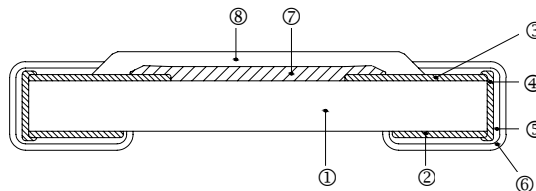
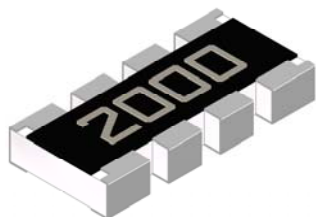


Thin Film Array Chip Resistor—TFAN Series

Construction



① Alumina Substrate	⑤ Barrier Layer (Ni)
② Bottom Electrode (Ag)	⑥ External Electrode (Sn)
③ Top Electrode (Ag-Pd)	⑦ Resistor Layer (NiCr)
④ Edge Electrode (Ag)	⑧ Overcoat (Epoxy)

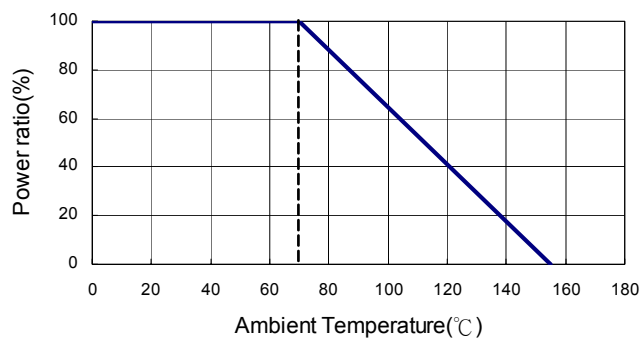
Features

- Advanced thin film technology
- Very tight tolerance down to $\pm 0.1\%$
- Extremely low TCR down to $\pm 10\text{PPM}/^\circ\text{C}$
- TCR tracking down to $15\text{ppm}(\pm 7.5\text{ppm})$ and tolerance matching down to $0.1\%(\pm 0.05\%)$
- RoHS compliant component, compatible with lead (Pb)-free

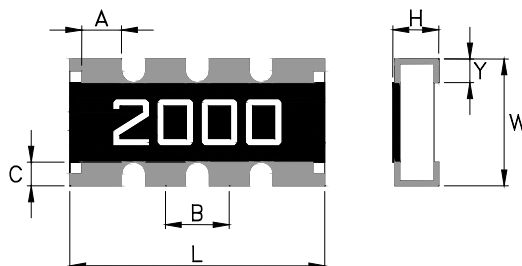
Applications

- Voltage divider
- Feedback circuits
- Signal conditioning

Derating Curve



Dimensions



Unit: mm

Type	Number of Resistors	L	W	H	A	B	C	Y	Weight (g) (1000pcs)
TFAN43	4	3.20 \pm 0.15	1.60 \pm 0.15	0.55 \pm 0.10	0.50 \pm 0.15	0.80 \pm 0.05	0.30 \pm 0.15	0.30 \pm 0.15	8.22

Part Numbering

TFAN	43	B0	T	C0	Y	1001	N
Product Type	Dimensions	Tolerance Grade	Packaging Code	TCR Grade	Power Rating	Resistance	Marking Code
	43: 0603X4	Reference Tolerance Grade Table	T: Taping Reel B: Bulk	Reference TCR Grade Table	: Standard Y: 1/16W	0010: 1Ω 4R70: 4.7Ω 1001: 1KΩ 1004: 1MΩ	: Standard Marking for E96 N: No Marking

Accuracy Grade Table							
Tolerance Grade				TCR Grade			
Code	Absolute Tolerance	Tolerance Matching	Resistance Value	Code	Absolute TCR	TCR Tracking	Resistance Value
B0	±0.1%	N/A	100~33K	B0	±10ppm	N/A	100~2K
B3	±0.1%	0.1%	100~33K	B3	±10ppm	15ppm	100~2K
C0	±0.25%	N/A	100~33K	N0	±15ppm	N/A	100~2K
C2	±0.25%	0.25%	100~33K	N3	±15ppm	15ppm	100~2K
C3	±0.25%	0.1%	100~33K	C0	±25ppm	N/A	100~33K
D0	±0.5%	N/A	100~33K	C2	±25ppm	25ppm	100~33K
D1	±0.5%	0.5%	100~33K	C3	±25ppm	15ppm	100~33K
D2	±0.5%	0.25%	100~33K	D0	±50ppm	N/A	100~33K
F0	±1%	N/A	100~33K	D1	±50ppm	50ppm	100~33K
F1	±1%	0.5%	100~33K	D2	±50ppm	25ppm	100~33K

Electrical Specifications

Type	Item	Power Rating at 70°C	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Number Of Resistors	Resistance Range			TCR (PPM/°C)
							±0.1%	±0.25%	±0.5%	
TFAN 43		1/16W	-55 ~ +155°C	50V	100V	4	100Ω~33KΩ			±25 ±50

Operating Voltage= $\sqrt{P \cdot R}$ or Max. operating voltage listed above, whichever is lower.

