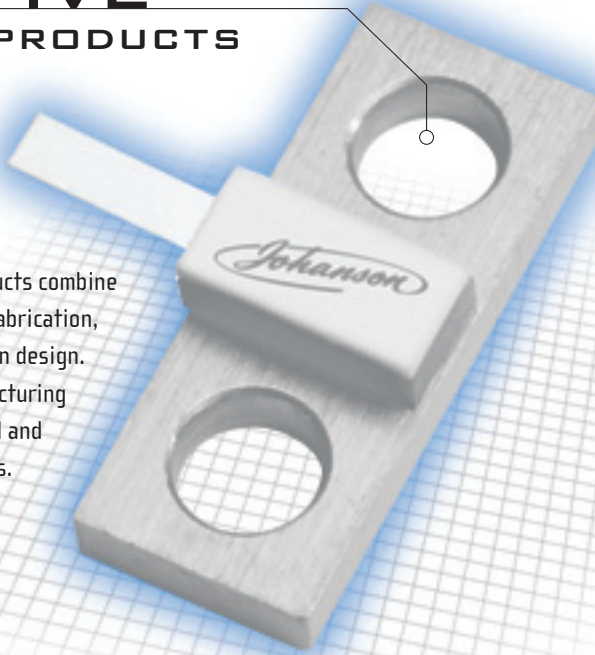


RESISTIVE PRODUCTS

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
- Al₂O₃

POWER

- Up to 1000 W

FREQUENCY

- DC to 12 GHz

APPLICATIONS

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

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

GENERAL SPECIFICATIONS

ELECTRICAL

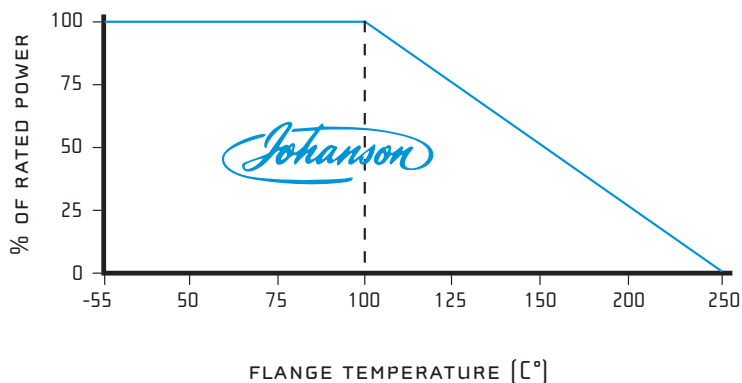
Resistance	25Ω, 50Ω, 75Ω, 100Ω, 150Ω, 200Ω and 250Ω are standard (custom values available)
Resistance Tolerance	±5% (1% and 2% Available)
Power Rating	100% at -55°C to +100°C, derated to 0% at 250°
Temperature Coefficient	±100 ppm/°C from -55°C to +150°C
Operating Temperature	-55°C to +100°C (Base plate)

MECHANICAL

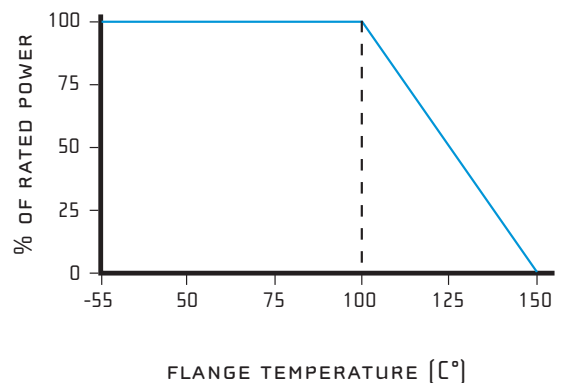
Package	SMD, Flangeless, Flanged, and Coaxial
Substrate	Aluminum Nitride (AlN), Beryllium Oxide (BeO), or Alumina (Al ₂ O ₃)
Process	Thick Film (Standard), Thin Film (Available)
Resistive Film	Proprietary Thick Film (Standard) or Tantalum-Nitride
Terminals	99.99% Silver (Custom Terminals Available)
Mounting flange	Nickel plated copper (Standard), Copper Tungsten available
Mechanical Tolerance	± 0.01" Typical
Cover	Alumina (96% Al ₂ O _{3v})

