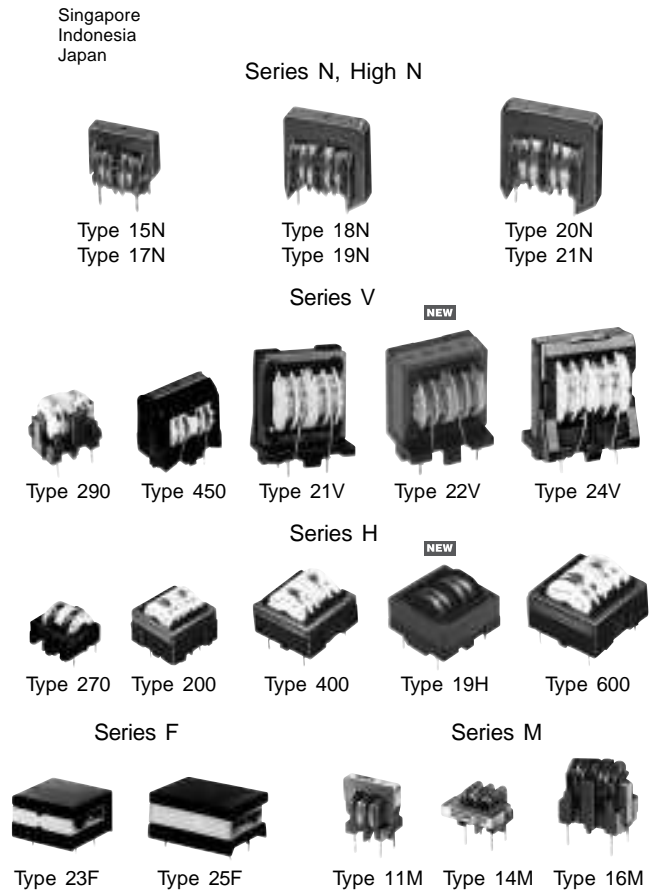


Line Filters

- Series: **N** (Type 15N, 18N, 20N)
 Series: **High N** (Type 17N, 19N, 21N)
 Series: **V** (Type 290, 450, 21V, 22V, 24V)
 Series: **H** (Type 200, 270, 400, 19H, 600)
 Series: **F** (Type 23F, 25F)
 Series: **M** (Type 11M, 14M, 16M)

Line filters suppress power supply conductive noise (ranging from low to high frequencies).



■ Features

Series	Types	Features	
N	15N, 18N, 20N	Vertical Structure	● Suitable for high-density automatic insertion
High N	17N, 19N, 21N	Vertical Structure	● High inductance (same size with series N)
V	290, 450, 21V*, 22V*, 24V*	Vertical Structure	● 30% smaller size than existing type (22 V, 19 H type) ● Excellent high frequency attenuation
H	200, 270, 400, 19H, 600	Horizontal Structure	● Greatly reduced leakage flux
F	23F, 25F	Thin Structure	● 15 mm height max.
M	11M, 14M, 16M	Small Structure	● Small size and lightweight

* Type 21V is developed product of Type 650. Type 24V is Type 850
 ELF 21V/24V have the same specifications as ELF#650/#850 types.
 The new ELF19H/22V has the same specifications as ELF#600/#24V but is smaller and with a lower profile.

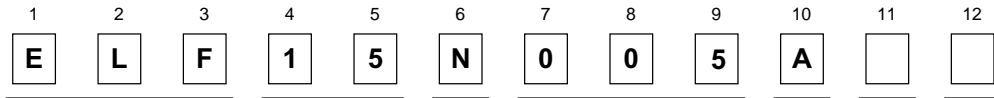
■ Recommended Applications

- Audio/Visual, Communications, Household and Lighting equipment and Power supplies

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use.
 Should a safety concern arise regarding this product, please be sure to contact us immediately.