Overload Voltage= $2.5 \cdot \sqrt{P \cdot R}$ or Max. overload voltage listed above, whichever is lower.

Special Specifications

Type	Item	Power Rating at 70°C	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Number Of Resistors	Resistance Range			TCR (PPM/°C)
							±0.1%	±0.25%	±0.5%	
TFAN 43		1/16W	-55 ~ +155°C	50V	100V	4	100Ω~2KΩ			±10 ±15

Operating Voltage= $\sqrt{P \cdot R}$ or Max. operating voltage listed above, whichever is lower.

Overload Voltage= $2.5 \cdot \sqrt{P \cdot R}$ or Max. overload voltage listed above, whichever is lower.

Environmental Characteristics

Item	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	+25/-55/+25/+125/+25°C
Short Time Overload	$\Delta R \pm 0.1\%$	RCWV*2.5 or Max. overload voltage for 5 seconds
Insulation Resistance	>1000 MΩ	Apply 100V _{DC} for 1 minute
Endurance	1000Hr : $\Delta R \pm 0.15\%$ 8000Hr : $\Delta R \pm 0.3\%$	70±2°C, Max. working voltage with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load	$\Delta R \pm 0.25\%$	40±2°C, 90~95% R.H. Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with 8585	$\Delta R \pm 0.5\%$	85±2°C, 80~90% R.H. 1/10 working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Dry Heat	1000Hr : $\Delta R \pm 0.25\%$ 8000Hr : $\Delta R \pm 0.5\%$	At +125°C

Item	Requirement	Test Method
Bending Strength	$\Delta R \pm 0.2\%$	Bending amplitude 3 mm for 10 seconds
Solderability	95% min. coverage	245±5°C for 3 seconds
Resistance to Soldering Heat	$\Delta R \pm 0.2\%$	260±5°C for 10 seconds
Dielectric Withstand Voltage	100V	Max. overload voltage for 1 minute
Thermal Shock	$\Delta R \pm 0.25\%$	-55°C ~150°C, 100 cycles
Low Temperature Operation	$\Delta R \pm 0.25\%$	1 hour, -65°C, followed by 45 minutes of RCWV

■ Reference Standards: MIL-STD-202, JIS-C 5201-1

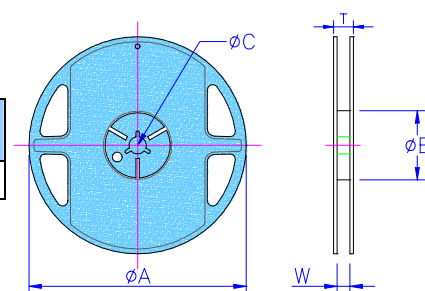
■ Storage Temperature: 25±3°C; Humidity < 80%RH

■ Packaging

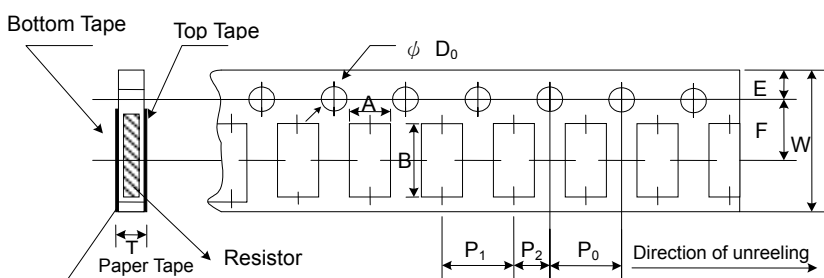
Reel Specifications & Packaging Quantity

Unit: mm

Type	Packaging Quantity	Tape Width	Reel Diameter	ΦA	ΦB	ΦC	W	T
TFAN 43	Paper 5K	8mm	7 inch	178.5±1.5	60 ^{+1/-0}	13.0±0.2	9.0±0.5	12.5±0.5



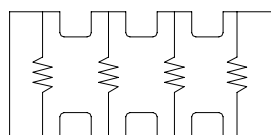
Paper Tape Specifications



Unit: mm

Type	A	B	W	E	F	P ₀	P ₁	P ₂	ΦD ₀	T
TFAN 43	1.95±0.10	3.50±0.10	8.0±0.20	1.75±0.10	3.5±0.05	4.0±0.10	4.0±0.05	2.0±0.05	1.5 ^{+0.1/-0}	0.85±0.10

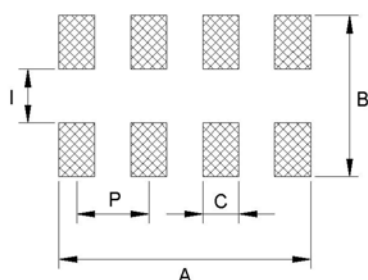
■ Equivalent Circuit Diagram



TFAN

■ Recommend Land Pattern

Unit: mm



Type	A	B	C	I	P
TFAN 43	2.85	3.10	0.45	0.80	0.80