL200BA20	20
TL200AB21	21		TL200BB20	20
TL250AA21	21	250		
TL250AB21	21			
TL300AA21	21	300	TL300BA21	21
TL300AB21	21		TL300BB21	21

Ordering Information



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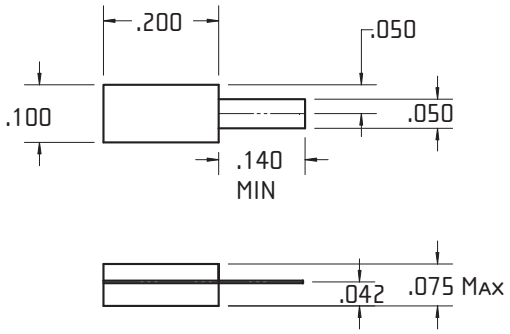
Flangeless Termination Outline Drawings

16



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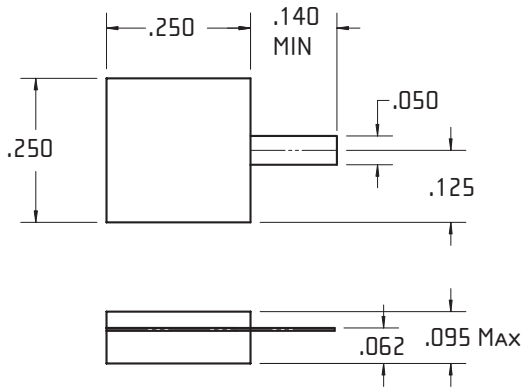

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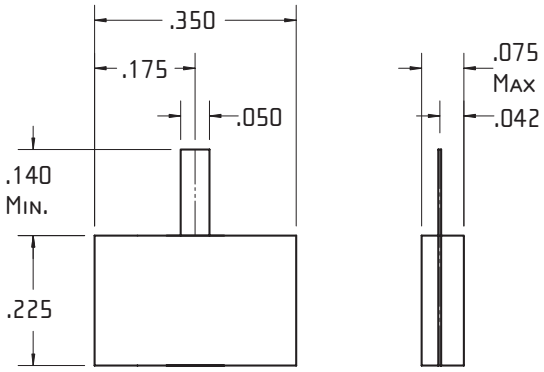

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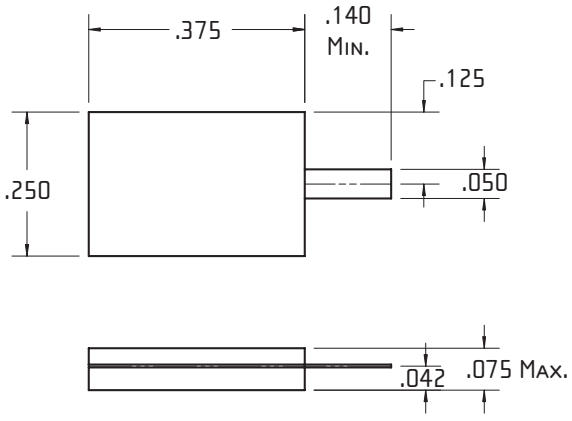

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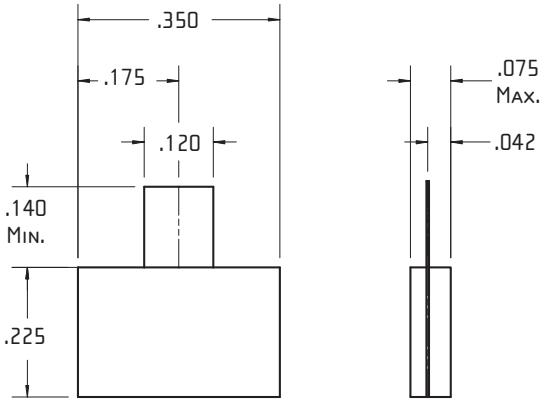
Flangeless Termination Outline Drawings

