

FEATURES

- SURFACE MOUNT 0402,0603, 0805, 1206, 2010 & 2512 CASE SIZES
- RESISTANCE RANGE (100mΩ ~ 910mΩ)
- THIN FILM CONSTRUCTION
- TOLERANCE RANGE (±1%, ±2% & ±5%)
- REFLOW COMPATIBLE

**RoHS
Compliant**
includes all homogeneous materials

See Part Number System for Details



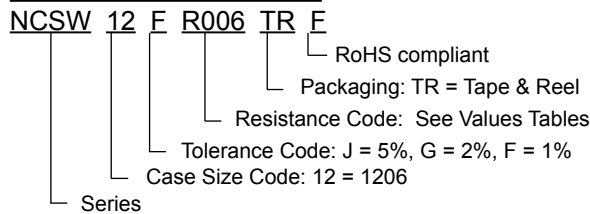
SEE PAGES 5 & 6 FOR SPECIFICATIONS ON 0815 & 0830 CASE SIZES

SPECIFICATIONS

Type	EIA Size	Power Rating at 70°C	Resistance Tolerance (Code)	Resistance Range*	Temperature Coefficient (ppm/°C, +25°C ~ +125°C)	Operating Temperature Range (°C)
NCSW04	0402	0.063W	±1% (F) ±2% (G) ±5% (J)	All Sizes 100mΩ ~ 910mΩ	100mΩ ~ 500mΩ ±300ppm 501mΩ ~ 910mΩ ±200ppm	-55°C ~ +155°C
NCSW06	0603	0.125W				
NCSW10	0805	0.25W				
NCSW12	1206	0.50W				
NCSW20	2010	0.75W				
NCSW25	2512	1.0W				

*Contact NIC regarding availability of values not shown

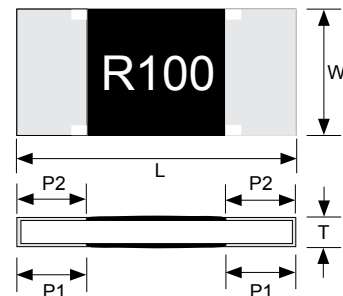
PART NUMBER SYSTEM



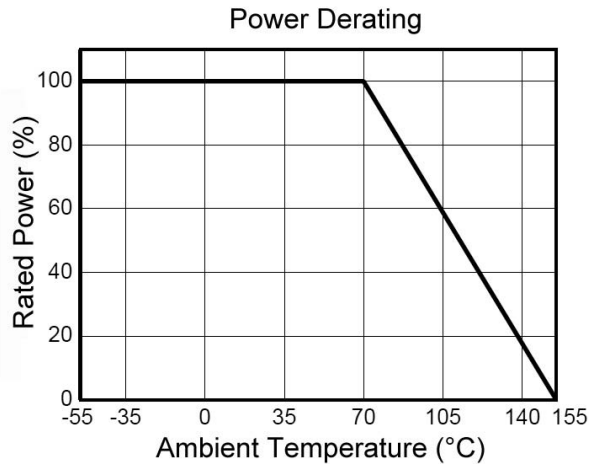
(0402 & 0603 parts are not marked)

COMPONENT DIMENSIONS AND MARKING

Case Size	L	W	T	P1	P2
0402	1.00 ± 0.10	0.50 ± 0.05	0.35 ± 0.05	0.25 ± 0.10	0.20 ± 0.10
0603	1.60 ± 0.10	0.80 ± 0.10	0.45 ± 0.10	0.35 ± 0.20	0.30 ± 0.20
0805	2.00 ± 0.10	1.25 ± 0.10	0.50 ± 0.10	0.35 ± 0.20	0.40 ± 0.20
1206	3.10 ± 0.20	1.55 ± 0.10	0.55 ± 0.10	0.40 ± 0.20	0.50 ± 0.30
2010	5.00 ± 0.20	2.50 ± 0.20	0.55 ± 0.10	0.50 ± 0.25	0.60 ± 0.30
2512	6.30 ± 0.20	3.20 ± 0.20	0.55 ± 0.10	0.50 ± 0.25	0.60 ± 0.30



