Features:

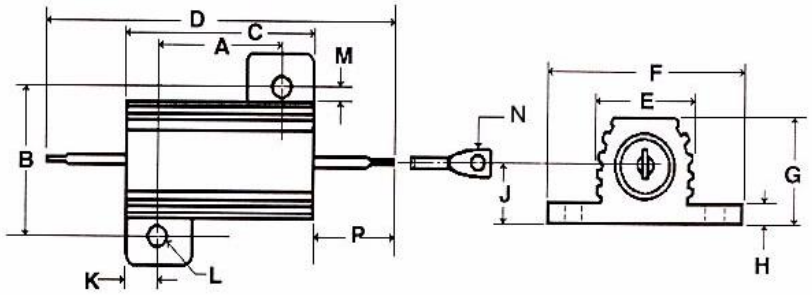


- Aluminum housing for maximum heat dissipation
- Complete welded construction
- 10 – 50W tinned copper terminals
- 100 – 250W threaded terminals
- Centerless ground steatite or alumina cores
- Molded epoxy body for heat transfer
- Non-inductive winding available (NKAL)
- Suitable for electrical component grade wash process and can be conformally coated or potted
- 100% RoHS compliant and lead free without exemption
- Halogen free
- REACH compliant

Electrical Specifications

Type / Code	MIL-R-26 Ref.	Power Rating (W) @ 25 °C		Dielectric Withstanding Voltage (VAC)	TCR (ppm/ºC)	Ohmic Range (Ω) and Tolerance		
		Commercial	MIL			0.1%	0.5%	1%, 3%, 5%
KAL10	RE-65	12.5	10	1000	< 0.1 Ω = ±100 ppm 0.1 Ω - 9.9 Ω = ±50 ppm 10 Ω - 49 Ω = ±30 ppm > 50 Ω = ±20 ppm	1 - 1 K	1 - 1 K	0.05 - 30K
KAL25	RE-70	25	20	3000				0.05 - 51.1K
KAL50	RE-75	50	30					0.05 - 150K
KAL100	RE-77	100	75	2500		-	1 - 500	0.1 - 3K
KAL250	RE-80	250	120				-	0.1 - 3K
NKAL10	-	12.5	-	1000		1 - 499	1 - 499	0.05 - 15K
NKAL25		25		3000				0.05 - 24.9K
NKAL50		50						0.05 - 75K
NKAL100		100		2500		-	1 - 249	0.1 - 1.5K
NKAL250		250					-	0.1 - 1.5K

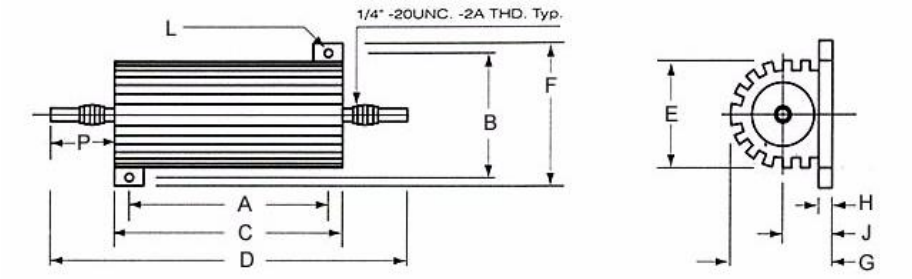
Mechanical Specifications – KAL/NKAL10, 25, 50



