

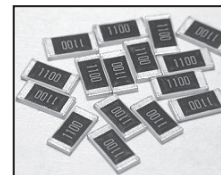
Sulfur Resistant Thick Film Chip Resistors

NRC-S Series

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)
- **AEC-Q200 QUALIFIED**

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	0.10W	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 ~ 10M		
						±400	1.0 ~ 3.6		
NRC-S06	0603	0.10W	50V	100V	±1%(F), ±2%(G), ±5%(J)	±200	10 ~ 1M	E-24 & E-96	
						±350	1.0 ~ 9.1 1.1M ~ 10M	E-24 & E96	
							11M ~ 22M	E-24	
NRC-S10	0805	0.125W	150V	300V	±1%(F), ±2%(G), ±5%(J)	±200	10 ~ 1M	E-24 & E-96	
						±250	3.9 ~ 9.1 1.1M ~ 5.1M	E-24 & E96	
							±350	1.0 ~ 3.6 5.6M ~ 10M	
NRC-S12	1206	0.25W	200V	400V	±1%(F), ±2%(G), ±5%(J)	±200	10 ~ 1M	E-24 & E96	
						±250	3.9 ~ 9.1 1.1M ~ 5.1M	E-24 & E96	
							±350	1.0 ~ 3.6 5.6M ~ 10M	E-24 & E96
NRC-S25	1210	0.50W	200V	400V	±1%(F), ±2%(G), ±5%(J)	±200	10 ~ 1M	E-24	
						±250	3.9 ~ 9.1	E-24 & E96	
							±350	1.0 ~ 3.6	E-24 & E96
NRC-S50	2010	0.75W	200V	400V	±1%(F), ±2%(G), ±5%(J)	±200	10 ~ 1M	E-24	
						±250	2.2 ~ 9.1	E-24 & E96	
							±350	1.0 ~ 2.0	E-24 & E96
NRC-S100	2512	1.0W	200V	400V	±1%(F), ±2%(G), ±5%(J)	±200	10 ~ 1M	E-24	
						±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

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

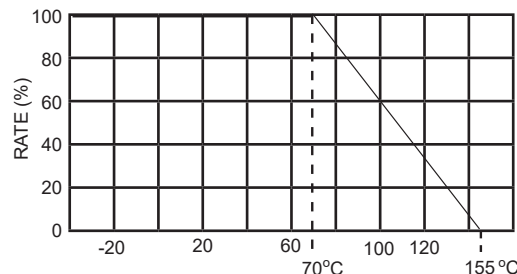
Note *2 - "Maximum Overload Voltage" for all resistors is the lower of the two values:

"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 5% tolerance

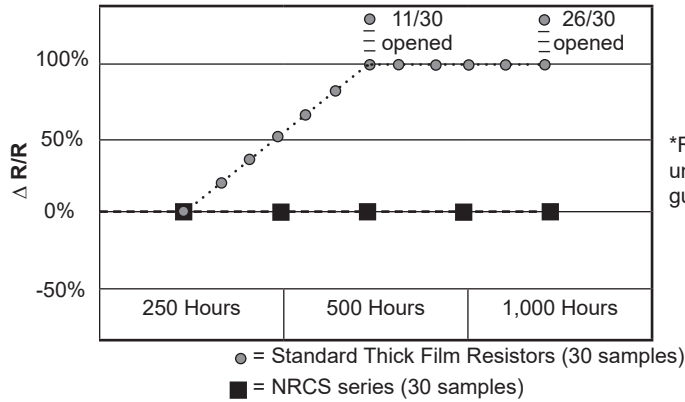
Power Derating Curve: For operation above 70°C, power rating must be derated according to the following chart:



ZERO OHM JUMPER RATINGS

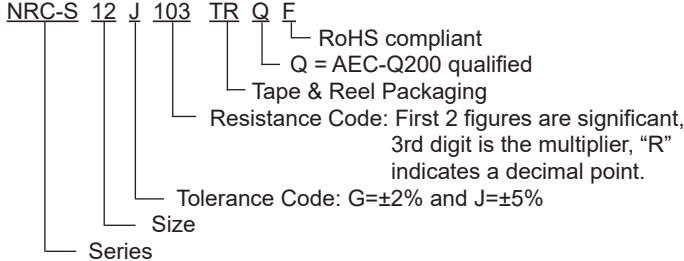
Jumper	EIA Size	Current Rating	Overload Current Rating	Maximum Resistance	Operating Temperature Range
NRC-S04ZOTRQF	0402	1.0A	2.0A	100mΩ	-55°C ~ +155°C
NRC-S06ZOTRQF	0603	1.0A	2.0A		
NRC-S10ZOTRQF	0805	2.0A	4.0A		
NRC-S12ZOTRQF	1206			50mΩ	
NRC-S25ZOTRQF	1210				
NRC-S50ZOTRQF	2010				
NRC-S100ZOTRQF	2512	2.5A	5.0A		

