

Features:

- Square corner construction standard
- RAVF 324D is standard with scalloped corner
- RoHS compliant, REACH compliant and halogen free
- Sizes 102D, 104D and 164D are AEC-Q200 compliant

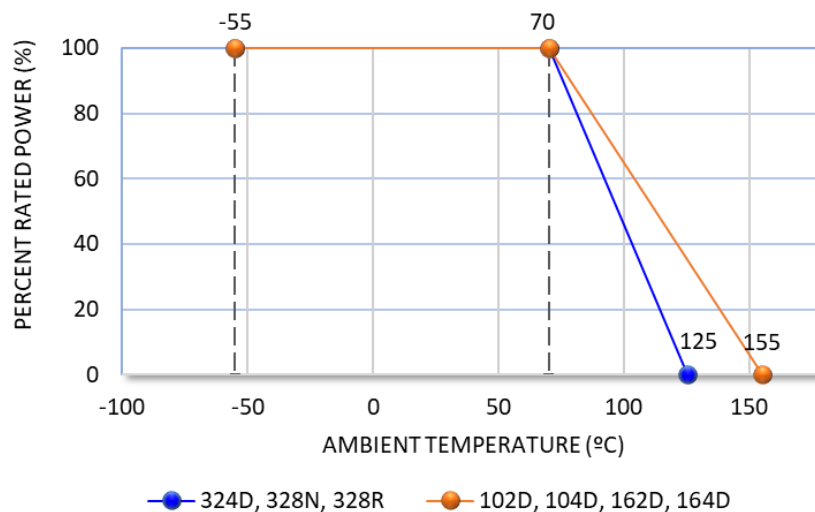


Electrical Specifications

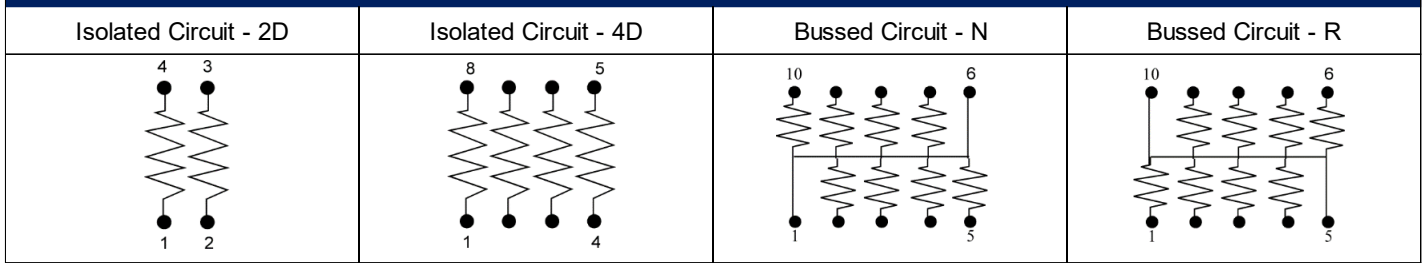
Type/Code, # of Elements, Circuit Type	Power Rating (W) (per element) @ 70°C	Maximum Working Voltage (V) ⁽¹⁾	Maximum Overload Voltage (V)	TCR (ppm/°C)	Ohmic Range (Ω) and Tolerance	
					1%	2%, 5%
RAVF102D	0.063	25	50	± 400	-	1 - 9.1
				± 200	10 - 1M	
	Jumper: 1 A	-			0.05 max	
RAVF104D	0.063	25	50	± 400	-	1 - 9.1
				± 200	10 - 1M	
	Jumper: 1 A	-			0.05 max	
RAVF162D	0.063	50	100	± 200	10 - 1M	1 - 1M
	Jumper: 1 A	-			0.05 max	
RAVF164D	0.1	50	100	± 400	-	1 - 9.1
				± 200	10 - 1M	10 - 1M
	Jumper: 1 A	-			0.05 max	
RAVF324D	0.125	200	400	± 200	22 - 1M	10 - 1M
	Jumper: 1.5 A	-			0.05 max	
RAVF328N	0.063	25	50	± 200	-	22 - 1M
	Jumper: 0.5 A	-			0.05 max	
RAVF328R	0.063	25	50	± 200	-	22 - 1M
	Jumper: 0.5 A	-			0.05 max	

(1) Lesser of $\sqrt{P \cdot R}$ or maximum working voltage.

