Chip Resistor Arrays/Networks

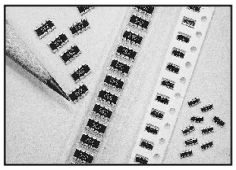
NRSN Series

FEATURES

- SUPER MINIATURE SIZE AND LOW PROFILE
- HIGH DENSITY PACKAGING OFFERS SIGNIFICANT SPACE SAVINGS
- LOWER PRODUCTION COSTS WITH LESS PLACEMENT (UP TO 8 RESISTORS IN ONE PACKAGE)
- STANDARD FOOTPRINTS MAKE CONVERSIONS EASY
- BOTH FLOW AND REFLOW SOLDERING APPLICABLE

RoHS Compliant
includes all homogeneous materials

*See Part Number System for Details



SPECIFICATIONS

Type	NRSNØ4I2		NRSNA4I2	NRSNØ4I4	NRSNA4I4	NRSNØ6I4	NRSNA6I4
Termination Type	Concave		Convex	Concave	Convex	Concave	Convex
Size W x L (mm)	1.0 x 1.0		1.0 x 1.0	1.0 x 2.0	1.0 x 2.0	1.6 x 3.2	
No. of Resistors & Circuit	2R Isolated		2R Isolated	4R Isolated	4R Isolated	4R Isolated	
Power Rating per Resistor @ +70°C	1/16 (.0625W)		1/16 (.0625W)	1/16 (.0625W)	1/16 (.0625W)	1/16 (.0625W)	
Resistance Tolerance	J(±5%) G(±2%) F(±1%)	J(±5%) G(±2%) F(±1%)	J(±5%) G(±2%)	J(±5%) G(±2%) F(±1%	J(±5%) G(±2%)	J(5%) G(2%) F(±1%)	
Resistance Range	3Ω ~ 9.1Ω	10Ω ~ 1MΩ	10Ω ~ 1MΩ	1Ω ~ 1MΩ	10Ω ~ 1MΩ	1Ω ~ 1MΩ	
Temperature Coeffieient	±650ppm	±250ppm	±250ppm	±200ppm	±200ppm	±200ppm	
Maximum Working Voltage*	25V					50V	
Maximum Overload Voltage	50V					100V	
Operating Temperature Range	-55°C ~ +125°C (derated as shown)						

Type	NRSNØ6C NRSNØ6D	NRSN12I4	
Termination Type	Concave	Concave	
Size W x L (mm)	3.1 x 6.4	3.0 x 5.1	
No. of Resistors & Circuit	8R Common	4R Isolated	
Power Rating per Resistor @ +70°C	1/8 (0.125W)		
Resistance Tolerance	J (5%)	J (5%)	G (2%)
Resistance Range	100Ω ~ 470KΩ	10Ω ~ 1MΩ	47Ω ~ 1MΩ
Temperature Coeffieient	±200ppm	±200ppm	±200ppm
Maximum Working Voltage*	50V	75V	
Maximum Overload Voltage	100V	125V	
Operating Temperature Range	-55°C ~ +125°C (derated as shown)		

* Maximum allowable continuous voltage for all resistors is the lower of the two values: "MAXIMUM WORKING VOLTAGE" as specified, or $\sqrt{\text{Power rating (WATTS) x Resistance (OHMS)}}$

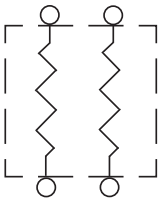
PART NUMBER SYSTEM (E-24 VALUES)

NRSN A 4I2 J 103 TR F
- F — RoHS compliant
- TR — Tape & Reel Packaging
- 103 — Resistance Code: First 2 figures are significant, 3rd digit is the multiplier, "R" indicates a decimal point.
- J — Tolerance Code: J=5%, G=2%, F=1%
- 4I2 — Configuration Designator (See circuit schematics and component diagrams for explanation)
- A — Termination Type (A=Convexed, Ø=Concaved)
- NRSN — Series

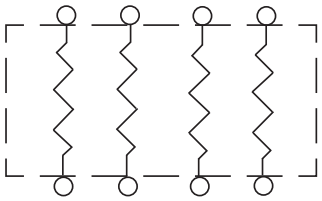
PART NUMBER SYSTEM (E-96 VALUES)

