



SMD POWER INDUCTORS / AGPI Series

● Features

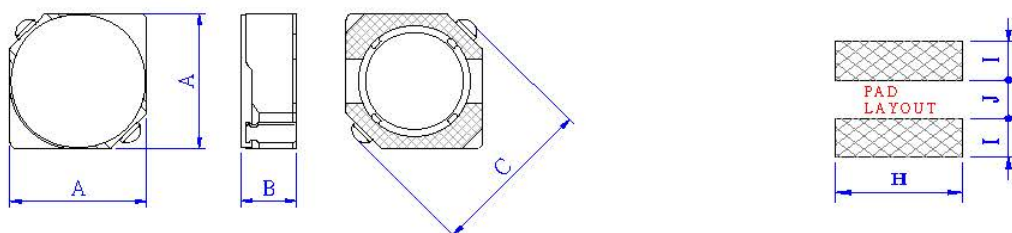
1. To be high saturation for surface mounting.
2. Surface mounts inductor with high current rating.
3. Low resistance to keep power loss minimum.
4. Packed in embossed carrier tape and can be used by automatic mounting machine.

● Applications

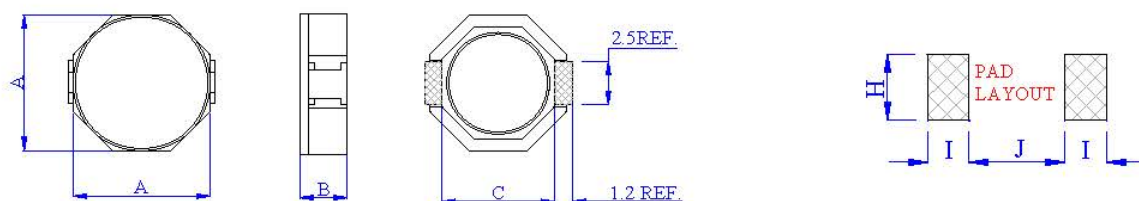
LCD driving circuits (DC-DC converters) such as notebook-sized personal computers, portable terminal equipment, game units.



● Shape & Dimensions



TYPE	A (mm)	B (mm)	C (mm)	H (Ref.)	I (Ref.)	J (Ref.)
AGPI3D16	4.0 MAX.	2.0 MAX.	5.2 MAX.	4.6	1.65	1.0
AGPI4D18	4.7 ± 0.3	2.0 MAX.	6.9 MAX.	5.3	1.90	1.5
AGPI4D28	4.7 ± 0.3	3.0 MAX.	6.9 MAX.	5.3	1.90	1.5
AGPI5D18	5.7 ± 0.3	2.0 MAX.	8.2 MAX.	6.3	2.15	2.0
AGPI5D28	5.7 ± 0.3	3.0 MAX.	8.2 MAX.	6.3	2.15	2.0
AGPI6D28	6.7 ± 0.3	3.0 MAX.	9.5 MAX.	7.3	2.65	2.0
AGPI6D38	6.7 ± 0.3	4.0 MAX.	9.5 MAX.	7.3	2.65	2.0



TYPE	A (mm)	B (mm)	C (mm)	H (Ref.)	I (Ref.)	J (Ref.)
AGPI8D43	8.3 MAX.	4.5 MAX.	6.3 REF.	2.8	2.00	6.1

SMD POWER INDUCTORS / AGPI Series

• Features

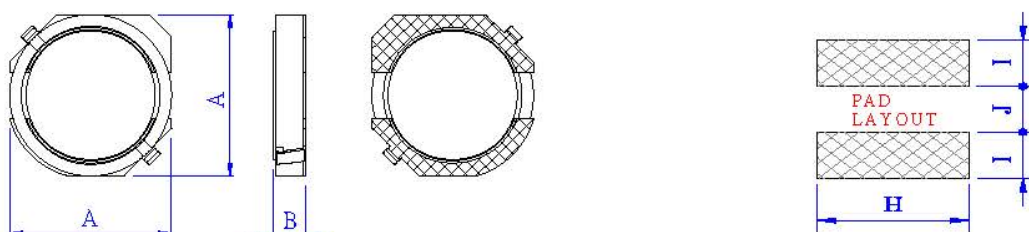
1. To be high saturation for surface mounting.
2. Surface mounts inductor with high current rating.
3. Low resistance to keep power loss minimum.
4. Packed in embossed carrier tape and can be used by automatic mounting machine.

