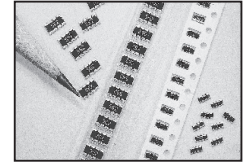


### FEATURES

- MINIATURE SIZE AND LOW PROFILE
- **ANTI-SULFUR & AEC-Q200 QUALIFIED**
- HIGH DENSITY PACKAGING OFFERS SIGNIFICANT SPACE SAVINGS
- LOWER PRODUCTION COSTS WITH LESS PLACEMENT  
(4 RESISTORS IN ONE PACKAGE)
- REFLOW SOLDERING APPLICABLE

**RoHS  
Compliant**  
includes all homogeneous materials



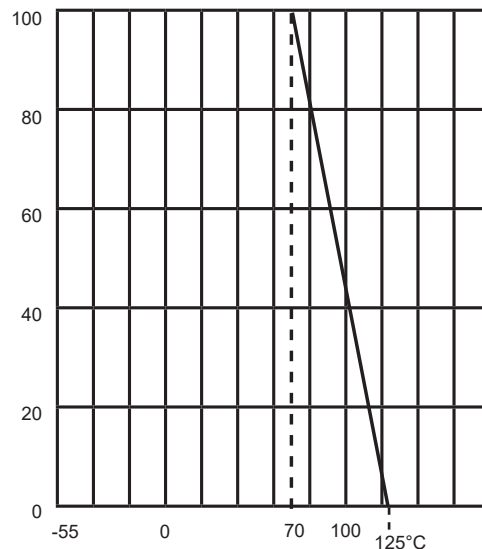
\*See Part Number System for Details

### SPECIFICATIONS

Type	NRSNSA4I4		NRSNSA6I4	
Termination Type	Convex		Convex	
Size W x L (mm)	1.0 x 2.0		1.6 x 3.2	
No. of Resistors & Circuit	4R Isolated		4R Isolated	
Power Rating per Resistor @ +70°C	1/16 (.0625W)		1/10 (.10W)	
Resistance Tolerance	F (±1%)	J (±5%)	F (±1%)	J (±5%)
Resistance Range	10Ω ~ 1MΩ		10Ω ~ 1MΩ	
Temperature Coefficient	±300ppm		±200ppm	
Maximum Working Voltage*	25V		50V	
Maximum Overload Voltage	50V		100V	
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  $\sqrt{\text{Power rating (WATTS)} \times \text{Resistance (OHMS)}}$

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



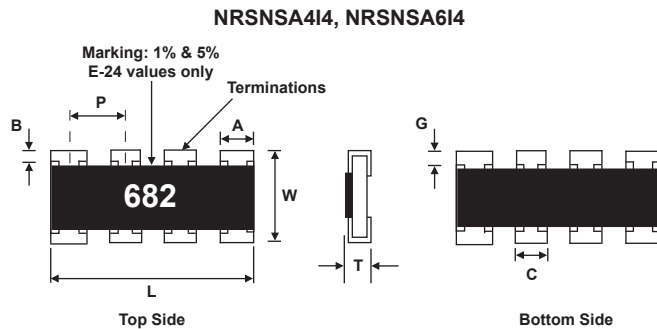
### ZERO OHM JUMPER SPECIFICATIONS

Part Number	NRSNSA4I4ZOTRQYF	NRSNSA6I4ZOTRQYF
Termination Type	Convex	Convex
Size W x L (mm)	1.0 x 2.0	1.6 x 3.2
No. of Resistors & Circuit	4R Isolated	4R Isolated
Power Rating @ +70°C	1/16W	1/10W
Max. Resistance	50mΩ	50mΩ
Rated Current	1A	1A
Peak Current	1.5A	3.0A
Operating Temperature	-55°C ~ +125°C (derated as shown)	