NRSN A 4I2 F 1002 TR F
- F — RoHS compliant
- TR — Tape & Reel Packaging
- 1002 — Resistance Code: First 3 figures are significant, 4th digit is the multiplier, "R" indicates a decimal point.
- F — Tolerance Code: F=1%
- 4I2 — Configuration Designator (See circuit schematics and component diagrams for explanation)
- A — Termination Type (A=Convexed, Ø=Concaved)
- NRSN — Series

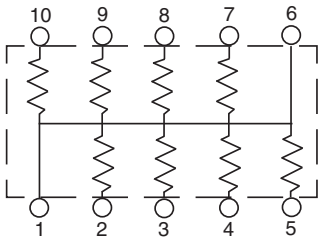
CIRCUIT SCHEMATICS



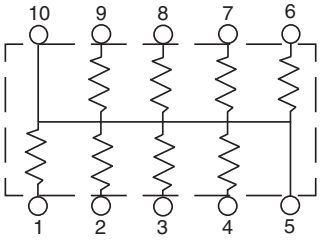
NRSNA4I2/∅4I2
Circuit Type "I"
Isolated



NRSNA4I4/∅4I
NRSNA6I/∅6I & NRSN12I
Circuit Type "I"
Isolated

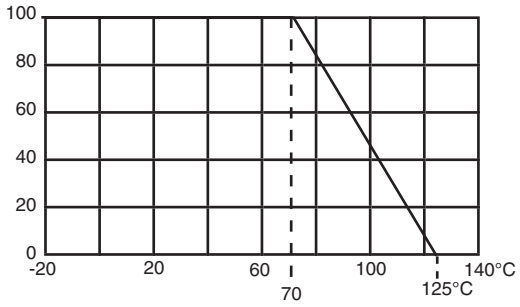


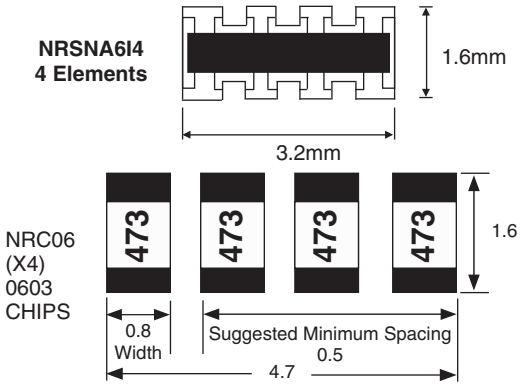
NRSN∅6C8
Circuit Type "C"
Bussed/Common



NRSN∅6D8
Circuit Type "D"
Bussed/Common

Power Derating Curve: For operation above 70°C, power rating must be derated according to the following chart:





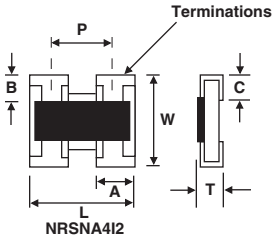
Note 1:

Zero ohm versions (R<0.050 ohms)
are available in the following parts:

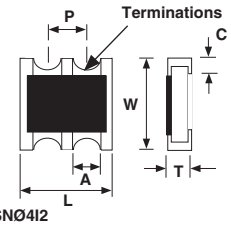
NRSNØ4I2ZOTR - 0.5A/element (no markings)
NRSNA4I2ZOTR - 0.5A/element (no markings)
NRSNØ4I4ZOTR - 0.5A/element (no markings)
NRSNA4I4ZOTR - 0.5A/element (marked "000")
NRSNØ6I4ZOTR - 1.0A/element (marked "000")
NRSNA6I4ZOTR - 1.0A/element (marked "000")
NRSN12I4ZOTR - 1.5A/element (marked "000")

PART DIMENSIONS (mm)