20



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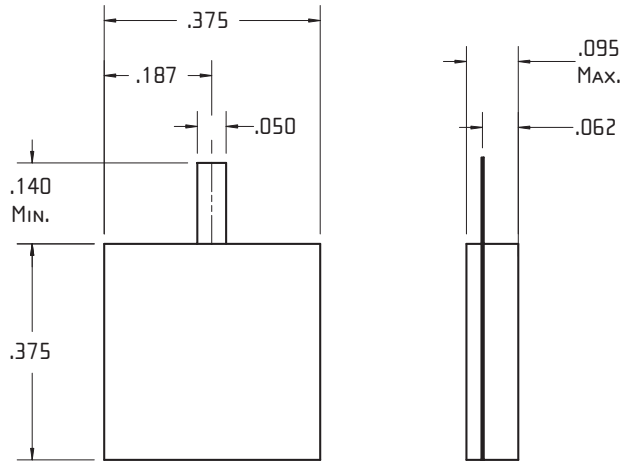

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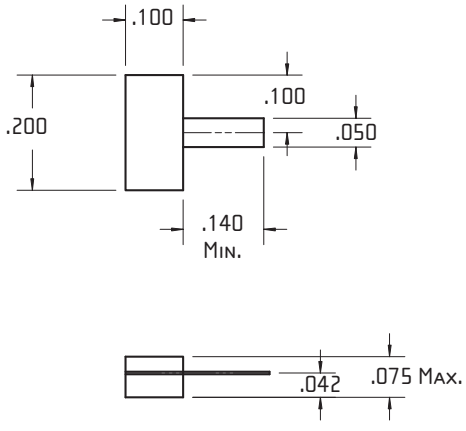

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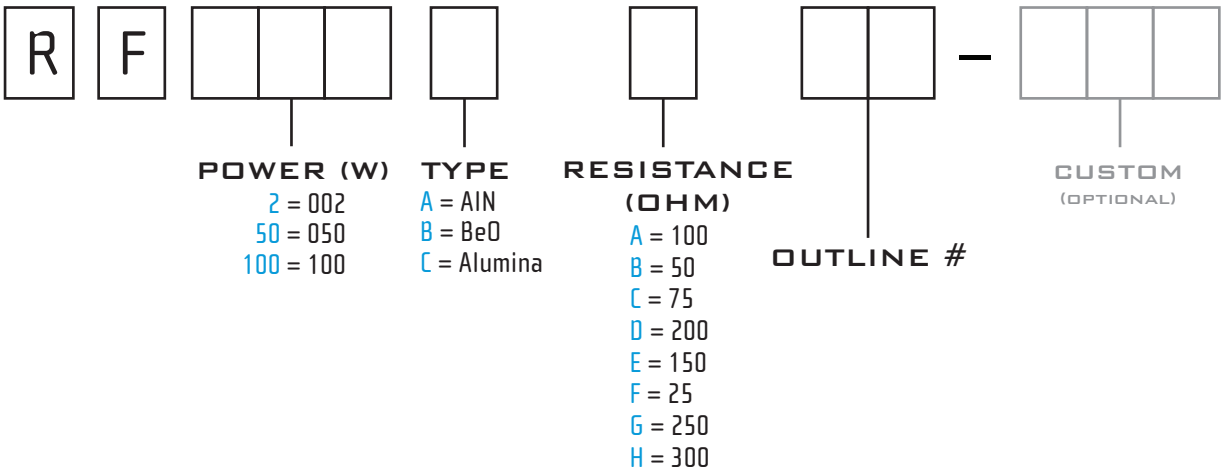
Flange Resistor

Aluminum Nitride (AlN) P/N	Outline	Power (Watts, CW)	Beryllium Oxide P/N	Outline
RF010AA01	01	10	RF010BA01	01
RF010AB01	01		RF010BB01	01
RF010AA02	02		RF010BA02	02
RF010AB02	02		RF010BB02	02
		20	RF020BA22	22
RF020AA03	03		RF020BA03	03
RF020AB03	03		RF020BB03	03
RF040AA04	04	40	RF040BA04	04
RF040AA05	05		RF040BA05	05
RF050AA06	06	50	RF050BA06	06
RF050AB06	06		RF050BB06	06
RF075AA08	08	75	RF075BA07	07
		100	RF100BA08	08
RF125AA09	09	125		
RF125AA10	10			
RF125AA11	11			
		150	RF150BA09	09
			RF150BA10	10
			RF150BA11	11
RF200AB12	12	200		
RF250AA12	12	250	RF250BA12	12
		400	RF400BA13	13
		500	RF500BA14	14
		800	RF800BA15	15