• Applications

LCD driving circuits (DC-DC converters) such as notebook-sized personal computers, portable terminal equipment, game units.

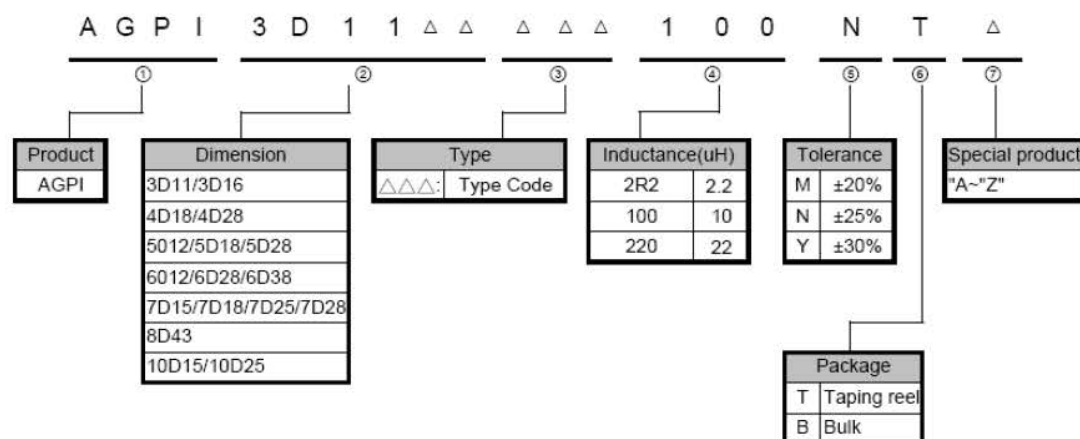


• Shape & Dimensions



TYPE	A (mm)	B (mm)	H (Ref.)	I (Ref.)	J (Ref.)
AGPI5012	5.3 MAX.	1.1±0.1	5.5	2.00	1.5
AGPI6012	6.0 ± 0.3	1.1±0.1	6.5	2.25	2.0
AGPI7D15	7.0 ± 0.3	1.5 MAX.	7.4	2.75	1.9
AGPI7D18	7.0 ± 0.3	1.8 MAX.	7.4	2.75	1.9
AGPI7D25	7.0 ± 0.3	2.5 MAX.	7.4	2.75	1.9
AGPI7D28	7.0 ± 0.3	2.8 MAX.	7.4	2.75	1.9
AGPI10D15	10.4 MAX.	1.5 MAX.	10.5	3.75	3.00
AGPI10D25	10.4 MAX.	2.5 MAX.	10.5	3.75	3.00

■ PRODUCT IDENTIFICATION



◆ AGPI3D16 Series Specification :

Part Number	Inductance (μ H)	Inductance Tolerance	Test Freq. (KHz)	DCR (m Ω) Max.	Saturation Current (A) Max.
AGPI3D161R5□T	1.5	Y	100	52	1.55
AGPI3D162R2□T	2.2	Y	100	72	1.20
AGPI3D163R3□T	3.3	Y	100	85	1.10
AGPI3D164R7□T	4.7	Y	100	105	0.90
AGPI3D166R8□T	6.8	M,N	100	170	0.73
AGPI3D16100□T	10	M,N	100	210	0.55
AGPI3D16150□T	15	M,N	100	295	0.45
AGPI3D16220□T	22	M,N	100	430	0.40
AGPI3D16330□T	33	M,N	100	675	0.32

NOTE :

* The operating temperature range is -40°C to +125°C (Including self-temperature rise)

* □ Tolerance M : $\pm 20\%$, N : $\pm 25\%$, Y : $\pm 30\%$

*Isat:For Inductance drop 35% from its value without current.