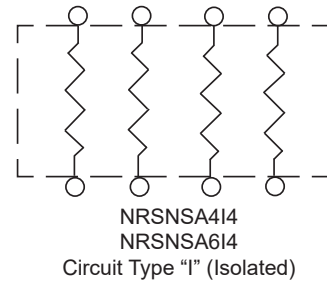


## PART DIMENSIONS (mm)

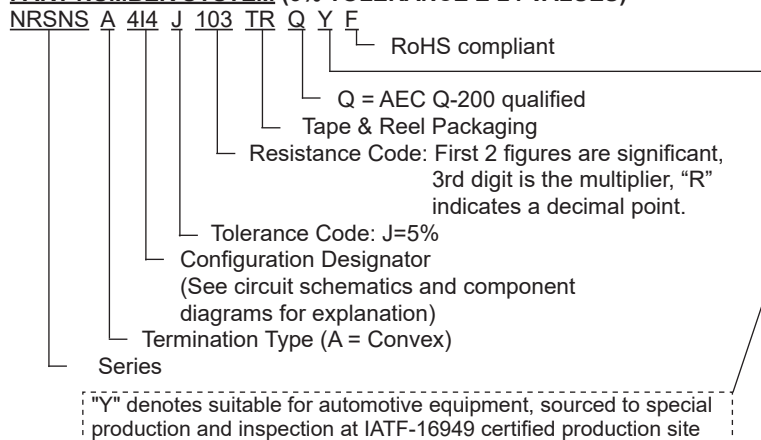
Type	W	L	P	T	A	B	C	G
NRSNSA414	1.00 ± 0.10	2.00 ± 0.10	0.50 ± 0.05	0.45 ± 0.10	0.40 ± 0.10	0.20 ± 0.10	0.30 ± 0.05	0.25 ± 0.10
NRSNSA614	1.60 ± 0.10	3.20 ± 0.10	0.80 ± 0.10	0.50 ± 0.10	0.60 ± 0.10	0.30 ± 0.10	0.40 ± 0.10	0.30 ± 0.20