Type	A	B	C	D	E	F	G	Unit
KAL/NKAL10	0.562 ± 0.005 14.27 ± 0.13	0.625 ± 0.005 15.88 ± 0.13	0.750 ± 0.031 19.05 ± 0.79	1.375 ± 0.062 34.93 ± 1.57	0.420 ± 0.015 10.67 ± 0.38	0.800 ± 0.015 20.32 ± 0.38	0.390 ± 0.031 9.91 ± 0.79	inches mm
KAL/NKAL25	0.719 ± 0.005 18.26 ± 0.13	0.781 ± 0.005 19.84 ± 0.13	1.062 ± 0.031 26.97 ± 0.79	1.938 ± 0.062 49.23 ± 1.57	0.550 ± 0.015 13.97 ± 0.38	1.080 ± 0.015 27.43 ± 0.38	0.546 ± 0.031 13.87 ± 0.79	inches mm
KAL/NKAL50	1.563 ± 0.005 39.70 ± 0.13	0.844 ± 0.005 21.44 ± 0.13	1.968 ± 0.031 49.99 ± 0.79	2.781 ± 0.062 70.64 ± 1.57	0.630 ± 0.015 16.00 ± 0.38	1.140 ± 0.015 28.96 ± 0.38	0.610 ± 0.031 15.49 ± 0.79	inches mm
Type	H	J	K	L	M	N	P	Unit
KAL/NKAL10	0.075 ± 0.010 1.91 ± 0.25	0.190 ± 0.015 4.83 ± 0.38	0.093 ± 0.010 2.36 ± 0.25	0.093 ± 0.005 2.36 ± 0.13	0.102 ± 0.015 2.59 ± 0.38	0.086 ± 0.005 2.18 ± 0.13	0.312 ± 0.062 7.92 ± 1.57	inches mm
KAL/NKAL25	0.088 ± 0.010 2.24 ± 0.25	0.260 ± 0.015 6.60 ± 0.38	0.172 ± 0.010 4.37 ± 0.25	0.125 ± 0.005 3.18 ± 0.13	0.115 ± 0.015 2.92 ± 0.38	0.086 ± 0.005 2.18 ± 0.13	0.438 ± 0.062 11.13 ± 1.57	inches mm
KAL/NKAL50	0.088 ± 0.010 2.24 ± 0.25	0.300 ± 0.015 7.62 ± 0.38	0.196 ± 0.010 4.98 ± 0.25	0.125 ± 0.005 3.18 ± 0.13	0.107 ± 0.015 2.72 ± 0.38	0.086 ± 0.005 2.18 ± 0.13	0.410 ± 0.062 10.41 ± 1.57	inches mm

This specification may be changed at any time without prior notice.
Please confirm technical specifications before you order and/or use.

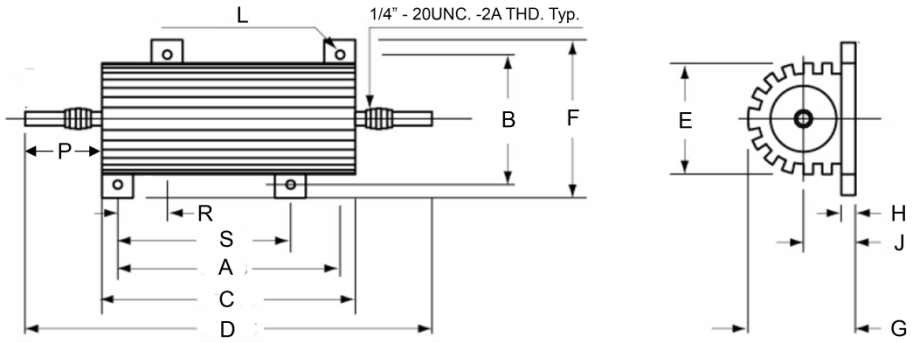
Mechanical Specifications – KAL/NKAL100



Type	A	B	C	D	E	F	Unit
KAL/NKAL100	2.717 ± 0.079 69.00 ± 2.00	2.362 ± 0.039 60.00 ± 1.00	3.504 ± 0.039 89.00 ± 1.00	5.315 ± 0.039 135.00 ± 1.00	1.811 ± 0.039 46.00 ± 1.00	2.756 ± 0.039 70.00 ± 1.00	inches mm

G	H	J	L	P	Unit
1.752 ± 0.039 44.50 ± 1.00	0.187 ± 0.031 4.75 ± 0.79	0.748 ± 0.020 19.00 ± 0.50	0.197 ± 0.012 5.00 ± 0.30	0.906 ± 0.079 23.00 ± 2.00	inches mm

Mechanical Specifications – KAL/NKAL250



Type	A	B	C	D	E	F	G	Unit
KAL/NKAL250	3.858 ± 0.079 98.00 ± 2.00	2.520 ± 0.039 64.00 ± 1.00	4.488 ± 0.039 114.00 ± 1.00	6.102 ± 0.039 155.00 ± 1.00	2.087 ± 0.039 53.00 ± 1.00	3.031 ± 0.039 77.00 ± 1.00	2.185 ± 0.039 55.50 ± 1.00	inches mm