Ordering Information



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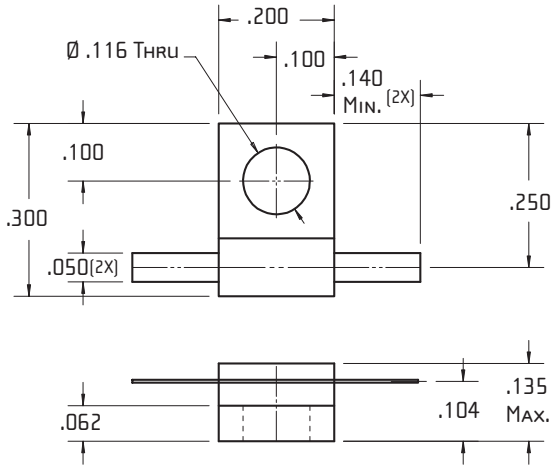
Flange Resistor Outline Drawings

01



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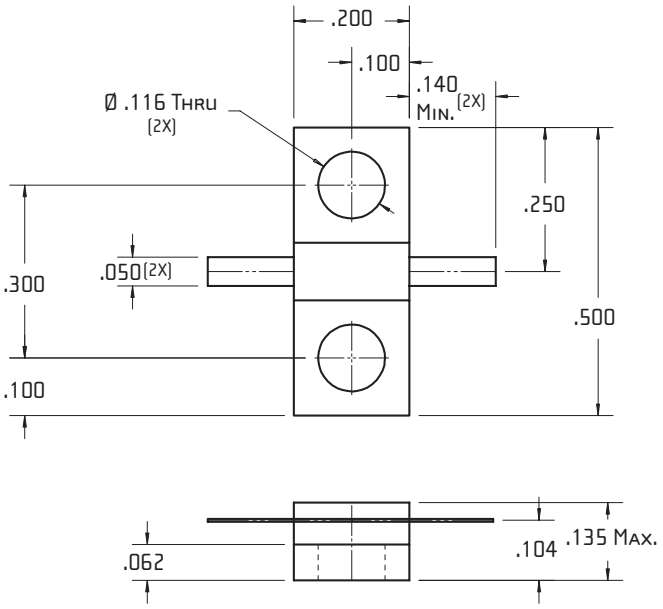

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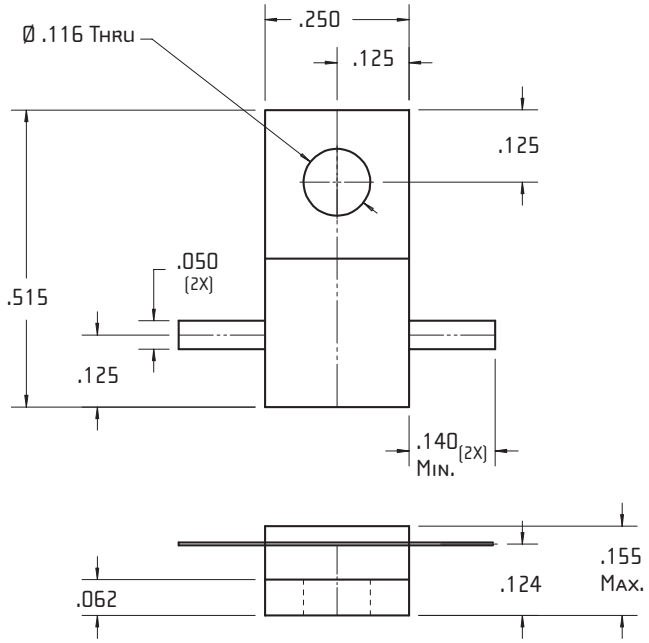