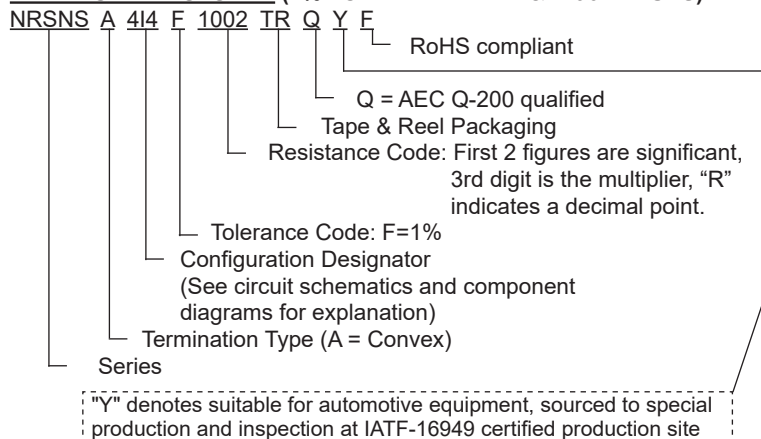
## CIRCUIT SCHEMATICS



### PART NUMBER SYSTEM (5% TOLERANCE E-24 VALUES)



### PART NUMBER SYSTEM (1% TOLERANCE E-24 & E-96 VALUES)



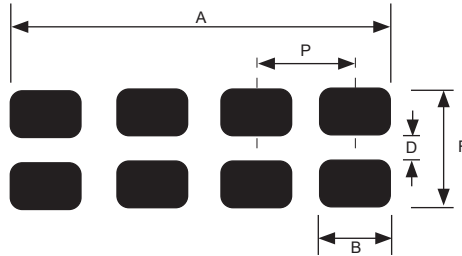
## ENVIRONMENTAL SPECIFICATIONS

Item	Specification		Test Method
	1% & 5% Tolerance	Zero Ohm Jumper	
DC Resistance & TCR JIS C5201-1 (1998) Clause 4.8	As specified	N/A	Resistance at reference temperature (+20°C +5°C -1°C) to test temperature
Resistance to Soldering Heat MIL-STD-202, Method 201	$\Delta R \pm 0.5\% + 0.05\Omega$	<50m $\Omega$	Unmounted chips completely immersed in SAC solder bath at 270°C $\pm$ 5°C for 10 sec. $\pm$ 1 sec.
Solderability J-STD-202	>95% coverage No visible damage		a) Bake sample @ +155°C for 4 hours, dip in solder bath at 235°C for 5 sec. b) Steam sample 1 hour, dip in solder bath at 260°C for 7 sec.
Temperature Cycling JESD22, Method JA-104	$\Delta R \pm 0.5\% + 0.05\Omega$	<50m $\Omega$	1,000 cycles, -55°C ~ +155°C, dwell time 5 ~ 10 minutes
Load Life MIL-STD-202, Method 108	$\Delta R \pm 1\% + 0.05\Omega$ No visible damage	<50m $\Omega$	1,000 hrs $\pm$ 48 hrs, +125°C $\pm$ 2°C, 35% of operating power
Humidity Load Life MIL-STD-202, Method 103	$\Delta R \pm 1\% + 0.05\Omega$ No visible damage	<50m $\Omega$	1,000 hrs $\pm$ 48 hrs, +85°C, 85%RH, 10% of operating power
Moisture Resistance MIL-STD-202, Method 106	$\Delta R \pm 1\% + 0.10\Omega$ No visible damage	<50m $\Omega$	10 cycles, 24 hours/cycle, +65°C $\pm$ 2°C, 80 ~ 100%RH
High Temperature Exposure MIL-STD-202, Method 108	$\Delta R \pm 1\% + 0.05\Omega$ No visible damage	<50m $\Omega$	1,000 hrs $\pm$ 48 hrs, +125°C $\pm$ 3°C, without load
Thermal Shock MIL-STD-202, Method 107	$\Delta R \pm 0.5\% + 0.05\Omega$ No visible damage	<50m $\Omega$	300 cycles, -55°C ~ +125°C, dwell time 15 minutes, maximum transfer time 20 seconds
Board Flex AEC-Q200-005	$\Delta R \pm 1.0\% + 0.05\Omega$ No visible damage	<50m $\Omega$	Resistors mounted on a 90mm glass epoxy resin PCB(FR4), bending once 2mm for 10 seconds
Vibration MIL-STD-202, Method 204	$\Delta R \pm 1.0\% + 0.05\Omega$ No visible damage	<50m $\Omega$	5g's for 20 minutes, 12 cycles each in 3 orientations
ESD AEC-Q200-002	$\Delta R \pm 1.0\% + 0.05\Omega$ No visible damage	<50m $\Omega$	Test contact 1KV
Terminal Strength AEC-Q200-006	No remarkable damage or removal of the termination		Force of 1Kg applied for 60 seconds $\pm$ 1 second


Note: Anti-Sulfur test conditions - H2S 3ppm, +40°C, 90% RH, 1000 hours ( $\pm$ 1% specification variation)

### LAND PATTERN DIMENSIONS (mm)

Type	Reflow Soldering				
	A	B	D	P	F
NRSNSA414	1.80 +0.15/-0.05	0.30 ± 0.05	0.50 ± 0.10	0.50	2.00 +0.40/-0.20
NRSNSA614	2.85 +0.10/-0.05	0.45 ± 0.05	0.80 ± 0.10	0.80	3.10±0.30

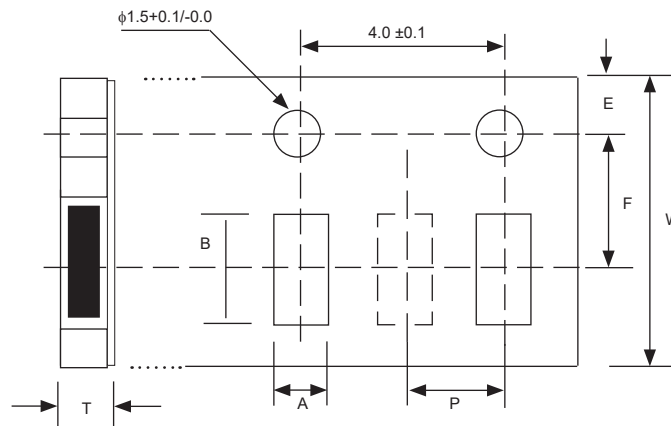


NRSNSA414 & NRSNSA614

 **Reflow Soldering Heat Profile and Limits**  
 → [www.niccomp.com/resource/files/resistive/NIC-ChipR-Reflow-Sept2020-Rev2.pdf](http://www.niccomp.com/resource/files/resistive/NIC-ChipR-Reflow-Sept2020-Rev2.pdf)  
 Wave soldering? – Please review your wave soldering process profile with NIC: [tpmg@niccomp.com](mailto:tpmg@niccomp.com)

### TAPE DIMENSIONS (mm)

Type	Material	A	B	E	F	P	W	T
NRSNSA414	Paper	1.20 ± 0.2	2.20 ± 0.2	1.75 ± 0.10	3.5 ± 0.20	2.0 ± 0.05	8.0 ± 0.3	0.6 max.
NRSNSA614		2.00 ± 0.2	3.60 ± 0.2			4.0 ± 0.1		1.0 max.



### REEL DIMENSIONS (mm)

Type	A	B	C	D	W	Qty/Reel
NRSNSA414	$\phi 178$	$\phi 60$	$\phi 13.0$	$\phi 21.0$	9.0	10,000
NRSNSA614	$\pm 2.0$	$\pm 1.0$	$\pm 0.2$	$\pm 1.0$	$\pm 0.5$	5,000

