Wire Wound SMD Power Inductors – SPH Series

Operating temp. : -40°C ~+125°C (Including self-heating)

FEATURES

- Magnetic-resin shielded construction reduces buzz noise to ultra-low levels
- Metallization on ferrite core results in excellent shock resistance and damage-free durability
- Closed magnetic circuit design reduces leakage flux and Electro Magnetic Interference (EMI)
- Takes up less PCB real estate and save more power
- 30% lower DCR than SWPA series and larger current

APPLICATIONS

- Smart phone, set top box, VR, AR
- Notebooks, desktop computers, servers
- Portable gaming devices, personal navigation systems, personal multimedia devices

PRODUCT IDENTIFICATION

1	2	3	4	5	6	7
SPH	252012	H	2R2	M	T	□□□

1

Type	
SPH	Wire Wound SMD Power Inductor

2

External Dimensions (L×W) (mm)	
201610	2.0×1.6×1.0
252010	2.5×2.0×1.0
252012	2.5×2.0×1.2
3010	3.0×3.0×1.0
3012	3.0×3.0×1.2
3015	3.0×3.0×1.5
4012	4.0×4.0×1.2
4018	4.0×4.0×1.8

3

Material Code	
U	U Type Material
H	H Type Material

4

Nominal Inductance	
Example	Nominal Value
R47	0.47μH
2R2	2.2μH

5

Inductance Tolerance	
M	±20%
N	±30%

6

Packing	
T	Tape & Reel

7

Design Code	
□□□	Design Code
* Standard product is blank	

SHAPE AND DIMENSIONS

Fig.1

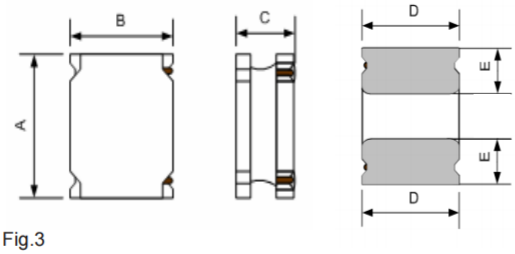


Fig.2

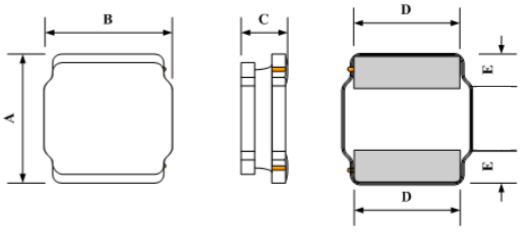


Fig.3

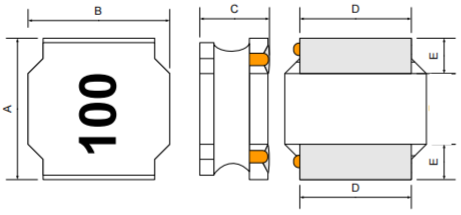
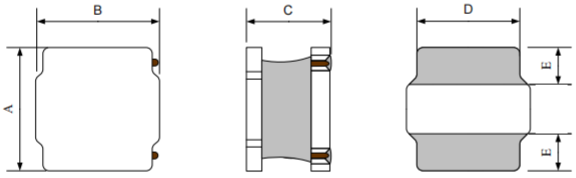
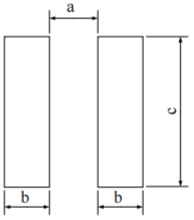


Fig.4



Recommended Land Pattern



Series	Shape	A	B	C	D	E	a Typ.	b Typ.	c Typ.
SPH201610H	Fig.1	2.0±0.2	1.6±0.2	1.0 Max.	1.2±0.2	0.60±0.2	0.70	0.70	1.7
SPH201610U	Fig.4	2.0±0.2	1.6±0.2	1.0 Max.	1.6±0.2	0.60±0.2	0.70	0.70	1.7
SPH252010	Fig.1	2.5±0.2	2.0±0.2	1.0 Max.	2.0±0.2	0.80±0.2	0.80	0.85	2.0
SPH252012	Fig.1	2.5±0.2	2.0±0.2	1.2 Max.	2.0±0.2	0.80±0.2	0.80	0.85	2.0
SPH3010	Fig.2	3.0±0.2	3.0±0.2	1.0 Max.	2.5±0.2	0.75±0.2	1.5	0.8	2.7
SPH3012	Fig.2	3.0±0.2	3.0±0.2	1.2 Max.	2.5±0.2	0.75±0.2	1.5	0.8	2.7
SPH3015	Fig.2	3.0±0.2	3.0±0.2	1.5 Max.	2.5±0.2	0.75±0.2	1.5	0.8	2.7
SPH4012	Fig.3	4.0±0.2	4.0±0.2	1.2 Max.	3.3±0.2	0.95±0.2	1.9	1.1	3.7
SPH4018	Fig.3	4.0±0.2	4.0±0.2	1.8 Max.	3.3±0.2	0.95±0.2	1.9	1.1	3.7