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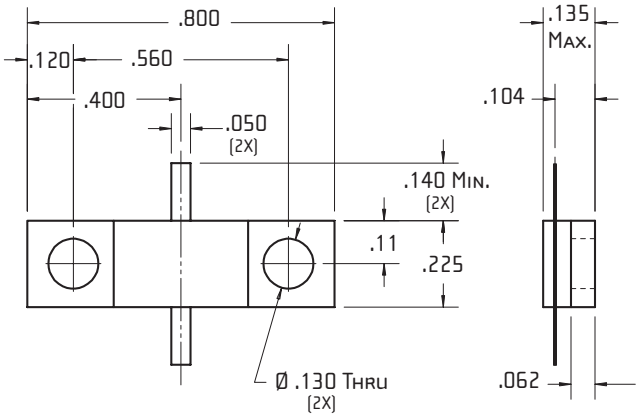

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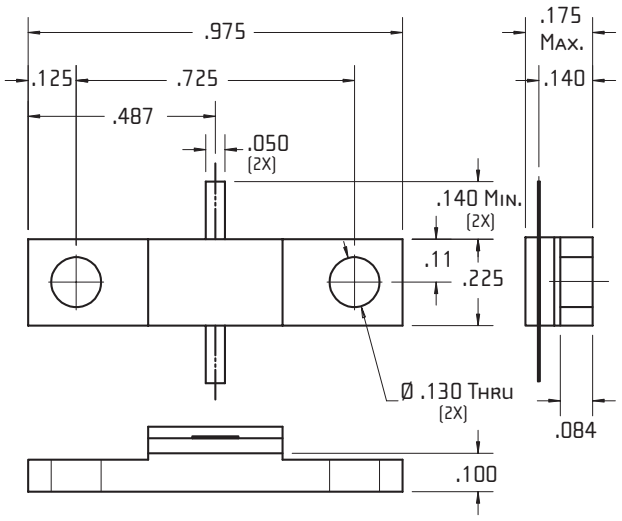
Flange Resistor Outline Drawings

05



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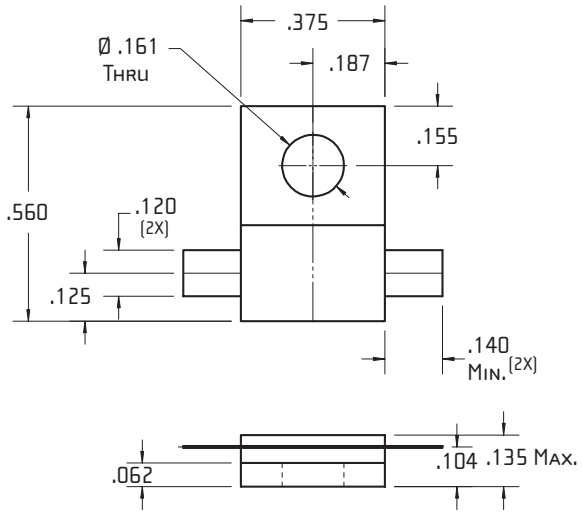

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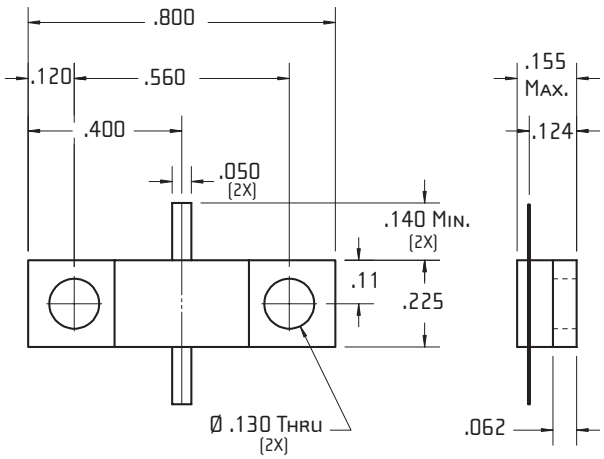

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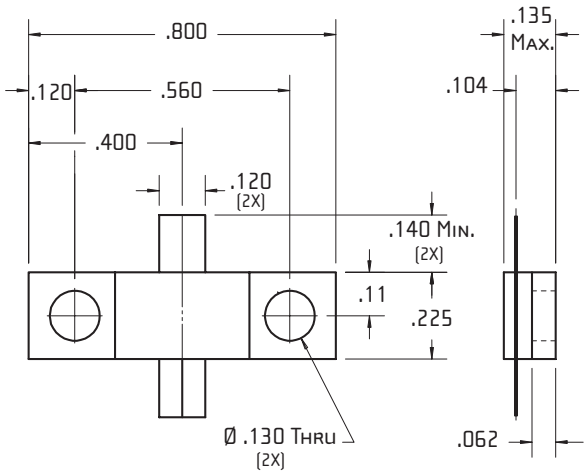