Power Derating Curve:

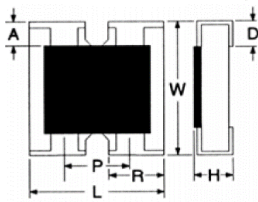


Schematics

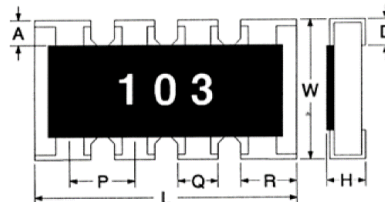


Terminations

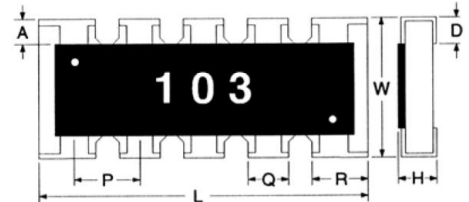
RAVF - 2 Resistors / 4 Terminations (D)



RAVF - 4 Resistors / 8 Terminations (D)



RAVF - 8 Resistors / 10 Terminations (N/R)



Mechanical Specifications

Type/Code # of Elements Circuit Type	L Body Length	W Body Width	H Body Height	P Element Spacing	Q Termination Width	R Termination Width	D Bottom Termination	A Top Termination	Unit
RAVF102D	0.039 ± 0.004 1.00 ± 0.10	0.039 ± 0.004 1.00 ± 0.10	0.014 ± 0.004 0.35 ± 0.10	0.026 ± 0.039 0.67 ± 1.00	- -	0.013 ± 0.004 0.34 ± 0.10	0.010 ± 0.039 0.25 ± 1.00	0.006 ± 0.004 0.15 ± 0.10	Inches mm
RAVF104D	0.079 ± 0.008 2.00 ± 0.20	0.039 ± 0.006 1.00 ± 0.15	0.014 ± 0.006 0.35 ± 0.15	0.020 ± 0.006 0.50 ± 0.15	0.012 ± 0.004 0.30 ± 0.10	0.017 ± 0.004 0.43 ± 0.10	0.008 +0.006/-0.004 0.20 +0.15/-0.10	0.008 ± 0.004 0.20 ± 0.10	Inches mm
RAVF162D	0.063 ± 0.006 1.60 ± 0.15	0.063 ± 0.006 1.60 ± 0.15	0.020 ± 0.006 0.50 ± 0.15	0.031 ± 0.002 0.80 ± 0.05	- -	0.024 ± 0.006 0.60 ± 0.15	0.012 ± 0.006 0.30 ± 0.15	0.012 ± 0.006 0.30 ± 0.15	Inches mm
RAVF164D	0.126 ± 0.008 3.20 ± 0.20	0.063 ± 0.008 1.60 ± 0.20	0.020 ± 0.004 0.50 ± 0.10	0.031 ± 0.008 0.80 ± 0.20	0.020 ± 0.006 0.50 ± 0.15	0.024 ± 0.006 0.61 ± 0.15	0.012 ± 0.008 0.30 ± 0.20	0.012 ± 0.008 0.30 ± 0.20	Inches mm
RAVF324D	0.201 ± 0.009 5.10 ± 0.22	0.122 ± 0.008 3.10 ± 0.20	0.022 ± 0.006 0.55 ± 0.15	0.051 ± 0.008 1.30 ± 0.20	0.031 ± 0.008 0.80 ± 0.20	0.031 ± 0.008 0.80 ± 0.20	0.022 ± 0.012 0.55 ± 0.30	0.020 ± 0.008 0.50 ± 0.20	Inches mm
RAVF328N	0.126 ± 0.006 3.20 ± 0.15	0.063 ± 0.006 1.60 ± 0.15	0.022 ± 0.004 0.55 ± 0.10	0.025 ± 0.002 0.64 ± 0.05	0.013 ± 0.006 0.34 ± 0.15	0.019 ± 0.006 0.49 ± 0.15	0.010 ± 0.006 0.25 ± 0.15	0.012 ± 0.008 0.30 ± 0.20	Inches mm
RAVF328R	0.126 ± 0.006 3.20 ± 0.15	0.063 ± 0.006 1.60 ± 0.15	0.022 ± 0.004 0.55 ± 0.10	0.025 ± 0.002 0.64 ± 0.05	0.013 ± 0.006 0.34 ± 0.15	0.019 ± 0.006 0.49 ± 0.15	0.010 ± 0.006 0.25 ± 0.15	0.012 ± 0.008 0.30 ± 0.20	Inches mm

