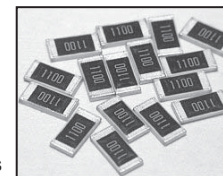


FEATURES

- **GOLD INNER ELECTRODE FOR SUPERIOR ANTI-CORROSION PROPERTIES**
- EIA STANDARD SIZING 0402, 0603, 0805, 1206, 1210, 2010 AND 2512
- SUIT FOR HIGH RELIABILITY APPLICATIONS IN HARSH ENVIRONMENTS
- ALL SIZES ARE AVAILABLE IN TAPE/REEL FOR AUTOMATIC MOUNTING
- SAC REFLOW SOLDERABLE (THREE TIMES AT 260°C FOR 10 SECONDS)

RoHS
Compliant
includes all homogeneous materials

*See Part Number System for Details



SPECIFICATIONS

Type	EIA Size	Power Rating at 70°C	Max. *1 Working Voltage	Max. *2 Overload Voltage	Resistance Tolerance Code	Temperature Coefficient (ppm/°C)	Resistance Range (Ω)*3	Resistance Values	Operating Temperature Range
NRC-S04	0402	0.063W	50V	100V	±1%(F), ±2%(G), ±5%(J)	±200	10 ~ 1M	E-24 & E-96	-55°C ~ +155°C
						±350	3.9 ~ 9.1 1.1M ~ 22M		
						0 ~ +600	1.0 ~ 3.6		
NRC-S06	0603	0.10W			±1%(F)	±100	10 ~ 1M	E-24 & E-96	
					±2%(G), ±5%(J)	±200	10 ~ 1M	E-24	
					±1%(F), ±2%(G), ±5%(J)	±350	1.0 ~ 9.1 1.1M ~ 22M	E-24 & E96	
NRC-S10	0805	0.125W	150V	300V	±1%(F)	±100	10 ~ 1M	E-24 & E-96	
					±2%(G), ±5%(J)	±200	10 ~ 1M	E-24	
					±1%(F), ±2%(G), ±5%(J)	±250	3.9 ~ 9.1 1.1M ~ 5.1M	E-24 & E96	
						±350	1.0 ~ 3.6 5.6M ~ 22M	E-24 & E96	
NRC-S12	1206	0.25W	200V	400V	±1%(F)	±100	10 ~ 1M	E-24 & E-96	
					±2%(G), ±5%(J)	±200	10 ~ 1M	E-24	
					±1%(F), ±2%(G), ±5%(J)	±250	3.9 ~ 9.1 1.1M ~ 5.1M	E-24 & E96	
						±350	1.0 ~ 3.6 5.6M ~ 22M	E-24 & E96	
NRC-S25	1210	0.25W			±1%(F)	±100	10 ~ 1M	E-24 & E-96	
					2%(G), 5%(J)	±200	10 ~ 1M	E-24	
					±1%(F), ±2%(G), ±5%(J)	±250	3.9 ~ 9.1	E-24 & E96	
						±350	1.0 ~ 3.6	E-24 & E96	
NRC-S50	2010	0.50W			±1%(F)	±100	10 ~ 1M	E-24 & E-96	
					±2%(G), ±5%(J)	±200	10 ~ 1M	E-24	
					±1%(F), ±2%(G), ±5%(J)	±250	2.2 ~ 9.1	E-24 & E96	
						±350	1.0 ~ 2.0	E-24 & E96	
NRC-S100	2512	1.0W	±1%(F)	±100	10 ~ 1M	E-24 & E-96			
			±2%(G), ±5%(J)	±200	10 ~ 1M	E-24			
			±1%(F), ±2%(G), ±5%(J)	±250	2.2 ~ 9.1	E-24 & E96			
				±350	1.0 ~ 2.0	E-24 & E96			

Note *1 - Maximum allowable continuous Working Voltage for all resistors is the lower of the two values:

"Maximum Working Voltage" as specified above or the result of the following formula

$$\sqrt{\text{Power rating (Watts)} \times \text{Resistance (Ohms)}}$$

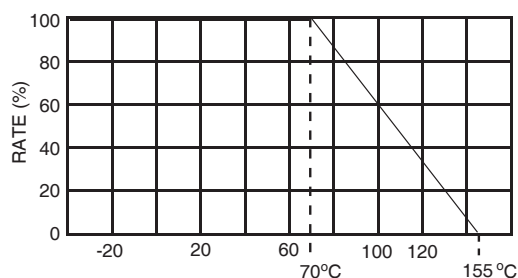
Note *2 - "Maximum Overload Voltage" for all resistors is the lower of the two values:

