Amorphous Cores

For Smoothing Choke
10 to 200+ W Output

AP Series

AP SERIES/CORE

FEATURES

- A gap has been installed in the toroidal core to improve handling power by 50% per volume.
- Excellent direct current superposition characteristics.
- The size can be more compact than no gap toroidal core.
- Substrate fixing base is also prepared to support T22 and T31 cores.

APPLICATIONS

- Choke coil for switching power output smoothing circuit.
- Choke coil for active filter
- Normal mode choke coil for EMC

PRODUCT IDENTIFICATIONS

CORE

AP10	T	31	X	13	X	19
(1)	(2)	(3)		(4)		(5)

(1) Material name
(2) Shape
T:Toroidal
(3) Outer diameter dimension
(4) Height dimension
(5) Inner diameter dimension

INDUCTOR

AP	T	31	-	680	M	15	-	1	B
(1)	(2)	(3)		(4)	(5)	(6)		(7)	(8)

(1) Series name
(2) Shape
T:Toroidal
(3) Core outer diameter dimension
(4) Inductance value(μH)
(5) Inductance tolerance
L: ≧–25%/M:±20%
(6) Rated current code (A)
(7) TDK internal code
(8) Base indication code
0: without base/B: with base

OPERATING CONDITIONS

Temperature range	–40 to +120°C
Humidity range	0 to 95(%)RH[Maximum wet-bulb temperature:38°C]

STANDARD MATERIAL CHARACTERISTICS

Material			AP10
Initial permeability μi			100±20%
Curie temperature Tc	(°C)		410
Saturation magnetic flux density Bs [H=8000A/m]	(mT)	at 25°C	990
		at 60°C	990
		at 80°C	980
		at 100°C	980
		at 120°C	970
Remanent flux density Br	(mT)	at 25°C	9
		at 60°C	8
		at 80°C	7
		at 100°C	7
		at 120°C	7
Coercive force Hc	(A/m)	at 25°C	70
		at 60°C	60
		at 80°C	50
		at 100°C	50
		at 120°C	50
Density db	(kg/m^3)		7.2×10^3

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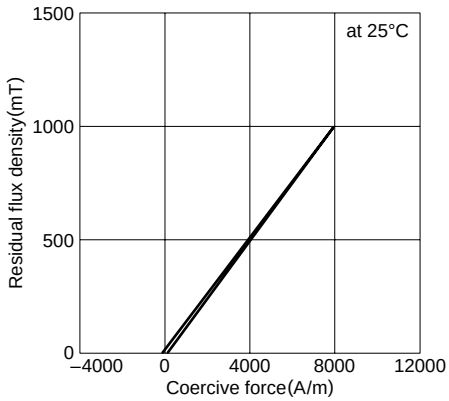
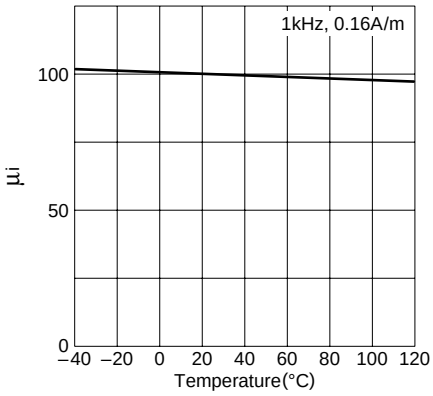
AP SERIES/CORE
TYPICAL MATERIAL CHARACTERISTICS