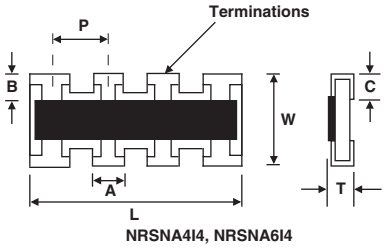
Type	W	L	P	T	A	B	C
NRSNA4I2	1.00 ± 0.20	1.00 ± 0.10	0.67 nom.	0.30 ± 0.05	0.33 ± 0.10	0.15 ± 0.10	0.25 ± 0.10
NRSNØ4I2	1.00 ± 0.20	1.00 ± 0.10	0.50 nom.	0.30 ± 0.10	0.30 ± 0.10	0.20 ± 0.10	0.25 ± 0.10
NRSNA4I4	1.00 ± 0.20	2.00 ± 0.10	0.50 nom.	0.40 ± 0.10	0.30 ± 0.10	0.20 ± 0.10	0.25 ± 0.10
NRSNØ4I4	1.00 ± 0.20	2.00 ± 0.10	0.50 nom.	0.40 ± 0.10	0.30 ± 0.10	0.15 ± 0.10	0.25 ± 0.10
NRSNA6I4	1.60 ± 0.15	3.20 ± 0.20	0.80 nom.	0.50 ± 0.10	0.50 ± 0.10	0.30 ± 0.15	0.30 ± 0.15
NRSNØ6I4	1.60 ± 0.15	3.20 ± 0.20	0.80 nom.	0.55 ± 0.10	0.50 ± 0.10	0.35 ± 0.15	0.45 ± 0.15
NRSNØ6C8	3.10 ± 0.20	6.40 ± 0.20	1.27 ± 0.20	0.60 ± 0.20	1.00 ± 0.20	0.55 ± 0.20	0.50 ± 0.20
NRSNØ6D8	3.10 ± 0.20	6.40 ± 0.20	1.27 ± 0.20	0.60 ± 0.20	1.00 ± 0.20	0.55 ± 0.20	0.50 ± 0.20
NRSN12I4	3.00 ± 0.20	5.08 ± 0.20	1.27 ± 0.20	0.70 ± 0.20	0.80 ± 0.20	0.60 ± 0.20	0.60 ± 0.20



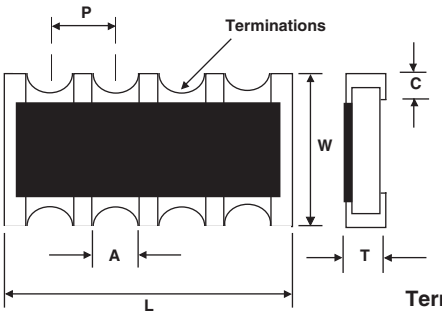
NRSNA4I2



NRSNØ4I2

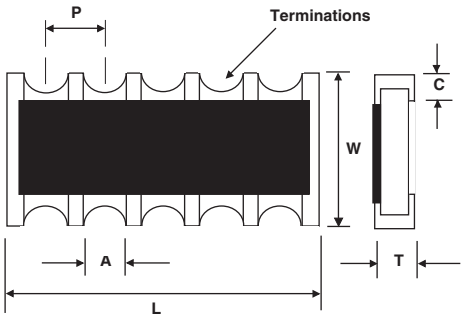


NRSNA4I4, NRSNA6I4



NRSNØ4I4, NRSNØ6I4, NRSN12I4

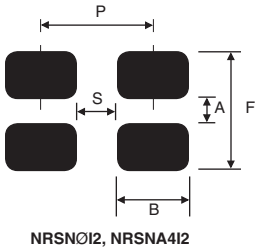
Terminations (all sizes):
100% Sn finish over Ni Barrier



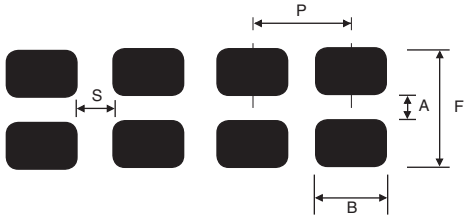
NRSNØ6D8, NRSNØ6C8

LAND PATTERN DIMENSIONS (mm)

