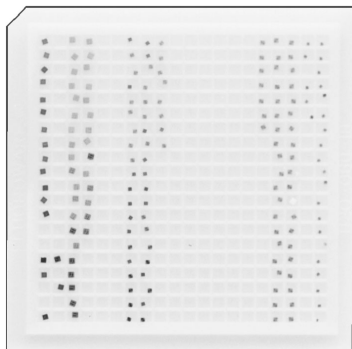


Center Tap Chip Resistor

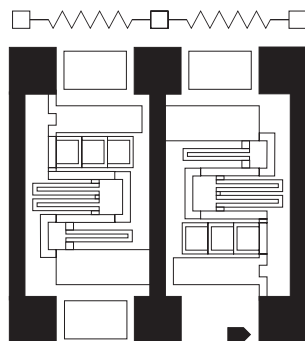


Actual Size

Center tap chip resistors allow for greater flexibility of hybrid layout design by utilizing the smallest area for two resistors. Since both resistors are from the same film system, excellent tracking is inherent in the chip. Connecting to the center tap yields half the value: connecting the two resistors in parallel results in one quarter value on equal value resistor styles.

CHIP DIAGRAM

Equal Value (S30R, A30R series)



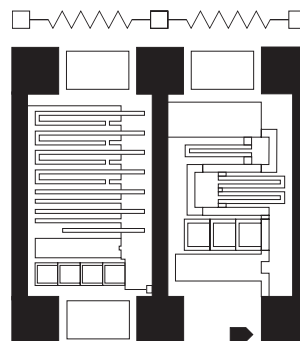
FEATURES

- 30 Mil Square Size.
- Resistance Range:
(Silicon Substrate)
Equal value - 4.7 ohms to 1M total
Unequal value - 4.7 ohms to 500K per resistor
(Alumina Substrate)
Equal value - 4.7 ohms to 52K total
Unequal value - 4.7 ohms to 26K per resistor
- Gold terminations with Tamelox® or Tantalum nitride resistor film.
- 4 digit custom marking available
- Low value indicator for unequal values

TYPICAL PERFORMANCE

	ABS
TCR	50
TOL	1

Unequal value (S30V, A30V series)



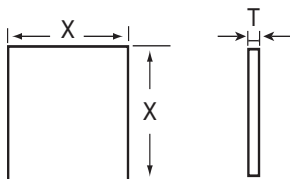
HYBRID

STANDARD ELECTRICAL SPECIFICATIONS

TEST	SPECIFICATIONS		CONDITIONS
MATERIAL	TAMELOX®	TANTALUM NITRIDE	
Resistance Range	4.7 - 1M ohm Silicon	4.7 - 52K ohms alumina	
TCR:			
Tracking	± 2ppm/°C	±5ppm/°C	- 55°C to +125°C
Absolute	± 50ppm/°C	±100ppm/°C	- 55°C to +125°C
Absolute Tolerance:	± 20% to ± 0.1%		
Resistance Ratio Accuracy	± 2% Standard		
Power Rating:	250mW		@ + 70°C
Stability (ΔR Ratio)	Less than 0.1% Max. ΔR/R (0.05% typical)		2,000 hrs. @ +70°C
Voltage Coefficient	> 5ppm/Volt		
Working Voltage	100V Max. all styles		
Operating Temperature Range	- 55°C to + 125°C		
Storage Temperature Range	- 55°C to + 125°C		
Noise	- 35dB		
Thermal EMF	0.08μV/°C		
Shelf Life Stability	100ppm		1 Year @ +25°C

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DIMENSIONS



SUBSTRATE	ALUMINA ¹	SILICON
Thickness (Mils)	10 ± 2	14 ± 2
Isolation Layer	None	SiO ₂ (10,000 Å Min.)
Metallization	Gold (15,000 Å)	Gold (15,000 Å)
Die Size (X)	30 x 30 ± 3 MIL	30 x 30 ± 3 MIL
Terminations	4 Mils Square Min.	4 Mils Square Min.
Packaging Standard	2" Square Waffle Pack (400 Max. per Package)	

¹ Alumina has the benefit of the higher thermal conductivity and superior high frequency characteristics, however the resistance range is limited by the poorer line resolution versus silicon, because of the surface finish.

MECHANICAL SPECIFICATIONS

Resistive Element	Tamelox®
Termination Pads	Gold
Substrate Material	Silicon or Alumina

FULL LOT TRACEABILITY TO WAFER LEVEL

Visual Criteria	MIL-STD-833 Method 2032 Class H
Thermal Shock (MIL-STD-202, Method 107, Test Condition C)	0.05% Max. ΔR/R (0.02% Typical)
High Temperature Exposure (125°C, 100 Hours in Air)	0.10% Max. ΔR/R (0.07% Typical)
Low Temperature Operation (MIL-PRF-55342 Paragraph 4.7.4)	0.05% Max. ΔR/R (0.025% Typical)
Moisture Resistance (MIL-STD-202 Method 106)	0.25% Max. ΔR/R (0.05% Typical)
Short Time Overload (5 x Rated Power 25°C, 5 sec.)	0.25% Max. ΔR/R (0.05% Typical)
Resistance Ratio Accuracy	± 2% Standard or ± 0.1 ohm whichever is greater (0.05% available)

**How to Order**

Substrate	Chip Type/Size	Ratio Tolerance	TCR Characteristic	Ohmic Value	Absolute Tolerance	Element Technology
S = Silicon (SiO ₂)	Center Tap Chip Resistors	S = $\pm 2.0\%$ (Standard)	E = ± 25 ppm/ $^{\circ}\text{C}$ C = ± 50 ppm/ $^{\circ}\text{C}$ K = ± 100 ppm/ $^{\circ}\text{C}$	The first three digits are significant figures and the last digit specifies the number of zeros to follow. Example: 1R00 = 1 ohm 10R0 = 10 ohms 12R5 = 12.5 ohms 1000 = 100 ohms 1001 = 1000 ohms NOTE: For Unequal values (S30V, S30I Styles) List Both Nominals Example: 25K/10K = 2502/1002 Max. Value/Resistor on Alumina is: A30 26K/26K Tamelox [®] Film	B = $\pm 0.1\%$ C = $\pm 0.2\%$ D = $\pm 0.5\%$ F = $\pm 1.0\%$ G = $\pm 2.0\%$ J = $\pm 5.0\%$ M = Values less than 10 ohms use ± 1 ohm X = Special	N = Tamelox [®] Gold Pads T = Ta ₂ N with Gold Pads
	30R = (0.030 x 0.030), Equal value 30V = (0.030 x 0.030) Unequal Value	A = $\pm 1.0\%$ D = $\pm 0.5\%$ C = $\pm 0.2\%$ B = $\pm 0.1\%$ N = Not Applicable	NOTES: Best available under 100 ohms ± 100 ppm/ $^{\circ}\text{C}$			
A = Alumina Al ₂ O ₃ (99.6% purity)						

Example: S30RSC1002FN is a 30 mil square center tap chip resistor on silicon with a TCR of ± 50 ppm/ $^{\circ}\text{C}$, resistance value of 10K ohms, and absolute tolerance of $\pm 1\%$, Tamelox[®] Resistor Film. Gold pads.