POWER DERATING COMPARISON

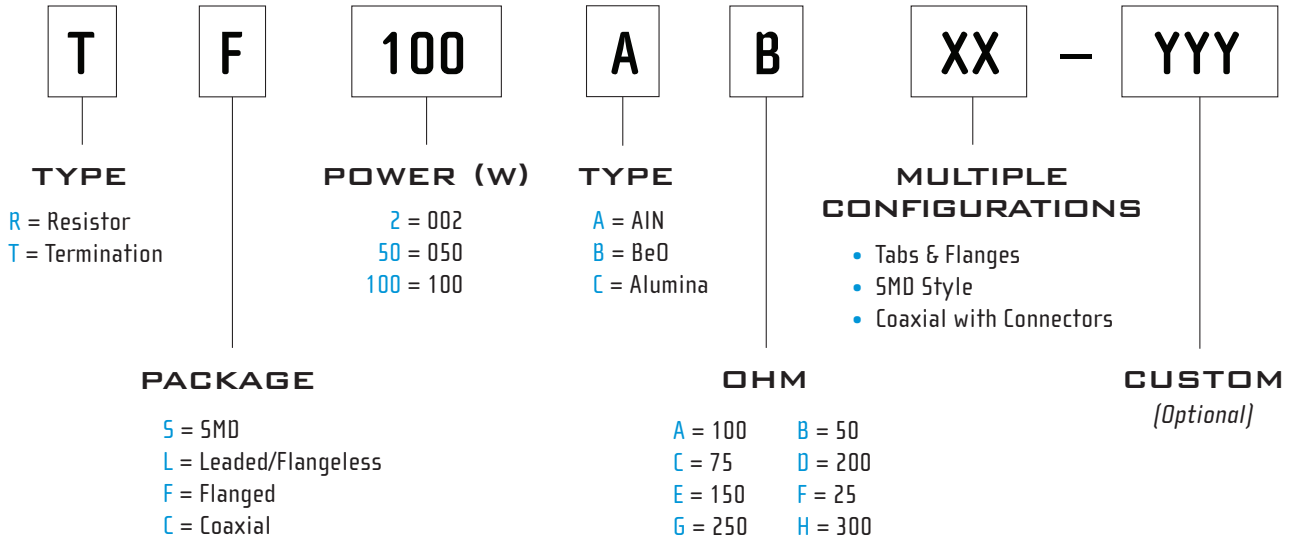
JOHANSON PRODUCTS



INDUSTRY STANDARD



PART NUMBER

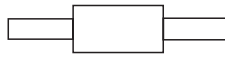


TYPICAL CONFIGURATIONS

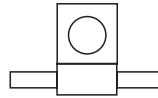
RESISTORS



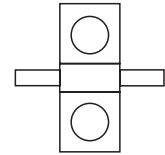
SMD
RS Series



FLANGELESS
RL Series



HALF FLANGE
RF Series

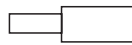


FULL FLANGE
RF Series

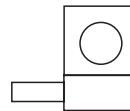
POWER TERMINATIONS



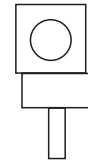
SMD
TS Series



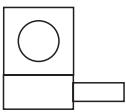
FLANGELESS
TL Series



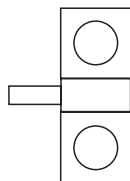
HALF FLANGE
TF Series



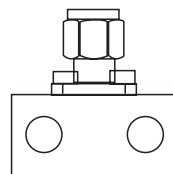
HALF FLANGE
TF Series



