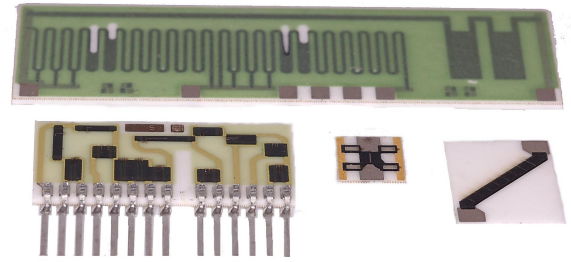


## THICK FILM ATTENUATORS VOLTAGE DIVIDERS AND OTHER RESISTOR NETWORK



- Wide choice of values and dimensions
- Voltage up to 15kV
- Resistance ratios down to 0.25%
- Strong environmental protection
- Wide frequency range

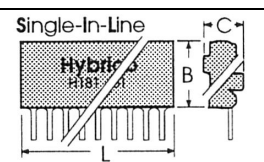
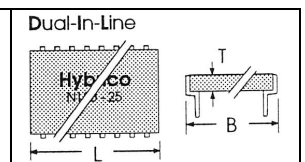
### Electrical Data

Attenuators			Notes
Characteristic impedance values	Ohm	50, 75, 140, 600	Balanced and unbalanced devices available
Rang of attenuation	dB	0.1 – 50	
Tolerance of attenuation	%	1.0	Only for frequencies up to 500 MHz
Frequency range	MHz	0.1- 900	

Voltage dividers			Notes
Size of division		Any division	
Tolerance division		5, 2, 1, 0.5, 0.25	0.1 available for certain ohmic values

All networks			Notes
Power rating at 70°C	Watt	5.0	
Resistive range	Ohm	0.5 – 10G	
Limiting element voltage	Volt	1000	Up to 15K on request
Dielectric strength	Volt	1000	
TCR	ppm/°C	100	50 available between resistance values of 1K -500K
Tolerance	%	5, 2, 1, 0.5, 0.25	
Insulation resistance	Ohm	100G	
Thermal impedance	°C/Watt	200	
Operating temperature range	°C	-55 to 150	Special networks up to 300°C

### Physical Data

Type	Dimensions (mm) and Weight (g)						Number of terminals		Single-In-Line 	Dual-In-Line 
	L		B		T	Wt	Max	Max		
<b>SIL</b>	Max 90	Min 5.0	Max 35	Min 3.0	Min 1.1	Min 1.0	Max 35	Max 3		
<b>DIL</b>	Max 90	Min 5.0	Max 90	Min 5.0	Min 1.5	Min 2.0	Max 70	Max 4		

#### Construction

The circuits are printed and fired at 850 °C, termination and other components are attached, and the circuit is encapsulated in phenol and sealed with wax.

#### Terminations

Tinned stamped brass contact

#### Marking

The circuits are marked with manufacturing reference, type number and manufacturing code.

#### Solvent Resistance

Circuit and marking withstand all standard industrial cleaning fluids

# THICK FILM ATTENUATORS VOLTAGE DIVIDERS AND OTHER RESISTOR NETWORK

N SERIES

## Performance Data

All functions depend on resistor stability		Maximum	Typical	Notes
Load life stability	$\Delta R\%$	0.3	0.1	1,000 hours at 70 °C with load
Long-term stability	$\Delta R\%$	0.5	0.3	10,000 hours at 125°C
Derating from rated power		Zero at 150°C		
Short time overload	$\Delta R\%$	0.3	0.1	10 times rated power for 5 seconds
Long term damp heat	$\Delta R\%$	0.3	0.2	40°C/93%RH/56 days
Temperature cycling	$\Delta R\%$	0.2	0.1	5 cycles -55 to 155°C in 5 hours
Resistance to solder heat	$\Delta R\%$	0.2	0.1	260°C in 10 seconds
Vibration	$\Delta R\%$	No drift	No drift	20G in 2 hours

## Application Notes

The typical applications for Hybrico resistor networks are circuits where standard resistor networks do not meet the requested electrical or environmental specifications. For instance insulation and dielectric strength in medical equipment or temperature range and long term stability in communication equipment.

Functional trimming can be incorporated in the circuit. Consult special data sheet for this feature.

Resistor networks can be made with small dimensions and SMD-termination. Consult special data sheet for these features

With special choice of design and materials a frequency range from dc up to more than 1GHz can be achieved.

Jedec and IEC dimensions are preferred, but other dimensions are offered.

## Testing

All circuits are 100% tested for all relevant functions either on pc-based test system or by specially made go no-go test boxes.

### Quality

All procedure from design to final inspection and shipment are described and monitored. The quality system correspond to ISO 9001

## Packaging

The circuits are packed in cardboard or plastic boxes. The quantity per box depends on the size of the circuit

### Ordering procedure

Specify type and structure of the network, resistor values, tolerance, dimensions and the test specifications.

First-time orders will have a tooling charge

When reordering please specify the manufacturing reference N-number of your circuit.

Any quantity can be ordered, but the cost of production start will make small quantities expensive.

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