Unit: mm

SPECIFICATIONS

SPH201610H Series

Part Number	Inductance	Max. DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz,1V	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
SPH201610HR16MT	0.16±20%	0.031	0.026	402	4.30	4.80	3.20	3.50
SPH201610HR24MT	0.24±20%	0.040	0.033	285	3.70	4.10	2.90	3.20
SPH201610HR33MT	0.33±20%	0.040	0.033	224	2.50	3.10	2.90	3.20
SPH201610HR47MT	0.47±20%	0.059	0.049	130	2.30	2.85	2.35	2.60
SPH201610HR68MT	0.68±20%	0.076	0.063	98	1.95	2.45	2.05	2.25
SPH201610H1R0MT	1.0±20%	0.114	0.095	97	1.65	1.85	1.45	1.60
SPH201610H1R5MT	1.5±20%	0.174	0.145	67	1.35	1.65	1.25	1.40
SPH201610H2R2MT	2.2±20%	0.264	0.220	59	1.20	1.45	1.10	1.20
SPH201610H3R3MT	3.3±20%	0.335	0.279	47	0.90	1.05	0.88	0.98
SPH201610H4R7MT	4.7±20%	0.479	0.399	37	0.70	0.85	0.74	0.82
SPH201610H6R8MT	6.8±20%	0.816	0.680	25	0.60	0.70	0.52	0.58
SPH201610H100MT	10±20%	1.020	0.850	21	0.50	0.55	0.45	0.50

SPECIFICATIONS

SPH201610U Series

Part Number	Inductance	Max. DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz,1V	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
SPH201610U50NMT	0.05±20%	0.022	0.018	1063	7.50	8.00	3.65	4.25
SPH201610UR10MT	0.10±20%	0.022	0.018	583	4.80	5.70	3.65	4.25
SPH201610UR16MT	0.16±20%	0.031	0.026	423	4.70	5.40	3.20	3.50
SPH201610UR24MT	0.24±20%	0.040	0.033	305	4.50	5.00	2.90	3.20
SPH201610UR33MT	0.33±20%	0.040	0.033	232	3.00	3.60	2.90	3.20
SPH201610UR47MT	0.47±20%	0.052	0.043	182	2.90	3.40	2.35	2.60
SPH201610UR47MTY01	0.47±20%	0.040	0.033	210	2.00	2.40	2.90	3.20
SPH201610UR68MT	0.68±20%	0.072	0.060	165	2.50	2.70	2.05	2.25
SPH201610U1R0MT	1.0±20%	0.072	0.060	147	1.30	1.50	2.05	2.25
SPH201610U2R2MT	2.2±20%	0.171	0.143	60	1.10	1.20	1.23	1.40

SPH252010H Series

Part Number	Inductance	Max. DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz,1V	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
SPH252010HR24MT	0.24±20%	0.034	0.028	360	3.60	4.40	2.75	3.00
SPH252010HR33MT	0.33±20%	0.043	0.036	270	3.80	4.60	2.40	2.65
SPH252010HR47MT	0.47±20%	0.044	0.037	170	2.40	2.80	2.40	2.65
SPH252010HR68MT	0.68±20%	0.061	0.051	110	2.75	3.10	2.10	2.35
SPH252010HR68MTY01	0.68±20%	0.061	0.051	110	2.75	3.10	2.10	2.35
SPH252010HR68MTY02	0.68±20%	0.065	0.055	110	3.20	3.50	2.10	2.30
SPH252010H1R0MT	1.0±20%	0.080	0.067	84	2.05	2.45	1.80	2.00
SPH252010H1R5MT	1.5±20%	0.108	0.090	60	1.70	2.05	1.55	1.70
SPH252010H2R2MT	2.2±20%	0.137	0.114	56	1.55	1.80	1.40	1.55
SPH252010H3R3MT	3.3±20%	0.228	0.170	39	1.10	1.40	1.10	1.20
SPH252010H4R7MT	4.7±20%	0.323	0.269	28	1.00	1.15	0.91	1.00
SPH252010H6R8MT	6.8±20%	0.451	0.376	25	0.82	0.95	0.76	0.84
SPH252010H100MT	10±20%	0.584	0.487	20	0.65	0.75	0.67	0.74
SPH252010H150MT	15±20%	0.954	0.795	19	0.55	0.65	0.50	0.55
SPH252010H220MT	22±20%	1.548	1.290	15	0.45	0.55	0.40	0.45
SPH252010H330MT	33±20%	2.120	1.770	10	0.39	0.45	0.26	0.37

