

Features

- RSTNF – Precision Thin Film
- RSTNF – 0201, 0402, 0603, 0805 packages
- Tight tolerance down to $\pm 0.1\%$
- Extremely low TCR down to $\pm 25 \text{ PPM}/^\circ\text{C}$
- Resistance values from 1 ohm to 1M ohm
- High purity alumina substrate for high power dissipation

RS PRO Thin Film Chip Resistors RSTNF Series

RS Stock No.:

243-0392, 243-0393, 243-0394, 243-0395, 243-0397, 243-0398, 243-0399, 243-0400, 243-0401, 243-0402, 243-0404, 243-0405, 243-0406, 243-0407, 243-0408, 243-0409, 243-0410, 243-0411, 243-0412, 243-0413, 243-0414, 243-0415, 243-0416, 243-0417, 243-0418, 243-0420, 243-0421, 243-0422, 243-0423, 243-0424, 243-0426, 243-0427, 243-0428, 243-0429, 243-0430, 243-0432, 243-0433, 243-0434, 243-0435, 243-0436, 243-0437, 243-0438, 243-0439, 243-0440, 243-0441, 243-0442, 243-0443, 243-0444, 243-0445, 243-0446, 243-0448, 243-0449, 243-0450, 243-0451, 243-0452, 243-0454, 243-0455, 243-0456, 243-0457, 243-0458, 243-0459, 243-0460, 243-0461, 243-0462, 243-0463, 243-0464, 243-0465, 243-0466, 243-0467, 243-0468, 243-0470, 243-0471, 243-0472, 243-0473, 243-0474, 243-0476, 243-0477, 243-0478, 243-0479, 243-0480, 243-0482, 243-0483, 243-0484, 243-0485, 243-0486, 243-0487, 243-0488, 243-0489, 243-0490, 243-0491, 243-0492, 243-0493, 243-0494, 243-0495, 243-0496, 243-0497, 243-0498, 243-0499, 243-0500, 243-0501, 243-0502, 243-0503, 243-0504, 243-0505, 243-0506, 243-0507, 243-0508, 243-0509



RS PRO is the own brand of RS. The RS PRO Seal of Approval is your assurance of professional quality, a guarantee that every part is rigorously tested, inspected, and audited against demanding standards. Making RS PRO the Smart Choice for our customers.

Product Description

Applications Include:

- Medical Equipment
- Testing/Measurement Equipment
- Printer Equipment
- Automatic Equipment Controller
- Converters
- Communication Device, Cell Phone, GPS, PDS

Dimensions

Type	RS Article	Size (Inch)	L	W	T	D1	D2	Weight (g) (1000pcs)
RSTNF01	2430392	0201	0.58±0.05	0.29±0.05	0.23±0.05	0.12±0.05	0.15±0.05	0.14
	2430394							
	2430397							
	2430399							
	2430401							
	2430404							
	2430406							
	2430408							
	2430410							
	2430412							
	2430392							
	2430394							
	2430397							
2430399								
2430401								
2430404								
2430406								
2430408								
2430410								
2430412								
RSTNF02	2430414	0402	1.00±0.05	0.50±0.05	0.30±0.05	0.20±0.10	0.20±0.10	0.54
	2430416							
	2430418							
	2430421							
	2430423							
	2430426							
	2430428							
	2430430							
	2430433							
	2430435							
	2430437							
	2430439							
	2430441							
2430443								

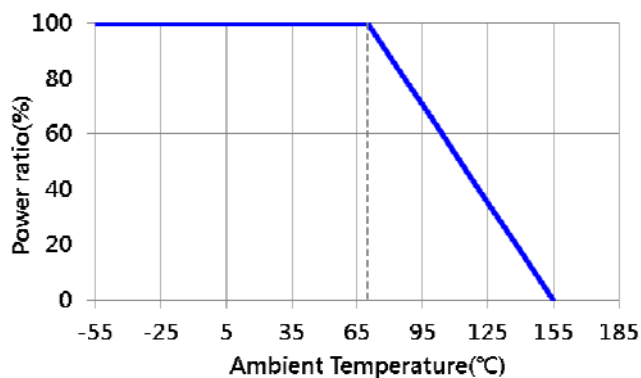
	2430445 2430448 2430450 2430452 2430455 2430457 2430459 2430461 2430463 2430465 2430467 2430470 2430415 2430417 2430420 2430422 2430424 2430427 2430429 2430432 2430434 2430436 2430438 2430440 2430442 2430444 2430446 2430449 2430451 2430454 2430456 2430458 2430460 2430462 2430464 2430466 2430468 2430471							
RSTNF03	2430470 2430472 2430474 2430477 2430479 2430482 2430484 2430486 2430471 2430473 2430476 2430478 2430480 2430483 2430485 2430487	0603	1.55±0.10	0.80±0.10	0.45±0.10	0.30±0.20	0.30±0.20	1.83
RSTNF05	2430488 2430490 2430492 2430494 2430496 2430498 2430500 2430502 2430504	0805	2.0±0.15	1.25±0.15	0.55±0.15	0.30±0.20	0.40±0.20	4.71