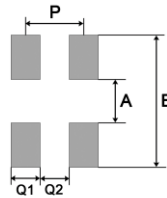
Performance Characteristics

Test	Test Result (JIS C 5202)
Load Life in Moisture	±3% (Jumper ≤ Rmax.)
Temperature cycle	±1% (Jumper ≤ Rmax.)
Load Life	±3% (Jumper ≤ Rmax.)
Resistance to Soldering heat	±1% (Jumper ≤ Rmax.)
Terminal Adhesion	±1% (Jumper ≤ Rmax.)
Short Time Overload	±2% (Jumper ≤ Rmax.)

Operating temperature range is -55 to +155°C, except for RAVF328N and RAVF328R

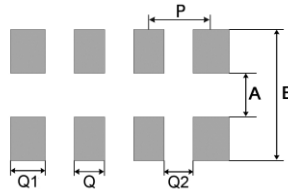
Operating temperature range for RAVF328N and RAVF328R is -55 to +125°C

Recommended Solder Pad - 102D/162D



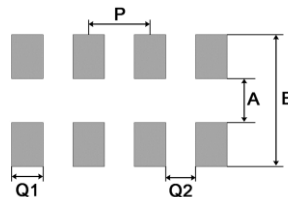
Type/Code	A	B	P	Q1	Q2	Unit
RAVF102D	0.020	0.079	0.026	0.013	0.013	Inches
	0.50	2.00	0.67	0.33	0.34	mm
RAVF162D	0.039	0.102	0.031	0.016	0.016	Inches
	1.00	2.60	0.80	0.40	0.40	mm

Recommended Solder Pad - 104D



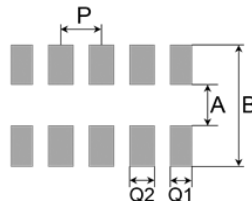
Type/Code	A	B	P	Q	Q1	Q2	Unit
RAVF104D	0.020	0.079	0.020	0.012	0.016	0.008	Inches
	0.50	2.00	0.50	0.30	0.40	0.20	mm

Recommended Solder Pad - 164D/324D



Type/Code	A	B	P	Q1	Q2	Unit
RAVF164D	0.039	0.102	0.031	0.016	0.016	Inches
	1.00	2.60	0.80	0.40	0.40	mm
RAVF324D	0.079	0.187	0.051	0.035	0.015	Inches
	2.00	4.75	1.30	0.90	0.38	mm

Recommended Solder Pad - 328R



Type/Code	A	B	P	Q1	Q2	Unit
RAVF328R	0.031	0.122	0.025	0.013	0.018	Inches
	0.80	3.10	0.64	0.34	0.45	mm

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 “*”.