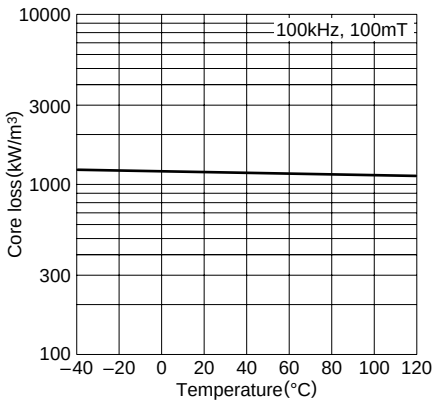
B-H CHARACTERISTICS



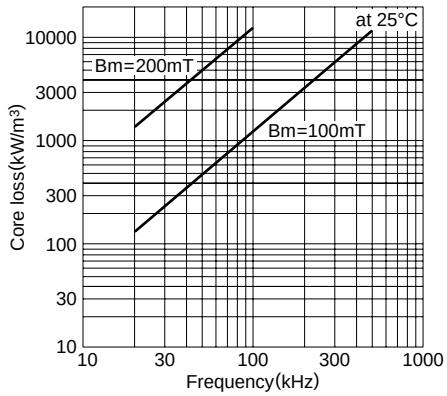
INITIAL PERMEABILITY vs. TEMPERATURE CHARACTERISTICS



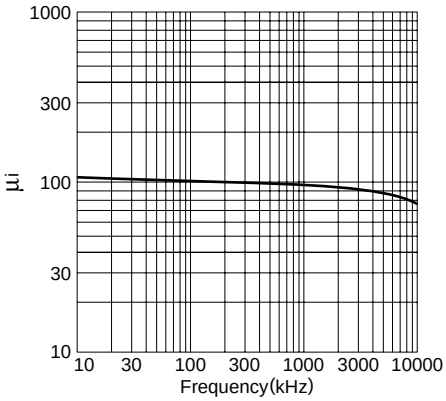
CORE LOSS vs. TEMPERATURE CHARACTERISTICS



CORE LOSS vs. FREQUENCY CHARACTERISTICS



INITIAL PERMEABILITY vs. FREQUENCY CHARACTERISTICS



⚠ Specifications which provide more details for the proper and safe use of the described product are available upon request.
All specifications are subject to change without notice.

TDK

Amorphous Cores

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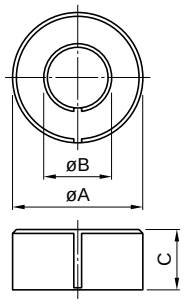
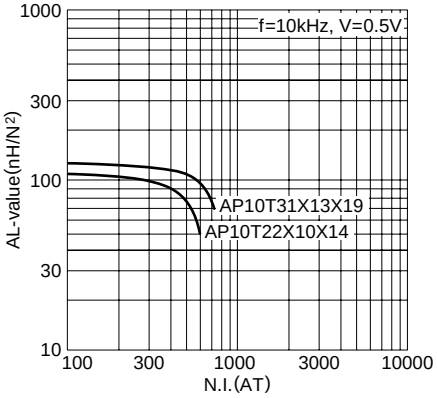
10 to 200+ W Output

AP Series

AP SERIES/CORE
SHAPES AND DIMENSIONS/CHARACTERISTICS



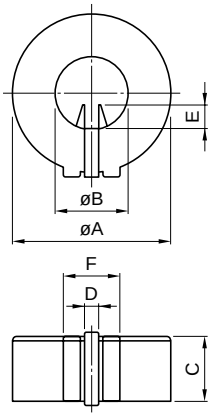
TYPICAL ELECTRICAL CHARACTERISTICS
DC SUPERPOSITION CHARACTERISTICS



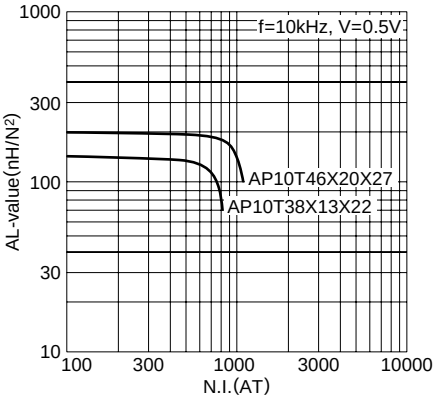
Part No.	Dimensions (mm)			Core constant C1 (mm⁻¹)	Effective cross-sectional area Ae (mm²)	Effective magnetic path length le (mm)	Effective core volume Ve (mm³)	AL-value (nH/N²) [at 10kHz, 0.5V]
	øAmax.	øBmin.	Cmax.					
AP10T22X10X14	24.5	11.5	14.5	1.39	39.33	54.67	2150	108.5±20%
AP10T31X13X19	33.5	16.5	17.5	0.99	76.46	75.49	5772	127.4±20%

- Core case:UL Grade 94V-0/core case material:FR phenol/core case minimum thickness:0.8mm
- Beat sound or magnetic flux leakage may occur depending on the usage conditions. Please check with the actual equipment.