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

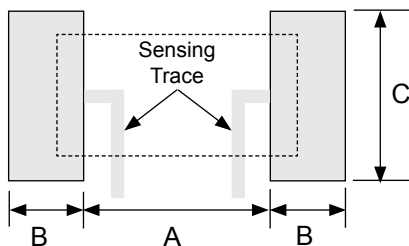


ENVIRONMENTAL CHARACTERISTICS

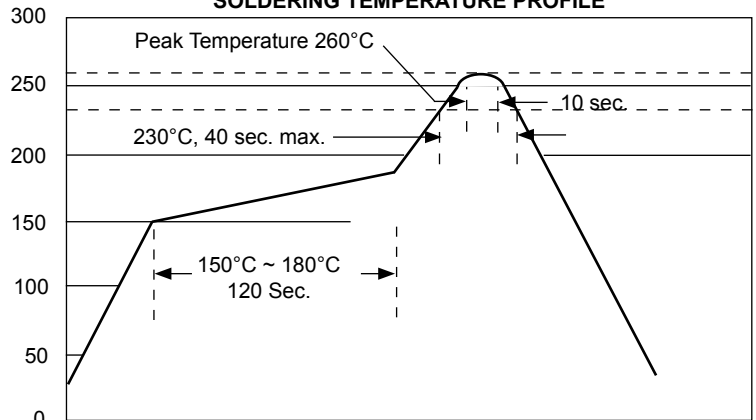
Item	Specification		Test Method	Reference Standard
	±1% tol.	±2% & ±5% tol.		
Temperature Coefficient of Resistance	Within specified value		-55°C ~ +125°C	IEC60115-1 4.8 JIS-C5201 4.8
Load Life	<±1% +0.001Ω	<±3% +0.001Ω	+70°C, 1,000 hours at rated power 1.5 hours ON, 0.5 hours OFF	IEC60115-1 4.25.1 JIS-C5201 4.25.1
Short Time Overload	<±1% +0.005Ω	<±3% +0.005Ω	2.5 x rated voltage for 5 seconds	IEC60115-1 4.13 JIS-C5201 4.13
Moisture Resistance (at rated voltage)	<±1% +0.001Ω	<±3% +0.001Ω	+40°C, 90~95% RH, 1000 hours 1.5 hours on, 0.5 hours off	IEC60115-1 4.24 JIS-C5201 4.24
Temperature Cycling	<±1% +0.005Ω		-55°C (30 minutes) & +155°C (30 minutes) 5 cycles	IEC60115-1 4.19 JIS-C5201 4.19
Resistance to Soldering Heat	<±1% +0.005Ω		+270°C ± 5°C for 10 sec. ±1 sec.	IEC60115-1 4.18 JIS-C5201 4.18
Solderability	At least 95% coverage of electrode surface		+245°C ± 5°C, 2 sec. ± 0.5sec. Sn 96.5 / Ag 3.0 / Cu 0.5	IEC60115-1 4.17 JIS-C5201 4.17
High Temperature Exposure	<±1% +0.005Ω	<±2% +0.005Ω	+155°C for 96 hours	IEC60115-1 4.23.2 JIS-C5201 4.23.2
Substrate Bending	<±1% +0.005Ω		0402 ~ 1206 3mm deflection 2010 & 2512 2mm deflection	IEC60115-1 4.33 JIS-C5201 4.33

RECOMMENDED LAND PATTERN DIM. (mm)

Case Size	A	B	C
0402	0.50 ~ 0.60	0.40 ~ 0.55	0.40 ~ 0.60
0603	0.70 ~ 0.90	0.55 ~ 0.75	0.80 ~ 1.00
0805	1.00 ~ 1.40	0.90 ~ 1.40	0.90 ~ 1.40
1206	2.00 ~ 2.40	1.00 ~ 1.50	1.20 ~ 1.80
2010	3.30 ~ 3.70	1.00 ~ 1.60	2.30 ~ 3.50
2512	3.60 ~ 4.00	1.80 ~ 2.50	2.30 ~ 3.50