	2430506							
	2430508							
	2430489							
	2430491							
	2430493							
	2430495							
	2430497							
	2430499							
	2430501							
	2430503							
	2430505							
	2430507							
	2430509							

Part Number Make Up

Part Number	Package Dimensions	Resistance Tolerance	Packaging Code	TCR (PPM/°C)	Resistance Ohmic value
RSTNF	01: 0201 02: 0402 03: 0603 05: 0805	B:±0.1%	T: Taping Reel	C: ±25	0010: 1Ω 4R70: 4.7Ω 1001: 1kΩ 1004: 1MΩ

Derating Curve



Electrical Specifications

Type	RS Article	Power Rating at 70°C	Operating Temp. Range	Max Operating Voltage	Max. Overload Voltage	Resistance Range	TCR (PPM/°c)
						±0.1%	
RSTNF01 (0201)	2430392	1/32W	-55~ +155°C	15V	30V	22Ω- 47kΩ	±25
	2430394						
	2430397						
	2430399						
	2430401						
	2430404						
	2430406						
	2430408						
	2430410						
	2430412						
	2430392						
	2430394						
	2430397						
	2430399						
	2430401						
2430404							
2430406							
2430408							
2430410							
2430412							
RSTNF02 (0402)	2430414	1/16W	-55~ +155°C	50V	100V	5Ω- 511kΩ	±25
	2430416						
	2430418						
	2430421						
	2430423						
	2430426						
	2430428						
	2430430						
	2430433						
	2430435						
	2430437						
	2430439						
	2430441						
	2430443						
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2430434							

Thin Film Precision Chip Resistors



	2430436 2430438 2430440 2430442 2430444 2430446 2430449 2430451 2430454 2430456 2430458 2430460 2430462 2430464 2430466 2430468 2430471						
RSTNF03 (0603)	2430470 2430472 2430474 2430477 2430479 2430482 2430484 2430486 2430471 2430473 2430476 2430478 2430480 2430483 2430485 2430487	1/16W	-55 ~ +155°C	50V	100V	1Ω- 1MΩ	±25
RSTNF05 (0805)	2430488 2430490 2430492 2430494 2430496 2430498 2430500 2430502 2430504 2430506 2430508 2430489 2430491 2430493 2430495 2430497 2430499 2430501 2430503 2430505 2430507 2430509	1/10W	-55 ~ +155°C	100V	200V	1Ω- 1MΩ	±25