"Maximum Overload Voltage" as specified above or 2x the result of the following formula

$$\sqrt{\text{Power rating (Watts)} \times \text{Resistance (Ohms)}}$$

Note *3 - 11Meg ~ 22Meg only available in E-24 values

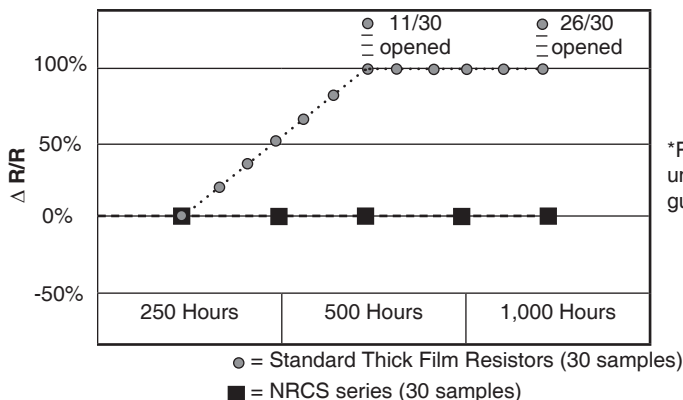
Power Derating Curve: For operation above 70°C, power rating must be derated according to the following chart:



ZERO OHM JUMPER RATINGS

Jumper	EIA Size	Power Rating at 70°C	Current Rating	Overload Current Rating	Maximum Resistance	Operating Temperature Range
NRC-S04ZO	0402	0.063W	1.0A	2.0A	50mΩ	-55°C ~ +155°C
NRC-S06ZO	0603	0.10W	1.0A	2.0A		
NRC-S10ZO	0805	0.125W	2.0A	4.0A		
NRC-S12ZO	1206	0.25W				
NRC-S25ZO	1210	0.25W				
NRC-S50ZO	2010	0.50W				
NRC-S100ZO	2512	1.0W	2.5A	5.0A		

Typical Performance*
(After immersions in cutting fluid with 0.5% Sulfur content)



PART NUMBER SYSTEM (E-24 VALUES)

NRC-S 12 J 103 TR F

- Series
- Size
- Tolerance Code: G=±2% and J=±5%
- Resistance Code: First 2 figures are significant, 3rd digit is the multiplier, "R" indicates a decimal point.
- Tape & Reel Packaging
- RoHS compliant

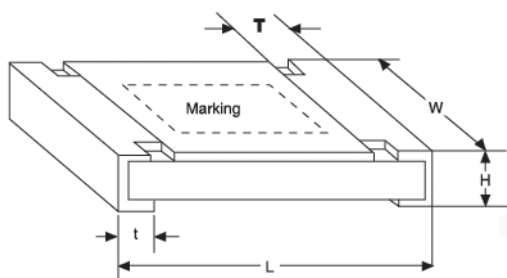
PART NUMBER SYSTEM (E-96 VALUES)

NRC-S 12 F 1002 TR F

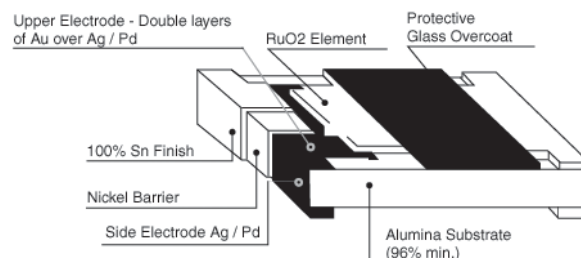
- Series
- Size
- Tolerance Code: F=±1%
- Resistance Code: First 3 figures are significant, 4th digit is the multiplier, "R" indicates a decimal point.
- Tape & Reel Packaging
- RoHS compliant

DIMENSIONS (mm)

Type	EIA Size	L	W	H	T	t
NRC-S04	0402	1.0 ± 0.05	0.50 ± 0.05	0.35 ± 0.05	0.2 ± 0.1	0.25 ^{+0.06} _{-0.05}
NRC-S06	0603	1.60 ± 0.15	0.80 ± 0.15	0.45 ± 0.10	0.30 ± 0.20	0.30 ± 0.20
NRC-S10	0805	2.00 ± 0.20	1.25 ± 0.10	0.50 ± 0.10	0.40 ± 0.20	0.40 ± 0.20
NRC-S12	1206	3.20 ^{+0.06} _{-0.05}	1.60 ^{+0.05} _{-0.15}	0.60 ± 0.10	0.50 ± 0.25	0.50 ± 0.20
NRC-S25	1210	3.2 ± 0.20	2.50 ^{+0.2} _{-0.1}	0.60 ± 0.10	0.50 ± 0.25	0.50 ± 0.20
NRC-S50	2010	5.0 ± 0.2	2.5 ± 0.15	0.6 ± 0.1	0.6 ± 0.2	0.5 ± 0.3
NRC-S100	2512	6.3 ± 0.2	3.2 ± 0.2	0.6 ± 0.1	0.7 ± 0.2	0.7 ± 0.2



CONSTRUCTION



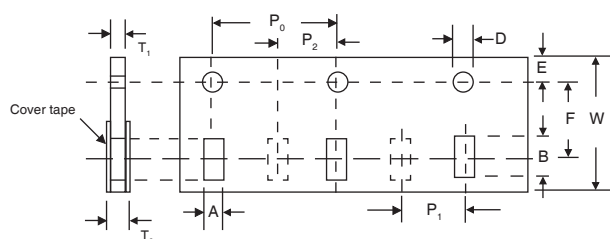
STANDARD E-12, E-24, E-96 VALUES AND 0603 RESISTANCE CODES