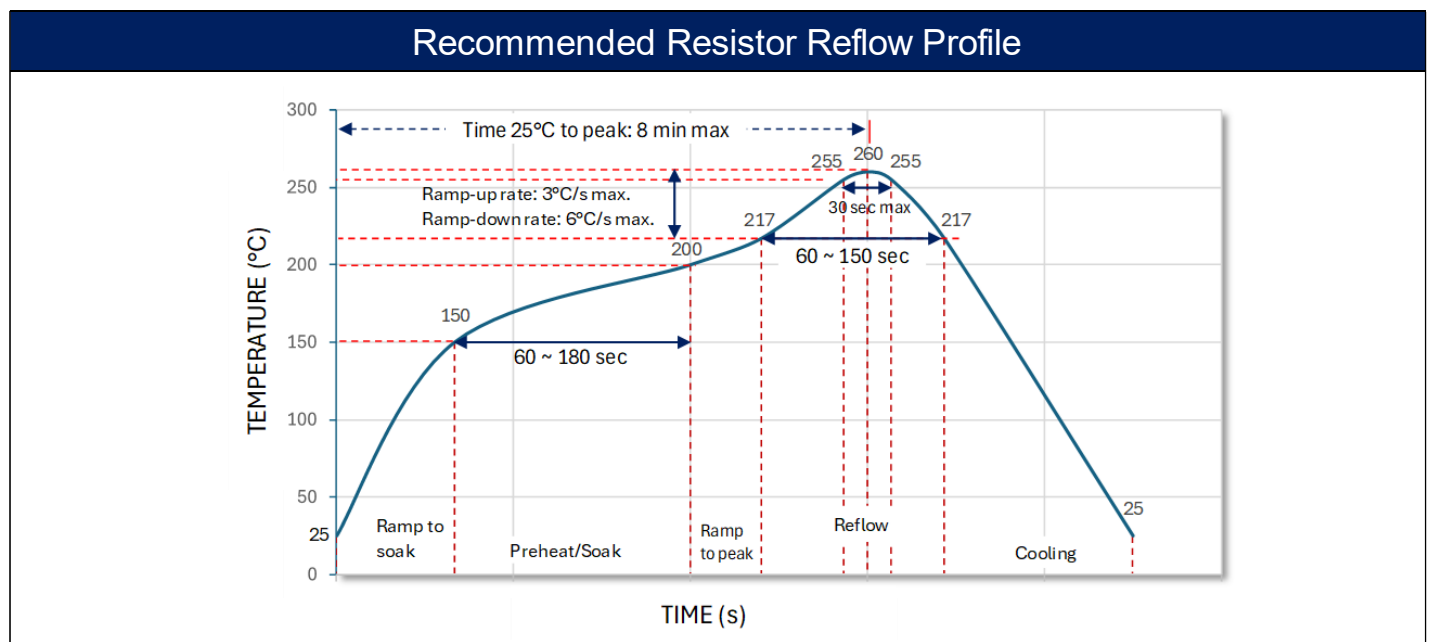
100% Matte Tin / RoHS Compliant Terminations

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

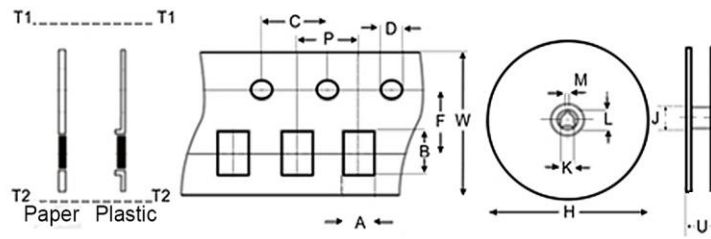
Wave Soldering			
Description	Maximum	Recommended	Minimum
Preheat Time	80 seconds	70 seconds	60 seconds
Temperature Diff.	140°C	120°C	100°C
Solder Temp.	260°C	250°C	240°C
Dwell Time at Max.	10 seconds	5 seconds	*
Ramp DN (°C/sec)	N/A	N/A	N/A

