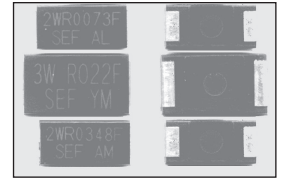


### FEATURES

- SURFACE MOUNTABLE, MOLDED FLAT PACK
- ULTRA LOW VALUES (3mΩ ~ 1Ω)
- EXTEND TEMPERATURE RANGE (+180°C)
- Pb-FREE REFLOW COMPATIBLE

**RoHS Compliant**  
includes all homogeneous materials

\*See Part Number System for Details



### CHARACTERISTICS

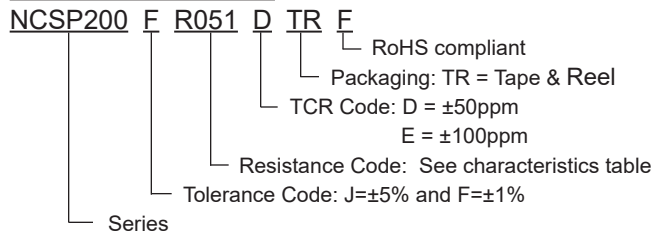
Type	Size	Power Rating at 70°C	Resistance Tolerance	Temperature Coefficient (°C)	Resistance Range	Resistance Range (Codes)	Operating Temp. Range (°C)
NCSP100S	6.3 x 3.2	1 Watt	1% (F) 5% (J)	For Values 0.051Ω ~ 0.100Ω: ±50ppm For Values <0.051Ω and >0.100Ω: ±100ppm	0.003Ω ~ 0.200Ω	R003 ~ R200	-55°C ~ +155°C
NCSP100L	7.5 x 4.5				0.003Ω ~ 0.510Ω	R003 ~ R510	
NCSP200	12.5 X 6.0	2 Watt	5% (J)	<0.051Ω and >0.100Ω: ±100ppm	0.005Ω ~ 1.000Ω	R005 ~ 1R00	-55°C ~ +180°C
NCSP300	14.5 X 8.0	3 Watt			0.005Ω ~ 1.800Ω	R005 ~ 1R80	

**Operating Voltage:**  $\sqrt{\text{Power rating (Watts)} \times \text{Resistance (Ohms)}}$

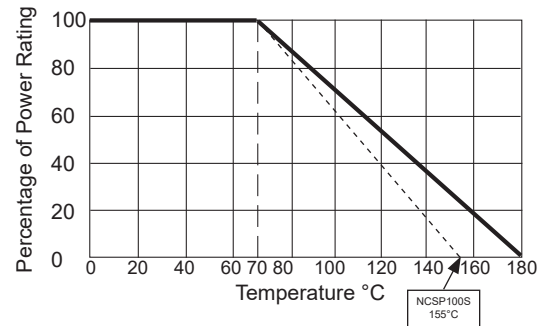
**Short Time Overload Voltage:**  $2x \sqrt{\text{Power rating (Watts)} \times \text{Resistance (Ohms)}}$

**Operating Current:**  $\sqrt{\text{Power rating (Watts)} / \text{Resistance (Ohms)}}$

### PART NUMBER SYSTEM

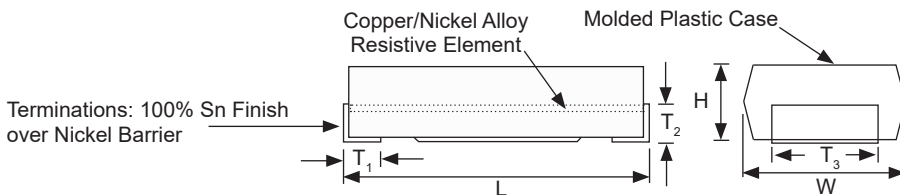


**Power Derating Curve:** For operation above 70°C, power rating must be derated according to the following chart:



### DIMENSIONS (mm)

Type	L ± 0.5	W ± 0.3	H ± 0.3	T <sub>1</sub> ± 0.3	T <sub>2</sub> ± 0.3	T <sub>3</sub> ± 0.3
NCSP100S	6.3	3.2	1.0	0.8	0.8	3.2
NCSP100L	7.5	4.5	2.0	1.2	1.1	2.5
NCSP200	12.5	6.0	3.0	2.0	1.5	4.0
NCSP300	14.5	8.0	3.0	2.0	1.5	6.0