E-12	E-24	E-96										
Value	Value	Value	Code		Value	Code		Value	Code		Value	Code
10	100	100	01		102	02		105	03		107	04
12	110	110	05		113	06		115	07		118	08
15	120	121	09		124	10		127	11		130	12
18	130	133	13		137	14		140	15		143	16
22	150	147	17		150	18		154	19		158	20
27	160	162	21		165	22		169	23		174	24
33	180	178	25		182	26		187	27		191	28
39	200	196	29		200	30		205	31		210	32
47	220	215	33		221	34		226	35		232	36
56	240	237	37		243	38		249	39		255	40
68	270	261	41		267	42		274	43		280	44
82	300	287	45		294	46		301	47		309	48
91	330	316	49		324	50		332	51		340	52
	360	348	53		357	54		365	55		374	56
	390	383	57		392	58		402	59		412	60
	430	422	61		432	62		442	63		453	64
	470	464	65		475	66		487	67		499	68
	510	511	69		523	70		536	71		549	72
	560	562	73		576	74		590	75		604	76
	620	619	77		634	78		649	79		665	80
	680	681	81		698	82		715	83		732	84
	750	750	85		768	86		787	87		806	88
	820	825	89		845	90		866	91		887	92
	910	909	93		931	94		953	95		976	96

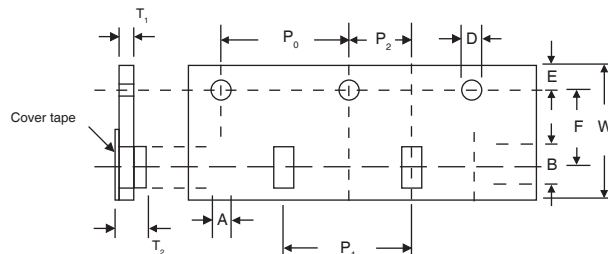
CARRIER TAPE DIMENSIONS (mm)

Type	EIA Case Size	Carrier Material	A	B	W	F	E	P ₁	P ₂	P ₀	D ₀	t ₂	t ₁
NRC-S04	0402	Paper	0.65 ±0.10	1.15 ±0.10	8.0 ±0.20	3.50 ±0.05	1.75 ±0.05	2.00 ±0.05	n/a	4.00 ±0.10	1.50 ^{+0.10} ₋₀	1.00 max.	0.5 max.
NRC-S06	0603		1.10 ±0.20	1.90 ±0.20				4.00 ±0.10	2.00 ±0.05				1.0 max.
NRC-S10	0805		1.65 ±0.20	2.40 ±0.20									
NRC-S12	1206		2.00 ±0.20	3.50 ±0.20									
NRC-S25	1210		2.85 ±0.20	3.50 ±0.20									
NRC-S50	2010	Embossed Plastic	2.90 ±0.20	5.40 ±0.20	12.0 ±0.20	5.50 ±0.05						1.10 max.	0.25 max.
NRC-S100	2512		3.40 ±0.20	6.60 ±0.20									

PAPER CARRIER

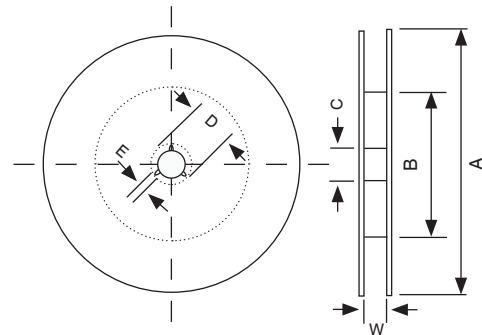


EMBOSSED PLASTIC CARRIER



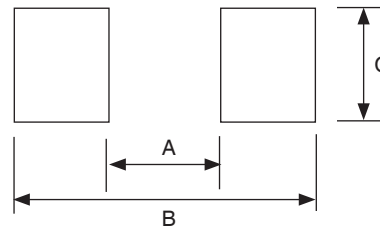
REEL DIMENSIONS (mm)

Type	EIA Case Size	A	B	C	D	E	W	Qty
NRC-S04	0402	180 +0.0 -3.0	60 +1.0 -3.0	13.0 ±0.20	21.0 ±0.80	2.0 ±0.50	9.00 ±0.30	10,000
NRC-S06	0603							5,000
NRC-S10	0805							
NRC-S12	1206							
NRC-S25	1210							
NRC-S50	2010	180 +0.0 -3.0	60 +1.0 -3.0	13.0 ±0.20	21.0 ±0.80	2.0 ±0.50	13.0 ±0.30	4,000
NRC-S100	2512							



LAND PATTERN DIMENSIONS (mm)

Type	EIA Case Size	A	B	C
NRC-S04	0402	0.5	1.3	0.5
NRC-S06	0603	0.9	2.6	0.7
NRC-S10	0805	1.35	3.45	1.1
NRC-S12	1206	2.2	4.7	1.4
NRC-S25	1210	2.2	5.2	2.15
NRC-S50	2010	3.7	6.2	2.15
NRC-S100	2512	4.7	7.6	2.75



REFLOW SOLDERING TEMPERATURE PROFILE