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Flange Resistor Outline Drawings

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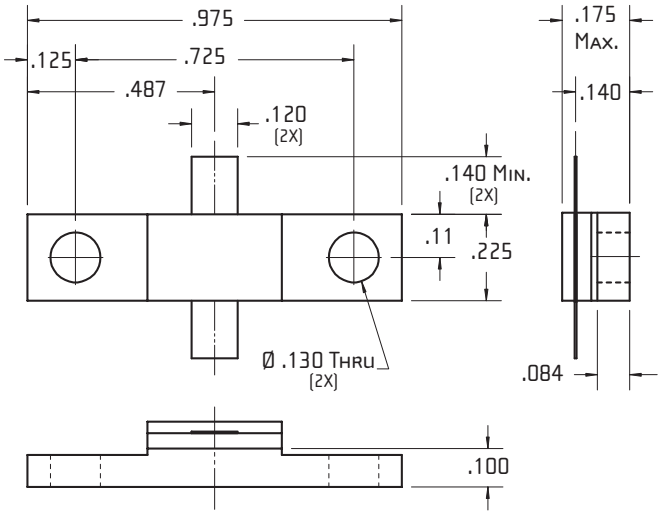

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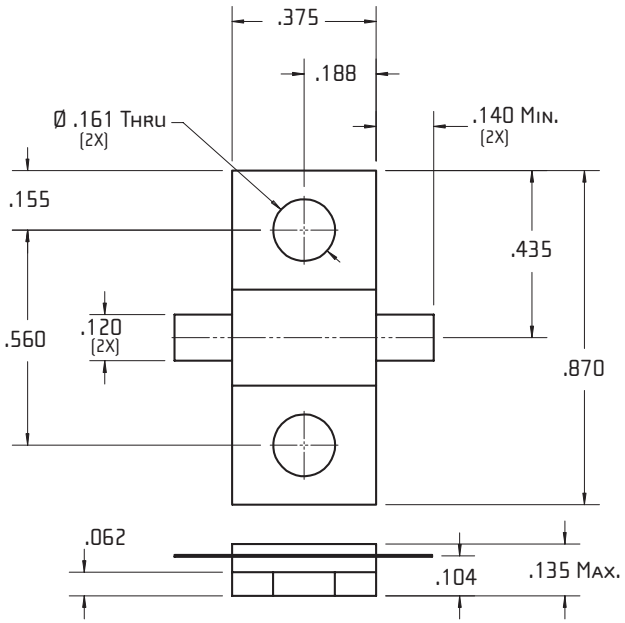

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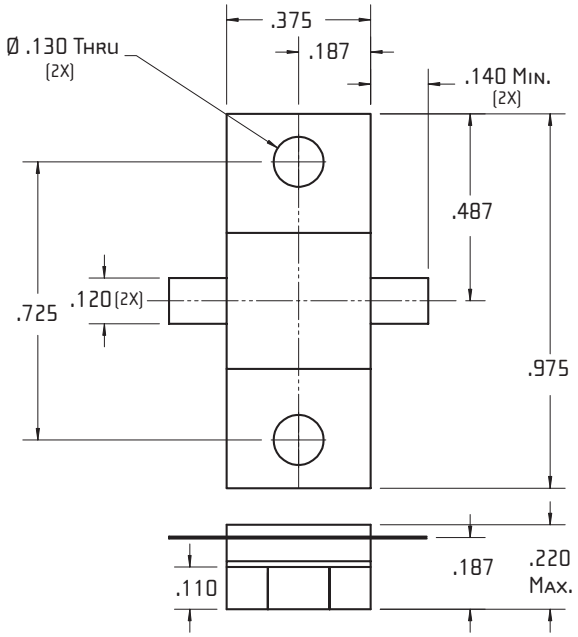