◆ AGPI4D18 Series Specification :

Part Number	Inductance (μ H)	Inductance Tolerance	Test Freq. (KHz)	DCR (m Ω) Max.	Saturation Current (A) Max.
AGPI4D181R0□T	1.0	Y	100	45	1.72
AGPI4D182R2□T	2.2	Y	100	75	1.32
AGPI4D182R7□T	2.7	Y	100	105	1.28
AGPI4D183R3□T	3.3	Y	100	110	1.04
AGPI4D183R9□T	3.9	Y	100	155	0.88
AGPI4D184R7□T	4.7	Y	100	162	0.84
AGPI4D185R6□T	5.6	M,N	100	170	0.80
AGPI4D186R8□T	6.8	M,N	100	180	0.76
AGPI4D188R2□T	8.2	M,N	100	190	0.68
AGPI4D18100□T	10	M,N	100	200	0.61
AGPI4D18120□T	12	M,N	100	210	0.56
AGPI4D18150□T	15	M,N	100	240	0.50
AGPI4D18180□T	18	M,N	100	338	0.48
AGPI4D18220□T	22	M,N	100	397	0.41
AGPI4D18270□T	27	M,N	100	441	0.35
AGPI4D18330□T	33	M,N	100	694	0.32
AGPI4D18390□T	39	M,N	100	709	0.30

NOTE :

* The operating temperature range is -40°C to +125°C (Including self-temperature rise)

* □ Tolerance M : $\pm 20\%$, N : $\pm 25\%$, Y : $\pm 30\%$

*Isat:For Inductance drop 35% from its value without current.

◆ AGPI4D28 Series Specification :

Part Number	Inductance (μ H)	Inductance Tolerance	Test Freq. (KHz)	DCR ($m\Omega$) Max.	Saturation Current (A) Max.
AGPI4D281R2□T	1.2	Y	100	24	2.56
AGPI4D281R8□T	1.8	Y	100	28	2.20
AGPI4D282R2□T	2.2	Y	100	31	2.04
AGPI4D282R7□T	2.7	Y	100	43	1.60
AGPI4D283R3□T	3.3	Y	100	49	1.57
AGPI4D283R9□T	3.9	Y	100	65	1.44
AGPI4D284R7□T	4.7	Y	100	72	1.32
AGPI4D285R6□T	5.6	M,N	100	101	1.17
AGPI4D286R8□T	6.8	M,N	100	109	1.12
AGPI4D288R2□T	8.2	M,N	100	117	1.04
AGPI4D28100□T	10	M,N	100	128	1.00
AGPI4D28120□T	12	M,N	100	132	0.84
AGPI4D28150□T	15	M,N	100	149	0.76
AGPI4D28180□T	18	M,N	100	166	0.72
AGPI4D28220□T	22	M,N	100	235	0.70
AGPI4D28270□T	27	M,N	100	261	0.58
AGPI4D28330□T	33	M,N	100	331	0.56
AGPI4D28390□T	39	M,N	100	384	0.50
AGPI4D28470□T	47	M,N	100	587	0.48
AGPI4D28560□T	56	M,N	100	624	0.41
AGPI4D28680□T	68	M,N	100	699	0.35
AGPI4D28820□T	82	M,N	100	915	0.32
AGPI4D28101□T	100	M,N	100	1020	0.29
AGPI4D28121□T	120	M,N	100	1270	0.27
AGPI4D28151□T	150	M,N	100	1350	0.24
AGPI4D28181□T	180	M,N	100	1540	0.22

NOTE :

* The operating temperature range is -40°C to $+125^{\circ}\text{C}$ (Including self-temperature rise)

* □ Tolerance M : $\pm 20\%$, N : $\pm 25\%$, Y : $\pm 30\%$

*Isat:For Inductance drop 35% from its value without current.

◆ AGPI5D18 Series Specification :

Part Number	Inductance (μ H)	Inductance Tolerance	Test Freq. (KHz)	DCR ($m\Omega$) Max.	Saturation Current (A) Max.
AGPI5D184R1□T	4.1	Y	100	57	1.95
AGPI5D185R4□T	5.4	M,N	100	76	1.60
AGPI5D186R2□T	6.2	M,N	100	96	1.40
AGPI5D188R9□T	8.9	M,N	100	116	1.25
AGPI5D18100□T	10	M,N	100	124	1.20
AGPI5D18120□T	12	M,N	100	153	1.10
AGPI5D18150□T	15	M,N	100	196	0.97
AGPI5D18180□T	18	M,N	100	210	0.85
AGPI5D18220□T	22	M,N	100	290	0.80
AGPI5D18270□T	27	M,N	100	330	0.75
AGPI5D18330□T	33	M,N	100	385	0.65
AGPI5D18390□T	39	M,N	100	520	0.57
AGPI5D18470□T	47	M,N	100	595	0.54
AGPI5D18560□T	56	M,N	100	665	0.50
AGPI5D18680□T	68	M,N	100	840	0.43
AGPI5D18820□T	82	M,N	100	978	0.41
AGPI5D18101□T	100	M,N	100	1200	0.36