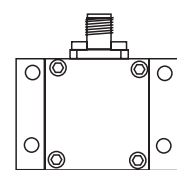
HALF FLANGE
TF Series



FULL FLANGE
TF Series



COAXIAL
TC Series

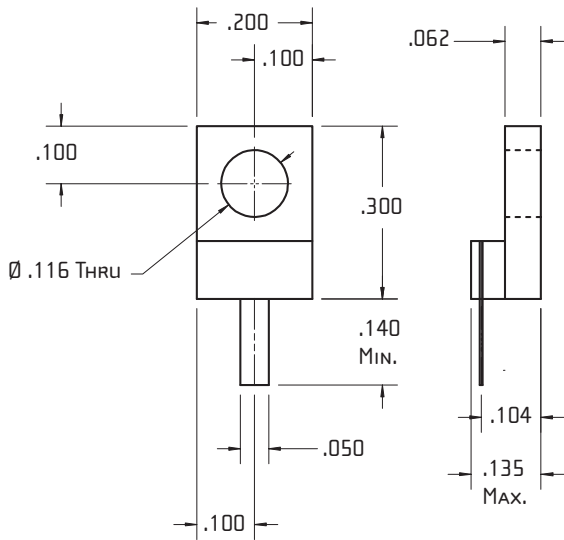


COAXIAL
TC Series

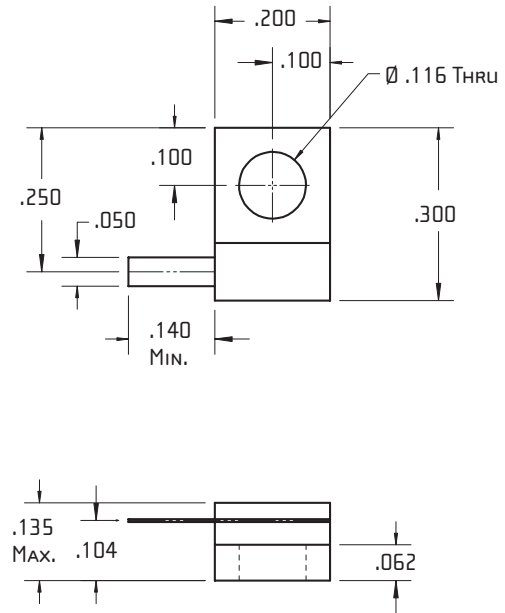


FLANGE TERMINATION OUTLINE DRAWINGS

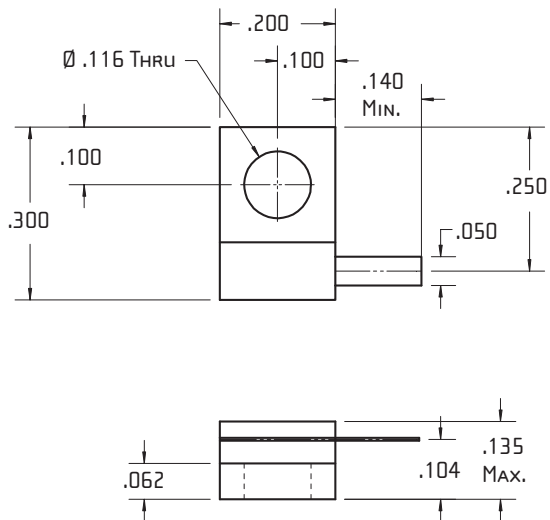
1C



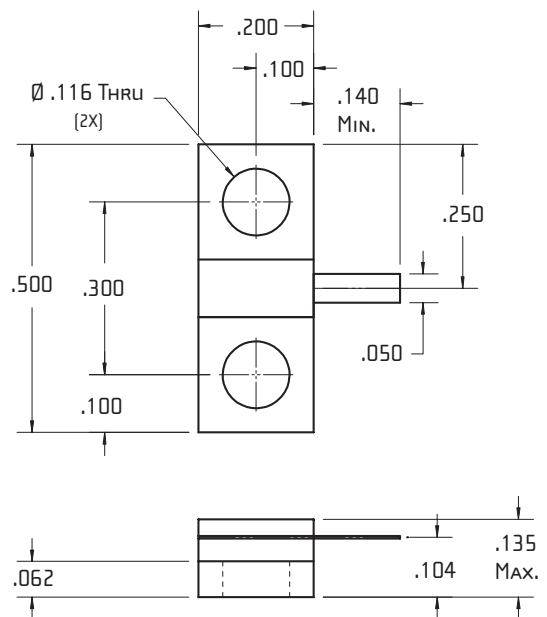
1L



1R

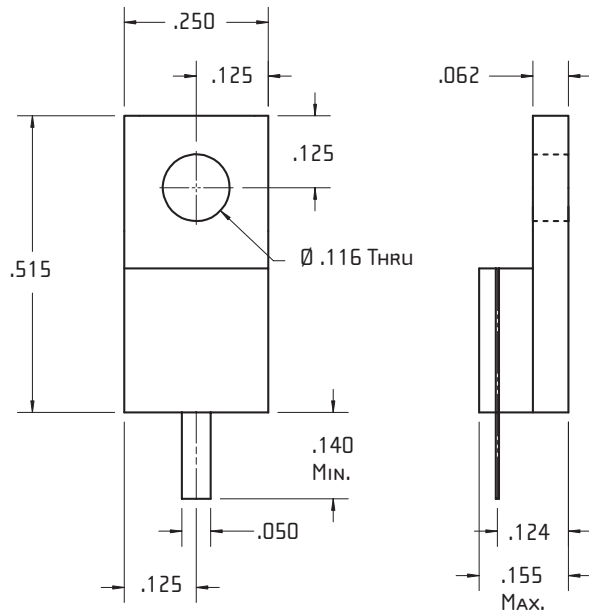


02

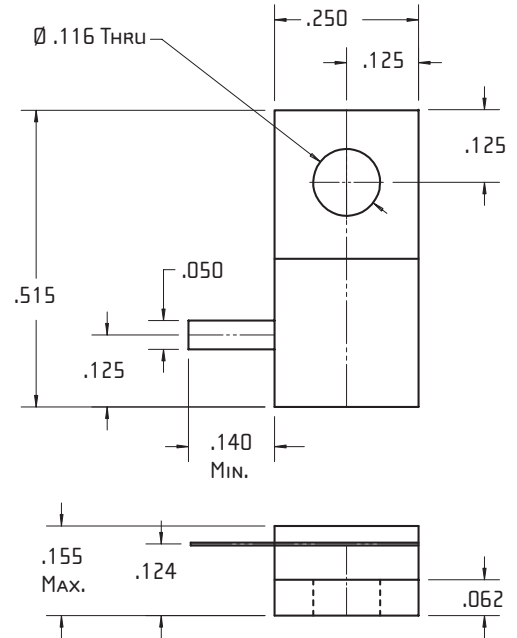


FLANGE TERMINATION OUTLINE DRAWINGS

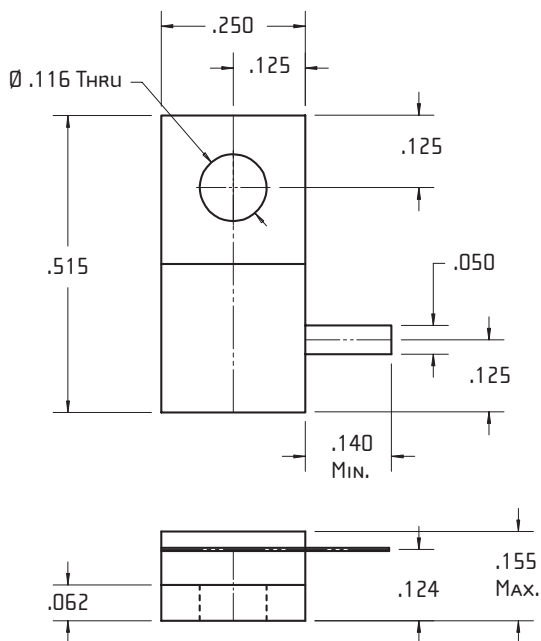
3C



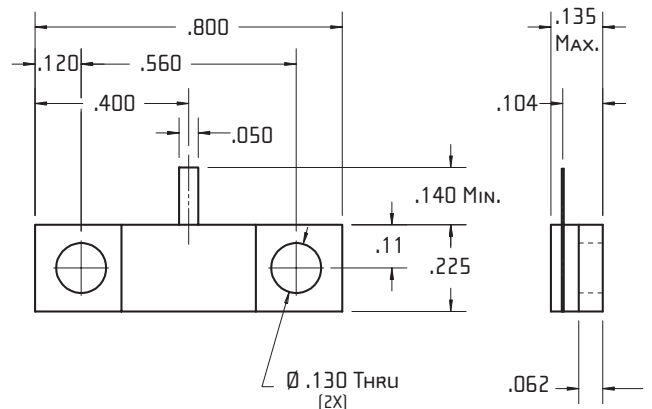
3L



3R

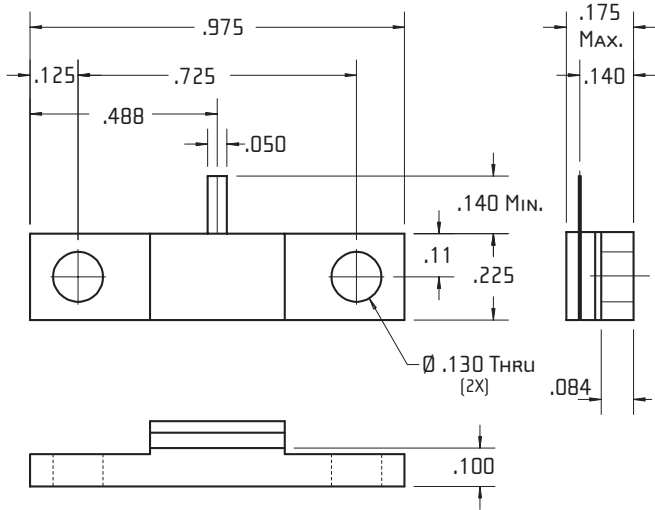


04

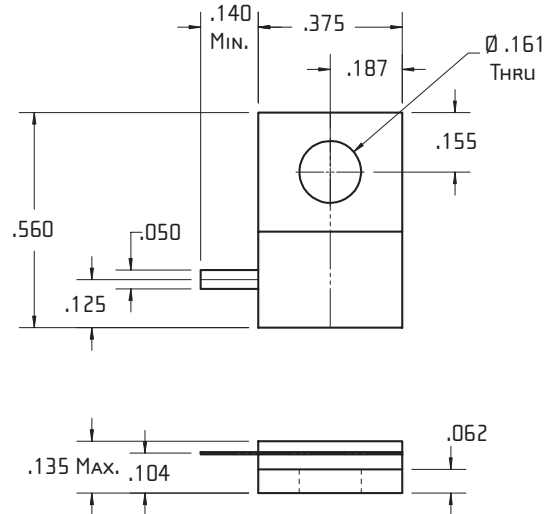


FLANGE TERMINATION OUTLINE DRAWINGS