Environmental Characteristics

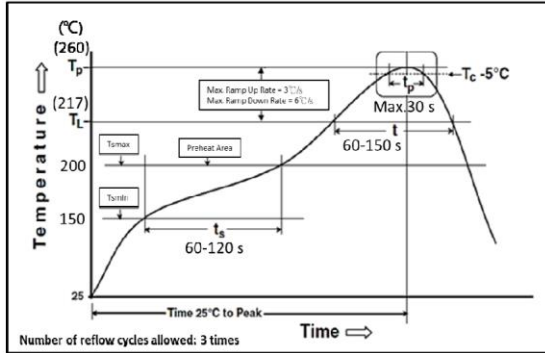
Item	Requirement		Test Method
	Tol. ≤ 0.05%	Tol. > 0.05%	
Temperature Coefficient of Resistance (T.C.R.)	As Spec		MIL-STD-202 Method 304 +25/-55/+25/+125/+25°C
Short Time Overload	±0.5%	±0.2%	JIS-C-5201-1 4.13 RCWV*2.5 or Max. overload voltage whichever is lower for 5 seconds
	±0.2% for high power rating		
Insulation Resistance	>9999 MΩ		MIL-STD-202 Method 302 Apply 100VDC for 1 minute
Endurance	±0.5%	±0.2%	MIL-STD-202 Method 108A 70±2°C, RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
	±0.5% for high power rating		
	0201: >7kΩ_±0.5% ≤ 7kΩ_±0.2%		
Damp Heat with Load	±0.5%	±0.3%	MIL-STD-202 Method 103B 40±2°C, 90~95% R.H. RCWV for 1000 hrs with 1.5h hrs "ON" and 0.5 hrs "OFF"
	±0.5% for high power rating		
Bending Strength	±0.5%	±0.1%	JIS-C-5201-1 4.33 Bending amplitude 3 mm for 60 seconds 2010 2512 sizes: 2 mm Other sizes: 3 m
Solderability	95% min. coverage		MIL-STD-202 Method 208H 245±5°C for 3 seconds
Resistance to Soldering Heat	±0.5%	±0.1%	MIL-STD-202 Method 210E 260±5°C for 10 seconds
Dielectric Withstand Voltage	By Type		MIL-STD-202 Method 301 Max. overload voltage for 1 minute
Low Temperature Operation	±0.5%	±0.2%	JIS-C-5201-1 4.36 1 hour, -65°C, followed by 45 minutes of RCWV
	±0.5% for high power rating		
High Temperature Exposure	±0.5%		MIL-STD-202 Method 108 at +155°C for 1000 hrs

RCWV(Rated continuous working voltage)= $\sqrt{P \cdot R}$ or Max. Operating voltage whichever is lower

- Storage Temperature: 15~28°C; Humidity < 80%RH
- Shelf Life: 2 years from production date.

Soldering Condition

(IPC/JEDEC J-STD-020)

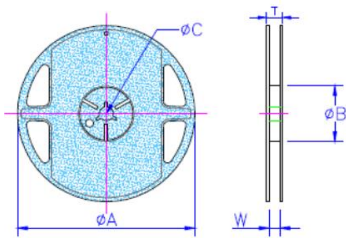


Packaging

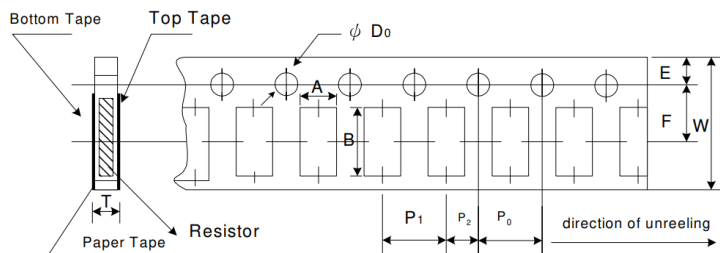
Packaging Quantity & Reel Specification

Unit:mm

Type	ØA	ØB	ØC	W	T	Paper Tape (EA)
RSTNF01	178.0±1.0	60.0±1.0	13.5±0.7	9.5±1.0	11.5±1.0	10,000
RSTNF02	178.0±1.0	60.0±1.0	13.5±0.7	9.5±1.0	11.5±1.0	10,000
RSTNF03	178.0±1.0	60.0±1.0	13.5±0.7	9.5±1.0	11.5±1.0	5000
RSTNF05	178.0±1.0	60.0±1.0	13.5±0.7	9.5±1.0	11.5±1.0	5000



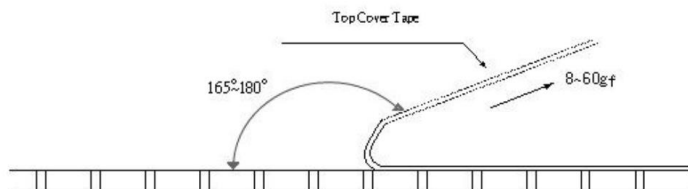
Paper Tape Specifications



Type	A	B	W	E	F	P0	P1	P2	ΦD0	T
RSTNF01	0.40±0.05	0.70±0.05	8.00±0.10	1.75±0.05	3.5±0.05	4.00±0.10	2.00±0.05	2.00±0.05	1.55±0.03	0.42±0.02