SPH252012H Series

Part Number	Inductance	Max. DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz,1V	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
SPH252012HR16MT	0.16±20%	0.022	0.018	380	6.50	7.20	4.05	4.50
SPH252012HR24MT	0.24±20%	0.022	0.018	260	4.00	4.75	4.05	4.50
SPH252012HR33MT	0.33±20%	0.029	0.024	230	4.00	4.70	3.35	3.70
SPH252012HR47MT	0.47±20%	0.036	0.030	170	3.70	4.10	3.00	3.30
SPH252012HR47MTY01	0.47±20%	0.038	0.032	165	4.90	5.20	2.90	3.20
SPH252012HR68MT	0.68±20%	0.061	0.051	150	3.00	3.30	2.10	2.30
SPH252012HR68MTY01	0.68±20%	0.042	0.035	150	3.20	3.50	2.50	2.70
SPH252012HR68MTY02	0.68±20%	0.060	0.051	150	3.80	4.20	2.10	2.30
SPH252012H1R0MT	1.0±20%	0.044	0.037	85	1.70	1.90	2.20	2.40

SPECIFICATIONS

SPH252012H Series

Part Number	Inductance	Max. DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz,1V	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
SPH252012H1R5MT	1.5±20%	0.078	0.065	75	2.00	2.35	1.95	2.10
SPH252012H2R2MT	2.2±20%	0.096	0.080	55	1.80	1.95	1.80	1.95
SPH252012H3R3MT	3.3±20%	0.144	0.120	43	1.15	1.25	1.40	1.50
SPH252012H4R7MT	4.7±20%	0.210	0.175	36	1.10	1.20	1.12	1.25
SPH252012H6R8MT	6.8±20%	0.360	0.300	25	0.80	1.00	0.95	1.05
SPH252012H100MT	10±20%	0.522	0.435	21	0.70	0.85	0.79	0.87
SPH252012H150MT	15±20%	1.000	0.830	18	0.65	0.75	0.57	0.63
SPH252012H180MT	18±20%	1.000	0.830	14	0.50	0.65	0.57	0.63
SPH252012H220MT	22±20%	1.090	0.910	11	0.45	0.55	0.54	0.60
SPH252012H330MT	33±20%	1.840	1.530	7.5	0.35	0.40	0.42	0.46
SPH252012H470MT	47±20%	2.220	1.850	8.9	0.25	0.30	0.30	0.35

SPH3010H Series

Part Number	Inductance	Max. DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz,1V	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
SPH3010H4R7MT	4.7±20%	0.18	0.15	42	0.85	0.95	1.10	1.25
SPH3010H100MT	10±20%	0.42	0.35	30	0.60	0.70	0.62	0.80
SPH3010H220MT	22±20%	0.92	0.77	18	0.40	0.50	0.48	0.56

SPH3012H Series

Part Number	Inductance	Max. DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz,1V	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
SPH3012H1R0MT	1.0±20%	0.040	0.032	74	2.20	2.50	2.30	2.50
SPH3012H1R0MTY02	1.0±20%	0.056	0.047	91	2.80	3.20	1.90	2.00
SPH3012H2R2MT	2.2±20%	0.090	0.075	51	1.50	1.80	1.40	1.60
SPH3012H3R3MT	3.3±20%	0.134	0.112	62	1.23	1.55	1.10	1.30
SPH3012H100MT	10±20%	0.372	0.310	22	0.75	0.90	0.75	0.80
SPH3012H100MTY01	10±20%	0.495	0.413	27	1.00	1.10	0.90	1.00
SPH3012H100MTY02	10±20%	0.324	0.270	32	0.73	0.85	0.78	0.85
SPH3012H220MT	22±20%	0.840	0.700	14	0.50	0.60	0.50	0.55
SPH3012H220MTY01	22±20%	0.756	0.630	20	0.50	0.60	0.50	0.60