NOTE :

* The operating temperature range is -40°C to $+125^{\circ}\text{C}$ (Including self-temperature rise)

* □ Tolerance M : $\pm 20\%$, N : $\pm 25\%$, Y : $\pm 30\%$

*Isat:For Inductance drop 35% from its value without current.

◆ AGPI5D28 Series Specification :

Part Number	Inductance (μ H)	Inductance Tolerance	Test Freq. (KHz)	DCR ($m\Omega$) Max.	Saturation Current (A) Max.
AGPI5D282R5□T	2.5	Y	100	18	2.60
AGPI5D283R0□T	3.0	Y	100	24	2.40
AGPI5D284R2□T	4.2	Y	100	31	2.20
AGPI5D285R3□T	5.3	M,N	100	38	1.90
AGPI5D286R2□T	6.2	M,N	100	45	1.80
AGPI5D288R2□T	8.2	M,N	100	53	1.60
AGPI5D28100□T	10	M,N	100	65	1.30
AGPI5D28120□T	12	M,N	100	76	1.20
AGPI5D28150□T	15	M,N	100	103	1.10
AGPI5D28180□T	18	M,N	100	110	1.00
AGPI5D28220□T	22	M,N	100	122	0.90
AGPI5D28270□T	27	M,N	100	175	0.85
AGPI5D28330□T	33	M,N	100	189	0.75
AGPI5D28390□T	39	M,N	100	212	0.70
AGPI5D28470□T	47	M,N	100	250	0.62
AGPI5D28560□T	56	M,N	100	305	0.58
AGPI5D28680□T	68	M,N	100	355	0.52
AGPI5D28820□T	82	M,N	100	463	0.46
AGPI5D28101□T	100	M,N	100	520	0.42

NOTE :

* The operating temperature range is -40°C to $+125^{\circ}\text{C}$ (Including self-temperature rise)

* □ Tolerance M : $\pm 20\%$, N : $\pm 25\%$, Y : $\pm 30\%$

* Isat: For Inductance drop 35% from its value without current.

◆ AGPI6D28 Series Specification :

Part Number	Inductance (μ H)	Inductance Tolerance	Test Freq. (KHz)	DCR ($m\Omega$) Max.	Saturation Current (A) Max.
AGPI6D283R0□T	3.0	Y	100	24	3.00
AGPI6D283R9□T	3.9	Y	100	27	2.60
AGPI6D285R0□T	5.0	M,N	100	31	2.40
AGPI6D286R0□T	6.0	M,N	100	35	2.25
AGPI6D287R3□T	7.3	M,N	100	54	2.10
AGPI6D288R6□T	8.6	M,N	100	58	1.85
AGPI6D28100□T	10	M,N	100	65	1.70
AGPI6D28120□T	12	M,N	100	70	1.55
AGPI6D28150□T	15	M,N	100	84	1.40
AGPI6D28180□T	18	M,N	100	95	1.32
AGPI6D28220□T	22	M,N	100	128	1.20
AGPI6D28270□T	27	M,N	100	142	1.05
AGPI6D28330□T	33	M,N	100	165	0.97
AGPI6D28390□T	39	M,N	100	210	0.86
AGPI6D28470□T	47	M,N	100	238	0.80
AGPI6D28560□T	56	M,N	100	277	0.73
AGPI6D28680□T	68	M,N	100	304	0.65
AGPI6D28820□T	82	M,N	100	390	0.60
AGPI6D28101□T	100	M,N	100	535	0.54

NOTE :

* The operating temperature range is -40°C to $+125^{\circ}\text{C}$ (Including self-temperature rise)

* □ Tolerance M : $\pm 20\%$, N : $\pm 25\%$, Y : $\pm 30\%$

* Isat: For Inductance drop 35% from its value without current.