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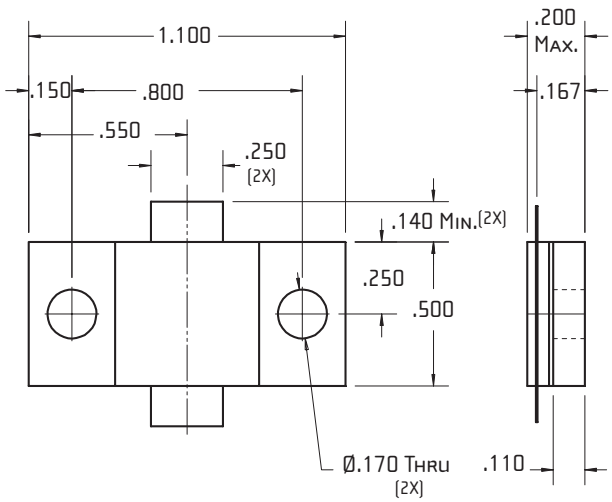

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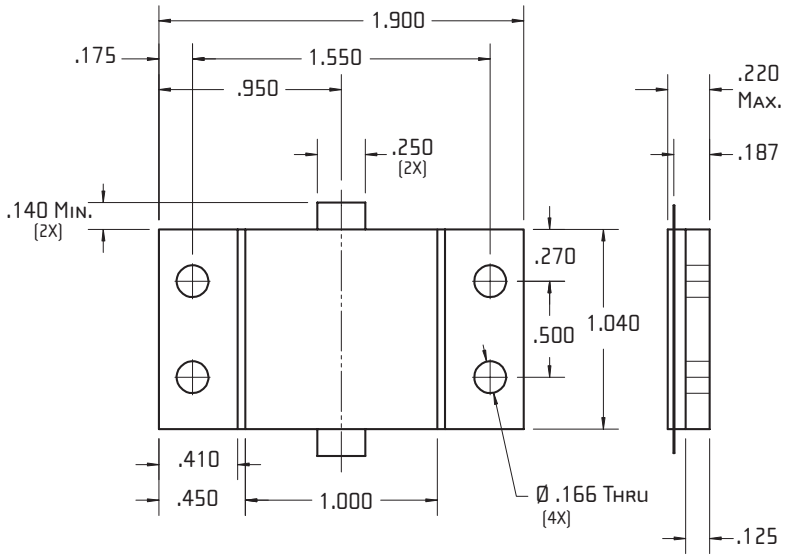
Flange Resistor Outline Drawings

14



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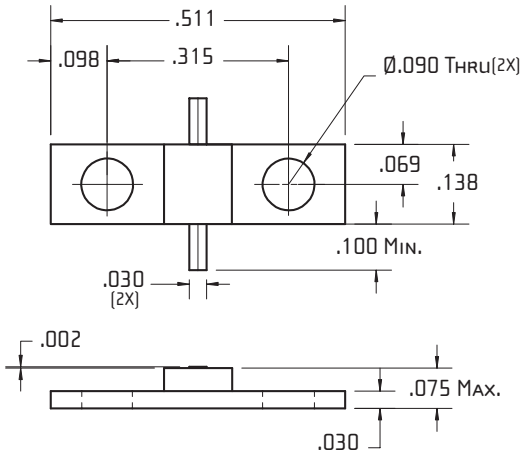