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

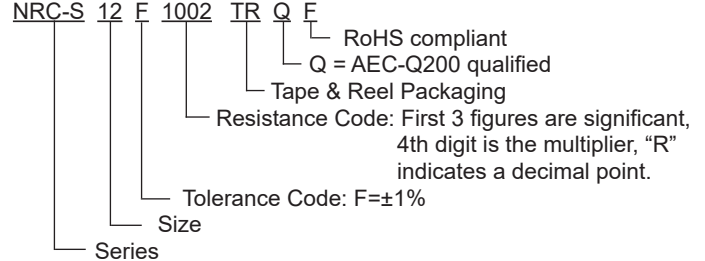


*Referential performance measured under certain preconditions and not guaranteed.

PART NUMBER SYSTEM (E-24 VALUES)



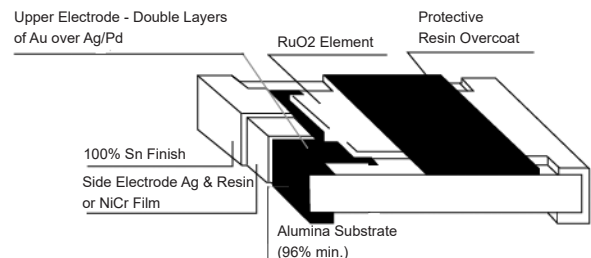
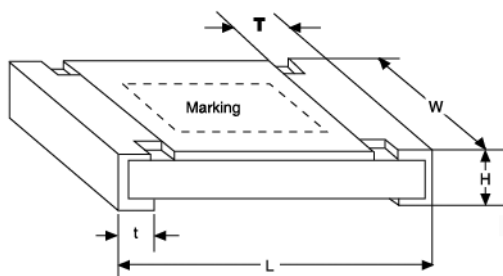
PART NUMBER SYSTEM (E-96 VALUES)



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



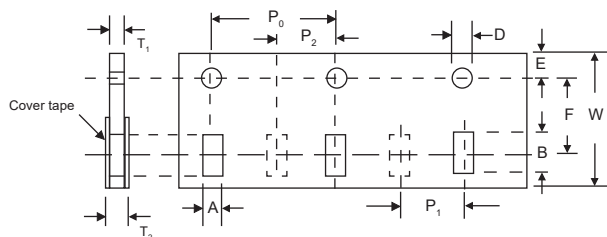
STANDARD E-12, E-24, E-96 VALUES AND 0603 RESISTANCE CODES

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

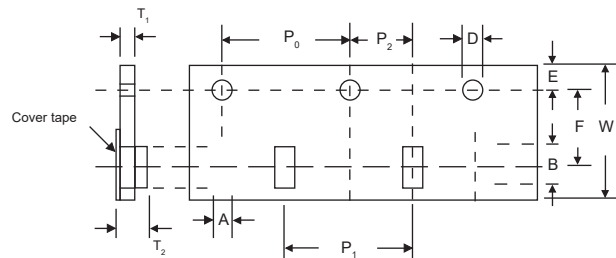
CARRIER TAPE DIMENSIONS (mm)

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	2.00 ±0.05	4.00 ±0.10	1.50 ^{+0.10} ₋₀	0.5 max
NRC-S06	0603		1.10 ±0.20	1.90 ±0.20				1.00 max.	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

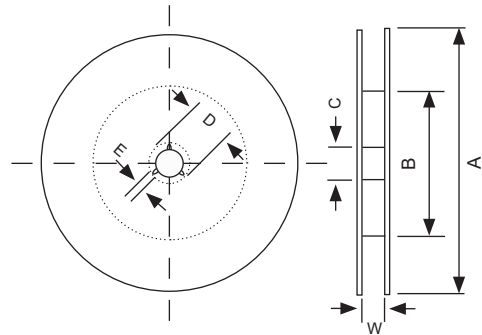


EMBOSSED PLASTIC CARRIER



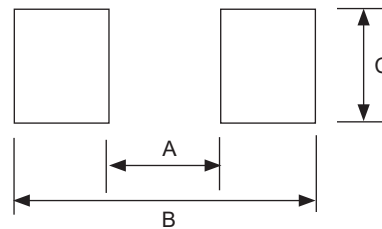
REEL DIMENSIONS (mm)

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							
NRC-S100	2512						13.0 ± 0.30	4,000



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 Heat Profile and Limits

→ 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