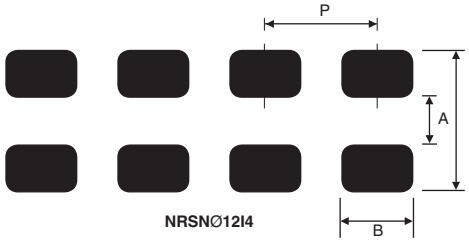
Type	Reflow Soldering					Flow Soldering			
	A	B	P	S	F	A	B	P	F
NRSNØ4I2	0.50	0.28	0.50	0.34	2.00	-	-	-	-
NRSNA4I2	0.50	0.33	0.67	0.34	2.00	-	-	-	-
NRSNØ4I4	0.50	0.28	0.50	0.22	2.00	-	-	-	-
NRSNA4I4	0.50	0.28	0.50	0.22	2.00	-	-	-	-
NRSNØ6I4J	1.00	0.40	0.80	0.40	2.60	0.7 ~ 0.9	0.3 ~ 0.35	0.8	4.6 ~ 5.6
NRSNA6I4J	1.00	0.40	0.80	0.40	2.60	0.7 ~ 0.9	0.3 ~ 0.35	0.8	4.6 ~ 5.6
NRSNØ6C8	2.20	0.50	1.27	-	4.20	1.9 ~ 2.1	0.5 ~ 0.55	1.27	5.6 ~ 6.2
NRSNØ6D8	2.20	0.50	1.27	-	4.20	1.9 ~ 2.1	0.5 ~ 0.55	1.27	5.6 ~ 6.2
NRSN12I4	2.20	0.790	1.27	-	4.20	1.0 ~ 1.2	0.4 ~ 0.45	1.27	5.6 ~ 6.2



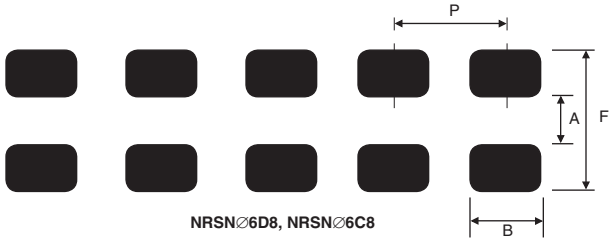
NRSNØI2, NRSNA4I2



NRSN04I4, NRSNA4I4, NRSN06I4 & NRSNA6I4



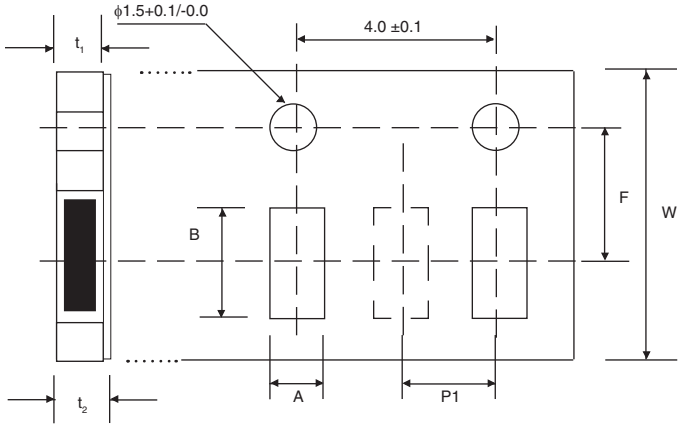
NRSNØ12I4



NRSNØ6D8, NRSNØ6C8

TAPE DIMENSIONS (mm)

Type	Material	A	B	F	p1	W	t_1	t_2
NRSN04I2	Paper	1.20 ± 0.1	1.207 ± 0.1	3.5 ± 0.05	2.0 ± 0.1	8.0 ± 0.2	0.5 max.	1.0 max
NRSNA4I2								
NRSN04I4 NRSNA4I4		1.20 ± 0.1	2.20 ± 0.1					
NRSN06I4 NRSNA6I4		1.90 ± 0.1	3.45 ± 0.1		4.0 ± 0.1		1.0 max.	1.4 max.
NRSN06C8 NRSN06D8	Plastic	3.5 ± 0.1	6.75 ± 0.1	5.5 ± 0.05		12.0 ± 0.2		
NRSN12I4			5.7 ± 0.1					



REEL DIMENSIONS (mm)

Type	A	B	C	D	E	W	Qty/Reel
NRSN04I2 NRSNA4I2 NRSN04I4 NRSNA4I4	ϕ180 -4.0/+3.0	ϕ60 -4.0/+3.0	ϕ13.0 ±2.0	ϕ21.0 ±1.0	2.0 ±0.5	8.0 ±0.2	10,000
NRSN06I4 NRSNA6I4						10 ±1.0	5,000
NRSN06C8 NRSN06D8						14 ±2.0	4,000
NRSN12I4							