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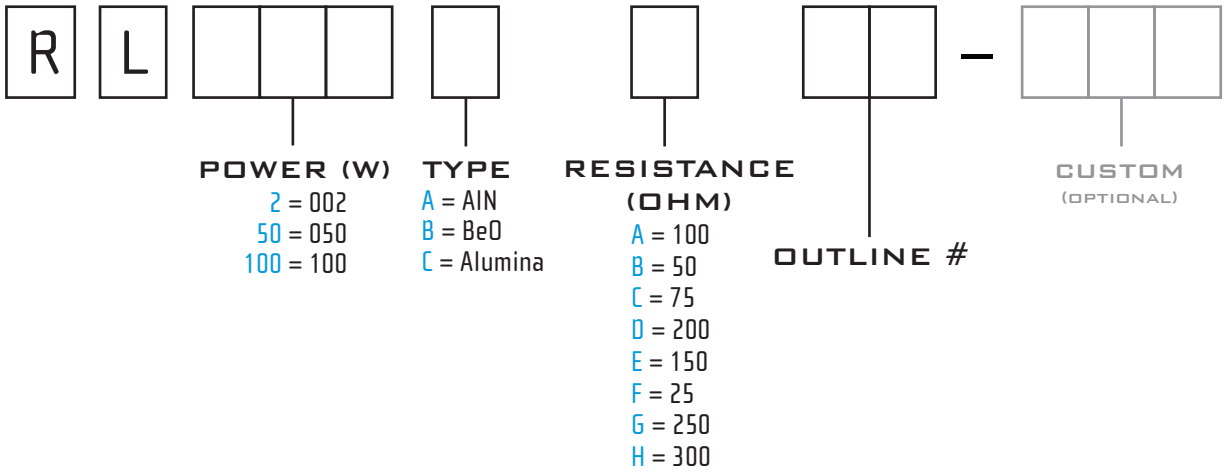
Flangeless Resistor

Aluminum Nitride (AlN) P/N	Outline	Power (Watts, CW)	Beryllium Oxide (BeO) P/N	Outline
RL030AA16	16	30	RL030BA16	16
RL030AB16	16		RL030BB16	16
RL040AA17	17	40	RL040BA17	17
RL040AB17	17		RL040BB17	17
RL100AA18	18	100		
RL100AB18	18			
RL125AA19	19	125	RL125BA18	18
RL125AB19	19		RL125BB18	18
RL150AA20	20	150	RL150BA19	19
RL150AB20	20		RL150BB19	19
RL200AA21	21	200	RL200BA20	20
RL200AB21	21		RL200BB20	20
RL250AA21	21	250		
RL250AB21	21			
RL300AA21	21	300	RL300BA21	21
RL300AB21	21		RL300BB21	21

Ordering Information



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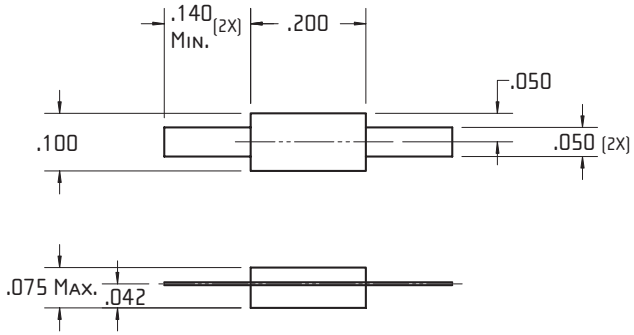
Flangeless Resistor Outline Drawings

16



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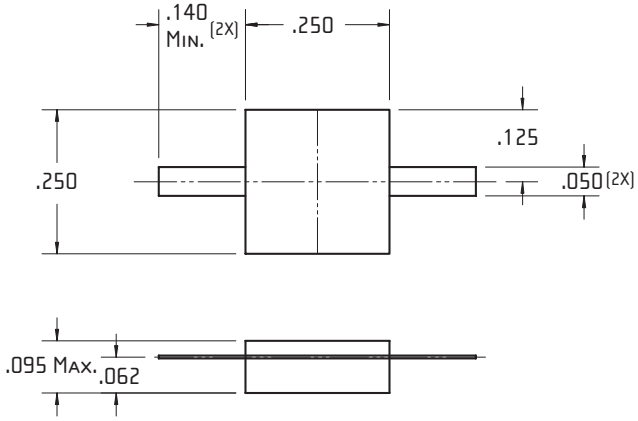

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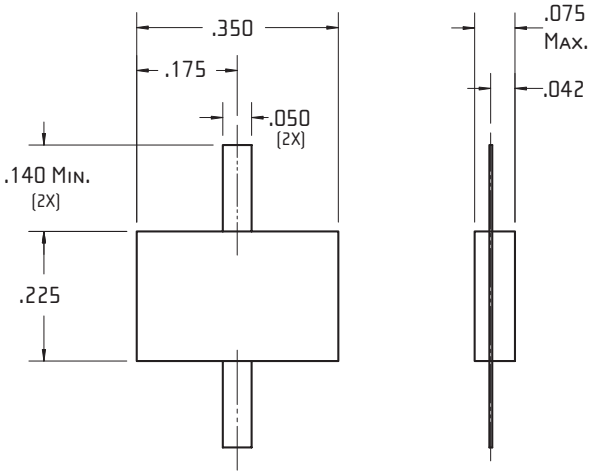