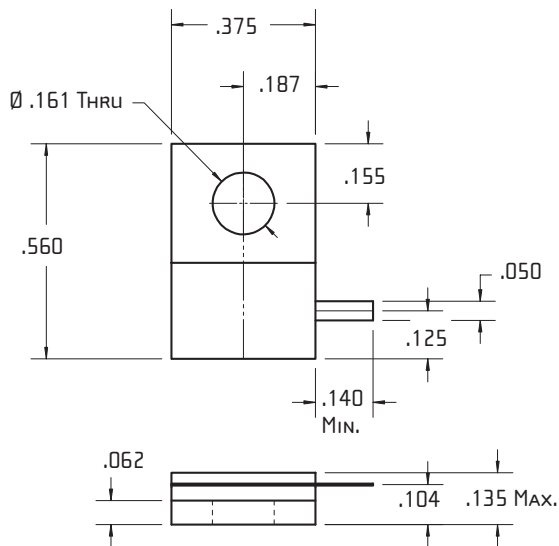
05



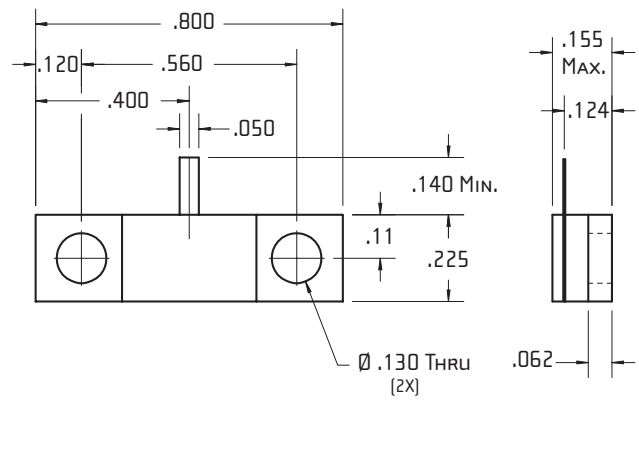
6L



6R

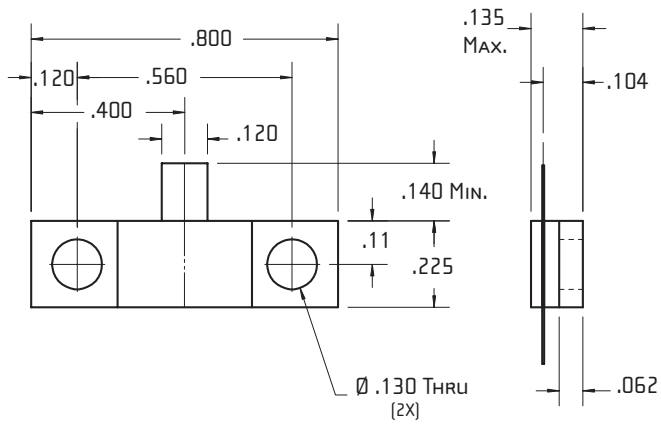


08

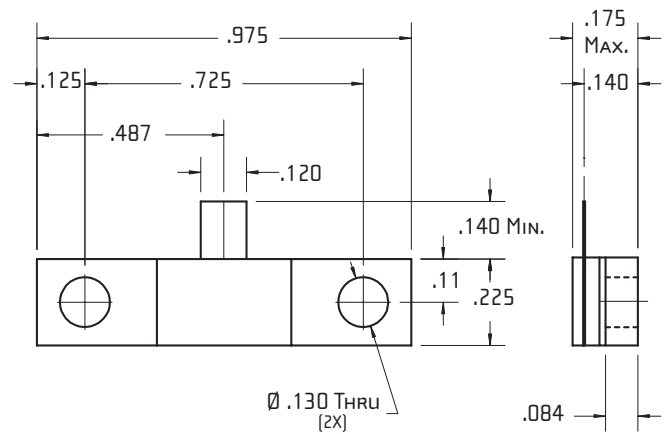


FLANGE TERMINATION OUTLINE DRAWINGS

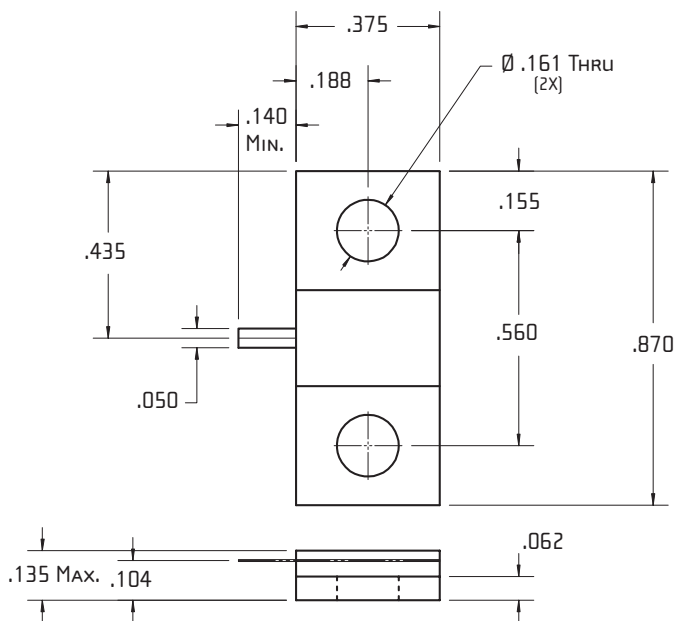
09



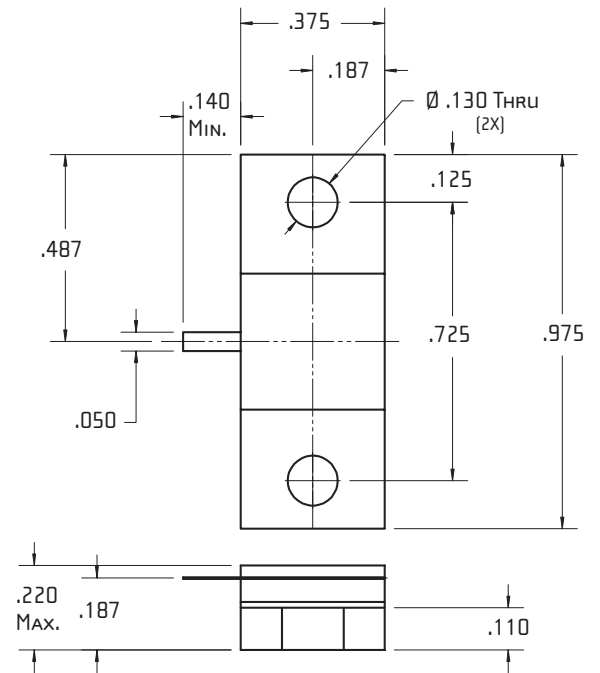
10



11

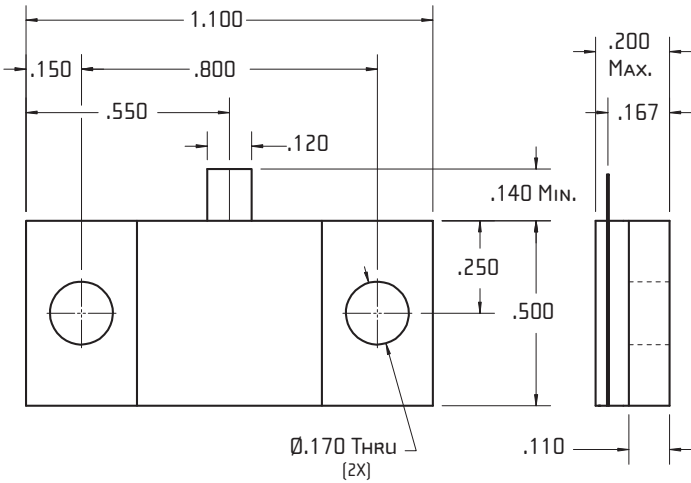


12

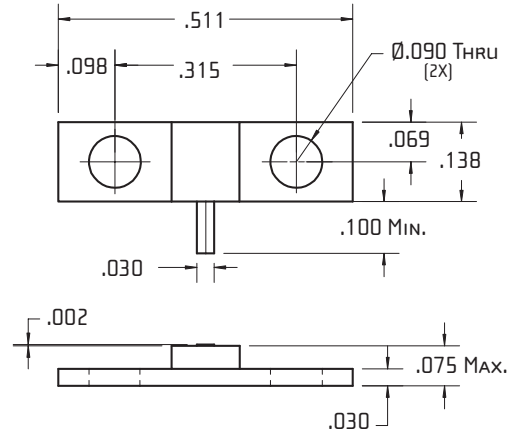


FLANGE TERMINATION OUTLINE DRAWINGS

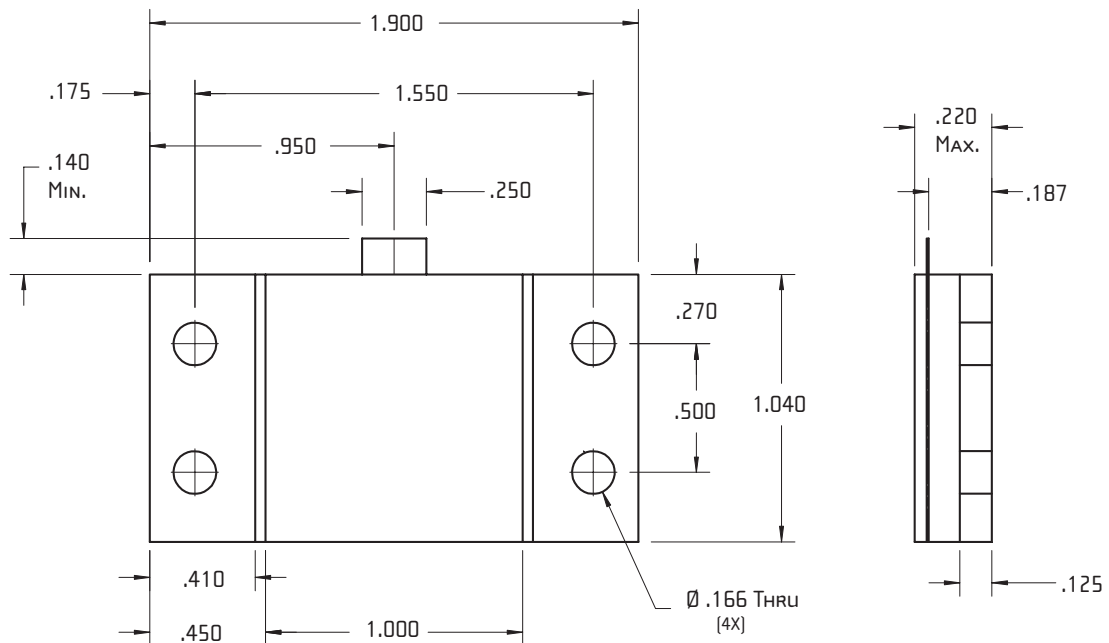
13



22



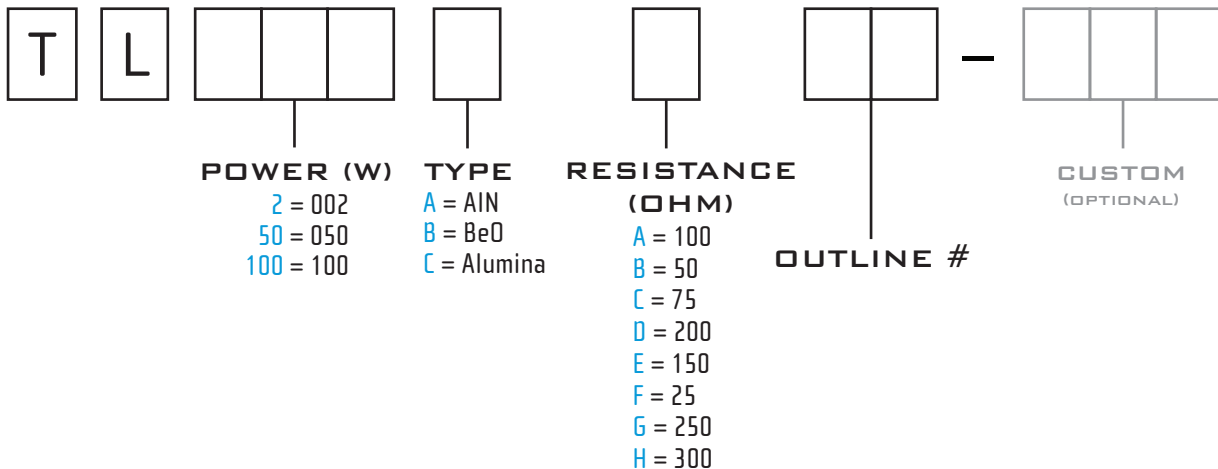
14



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

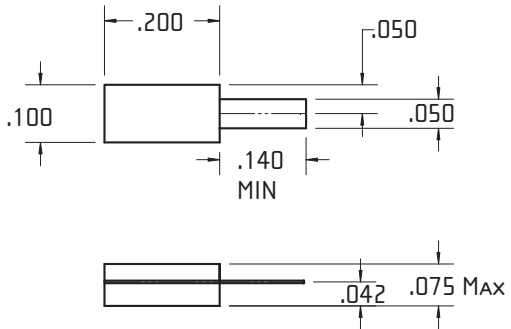


CUSTOMS AVAILABLE UPON REQUEST. (POWER, RESISTANCE, AND CONFIGURATION)
 CONTACT SALES FOR DETAIL.