H	J	L	P	R	S	Unit
0.250 ± 0.031 6.35 ± 0.79	0.984 ± 0.020 25.00 ± 0.50	0.197 ± 0.012 5.00 ± 0.30	0.827 ± 0.079 21.00 ± 2.00	0.866 22.00	3.071 78.00	inches mm

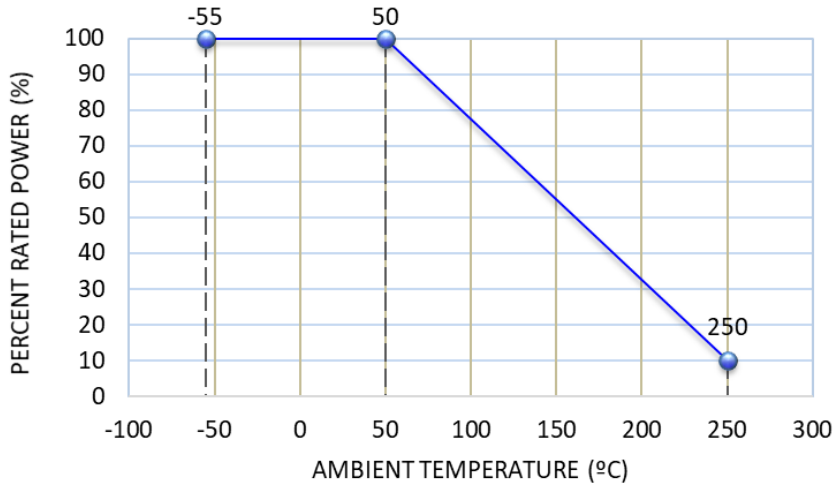
Performance Characteristics

Test	Test Condition	Result
Short Time Overload	5 X wattage rating - 5 seconds	ΔR ± (0.5% + 0.05 Ω) MAX
Moisture Resistance	Temp 40ºC moisture 95% CDC 100V for 500 hours	ΔR ± (0.5% + 0.05 Ω) MAX
Load Life	Load rating (chasis is mounted) 1.5 hours ON, 0.5 hours OFF. Repeated for 1000 hours	ΔR ± (1.5% + 0.05 Ω) MAX

Operating temperature range is -55°C to +275°C

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Power Derating Curve:



Note: This curve assumes the part is mounted on a properly sized heat sink.

Type	Recommended Heat Sink Parameters
KAL10	130 sq inch surface area, 0.040" thick
KAL25	166 sq inch surface area, 0.040" thick
KAL50	286 sq inch surface area, 0.060" thick
KAL100	295 sq inch surface area, 0.125" thick
KAL250	

Recommended Solder Profile

This information is intended as a reference for solder profiles for Stackpole resistive components. These profiles should be compatible with most soldering processes. These are only recommendations. Actual numbers will depend on board density, geometry, packages used, etc., especially those cells labeled with "*".

100% Matte Tin / RoHS Compliant Terminations

Soldering iron recommended temperatures: 330°C to 350°C with minimum duration.
Maximum number of reflow cycles: 3.

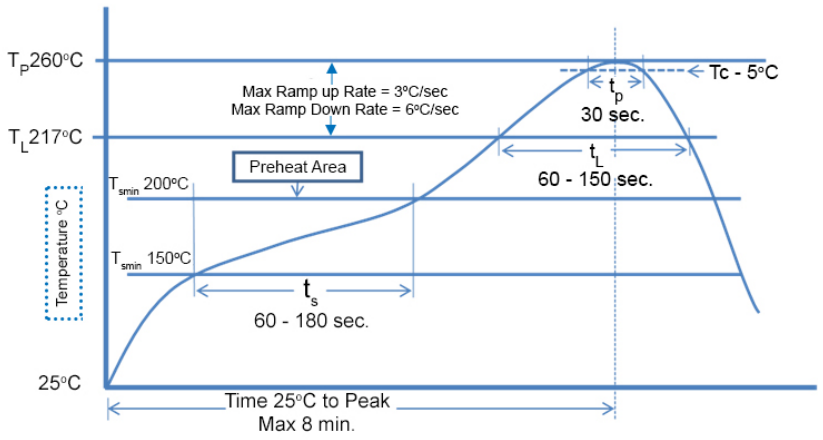
Wave Soldering			
Description	Maximum	Recommended	Minimum
Preheat Time	80 seconds	70 seconds	60 seconds
Temperature Diff.	140°C	120°C	100°C
Solder Temp.	260°C	250°C	240°C
Dwell Time at Max.	10 seconds	5 seconds	*
Ramp DN (°C/sec)	N/A	N/A	N/A