◆ AGPI6D38 Series Specification :

Part Number	Inductance (μ H)	Inductance Tolerance	Test Freq. (KHz)	DCR ($m\Omega$) Max.	Saturation Current (A) Max.
AGPI6D383R3□T	3.3	Y	100	20	3.50
AGPI6D385R0□T	5.0	M,N	100	24	2.90
AGPI6D386R2□T	6.2	M,N	100	27	2.50
AGPI6D387R4□T	7.4	M,N	100	31	2.30
AGPI6D388R7□T	8.7	M,N	100	34	2.20
AGPI6D38100□T	10	M,N	100	38	2.00
AGPI6D38120□T	12	M,N	100	53	1.70
AGPI6D38150□T	15	M,N	100	57	1.60
AGPI6D38180□T	18	M,N	100	92	1.50
AGPI6D38220□T	22	M,N	100	96	1.30
AGPI6D38270□T	27	M,N	100	109	1.20
AGPI6D38330□T	33	M,N	100	124	1.10
AGPI6D38390□T	39	M,N	100	138	1.00
AGPI6D38470□T	47	M,N	100	155	0.95
AGPI6D38560□T	56	M,N	100	202	0.85
AGPI6D38680□T	68	M,N	100	234	0.75
AGPI6D38820□T	82	M,N	100	324	0.70
AGPI6D38101□T	100	M,N	100	358	0.65

NOTE :

* The operating temperature range is -40°C to $+125^{\circ}\text{C}$ (Including self-temperature rise)

* □ Tolerance M : $\pm 20\%$, N : $\pm 25\%$, Y : $\pm 30\%$

* Isat: For Inductance drop 35% from its value without current.

◆ AGPI8D43 Series Specification :

Part Number	Inductance (μ H)	Inductance Tolerance	Test Freq. (KHz)	DCR ($m\Omega$) Max.	Saturation Current (A) Max.
AGPI8D433R3□T	3.3	Y	100	22	5.80
AGPI8D434R7□T	4.7	Y	100	22	5.60
AGPI8D436R8□T	6.8	M,N	100	38	4.20
AGPI8D43100□T	10	M,N	100	45	3.70
AGPI8D43150□T	15	M,N	100	53	2.90
AGPI8D43220□T	22	M,N	100	75	2.10

NOTE :

* The operating temperature range is -40°C to $+125^{\circ}\text{C}$ (Including self-temperature rise)

* □ Tolerance M : $\pm 20\%$, N : $\pm 25\%$, Y : $\pm 30\%$

* Isat: For Inductance drop 35% from its value without current.

◆AGP5012 Series Specification :

Part Number	Inductance (μ H)	Inductance Tolerance	Test Freq. (KHz)	DCR ($m\Omega$) Max.	Saturation Current (A) Max.	Temp. Rise current (A) Max.
AGPI50123R3□T	3.3	Y	100	264	1.60	1.25
AGPI50124R7□T	4.7	Y	100	310	1.50	1.20
AGPI50126R8□T	6.8	M,N	100	360	1.30	1.10
AGPI50128R2□T	8.2	M,N	100	480	1.12	0.95
AGPI5012100□T	10	M,N	100	530	1.05	0.90
AGPI5012120□T	12	M,N	100	600	0.92	0.85

NOTE :

* The operating temperature range is -40°C to $+125^{\circ}\text{C}$ (Including self-temperature rise)

* □ Tolerance M : $\pm 20\%$, N : $\pm 25\%$, Y : $\pm 30\%$

* Isat: For Inductance drop 35% from its value without current.

* Irms: The value of D.C current when the temperature rise is $\Delta T \leq 40^{\circ}\text{C}$. ($T_a = 25^{\circ}\text{C}$)

◆AGPI6012 Series Specification :

Part Number	Inductance (μ H)	Inductance Tolerance	Test Freq. (KHz)	DCR ($m\Omega$) Max.	Saturation Current (A) Max.	Temp. Rise current (A) Max.
AGPI60123R0□T	3.0	Y	100	120	1.90	2.00
AGPI60124R7□T	4.7	Y	100	180	1.80	1.90
AGPI60126R8□T	6.8	M,N	100	210	1.60	1.80
AGPI60128R2□T	8.2	M,N	100	280	1.30	1.60
AGPI6012100□T	10	M,N	100	310	1.10	1.50
AGPI6012120□T	12	M,N	100	450	1.00	1.20
AGPI6012150□T	15	M,N	100	480	0.95	1.10

NOTE :

* The operating temperature range is -40°C to $+125^{\circ}\text{C}$ (Including self-temperature rise)

* □ Tolerance M : $\pm 20\%$, N : $\pm 25\%$, Y : $\pm 30\%$

* Isat: For Inductance drop 35% from its value without current.