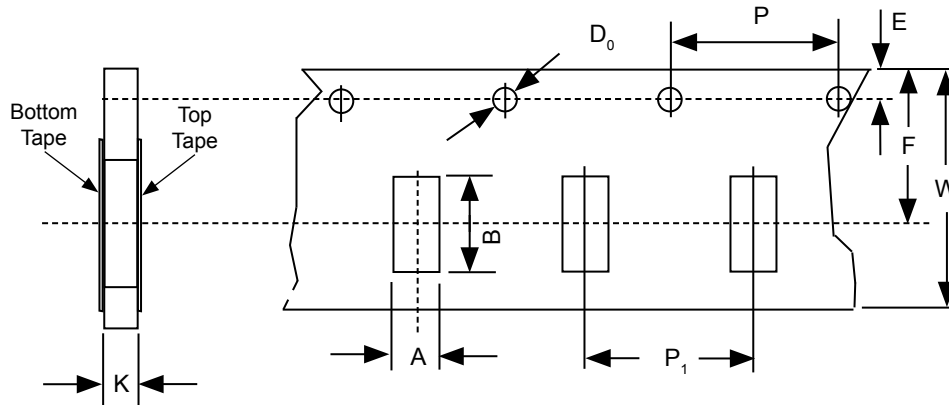


RECOMMENDED REFLOW SOLDERING TEMPERATURE PROFILE



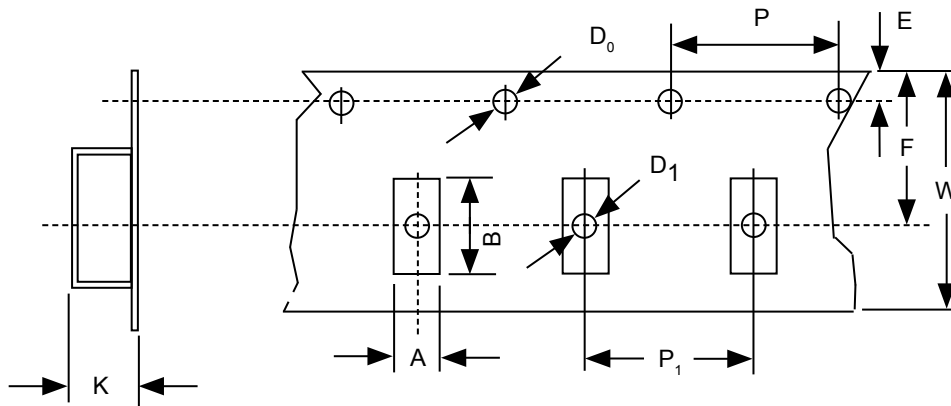
PAPER TAPE DIMENSIONS (mm)

Case Size	A	B	K	P	P ₁	E	F	D ₀	W	Quantity per Reel
0402	0.70 ± 0.05	1.20 ± 0.05	0.45 ± 0.10	4.0 ± 0.1	2.0 ± 0.1	1.75 ± 0.1	3.5 ± 0.05	1.50 ± 0.1	8.0 ± 0.2	10,000
0603	1.10 ± 0.10	1.90 ± 0.1	0.64 ± 0.10		4.0 ± 0.1					5,000
0805	1.60 ± 0.15	2.40 ± 0.2	0.85 ± 0.15							
1206	2.00 ± 0.15	3.60 ± 0.2								



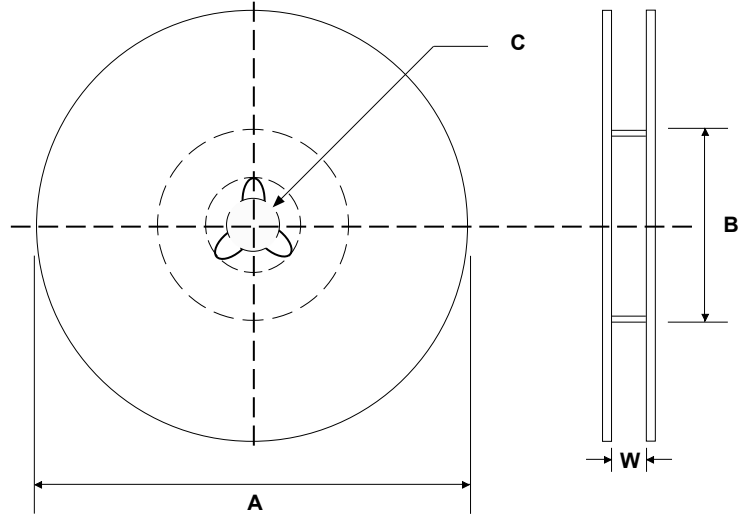
EMBOSED PLASTIC CARRIER DIMENSIONS (mm)