RSTNF02	0.70±0.05	1.16±0.05	8.00±0.10	1.75±0.05	3.5±0.05	4.00±0.10	2.00±0.05	2.00±0.05	1.55±0.05	0.42±0.03
RSTNF03	1.10±0.05	1.90±0.05	8.00±0.10	1.75±0.05	3.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.55±0.05	0.60±0.03
RSTNF05	1.60±0.05	2.37±0.05	8.00±0.10	1.75±0.05	3.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.55±0.05	0.75±0.05

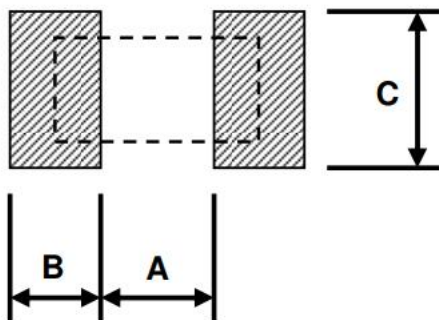
- Peel force top cover tape
- The peel speed shall be about 300mm/min±5%
- The peel force of top cover tape shall be between 8gf to 60gf



Recommended Land Pattern

Type	A	B	C
RSTNF01	0.25	0.30	0.40±0.2
RSTNF02	0.50	0.50	0.60±0.2
RSTNF03	0.80	1.00	0.90±0.2
RSTNF05	1.00	1.00	1.35±0.2

Unit:mm



Similar Products

MPN	RS Article Number	
	SSM	MPQ
RSTNF01BTC0220	2430393	2430392
RSTNF01BTC0330	2430395	2430394
RSTNF01BTC0470	2430398	2430397
RSTNF01BTC1000	2430400	2430399
RSTNF01BTC1001	2430402	2430401
RSTNF01BTC1002	2430405	2430404
RSTNF01BTC2202	2430407	2430406
RSTNF01BTC3302	2430409	2430408
RSTNF01BTC4700	2430411	2430410
RSTNF01BTC4702	2430413	2430412
RSTNF02BTC0050	2430415	2430414
RSTNF02BTC0100	2430417	2430416
RSTNF02BTC0220	2430420	2430418
RSTNF02BTC0330	2430422	2430421
RSTNF02BTC0470	2430424	2430423
RSTNF02BTC0560	2430427	2430426
RSTNF02BTC1000	2430429	2430428
RSTNF02BTC1001	2430432	2430430
RSTNF02BTC1002	2430434	2430433
RSTNF02BTC1003	2430436	2430435
RSTNF02BTC2200	2430438	2430437
RSTNF02BTC2201	2430440	2430439
RSTNF02BTC2202	2430442	2430441
RSTNF02BTC2203	2430444	2430443
RSTNF02BTC3300	2430446	2430445
RSTNF02BTC3301	2430449	2430448
RSTNF02BTC3302	2430451	2430450
RSTNF02BTC3303	2430454	2430452
RSTNF02BTC4700	2430456	2430455
RSTNF02BTC4701	2430458	2430457
RSTNF02BTC4702	2430460	2430459
RSTNF02BTC4703	2430462	2430461
RSTNF02BTC4990	2430464	2430463
RSTNF02BTC5113	2430466	2430465
RSTNF02BTC5600	2430468	2430467
RSTNF02BTC5602	2430471	2430470
RSTNF03BTC0010	2430473	2430472
RSTNF03BTC1000	2430476	2430474
RSTNF03BTC1001	2430478	2430477
RSTNF03BTC1002	2430480	2430479

RSTNF03BTC1003	2430483	2430482
RSTNF03BTC1004	2430485	2430484
RSTNF03BTC4701	2430487	2430486
RSTNF05BTC0010	2430489	2430488
RSTNF05BTC0050	2430491	2430490
RSTNF05BTC0100	2430493	2430492
RSTNF05BTC0150	2430495	2430494
RSTNF05BTC0220	2430497	2430496
RSTNF05BTC0330	2430499	2430498
RSTNF05BTC1004	2430501	2430500
RSTNF05BTC2203	2430503	2430502
RSTNF05BTC3303	2430505	2430504
RSTNF05BTC4703	2430507	2430506
RSTNF05BTC5113	2430509	2430508