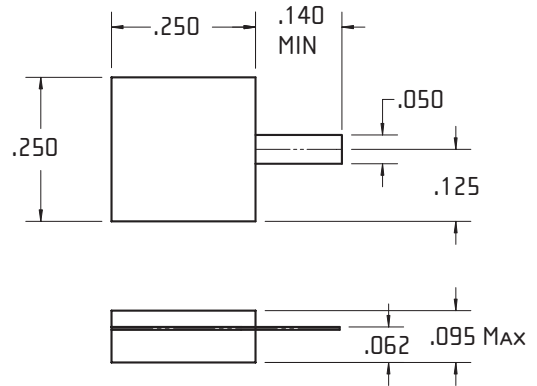


FLANGELESS TERMINATION OUTLINE DRAWINGS

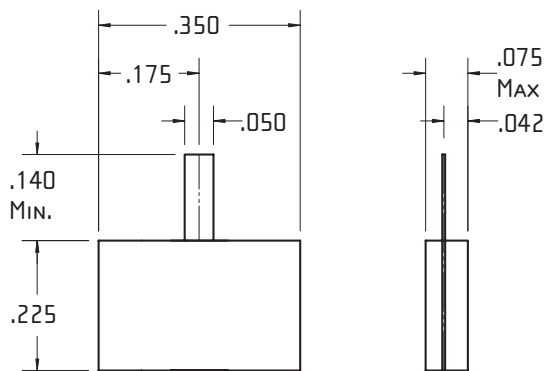
16



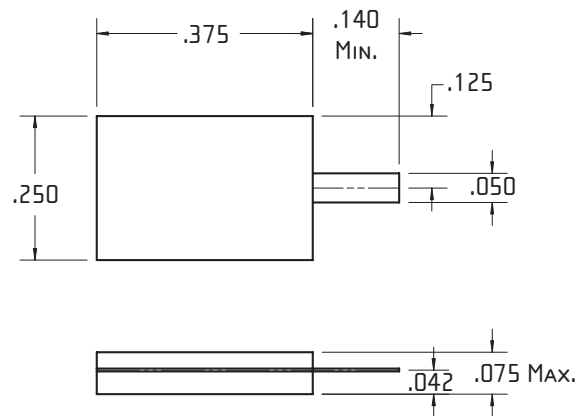
17



18

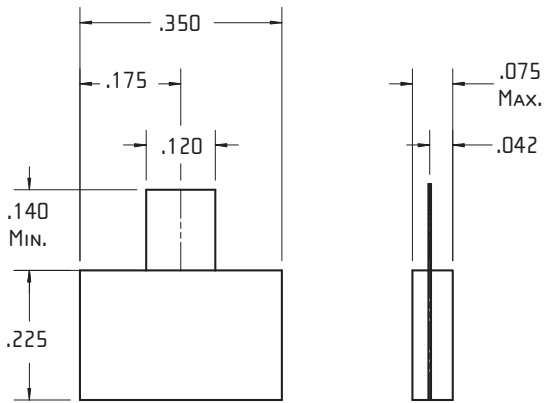


19

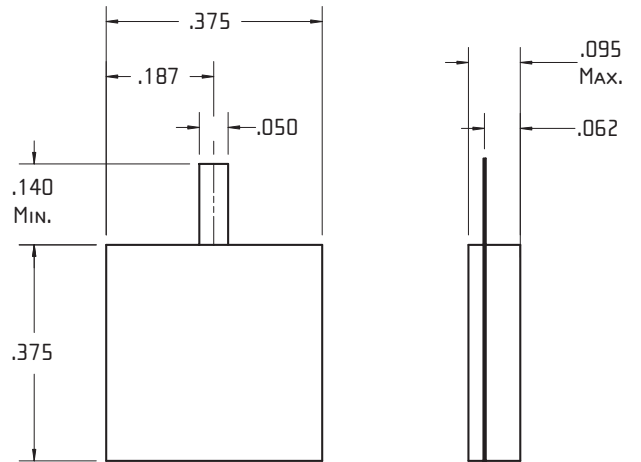


FLANGELESS TERMINATION OUTLINE DRAWINGS

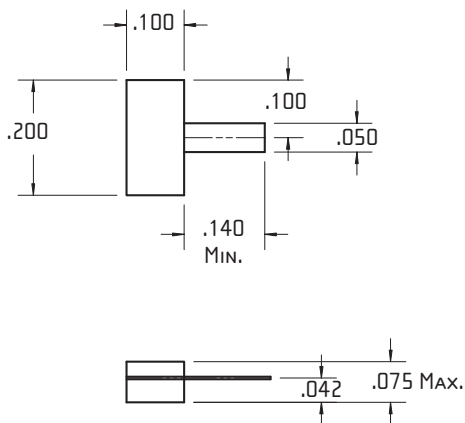
20



21

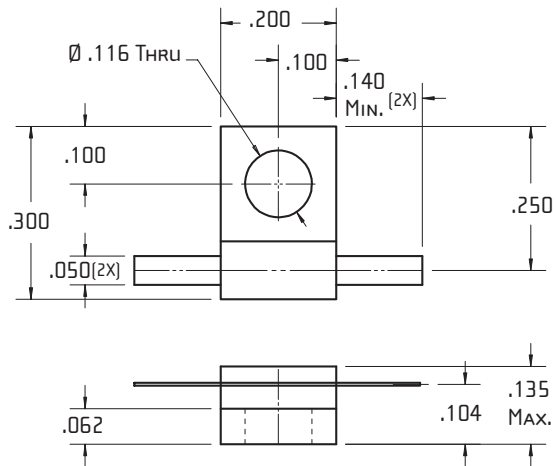


OC