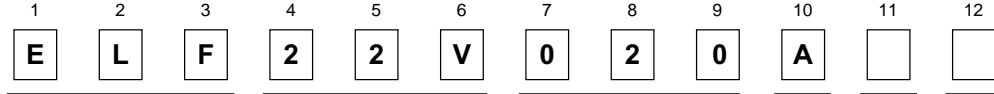
Explanation of Part Numbers

● N, High N Series



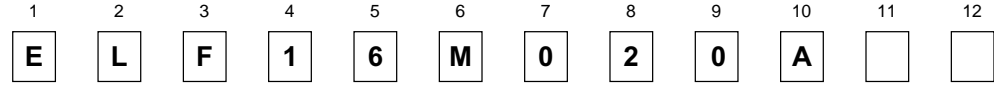
Product Code Type Series Design No. (Current) Option 1 Option 2 Option 3

● V, H Series



Product Code Series Type (Style, Design No.) Option 1 Option 2 Option 3

● F, M Series



Product Code Type Series Design No. (Current) Option 1 Option 2 Option 3

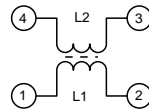
Performance Characteristics

Item	Series	V Serie				H Serie				F Series		M Series		N Serie			High N Series			Notes	
	Type	290	450	21V/22V	24V	270	200	400	19H	600	23F	25F	11M/14M	16M	15N	18N	20N	17N	19N		21N
Operating Temperature		-20°C to 105°C (Partially 115°C *)										-20°C to 115°C *									
Voltage		AC 250 Vrms max.																			
Current		Refer to "Examples"																			
Inductance		Refer to "Examples"																			
Dielectric Withstanding Voltage		AC 2 kV 1 min.																			
Temperature Rise		45 K max. (Non object of 21V, 19H, 22V type)																			Resistance method
Applicable Safety Standards		** Denki Yohin, UL, CSA, IEC																			

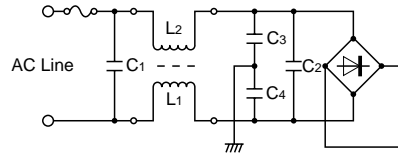
* UL, CSA : -20°C to 100°C

** Line filter is not certified, but meets the established safety standards for these entities.

Connection Schematics

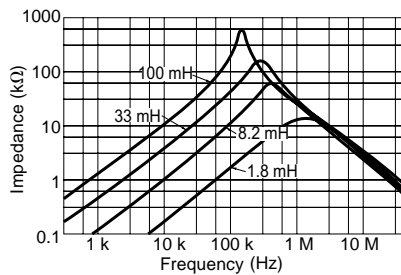


Circuit Example

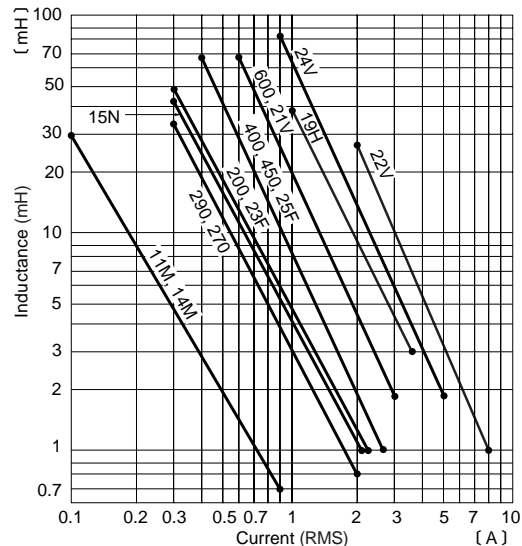


Impedance and Attenuation Characteristics (Typical)

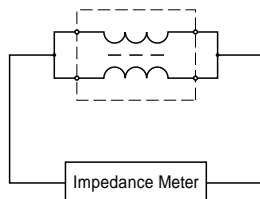
● Impedance Characteristics



Current-Inductance (min.) Characteristics (Reference only)



● Test Circuit Diagram



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