Temperature Diff. = Defference between final preheat stage and soldering stage.

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Convection IR Reflow			
Description	Maximum	Recommended	Minimum
Ramp Up (°C/sec)	3°C/sec	2°C/sec	*
Dwell Time > 217°C	150 seconds	90 seconds	60 seconds
Solder Temp.	260°C	245°C	*
Dwell Time at Max.	30 seconds	15 seconds	10 seconds
Ramp DN (°C/sec)	6°C/sec	3°C/sec	*

Recommended Lead Free Resistor Reflow Profile



RoHS Compliance

Stackpole Electronics has joined the worldwide effort to reduce the amount of lead in electronic components and to meet the various regulatory requirements now prevalent, such as the European Union's directive regarding "Restrictions on Hazardous Substances" (RoHS 3). As part of this ongoing program, we periodically update this document with the status regarding the availability of our compliant components. All our standard part numbers are compliant to EU Directive 2011/65/EU of the European Parliament as amended by Directive (EU) 2015/863/EU as regards the list of restricted substances.

RoHS Compliance Status						
Standard Product Series	Description	Package / Termination Type	Standard Series RoHS Compliant	Lead-Free Termination Composition	Lead-Free Mfg. Effective Date (Std Product Series)	Lead-Free Effective Date Code (YY/WW)
KAL	Aluminum Housed Surface Mount Resistor General Purpose/Precision High Power Resistor	Special	YES	100% Matte Sn	Jan-06	06/01

"Conflict Metals" Commitment

We at Stackpole Electronics, Inc. are joined with our industry in opposing the use of metals mined in the "conflict region" of the eastern Democratic Republic of the Congo (DRC) in our products. Recognizing that the supply chain for metals used in the electronics industry is very complex, we work closely with our own suppliers to verify to the extent possible that the materials and products we supply do not contain metals sourced from this conflict region. As such, we are in compliance with the requirements of Dodd-Frank Act regarding Conflict Minerals.

This specification may be changed at any time without prior notice.
Please confirm technical specifications before you order and/or use.

Compliance to “REACH”

We certify that all passive components supplied by Stackpole Electronics, Inc. are SVHC (Substances of Very High Concern) free and compliant with the requirements of EU Directive 1907/2006/EC, “The Registration, Evaluation, Authorization and Restriction of Chemicals”, otherwise referred to as REACH. Contact us for complete list of REACH Substance Candidate List.

Environmental Policy

It is the policy of Stackpole Electronics, Inc. (SEI) to protect the environment in all localities in which we operate. We continually strive to improve our effect on the environment. We observe all applicable laws and regulations regarding the protection of our environment and all requests related to the environment to which we have agreed. We are committed to the prevention of all forms of pollution.

How to Order

1	2	3	4	5	6	7	8	9	10	11
K	A	L	1	0	F	B	1	0	K	0

Product Series

Code	Description
KAL	Standard
NKAL	Non-inductive

Power Rating

Code	W
10	10
25	25
50	50
100	100
250	250

Tolerance

Code	Tol
B	0.1%
D	0.5%
F	1%
H	3%
J	5%

Packaging

Code	Description	Size	MOQ
B	Bulk	10	250
		25	250
		50	250
		100	60
		250	30

Resistance Value

Four characters with the multiplier used as the decimal holder. "L" used as multiplier of 10^{-3} for any value under 0.1 ohm.

0.05 ohm = 50L0
0.4 ohm = R400
1 ohm = 1R00
30 Kohm = 30K0

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Please confirm technical specifications before you order and/or use.