* Irms: The value of D.C current when the temperature rise is $\Delta T \leq 40^{\circ}\text{C}$. ($T_a = 25^{\circ}\text{C}$)

◆ AGPI7D15 Series Specification :

Part Number	Inductance (μ H)	Inductance Tolerance	Test Freq. (KHz)	DCR ($m\Omega$) Max.	Saturation Current (A) Max.
AGPI7D153R3□T	3.3	Y	100	65	2.80
AGPI7D154R7□T	4.7	Y	100	70	2.50
AGPI7D156R8□T	6.8	M,N	100	106	2.10
AGPI7D15100□T	10	M,N	100	150	1.40
AGPI7D15150□T	15	M,N	100	195	1.10
AGPI7D15220□T	22	M,N	100	300	0.90

NOTE :

* The operating temperature range is -40°C to $+125^{\circ}\text{C}$ (Including self-temperature rise)

* □ Tolerance M : $\pm 20\%$, N : $\pm 25\%$, Y : $\pm 30\%$

* Isat: For Inductance drop 35% from its value without current.

◆ AGPI7D18 Series Specification :

Part Number	Inductance (μ H)	Inductance Tolerance	Test Freq. (KHz)	DCR ($m\Omega$) Max.	Saturation Current (A) Max.
AGPI7D182R2□T	2.2	Y	100	60	3.80
AGPI7D183R3□T	3.3	Y	100	67	3.20
AGPI7D184R7□T	4.7	Y	100	96	2.80
AGPI7D185R6□T	5.6	M,N	100	102	2.60
AGPI7D186R8□T	6.8	M,N	100	142	2.20
AGPI7D188R0□T	8.0	M,N	100	146	2.00
AGPI7D18100□T	10	M,N	100	148	1.70
AGPI7D18120□T	12	M,N	100	221	1.60
AGPI7D18150□T	15	M,N	100	276	1.30
AGPI7D18180□T	18	M,N	100	350	1.40
AGPI7D18220□T	22	M,N	100	400	1.10

NOTE :

* The operating temperature range is -40°C to $+125^{\circ}\text{C}$ (Including self-temperature rise)

* □ Tolerance M : $\pm 20\%$, N : $\pm 25\%$, Y : $\pm 30\%$

* Isat: For Inductance drop 35% from its value without current.

◆ AGPI7D25 Series Specification :

Part Number	Inductance (μ H)	Inductance Tolerance	Test Freq. (KHz)	DCR ($m\Omega$) Max.	Saturation Current (A) Max.
AGPI7D252R7□T	2.7	Y	100	47	4.00
AGPI7D254R7□T	4.7	Y	100	70	3.20
AGPI7D256R8□T	6.8	M,N	100	77	2.80
AGPI7D258R2□T	8.2	M,N	100	92	2.60
AGPI7D25100□T	10	M,N	100	120	2.40
AGPI7D25120□T	12	M,N	100	130	2.00
AGPI7D25150□T	15	M,N	100	147	1.70
AGPI7D25180□T	18	M,N	100	193	1.60
AGPI7D25220□T	22	M,N	100	216	1.50

NOTE :

* The operating temperature range is -40°C to $+125^{\circ}\text{C}$ (Including self-temperature rise)

* □ Tolerance M : $\pm 20\%$, N : $\pm 25\%$, Y : $\pm 30\%$

* Isat: For Inductance drop 35% from its value without current.