SHAPES AND DIMENSIONS/CHARACTERISTICS



TYPICAL ELECTRICAL CHARACTERISTICS
DC SUPERPOSITION CHARACTERISTICS



Part No.	Dimensions (mm)						Core constant C1 (mm⁻¹)	Effective cross-sectional area Ae (mm²)	Effective magnetic path length le (mm)	Effective core volume Ve (mm³)	AL-value (nH/N²) [at 10kHz, 0.5V]
	øAmax.	øBmin.	Cmax.	D	E	F					
AP10T38X13X22	41.5	19	19.5	3.5	6.5	15.6	0.88	101.45	89.71	9101	142±20%
AP10T46X20X27	49.5	24	26.5	6	8	18	0.59	185.57	109.42	20304	194.8±20%

- Core case:UL Grade 94V-0/core case material:FR phenol/core case minimum thickness:0.8mm
- Beat sound or magnetic flux leakage may occur depending on the usage conditions. Please check with the actual equipment.

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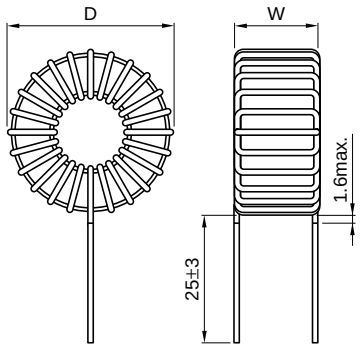
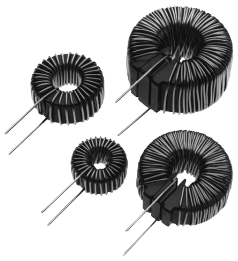
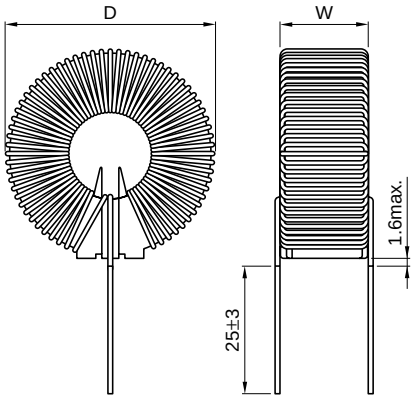
AP SERIES/INDUCTOR
CHOKE COILS FOR SWITCHING POWER OUTPUT SMOOTHING CIRCUIT
SHAPES AND DIMENSIONS/ELECTRICAL CHARACTERISTICS

APT22 AND APT31 TYPES





APT38 AND APT46 TYPES



Dimensions in mm

Part No.	Rated current Iac (A)	Inductance L (μH)	Saturation current Im (A)ref.	DC resistance Rdc (mΩ)max.	Winding diameter ø (mm)	Dimensions (mm)max.	
						D	W
APT22-471M4-10	4	470±20%	7	120	0.8	29	17
APT22-331M5-10	5	330±20%	8	67	1	30	19
APT22-221M6-10	6	220±20%	11	40	1.1	30	19
APT22-151M8-10	8	150±20%	15	34	1.2	30	19
APT22-680M10-10	10	68±20%	15	25	1.2	30	19
APT31-681M6-10	6	680±20%	9	87	1.2	41	24
APT31-471M8-10	8	470±20%	13	50	1.4	41	26
APT31-221M10-10	10	220±20%	18	25	1.6	42	25
APT31-151M10-10	10	150±20%	21	26	1.4	41	24
APT31-680M15-10	15	68±20%	31	15	1.6	42	25
APT31-470M20-10	20	47±20%	38	10	1.3×3	41	24
APT31-330M25-10	25	33±20%	42	10	1.3×3	41	24
APT38-681M8-10	8	680±20%	12	80	1.4	47	28
APT38-471M10-10	10	470±20%	14	55	1.4	47	28
APT38-151M15-10	15	150±20%	22	23	1.3×2	48	28
APT38-680M20-10	20	68±20%	29	10	1.3×3	50	29
APT38-680M25-10	25	68±20%	35	10	1.3×3	50	29
APT46-102M8-10	8	1000±20%	14	120	1.2	56	34
APT46-681M10-10	10	680±20%	18	60	1.6	57	35
APT46-331M15-10	15	330±20%	25	33	1.3×2	58	36
APT46-221M20-10	20	220±20%	30	18	1.3×3	58	36
APT46-151M25-10	25	150±20%	34	16	1.3×3	60	36