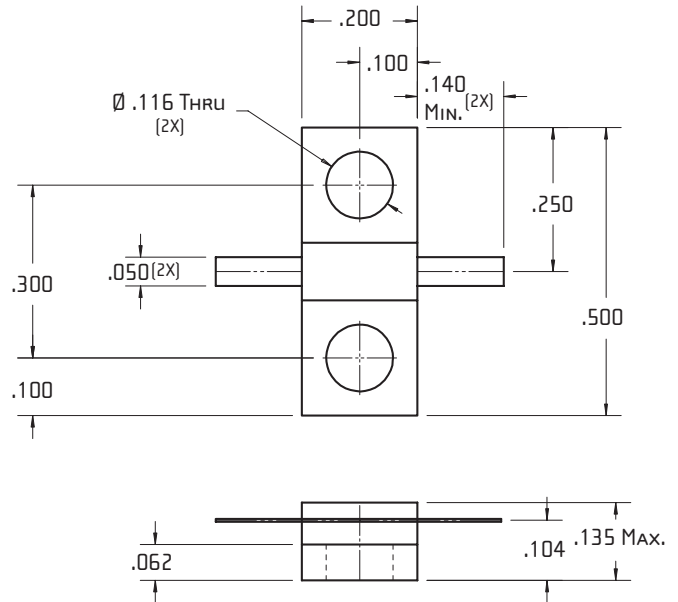


FLANGE RESISTOR OUTLINE DRAWINGS

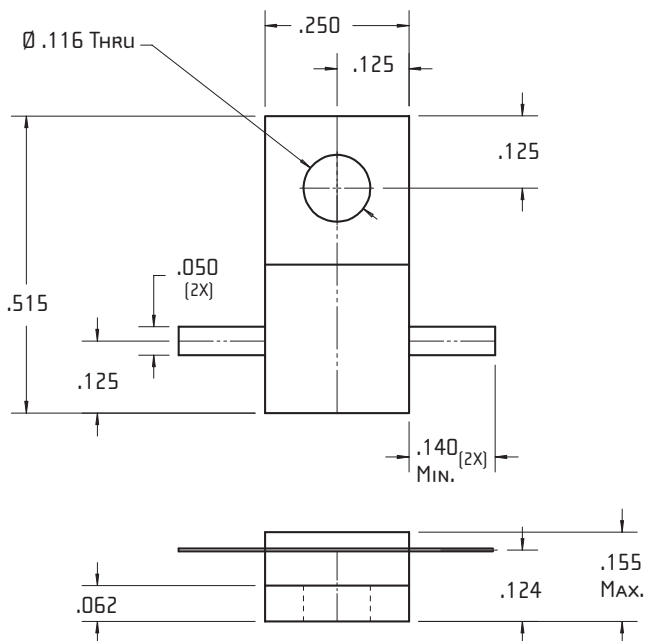
01



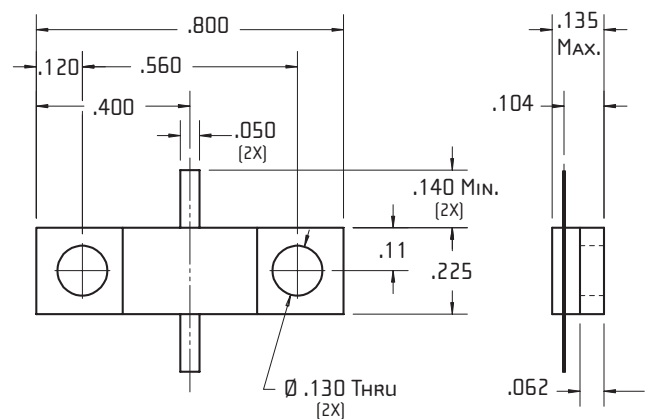
02



03

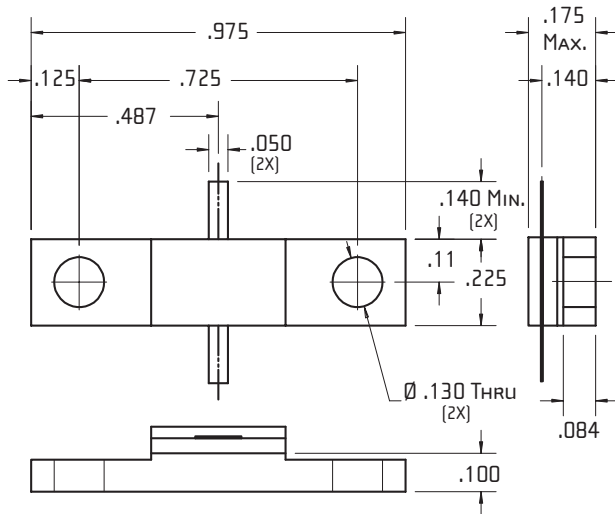


04

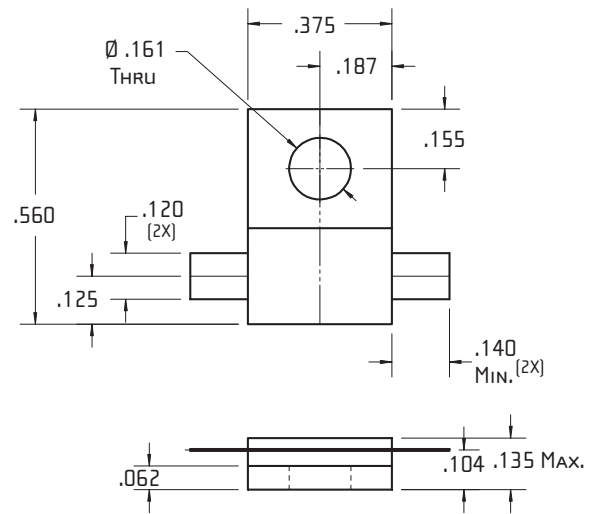


FLANGE RESISTOR OUTLINE DRAWINGS

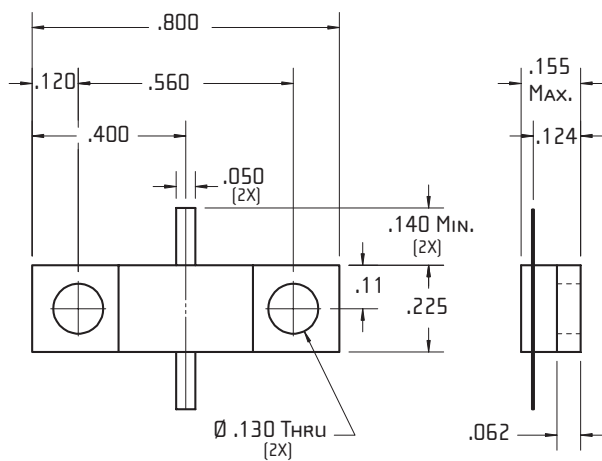
05



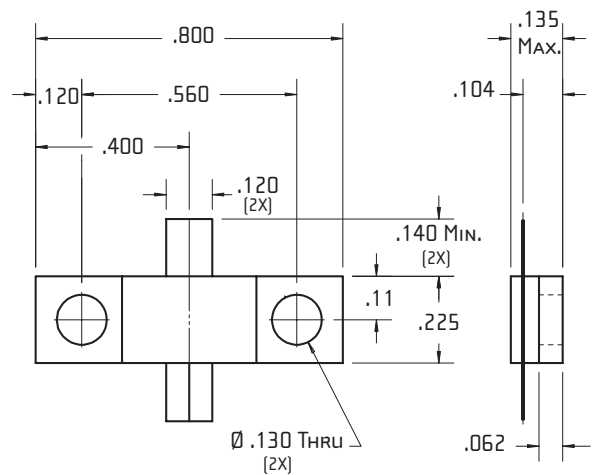
06



08

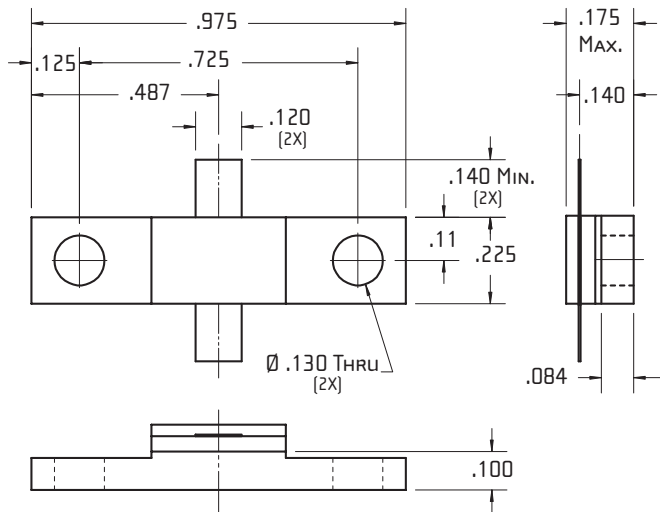


09

