

Molded, 25 or 50 Mil Pitch, Dual-In-Line Resistor Networks

Models VTSR, VSSR, and VSOR



Actual Size

FEATURES

- Reduces total assembly costs
- Compatible with automatic surface mounting equipment
- Uniform performance characteristics
- Thin film on silicon
- Choice of package sizes: VTSR (TSSOP), VSSR (SSOP or QSOP), VSOR (SOIC narrow)

TYPICAL PERFORMANCE

	ABS	TRACKING
TCR	100	10
	ABS	RATIO
TOL	5	2

Vishay Thin Film resistor networks are designed to be used in either analog or digital circuits. The use of thin film resistive elements within the network allows you to achieve an infinite number of very low noise and high stability circuits for industrial, medical and scientific instrumentation.

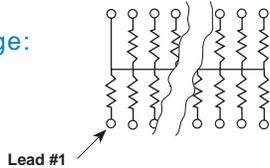
Vishay Thin Film resistor networks are packaged in molded plastic packages with sizes that are recognized throughout the world. The rugged packaging offers superior environmental protection and consistent dimensions for ease of placement with automatic SMT equipment. Vishay Thin Film stocks many designs and values for off-the-shelf convenience.

With Vishay Thin Film you can depend on quality products delivered on time with service backing the product.

Schematics

01 Schematic

Resistance Range:
10 Ω to 1M Ω



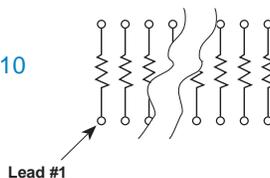
Resistors with one pin common

The 01 circuit provides nominally equal resistors connected between a common pin and a discrete PC board pin. Commonly used in the following applications:

- MOS/ROM Pull-up/Pull-down
- TTL Input Pull-down
- Open Collector Pull-up
- Digital Pulse Squaring
- "Wired OR" Pull-up
- TTL Unused Gate Pull-up
- Power Driven Pull-up
- High Speed Parallels Pull-up

03 Schematic

Resistance Range: 10 Ω to 1M Ω



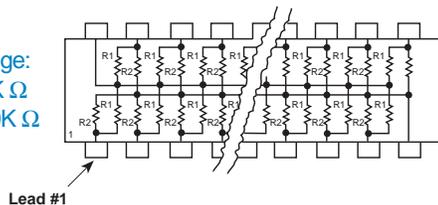
Isolated resistors

The 03 circuit provides nominally equal resistors isolated from all others and wired directly across. Commonly used in the following applications:

- "Wired OR" Pull-up
- Long-line Impedance Balancing
- Power Driven Pull-up
- LED Current Limiting
- Powergate Pull-up
- ECL Output Pull-down
- Line Termination
- TTL Input Pull-down

05 Schematic

Resistance Range:
R₁ = 22Ω to 50K Ω
R₂ = 50Ω to 100K Ω

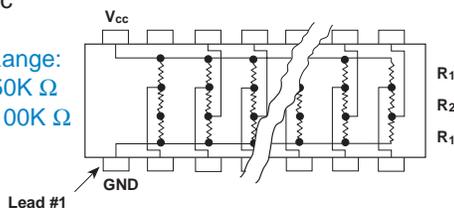


Dual-line terminator; pulse squaring

The 05 circuit contains pairs of resistors connected between ground and a common line. The junctions of these resistor pairs are connected to the input leads. The 05 circuits are designed for dual-line termination and pulse squaring.

47 Schematic

Resistance Range:
R₁ = 22Ω to 50K Ω
R₂ = 50Ω to 100K Ω



Differential terminator

The 47 schematic consists of series resistor sections connected between Vcc and Ground. Each contains 3 resistors of 2 different resistance values. Typical resistance values for SCSI-2 termination are: R₁ = 330 ohm, R₂ = 150 ohm.

