

# On-Board Type (DC) EMI Suppression Filters (EMIFIL®)

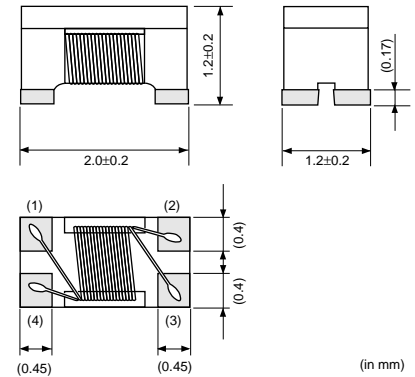


## Chip Common Mode Choke Coils Wire Wound Type DLW21S/21H/31S Series

### DLW21S Series

#### ■ Features (DLW21S\_SQ Series)

- DLW21S series realizes small size and low profile.  
2.0x1.2x1.2mm
- High common mode impedance at high frequency effects excellent noise suppression performance.
- Various common mode impedance items of 67 to 370 ohm can be used, considering noise level and signal frequency.
- DLW21S series enables noise suppression for differential signal line without distortion in high speed signal transmission due to its high coupling.
- Small dimension enables higher density packaging.

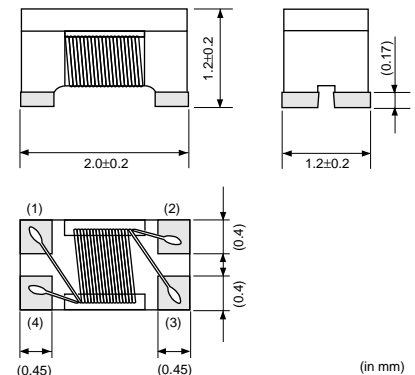


#### ■ Applications

- USB lines of PC, Peripheral equipment
- LVDS lines of Note-PCs, LCDs
- USB lines of Small digital AV equipment such as digital cameras

#### ■ Features (DLW21S\_HQ Series)

- Small size: 2.0x1.2x1.2mm
- Common mode impedance items of 67, 90 and 120 ohm, and they can be used for various differential signal lines.
- DLW21S\_H series match with line impedance of 100 ohm line.
- DLW21S\_H series can suppress noise for the high-speed differential signal lines which are used in digital AV interfaces, such as HDMI and DVI, without damage to the signal wave.



#### ■ Applications

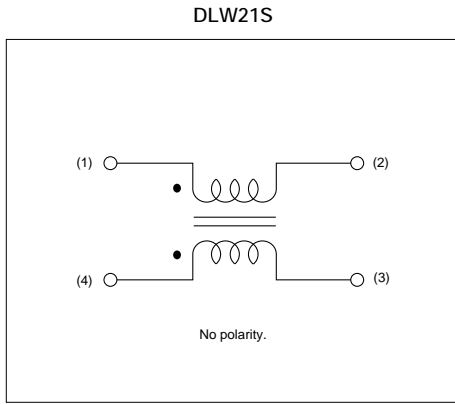
Common mode noise suppression of high speed differential signal lines for HDMI, DVI, USB2.0, IEEE1394, LVDS.