Case Size	A	B	K	P	P ₁	E	F	D ₀	W	Quantity per Reel
2010	2.80 ± 0.20	5.30 ± 0.2	0.85 ± 0.15	4.0 ± 0.1	4.0 ± 0.1	1.75 ± 0.1	5.5 ± 0.05	1.50 ^{+0.1} / ₀	12.0 ± 0.2	4,000
2512	3.60 ± 0.20	6.90 ± 0.2								4,000



REEL DIMENSIONS (mm) AND QUANTITY

Case Size	A	B	C	W	Quantity
0603	178 ±2.0	60 ±1.0	13 ±1.0	9.0 ±1.0	5,000
0805					5,000
1206					5,000
2010				13.0 ±1.0	4,000
2512				4,000	



FEATURES

- ULTRA LOW RESISTANCE VALUES
- PRECISION TOLERANCE AND TEMPERATURE STABILITY
- THIN FILM CONSTRUCTION
- IDEAL FOR CURRENT SENSING APPLICATIONS
- AVAILABLE IN 1 WATT ~ 2 WATT POWER RATINGS



RoHS Compliant
includes all homogeneous materials

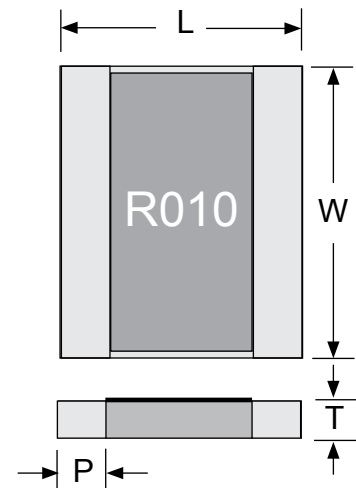
CHARACTERISTICS

*See Part Number System for Details

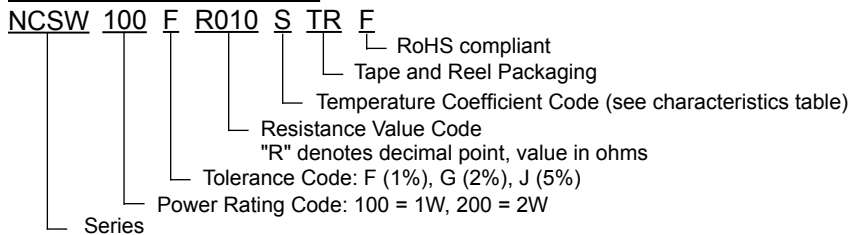
Type	size	Power Rating	Resistance Tolerance (Code)	Temperature Coefficient (ppm/°C)	Resistance Range (Ω)	Resistance Value	Operating Temperature Range (°C)	
NCSW100	0815	1W @ +70°C	1% (F), 2% (G)	±50 (Q), ±100 (R)	0.1 ~ 1.0	E-6	-55°C ~ +125°C	
				0 ~ +200 (S)	0.01 ~ 0.068			
				0 ~ +350 (T)	0.002 ~ 0.009			
NCSW200	0830	2W @ +30°C	±1% (F), 2% (G)	±50 (Q), ±100 (R)	0.1 ~ 0.47	E-6	-55°C ~ +155°C	
				±1% (F), 2% (G)	0 ~ +200 (S)			0.01 ~ 0.068
				±5% (J)	0 ~ +350 (T)			0.001 ~ 0.009

DIMENSIONS (mm)