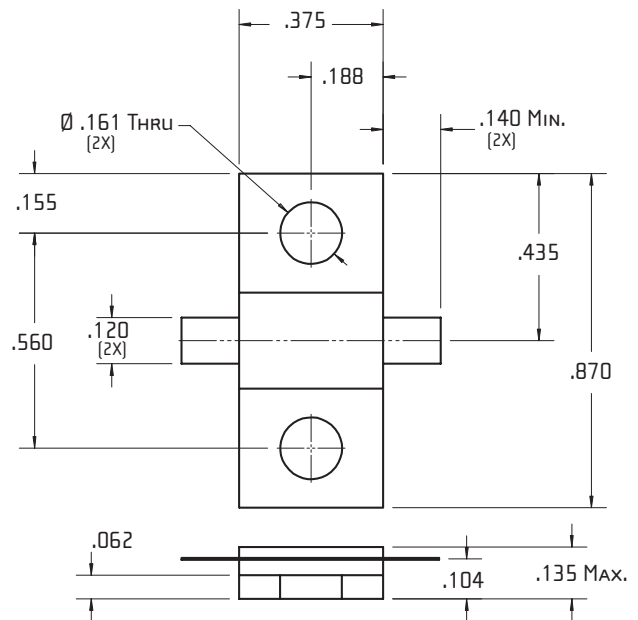


FLANGE RESISTOR OUTLINE DRAWINGS

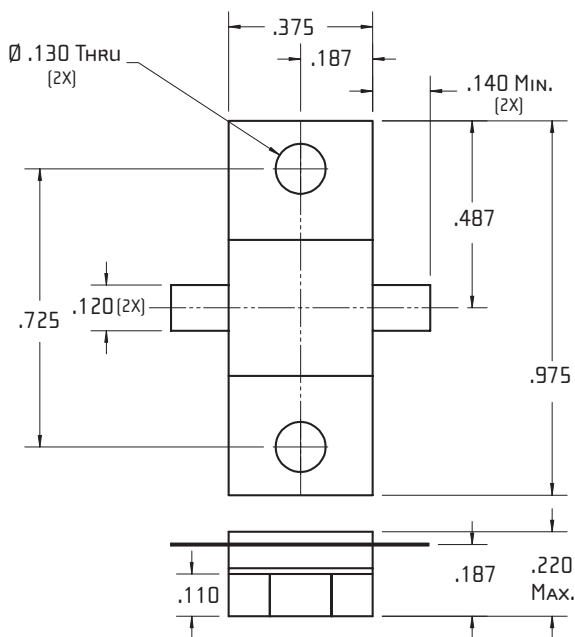
10



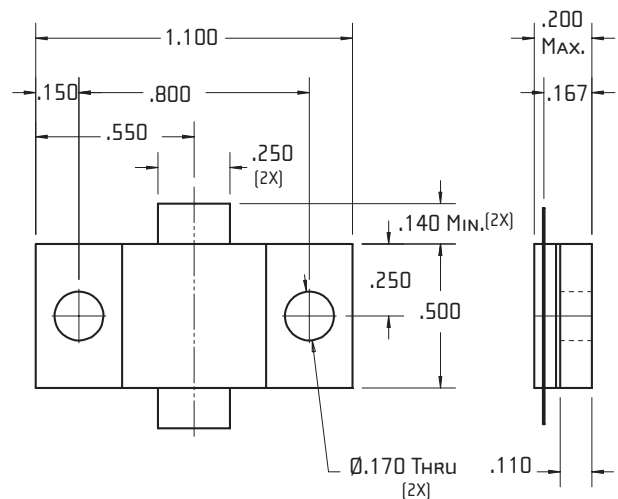
11



12

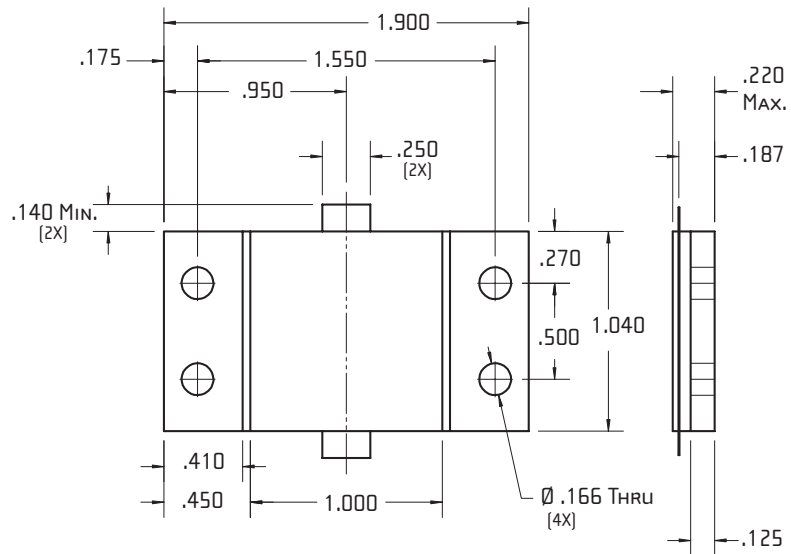


13

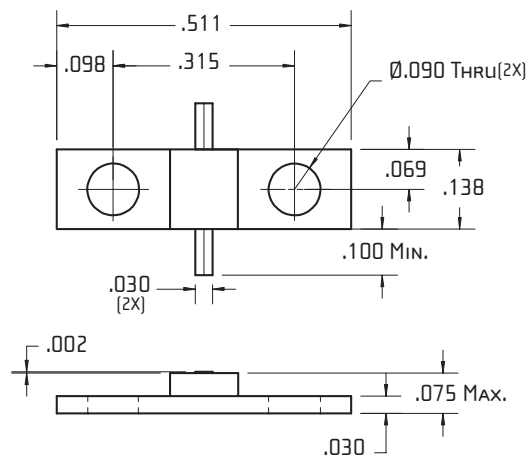


FLANGE RESISTOR OUTLINE DRAWINGS

14



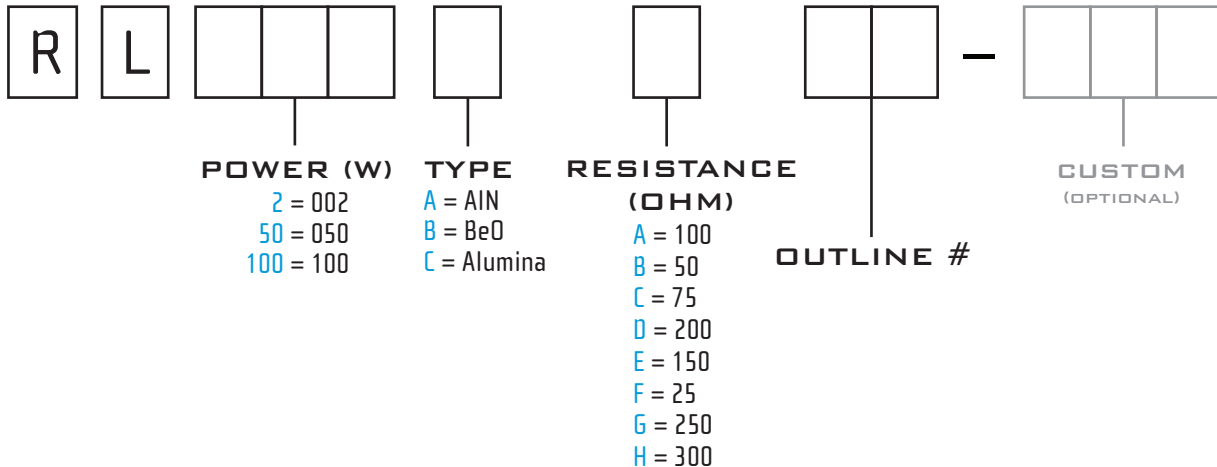
22



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

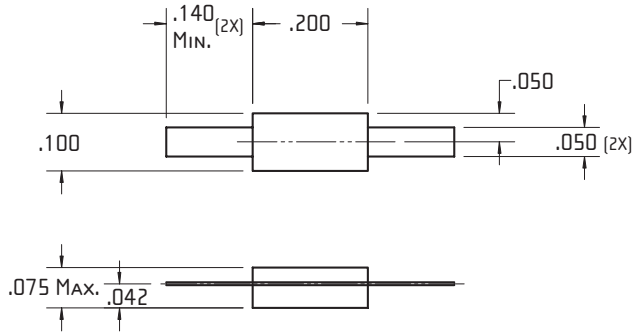