## ENVIRONMENTAL SPECIFICATIONS

Item	Specification	Test Method
Temperature Coefficient of Resistance	As Specified	Measured from 20°C through a temperature range of -55°C ~ +125°C
Short Time Overload	$\Delta R < 0.5\%$	Applied voltage equivalent to 2x the rated power for 10 minutes
Withstanding Voltage (Between terminations and center of component body)	$\Delta R < 0.2\%$ with no evidence of insulation breakdown	500VAC for 1 minute
Insulation Resistance (Between terminations and center of component body)	$> 100M\Omega$	100VDC
Resistance to dry heat	$\Delta R < 0.5\%$	260°C $\pm$ 5°C for 10 seconds
Humidity (Steady State)	$\Delta R < 0.5\%$ IR $> 20M\Omega$ No Mechanical Damage	+40°C, 90~95% RH for 1,000 hours
Endurance (1,000 hours)	$\Delta R < 1.0\%$ No mechanical damage	Rated power at 70°C Power on 90 minutes Power off 30 minutes
Temperature Cycling (5 cycles)	$\Delta R < 0.5\%$ No mechanical damage	-55°C 30 minutes +25°C 3 minutes +155°C 30 minutes +25°C 3 minutes
Resistance to Soldering Heat	$\Delta R < 0.5\%$ No mechanical damage	260°C $\pm$ 5°C for 10 seconds
Vibration	$\Delta R < 0.5\%$ No mechanical damage	1.5mm in X, Y, Z axis 10Hz ~ 55Hz ~ 10Hz 1 minute sweep for 2 hours in each direction
Solderability	Coverage of more than 75% of termination	245°C $\pm$ 5°C for 2 seconds Solder: Sn3Ag0.5Cu

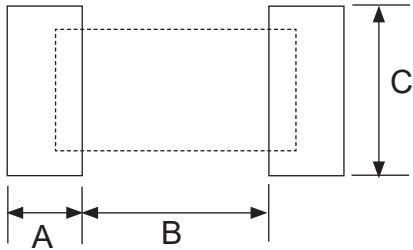
### LAND PATTERN DIMENSIONS (mm)

Type	A	B	C
NCSP100S	2.0	3.2	3.0
NCSP100L	2.0	4.5	3.0
NCSP200	2.8	7.9	4.5
NCSP300	2.8	9.9	6.5



#### Reflow Soldering Heat Profile and Limits

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



### EMBOSSED PLASTIC CARRIER DIMENSIONS (mm)

Type	A ±0.1	B ±0.1	P ±0.1	P <sub>1</sub> ±0.1	K ±0.1	W ±0.2	F ±0.1	E ±0.1	D <sub>0</sub> +0.1	T ±0.05
NCSP100S	3.6	6.8	8.0	4.0	1.3	12.0	5.5	1.75	1.50	0.3
NCSP100L	5.1	8.2			2.5	16.0	7.5			
NCSP200	6.6	13.2			3.5	24.0	11.5			
NCSP300	8.6	15.2	12.0							

### REEL DIMENSIONS (mm) AND QUANTITY

Type	A	B	C	W	Quantity
NCSP100S	180 ±2.0	60	13.0 ±0.5	13.0 ±0.5	1,000
NCSP100L				17.5 ±0.5	
NCSP200	254 ±0.3	80 ±0.5		25.5 ±0.5	
NCSP300	330 ±0.2				