- Measuring conditions: f=10kHz, V=0.5V
- Saturation current Im is the direct bias current at 1/2 rated inductance value.
- Beat sound or magnetic flux leakage may occur depending on the usage conditions. Please check with the actual equipment.

Amorphous Cores

AP Series

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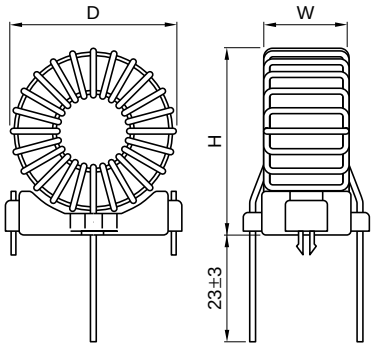
10 to 200+ W Output

AP SERIES/INDUCTOR
CHOKE COILS FOR SWITCHING POWER OUTPUT SMOOTHING CIRCUIT(WITH BASE)
SHAPES AND DIMENSIONS/ELECTRICAL CHARACTERISTICS



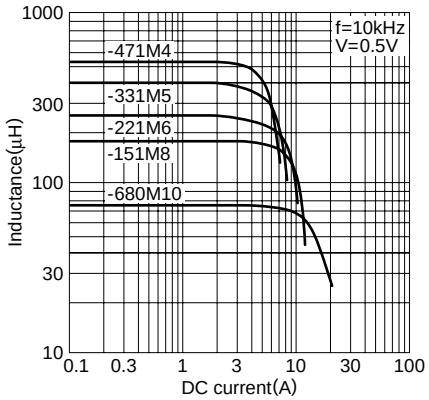
Dimensions in mm

Part No.	Rated current Iac (A)	Inductance L (μH)	Saturation current Im (A)ref.	DC resistance Rdc (mΩ)max.	Winding diameter ø (mm)	Dimensions (mm)max.		
						D	W	H
APT22-471M4-1B	4	470±20%	7	120	0.8	29	17	32.5
APT22-331M5-1B	5	330±20%	8	67	1	30	19	32.5
APT22-221M6-1B	6	220±20%	11	40	1.1	30	19	32.5
APT22-151M8-1B	8	150±20%	15	34	1.2	30	19	32.5
APT22-680M10-1B	10	68±20%	15	25	1.2	30	19	32.5
APT31-681M6-1B	6	680±20%	9	87	1.2	41	24	44.5
APT31-471M8-1B	8	470±20%	13	50	1.4	41	26	44.5
APT31-221M10-1B	10	220±20%	18	25	1.6	42	25	44.5
APT31-151M10-1B	10	150±20%	21	26	1.4	41	24	44.5
APT31-680M15-1B	15	68±20%	31	15	1.6	42	25	45.5

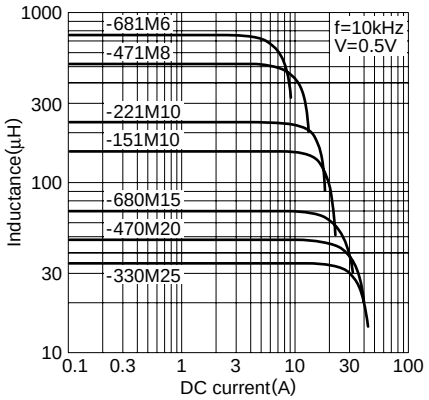
- Measuring conditions: f=10kHz, V=0.5V
- Saturation current Im is the direct bias current at 1/2 rated inductance value.
- Beat sound or magnetic flux leakage may occur depending on the usage conditions. Please check with the actual equipment.