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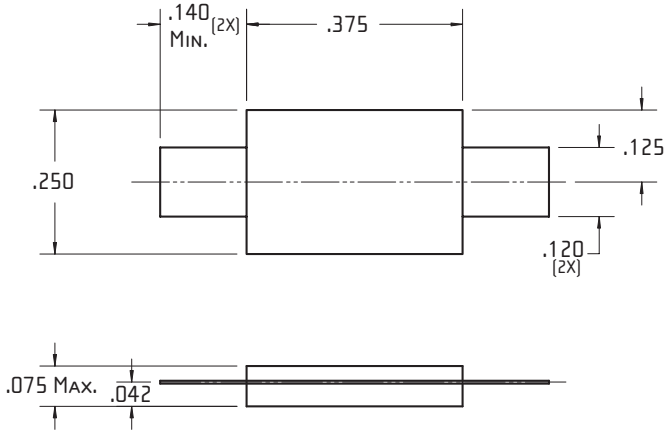

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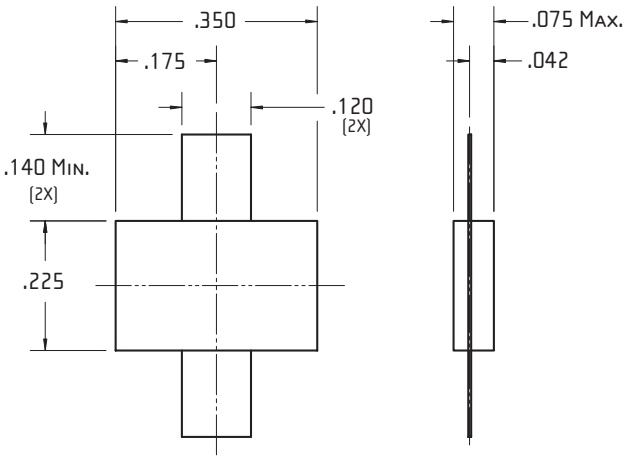
Flangeless Resistor Outline Drawings

20



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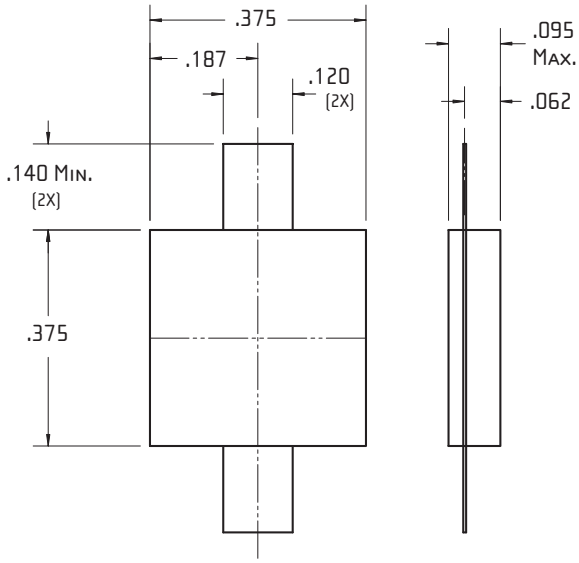

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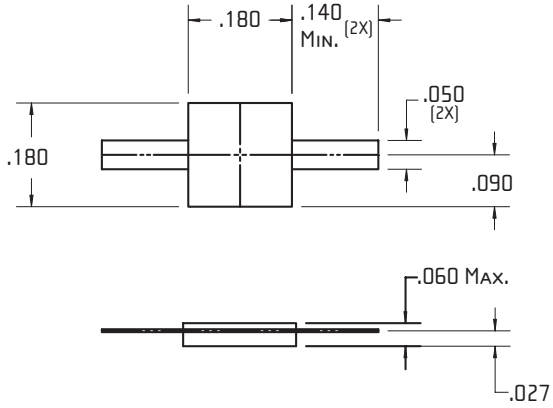

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