◆ AGPI7D28 Series Specification :

Part Number	Inductance (μ H)	Inductance Tolerance	Test Freq. (KHz)	DCR ($m\Omega$) Max.	Saturation Current (A) Max.
AGPI7D281R8□T	1.8	Y	100	27	4.50
AGPI7D282R7□T	2.7	Y	100	33	4.00
AGPI7D283R3□T	3.3	Y	100	36	3.50
AGPI7D284R3□T	4.3	Y	100	48	3.20
AGPI7D285R0□T	5.0	M,N	100	49	3.00
AGPI7D286R2□T	6.2	M,N	100	56	2.80
AGPI7D288R7□T	8.7	M,N	100	70	2.60
AGPI7D28100□T	10	M,N	100	77	2.40
AGPI7D28120□T	12	M,N	100	91	2.20
AGPI7D28150□T	15	M,N	100	104	1.90
AGPI7D28180□T	18	M,N	100	135	1.80

NOTE :

* The operating temperature range is -40°C to $+125^{\circ}\text{C}$ (Including self-temperature rise)

* □ Tolerance M : $\pm 20\%$, N : $\pm 25\%$, Y : $\pm 30\%$

* Isat: For Inductance drop 35% from its value without current.

◆ AGPI10D15 Series Specification :

Part Number	Inductance (μ H)	Inductance Tolerance	Test Freq. (KHz)	DCR ($m\Omega$) Max.	Saturation Current (A) Max.	Temp. Rise current (A) Max.
AGPI10D153R3□T	3.3	Y	100	70	3.40	2.90
AGPI10D154R7□T	4.7	Y	100	84	3.6(Ref.)	2.65
AGPI10D156R8□T	6.8	M,N	100	115	2.60	2.25
AGPI10D15100□T	10	M,N	100	170	2.30	1.75
AGPI10D15120□T	12	M,N	100	185	2.10	1.70
AGPI10D15150□T	15	M,N	100	220	1.65	1.50
AGPI10D15180□T	18	M,N	100	230	1.55	1.35
AGPI10D15220□T	22	M,N	100	320	1.45	1.25
AGPI10D15270□T	27	M,N	100	340	1.40	1.15
AGPI10D15330□T	33	M,N	100	410	1.20	1.00
AGPI10D15390□T	39	M,N	100	530	0.95	0.90
AGPI10D15470□T	47	M,N	100	580	0.80	0.75

NOTE :

* The operating temperature range is -40°C to $+105^{\circ}\text{C}$ (Including self-temperature rise)

* □ Tolerance M : $\pm 20\%$, N : $\pm 25\%$, Y : $\pm 30\%$

* Isat: For Inductance drop 35% from its value without current.

* Irms: The value of D.C current when the temperature rise is $\Delta T \leq 40^{\circ}\text{C}$. ($T_a = 25^{\circ}\text{C}$)

◆ AGPI10D25 Series Specification :

Part Number	Inductance (μ H)	Inductance Tolerance	Test Freq. (KHz)	DCR ($m\Omega$) Max.	Saturation Current (A) Max.	Temp. Rise current (A) Max.
AGPI10D253R3□T	3.3	Y	100	46	5.20	4.00
AGPI10D254R7□T	4.7	Y	100	54	4.20	3.70
AGPI10D256R8□T	6.8	M,N	100	56	3.80	3.50
AGPI10D25100□T	10	M,N	100	85	3.00	2.70
AGPI10D25120□T	12	M,N	100	116	2.80	2.25
AGPI10D25150□T	15	M,N	100	123	2.40	2.15
AGPI10D25180□T	18	M,N	100	143	2.35	2.00
AGPI10D25220□T	22	M,N	100	180	2.30	1.75
AGPI10D25270□T	27	M,N	100	204	2.00	1.60
AGPI10D25330□T	33	M,N	100	263	1.60	1.40
AGPI10D25390□T	39	M,N	100	292	1.50	1.30
AGPI10D25470□T	47	M,N	100	360	1.30	1.20
AGPI10D25560□T	56	M,N	100	452	1.20	1.05
AGPI10D25680□T	68	M,N	100	509	1.10	1.00

NOTE :

* The operating temperature range is -40°C to $+105^{\circ}\text{C}$ (Including self-temperature rise)

* □ Tolerance M : $\pm 20\%$, N : $\pm 25\%$, Y : $\pm 30\%$

* Isat: For Inductance drop 35% from its value without current.

* Irms: The value of D.C current when the temperature rise is $\Delta T \leq 40^{\circ}\text{C}$. ($T_a = 25^{\circ}\text{C}$)