TYPICAL ELECTRICAL CHARACTERISTICS
INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

APT22 TYPE



APT31 TYPE



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AP Series

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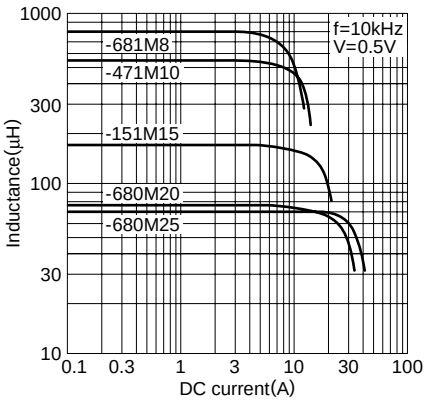
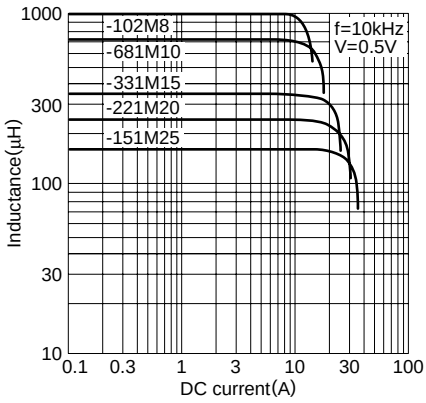
10 to 200+ W Output

AP SERIES/INDUCTOR
CHOKE COILS FOR SWITCHING POWER OUTPUT SMOOTHING CIRCUIT
TYPICAL ELECTRICAL CHARACTERISTICS
INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

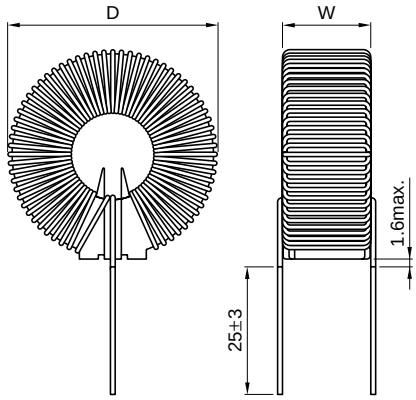
APT38 TYPE



APT46 TYPE



CHOKE COILS FOR ACTIVE FILTER
SHAPES AND DIMENSIONS/ELECTRICAL CHARACTERISTICS



Dimensions in mm

Part No.	Rated current Iac (A)	Peak current Idc (A)	Inductance L (μH)	DC resistance Rdc (mΩ)max.	Winding diameter ø (mm)	Dimensions (mm)max.	
						D	W
APT38-472M2-20	2	2.8	4700±20%	690	0.7	47	25
APT38-222M3-20	3	4.2	2200±20%	340	0.8	47	25
APT38-152M4-20	4	5.6	1500±20%	270	0.8	47	25
APT38-102M5-20	5	7.1	1000±20%	145	1	47	25
APT38-681M6-20	6	8.5	680±20%	120	1.1	47	25
APT38-331M8-20	8	11.3	330±20%	80	1.2	47	26
APT46-332M4-20	4	5.6	3300±20%	480	0.8	60	37
APT46-222M5-20	5	7.1	2200±20%	260	1	60	37
APT46-152M6-20	6	8.5	1500±20%	180	1.1	60	37
APT46-102M8-20	8	11.3	1000±20%	130	1.2	60	37
APT46-681M10-20	10	14.1	680±20%	60	1.6	60	37
APT46-331M15-20	15	21.2	330±20%	33	1.3×2	60	37

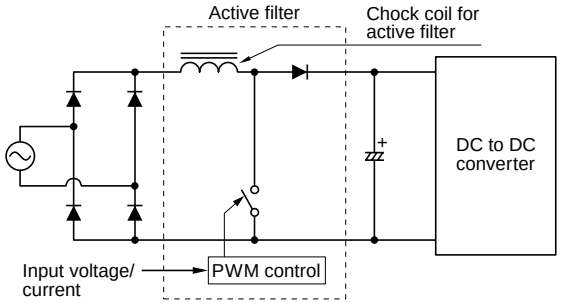
- Measuring conditions: f=10kHz, V=0.5V
- For a choke coil for active filters, the above inductance is guaranteed at the peak current which is equivalent to 1.4 times the rated current.
- Beat sound or magnetic flux leakage may occur depending on the usage conditions. Please check with the actual equipment.