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

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	*



Packaging Specifications



Symbol	Description	Paper Tape					Plastic Tape	Unit
		102D	104D	162D	164D	328N/328R	324D	
A	Pocket Width	0.049 ± 0.004 1.25 ± 0.10	0.047 ± 0.004 1.20 ± 0.10	0.075 ± 0.004 1.90 ± 0.10	0.075 ± 0.008 1.90 ± 0.20	0.079 ± 0.008 2.00 ± 0.20	0.134 ± 0.008 3.40 ± 0.20	inches mm
B	Pocket Length	0.049 ± 0.004 1.25 ± 0.10	0.087 ± 0.004 2.20 ± 0.10	0.075 ± 0.004 1.90 ± 0.10	0.138 ± 0.008 3.50 ± 0.20	0.142 ± 0.008 3.60 ± 0.20	0.220 ± 0.008 5.60 ± 0.20	inches mm
C	Pin Spacing	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	inches mm
D	Pin Diameter	0.059 ± 0.004 1.50 ± 0.10	0.059 ± 0.004 1.50 ± 0.10	0.059 ± 0.004 1.50 ± 0.10	0.059 ± 0.004 1.50 ± 0.10	0.061 ± 0.004 1.55 ± 0.10	0.061 ± 0.004 1.55 ± 0.10	inches mm
F	Pin-Pocket C/L	0.138 ± 0.002 3.50 ± 0.05	0.138 ± 0.002 3.50 ± 0.05	0.138 ± 0.002 3.50 ± 0.05	0.138 ± 0.002 3.50 ± 0.05	0.138 ± 0.002 3.50 ± 0.05	0.217 ± 0.002 5.50 ± 0.05	inches mm
H	Reel Diameter	7.008 ± 0.079 178.00 ± 2.00	7.008 ± 0.079 178.00 ± 2.00	7.008 ± 0.079 178.00 ± 2.00	7.008 ± 0.079 178.00 ± 2.00	7.008 ± 0.079 178.00 ± 2.00	7.008 ± 0.079 178.00 ± 2.00	inches mm
J	Hub Diameter	2.362 ± 0.039 60.00 ± 1.00	2.362 ± 0.039 60.00 ± 1.00	2.362 ± 0.039 60.00 ± 1.00	2.362 ± 0.039 60.00 ± 1.00	2.362 ± 0.039 60.00 ± 1.00	2.362 ± 0.039 60.00 ± 1.00	inches mm
K	Hole Diameter	0.531 ± 0.039 13.50 ± 1.00	0.531 ± 0.039 13.50 ± 1.00	0.531 ± 0.039 13.50 ± 1.00	0.531 ± 0.039 13.50 ± 1.00	0.531 ± 0.039 13.50 ± 1.00	0.531 ± 0.039 13.50 ± 1.00	inches mm
L	Key Diameter	0.827 ± 0.039 21.00 ± 1.00	0.827 ± 0.039 21.00 ± 1.00	0.827 ± 0.039 21.00 ± 1.00	0.827 ± 0.039 21.00 ± 1.00	0.827 ± 0.039 21.00 ± 1.00	0.827 ± 0.039 21.00 ± 1.00	inches mm
M	Key Width	0.079 ± 0.039 2.00 ± 1.00	0.079 ± 0.039 2.00 ± 1.00	0.079 ± 0.039 2.00 ± 1.00	0.079 ± 0.039 2.00 ± 1.00	0.079 ± 0.039 2.00 ± 1.00	0.079 ± 0.039 2.00 ± 1.00	inches mm
P	Pocket Spacing	0.079 ± 0.004 2.00 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	inches mm
T1	Strip Thickness	-	-	-	-	-	0.010 ± 0.002 0.25 ± 0.05	inches mm
T2	Total Thickness	0.018 ± 0.004 0.45 ± 0.10	0.024 ± 0.004 0.60 ± 0.10	0.024 ± 0.004 0.61 ± 0.10	0.030 ± 0.004 0.75 ± 0.10	0.055 max 1.40 max	0.039 ± 0.004 1.00 ± 0.10	inches mm
U	Reel Outside Width	0.453 ± 0.079 11.50 ± 2.00	0.453 ± 0.079 11.50 ± 2.00	0.453 ± 0.079 11.50 ± 2.00	0.453 ± 0.079 11.50 ± 2.00	0.453 ± 0.079 11.50 ± 2.00	0.606 ± 0.039 15.40 ± 1.00	inches mm
W	Strip Width	0.315 ± 0.008 8.00 ± 0.20	0.315 ± 0.008 8.00 ± 0.20	0.315 ± 0.008 8.00 ± 0.20	0.315 ± 0.008 8.00 ± 0.20	0.315 ± 0.008 8.00 ± 0.20	0.472 ± 0.008 12.00 ± 0.20	inches mm

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