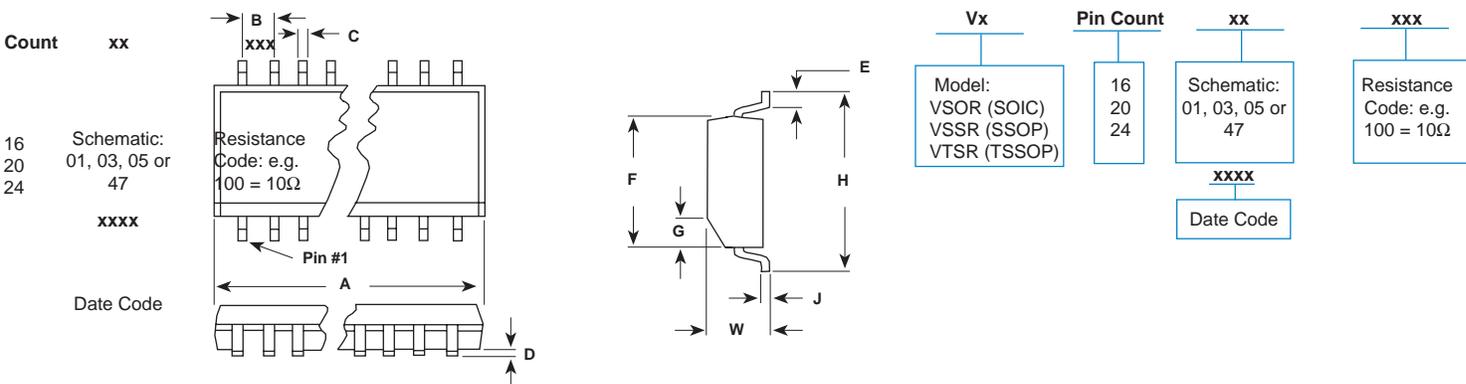
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Test	Specifications	Conditions
Electrical Specifications	16, 20, 24	
TCR: Tracking	10 ppm/°C	
Absolute	±100 ppm/°C	-55°C to +125°C
Tolerance: Ratio	±1%	
Absolute	±2% - ±5% (consult factory)	
Power Rating: Resistor	100mW (Maximum)	@ +70°C
Package	16 = 1.0 W 20 = 1.2 W 24 = 1.4 W	0°C to +70°C
Voltage Coefficient	50 ppm/V typical	
Working Voltage	50 VDC	
Operating Temperature Range	-55°C to +125°C	
Storage Temperature Range	-55°C to +150°C	
Noise	<-35 dB	

Dimensions and Imprinting



MODEL	A			B (Ref.)	C (Ref.)	D	E (Typ.)	F	G	H	J (Ref.)	W
	16 PIN	20 PIN	24 PIN									
VTSR-xxxx (millimeters)	0.206±0.003 5.23±0.08	0.256±0.003 6.50	0.306±0.003 7.77	0.025 0.64	0.087 0.22	0.004 0.10	0.024 0.61	0.173±0.003 4.39	0.015 x 45° 0.38	0.252±0.005 6.40±0.13	0.005 0.13	0.043±0.005 1.09
VSSR-xxxx (millimeters)	0.193±0.004 4.90	0.341±0.003 0.10	0.341±0.003 8.66	0.025 0.64	0.010 0.25	0.006 0.15	0.025 0.64	0.154±0.003 3.91	0.015 x 45° 0.38	0.236±0.008 5.99±0.20	0.010 5.99	0.064±0.005 1.63
VSOR-xxxx (millimeters)	0.390±0.010 9.91±0.25	NA	NA	0.050 1.27	0.016 0.41	0.008 0.20	0.030 0.76	0.152±0.003 7.44	0.015 x 45° 0.64	0.236±0.005 10.31±0.13	0.008 0.25	0.064±0.005 2.54

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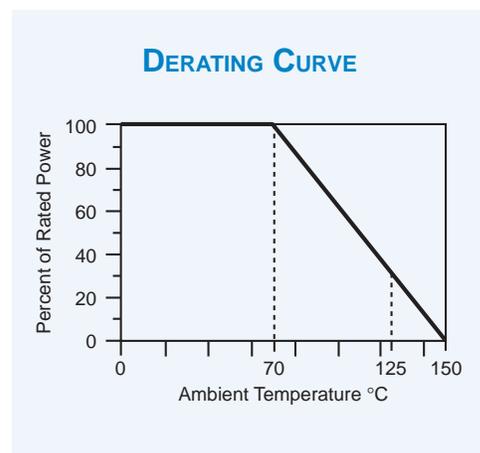


Mechanical Specifications

Resistive Element	Tantalum Nitride	Plating	Tin lead
Substrate Material	Silicon	Lead Coplanarity	0.0005"
Body	Molded epoxy	Marking Resistance to Solvents	Permanency
Terminals	Copper Alloy	testing per MIL-STD-202, Method 215.	

Packaging Information

MODEL	Leads	Tape and Reel	Tubes
VTSR	16	2,500	96
	20	2,500	74
	24	2,500	62
VSSR	16	2,500	98
	20	2,500	55
	24	2,500	55
VSOR	16	2,500	48



How to Order

Model	Number of Leads	Schematic	Resistance Value	Tolerance	Packaging
VTSR VSSR VSOR*	16 16 20 24	01 01 03	XXX First 2 digits are significant figures. Last specifies number of zeros	J G = ± 2% J = ± 5%	T Tape and Reel Tubes

*16 Pin only

MODEL	Number of Leads	Schematic	Resistance	Tolerance	Packaging
VTSR VSSR VSOR*	16 16 20	05 05 47	XXX R ₁ Value XXX R ₂ Value First 2 digits are significant figures. Last digit specifies number of zeros to follow.	J G = ± 2% J = ± 5%	T Tape and Reel Tubes

*16 Pin only

Example: **VSSR201102GT/R** = VSSR pkg., 20 pin count, 01 schematic, 1,000 ohms 2%, tape and reel.