Amorphous Cores

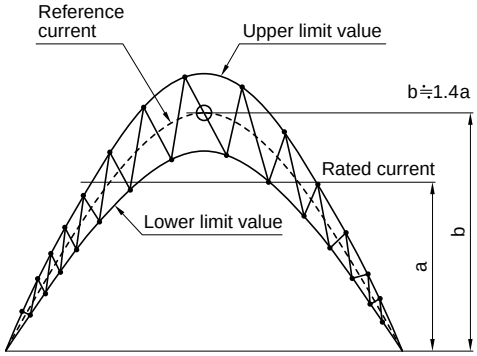
AP Series

For Smoothing Choke
10 to 200+ W Output

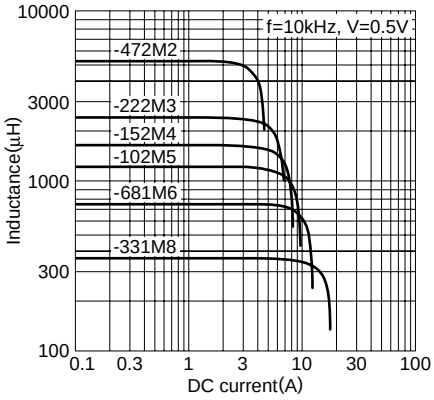
AP SERIES/INDUCTOR
CHOKE COILS FOR ACTIVE FILTER
TYPICAL APPLICATION



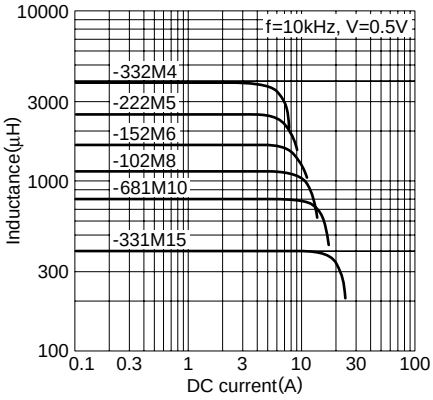
CHOKE COIL INPUT CURRENT WAVEFORM



TYPICAL ELECTRICAL CHARACTERISTICS
INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS
APT38 TYPE



APT46 TYPE



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微波光电部专业代理经销高频、微波、光纤、光电元器件、组件、部件、模块、整机；电磁兼容元器件、材料、设备；微波 CAD、EDA 软件、开发测试仿真工具；微波、光纤仪器仪表。欢迎国外高科技微波、光纤厂商将优秀产品介绍到中国、共同开拓市场。长期大量现货专业批发高频、微波、卫星、光纤、电视、CATV 器件： 晶振、VCO、连接器、PIN 开关、变容二极管、开关二极管、低噪晶体管、功率电阻及电容、放大器、功率管、MMIC、混频器、耦合器、功分器、振荡器、合成器、衰减器、滤波器、隔离器、环行器、移相器、调制解调器；光电子元器件和组件：红外发射管、红外接收管、光电开关、光敏管、发光二极管和发光二极管组件、半导体激光二极管和激光器组件、光电探测器和光接收组件、光发射接收模块、光纤激光器和光放大器、光调制器、光开关、DWDM 用光发射和接收器件、用户接入系统光光收发器件与模块、光纤连接器、光纤跳线/尾纤、光衰减器、光纤适 配器、光隔离器、光耦合器、光环行器、光复用器/转换器；无线收发芯片和模组、蓝牙芯片和模组。

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