



Material Declaration Data Sheet

RNF18 (Formerly RNF 1/8)

General Purpose Metal Film Resistor



Date: **November 9, 2012** Max Temp: **260°C** (Contact factory for detailed soldering recommendations.)
 Component Weight (g): **0.1292**

BOM Item	Material	CAS Number	Material Weight (g)	Material PPM of Component	Material % of BOM Item	BOM Item Weight (g)	BOM Item % of Component
Alumina core	aluminum oxide	1344-28-1	0.0226	174,663	96.00%	0.0235	18.19%
	silicon oxide	7631-86-9	0.0005	3,639	2.00%		
	magnesium oxide	1309-48-4	0.0002	1,819	1.00%		
	calcium oxide	1305-78-8	0.0002	1,819	1.00%		
Resistive element	nickel	7440-02-0	0.0000	255	97.72%	0.0000	0.03%
	chromium	7440-47-3	0.0000	6	2.28%		
Cap and lead assembly	iron	7439-89-6	0.0172	133,315	23.46%	0.0734	56.83%
	copper	7440-50-8	0.0562	434,982	76.54%		
Termination plating	tin	7440-31-5	0.0213	164,877	100.00%	0.0213	16.49%
Under-coat	phenol, polymer w/ formaldehyde	9003-35-4	0.0000	238	100.00%	0.0000	0.02%
Over-coat	bisphenol a, epichlorohydrin polymer	25068-38-6	0.0109	84,385	100.00%	0.0109	8.44%
Total Weight			0.1292				

* Weights are approximate.



Material Declaration Data Sheet

RNF14 (Formerly RNF 1/4)

General Purpose Metal Film Resistor



Date: **November 9, 2012** Max Temp: **260°C** (Contact factory for detailed soldering recommendations.)
 Component Weight (g): **0.2100**

BOM Item	Material	CAS Number	Material Weight (g)	Material PPM of Component	Material % of BOM Item	BOM Item Weight (g)	BOM Item % of Component
Alumina core	aluminum oxide	1344-28-1	0.0431	205,215	96.00%	0.0449	21.38%
	silicon oxide	7631-86-9	0.0009	4,275	2.00%		
	magnesium oxide	1309-48-4	0.0004	2,138	1.00%		
	calcium oxide	1305-78-8	0.0004	2,138	1.00%		
Resistive element	nickel	7440-02-0	0.0001	300	81.08%	0.0001	0.04%
	chromium	7440-47-3	0.0000	70	18.92%		
Cap and lead assembly	iron	7439-89-6	0.0329	156,508	23.46%	0.1401	66.72%
	copper	7440-50-8	0.1073	510,655	76.54%		
Termination plating	tin	7440-31-5	0.0041	19,356	100.00%	0.0041	1.94%
Under-coat	phenol, polymer w/ formaldehyde	9003-35-4	0.0001	280	100.00%	0.0001	0.03%
Over-coat	bisphenol a, epichlorohydrin polymer	25068-38-6	0.0208	99,066	100.00%	0.0208	9.91%
Total Weight			0.2100				

* Weights are approximate.



Material Declaration Data Sheet

RNF12 (Formerly RNF 1/2)

General Purpose Metal Film Resistor



Date: **November 9, 2012** Max Temp: **260°C** (Contact factory for detailed soldering recommendations.)
 Component Weight (g): **0.3246**

BOM Item	Material	CAS Number	Material Weight (g)	Material PPM of Component	Material % of BOM Item	BOM Item Weight (g)	BOM Item % of Component
Alumina core	aluminum oxide	1344-28-1	0.06624	204,079	96.00%	0.0690	21.26%
	silicon oxide	7631-86-9	0.00138	4,252	2.00%		
	magnesium oxide	1309-48-4	0.00069	2,126	1.00%		
	calcium oxide	1305-78-8	0.00069	2,126	1.00%		
Resistive element	nickel	7440-02-0	0.0001	308	83.33%	0.0001	0.04%
	chromium	7440-47-3	0.0000	62	16.67%		
Cap and lead assembly	iron	7439-89-6	0.0509	156,756	23.46%	0.2169	66.82%
	copper	7440-50-8	0.1660	511,430	76.54%		
Termination plating	tin	7440-31-5	0.0063	19,379	100.00%	0.0063	1.94%
Under-coat	phenol, polymer w/ formaldehyde	9003-35-4	0.0001	277	100.00%	0.0001	0.03%
Over-coat	bisphenol a, epichlorohydrin polymer	25068-38-6	0.0322	99,205	100.00%	0.0322	9.92%
Total Weight			0.3246				

* Weights are approximate.



Material Declaration Data Sheet

RNF1 (Formerly RNF 1)

General Purpose Metal Film Resistor



Date: **November 9, 2012** Max Temp: **260°C** (Contact factory for detailed soldering recommendations.)
 Component Weight (g): **0.5601**

BOM Item	Material	CAS Number	Material Weight (g)	Material PPM of Component	Material % of BOM Item	BOM Item Weight (g)	BOM Item % of Component
Alumina core	aluminum oxide	1344-28-1	0.11482	205,007	96.00%	0.1196	21.35%
	silicon oxide	7631-86-9	0.00239	4,271	2.00%		
	magnesium oxide	1309-48-4	0.00120	2,135	1.00%		
	calcium oxide	1305-78-8	0.00120	2,135	1.00%		
Resistive element	nickel	7440-02-0	0.0002	357	76.92%	0.0003	0.05%
	chromium	7440-47-3	0.0001	107	23.08%		
Cap and lead assembly	iron	7439-89-6	0.0877	156,590	23.47%	0.3737	66.72%
	copper	7440-50-8	0.2860	510,660	76.53%		
Termination plating	tin	7440-31-5	0.0108	19,284	100.00%	0.0108	1.93%
Under-coat	phenol, polymer w/ formaldehyde	9003-35-4	0.0002	357	100.00%	0.0002	0.04%
Over-coat	bisphenol a, epichlorohydrin polymer	25068-38-6	0.0555	99,097	100.00%	0.0555	9.91%
Total Weight			0.5601				

* Weights are approximate.