CUSTOMS AVAILABLE UPON REQUEST. (POWER, RESISTANCE, AND CONFIGURATION)
CONTACT SALES FOR DETAIL.

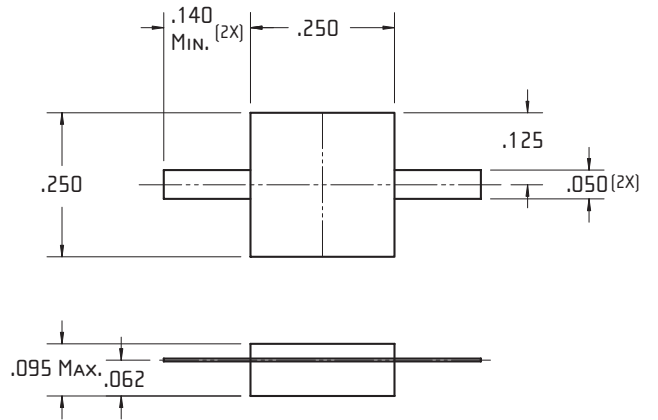


FLANGELESS RESISTOR OUTLINE DRAWINGS

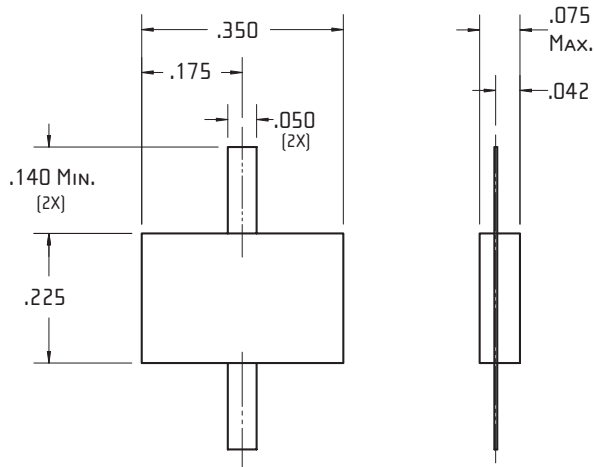
16



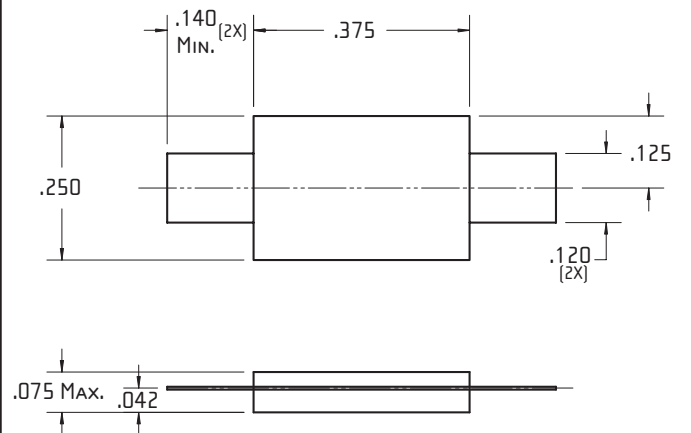
17



18

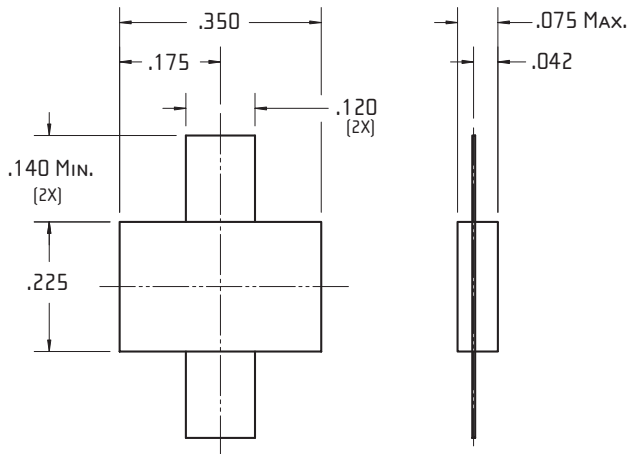


19

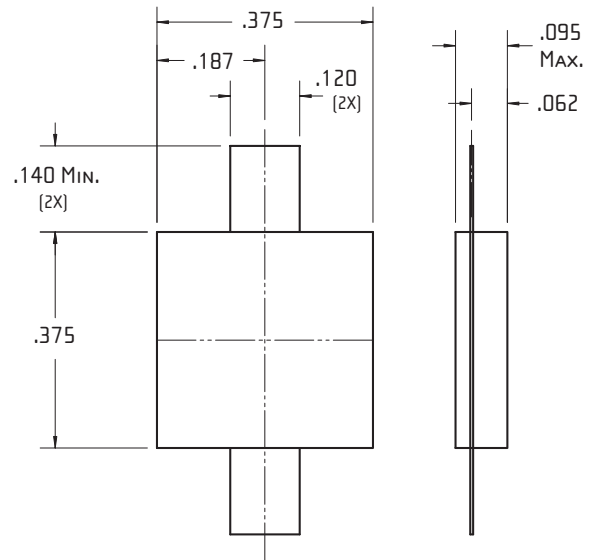


FLANGELESS RESISTOR OUTLINE DRAWINGS

20



21



23