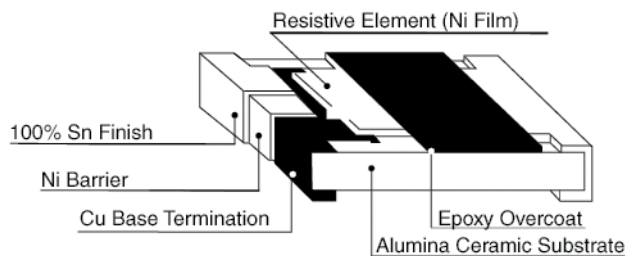
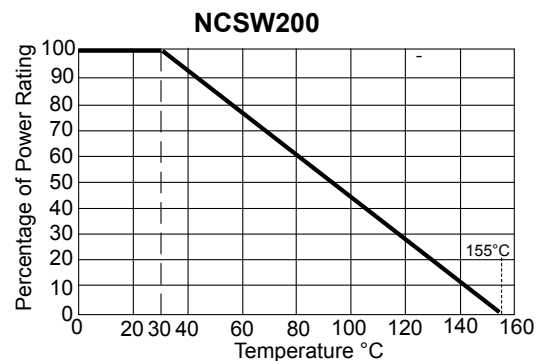
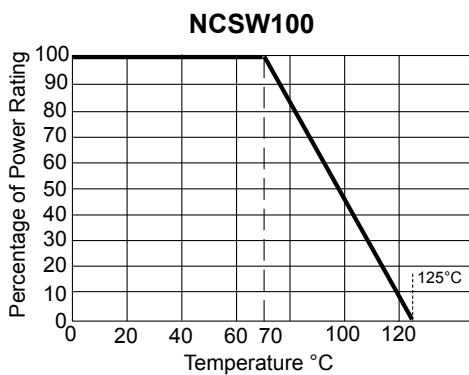
Series	W	L	T	P
NCSW100	3.75 ± 0.30	2.00 ± 0.20	0.55 max.	0.40 ± 0.20
NCSW200	7.50 ± 0.30	2.00 ± 0.20	0.55 max.	0.40 ± 0.20



PART NUMBER SYSTEM

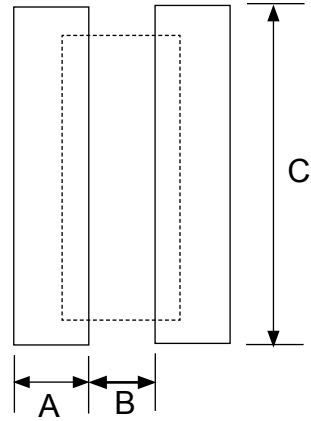


Power Derating Curve: For operation above +70°C for NCSW100 and +30°C for NCSW200, power rating must be derated according to the following chart:



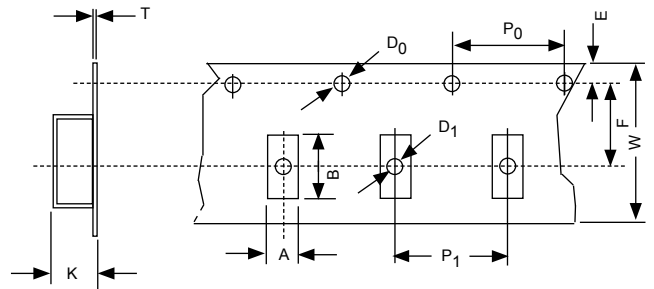
LAND PATTERN DIMENSIONS (mm)

Type	A	B	C
NCSW100	1.4	1.2	7.9
NCSW200	1.4	1.2	15.8



EMBOSSED PLASTIC CARRIER DIMENSIONS (mm)

Type	A ± 0.1	B ± 0.2	W ± 0.3	F ± 0.10	E ± 0.1	P ₀ ± 0.1	P ₁ ± 0.1	φD ± 0.05	φD ₁ ± 0.05	T ± 0.05	K ± 0.2
NCSW100	2.40	4.25	12.0	5.50	1.75	4.0	4.0	1.55	-	0.3	0.7
NCSW200	2.40	8.00	16.0	7.50					-		



REEL DIMENSIONS (mm) AND QUANTITY

Type	A	B	C	W	Quantity
NCSW100	180 +3/-0	60 +1/-0	13.0 ± 0.2	9.0 ± 0.3	4,000
NCSW200				17.0 ± 0.3	4,000