Material Declaration Data Sheet

RNF2 (Formerly RNF 2)

General Purpose Metal Film Resistor



Date: **November 9, 2012** Max Temp: **260°C** (Contact factory for detailed soldering recommendations.)
 Component Weight (g): **0.7956**

BOM Item	Material	CAS Number	Material Weight (g)	Material PPM of Component	Material % of BOM Item	BOM Item Weight (g)	BOM Item % of Component
Alumina core	aluminum oxide	1344-28-1	0.16268	204,480	96.00%	0.1695	21.30%
	silicon oxide	7631-86-9	0.00339	4,260	2.00%		
	magnesium oxide	1309-48-4	0.00169	2,130	1.00%		
	calcium oxide	1305-78-8	0.00169	2,130	1.00%		
Resistive element	nickel	7440-02-0	0.0003	402	80.37%	0.0004	0.05%
	chromium	7440-47-3	0.0001	98	19.63%		
Cap and lead assembly	iron	7439-89-6	0.1262	158,645	23.51%	0.5369	67.48%
	copper	7440-50-8	0.4107	516,155	76.49%		
Termination plating	tin	7440-31-5	0.0154	19,400	100.00%	0.0154	1.94%
Under-coat	phenol, polymer w/ formaldehyde	9003-35-4	0.0003	400	100.00%	0.0003	0.04%
Over-coat	bisphenol a, epichlorohydrin polymer	25068-38-6	0.0731	91,900	100.00%	0.0731	9.19%
Total Weight			0.7956				

* Weights are approximate.



Material Declaration Data Sheet

RNMF14 (Formerly RNMF 1/4)

Mini - General Purpose Metal Film Resistor

Date: **November 9, 2012**

Max Temp: **260°C** (Contact factory for detailed soldering recommendations.)

Component Weight (g): **0.1292**

BOM Item	Material	CAS Number	Material Weight (g)	Material PPM of Component	Material % of BOM Item	BOM Item Weight (g)	BOM Item % of Component
Alumina core	aluminum oxide	1344-28-1	0.0226	174,663	96.00%	0.0235	18.19%
	silicon oxide	7631-86-9	0.0005	3,639	2.00%		
	magnesium oxide	1309-48-4	0.0002	1,819	1.00%		
	calcium oxide	1305-78-8	0.0002	1,819	1.00%		
Resistive element	nickel	7440-02-0	0.0000	255	97.72%	0.0000	0.03%
	chromium	7440-47-3	0.0000	6	2.28%		
Cap and lead assembly	iron	7439-89-6	0.0172	133,315	23.46%	0.0734	56.83%
	copper	7440-50-8	0.0562	434,982	76.54%		
Termination plating	tin	7440-31-5	0.0213	164,877	100.00%	0.0213	16.49%
Under-coat	phenol, polymer w/ formaldehyde	9003-35-4	0.0000	238	100.00%	0.0000	0.02%
Over-coat	bisphenol a, epichlorohydrin polymer	25068-38-6	0.0109	84,385	100.00%	0.0109	8.44%
Total Weight			0.1292				

* Weights are approximate.



Material Declaration Data Sheet

RNMF12 (Formerly RNMF 1/2)

Mini - General Purpose Metal Film Resistor

Date: **November 9, 2012**

Max Temp: **260°C** (Contact factory for detailed soldering recommendations.)

Component Weight (g): **0.2100**

BOM Item	Material	CAS Number	Material Weight (g)	Material PPM of Component	Material % of BOM Item	BOM Item Weight (g)	BOM Item % of Component
Alumina core	aluminum oxide	1344-28-1	0.0431	205,215	96.00%	0.0449	21.38%
	silicon oxide	7631-86-9	0.0009	4,275	2.00%		
	magnesium oxide	1309-48-4	0.0004	2,138	1.00%		
	calcium oxide	1305-78-8	0.0004	2,138	1.00%		
Resistive element	nickel	7440-02-0	0.0001	300	81.08%	0.0001	0.04%
	chromium	7440-47-3	0.0000	70	18.92%		
Cap and lead assembly	iron	7439-89-6	0.0329	156,508	23.46%	0.1401	66.72%
	copper	7440-50-8	0.1073	510,655	76.54%		
Termination plating	tin	7440-31-5	0.0041	19,356	100.00%	0.0041	1.94%
Under-coat	phenol, polymer w/ formaldehyde	9003-35-4	0.0001	280	100.00%	0.0001	0.03%
Over-coat	bisphenol a, epichlorohydrin polymer	25068-38-6	0.0208	99,066	100.00%	0.0208	9.91%
Total Weight			0.2100				

* Weights are approximate.