- DVD Recorders
- LCD TVs, LCD monitors
- PCs

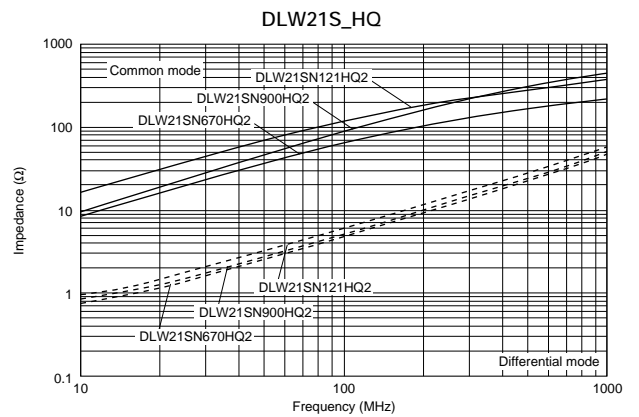
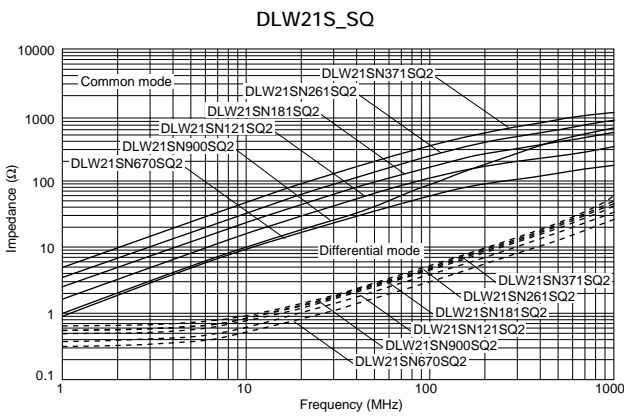
Part Number	Common Mode Impedance (at 100MHz, 20°C) (ohm)	Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance (min.) (M ohm)	Withstand Voltage (Vdc)	DC Resistance (ohm)
DLW21SN670SQ2	67 ±25%	400	50	10	125	0.25 max.
DLW21SN900SQ2	90 ±25%	330	50	10	125	0.35 max.
DLW21SN121SQ2	120 ±25%	370	50	10	125	0.30 max.
DLW21SN181SQ2	180 ±25%	330	50	10	125	0.35 max.
DLW21SN261SQ2	260 ±25%	300	50	10	125	0.40 max.
DLW21SN371SQ2	370 ±25%	280	50	10	125	0.45 max.
DLW21SN670HQ2	67 ±25%	320	20	10	50	0.31 max.
DLW21SN900HQ2	90 ±25%	280	20	10	50	0.41 max.
DLW21SN121HQ2	120 ±25%	280	20	10	50	0.41 max.

Operating Temperature Range: -40°C to 85°C

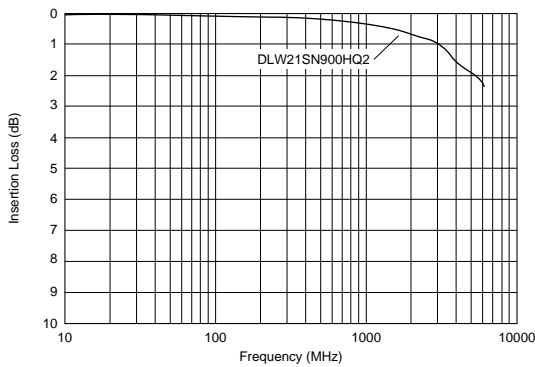
## Equivalent Circuit



## Impedance - Frequency



## Transmission Characteristics (Typical)

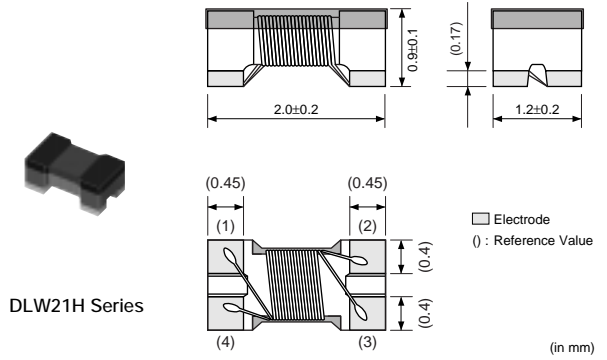


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## DLW21H Series

### ■ Features

1. Small size and low profile (2.0x1.2x0.9mm).  
Excellent noise suppression for sets of small and thin size.
2. High common mode impedance at high frequency effects excellent noise suppression performance.
3. Various common mode impedance from 67 to 180 ohm can be used, selected depending on noise level and signal frequency.
4. Suitable for differential signal line like USB2.0, IEEE1394 and LVDS, because DLW21H does not provide distortion to high speed signal transmission due to its high coupling. (USB2.0: DLW21HN900SQ2)
5. Small dimension enables higher density mounting



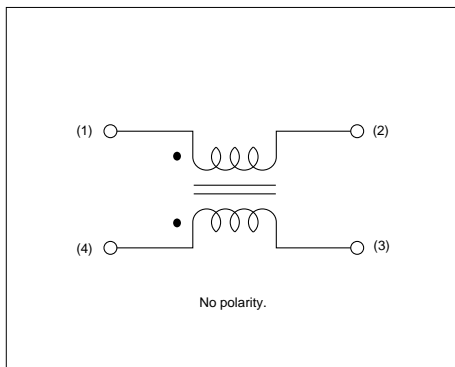
### ■ Applications

Common mode noise suppression of signal lines in high speed and high density digital equipment such as PCs and peripherals and telecommunications equipment.

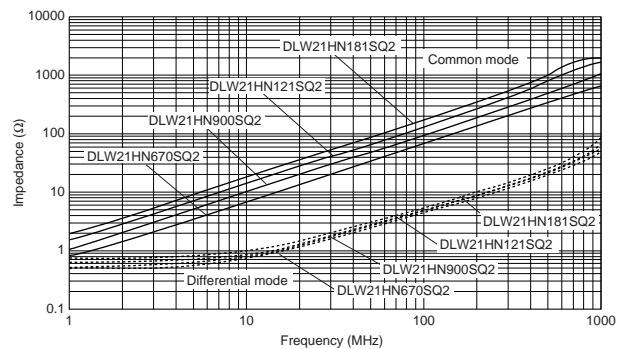
Part Number	Common Mode Impedance (at 100MHz, 20°C) (ohm)	Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance (min.) (M ohm)	Withstand Voltage (Vdc)	DC Resistance (ohm)
DLW21HN670SQ2	67 ±25%	330	50	10	125	0.35 max.
DLW21HN900SQ2	90 ±25%	330	50	10	125	0.35 max.
DLW21HN121SQ2	120 ±25%	280	50	10	125	0.45 max.
DLW21HN181SQ2	180 ±25%	250	50	10	125	0.50 max.

Operating Temperature Range: -40°C to 85°C

### ■ Equivalent Circuit



### ■ Impedance - Frequency



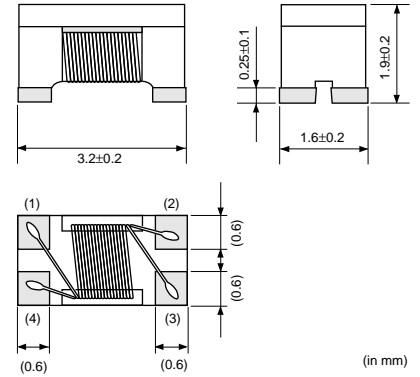
## DLW31S Series

### ■ Features

- DLW31S realizes small size and low profile.  
3.2x1.6x1.9mm.
- High common mode impedance at high frequency effects excellent noise suppression performance.
- Various common mode impedance items of 90 to 2200 ohm can be used, considering noise level and signal frequency.
- DLW31S series enables noise suppression for differential signal lines without distortion in high speed signal transmission due to its high coupling.
- Small dimension enables higher density packaging.



DLW31S Series



(in mm)

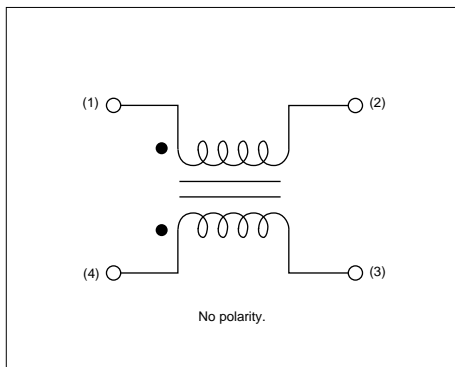
### ■ Applications

- USB lines of PCs, Peripheral equipment
- LVDS lines of Note-PCs, LCDs

Part Number	Common Mode Impedance (at 100MHz, 20°C) (ohm)	Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance (min.) (M ohm)	Withstand Voltage (Vdc)	DC Resistance (ohm)
DLW31SN900SQ2	90 ±25%	370	50	10	125	0.3 max.
DLW31SN161SQ2	160 ±25%	340	50	10	125	0.4 max.
DLW31SN261SQ2	260 ±25%	310	50	10	125	0.5 max.
DLW31SN601SQ2	600 ±25%	260	50	10	125	0.8 max.
DLW31SN102SQ2	1000 ±25%	230	50	10	125	1.0 max.
DLW31SN222SQ2	2200 ±25%	200	50	10	125	1.2 max.

Operating Temperature Range: -40°C to 85°C

### ■ Equivalent Circuit



### ■ Impedance - Frequency