SPH3015H Series

Part Number	Inductance	Max. DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz,1V	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
SPH3015HR22MT	0.22±20%	0.022	0.018	226	6.00	6.80	3.00	3.50
SPH3015HR24MT	0.24±20%	0.022	0.018	206	5.00	5.50	3.00	3.50
SPH3015HR47MT	0.47±20%	0.022	0.018	157	2.40	2.80	3.00	3.50
SPH3015HR55MT	0.55±20%	0.019	0.016	159	2.40	2.70	3.05	3.55

SPECIFICATIONS

SPH3015H Series

Part Number	Inductance	Max. DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz,1V	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
SPH3015H1R0MT	1.0±20%	0.040	0.033	92	2.70	3.00	2.20	2.50
SPH3015H1R5MT	1.5±20%	0.048	0.040	70	2.00	2.30	2.00	2.30
SPH3015H2R2MT	2.2±20%	0.060	0.050	55	1.50	1.70	1.80	2.05
SPH3015H3R3MT	3.3±20%	0.084	0.070	51	1.30	1.50	1.50	1.70
SPH3015H3R9MT	3.9±20%	0.115	0.096	39	1.30	1.60	1.30	1.50
SPH3015H4R7MT	4.7±20%	0.115	0.096	35	1.10	1.20	1.30	1.50
SPH3015H6R8MT	6.8±20%	0.144	0.120	27	0.80	0.90	1.16	1.35
SPH3015H100MT	10±20%	0.276	0.230	21	0.75	0.90	0.84	0.97
SPH3015H150MT	15±20%	0.360	0.300	18	0.60	0.70	0.73	0.84
SPH3015H220MT	22±20%	0.540	0.450	14	0.52	0.60	0.60	0.70
SPH3015H260MT	26±20%	0.768	0.640	13	0.40	0.50	0.45	0.55
SPH3015H330MT	33±20%	1.090	0.910	15	0.50	0.55	0.50	0.55
SPH3015H470MT	47±20%	1.250	1.040	11	0.35	0.42	0.45	0.50

SPH4012H Series

Part Number	Inductance	Max. DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz,1V	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
SPH4012HR33NT	0.33±30%	0.031	0.026	260	5.50	6.30	2.90	3.35
SPH4012HR47NT	0.47±30%	0.032	0.027	193	3.50	4.20	2.90	3.20
SPH4012HR82NT	0.82±30%	0.042	0.035	121	3.00	3.50	2.50	2.90
SPH4012H1R0NT	1.0±30%	0.050	0.042	100	2.80	3.30	2.20	2.50
SPH4012H1R5NT	1.5±30%	0.050	0.042	72	2.10	2.20	2.20	2.50
SPH4012H1R8NT	1.8±30%	0.066	0.055	73	2.10	2.40	2.00	2.30
SPH4012H2R2MT	2.2±20%	0.066	0.055	61	1.70	1.80	2.00	2.30
SPH4012H2R7MT	2.7±20%	0.084	0.070	57	1.90	2.20	1.70	2.00
SPH4012H3R3MT	3.3±20%	0.084	0.070	55	1.40	1.70	1.70	2.00
SPH4012H3R6MT	3.6±20%	0.090	0.075	49	1.20	1.60	1.70	2.00
SPH4012H4R3MT	4.3±20%	0.108	0.090	42	1.20	1.50	1.50	1.80
SPH4012H4R7MT	4.7±20%	0.108	0.090	39	1.20	1.30	1.50	1.80
SPH4012H5R1MT	5.1±20%	0.132	0.110	35	1.20	1.40	1.40	1.60
SPH4012H5R6MT	5.6±20%	0.132	0.110	35	1.10	1.40	1.40	1.60
SPH4012H6R8MT	6.8±20%	0.150	0.125	33	0.90	1.10	1.30	1.60
SPH4012H100MT	10±20%	0.204	0.170	27	0.80	0.90	1.10	1.30
SPH4012H100MTY01	10±20%	0.240	0.200	27	0.90	1.10	1.00	1.10
SPH4012H120MT	12±20%	0.312	0.260	23	0.85	1.00	0.90	1.00
SPH4012H150MT	15±20%	0.312	0.260	21	0.65	0.80	0.90	1.00
SPH4012H180MT	18±20%	0.432	0.360	18	0.65	0.80	0.78	0.90
SPH4012H220MT	22±20%	0.460	0.380	18	0.50	0.65	0.78	0.90
SPH4012H270MT	27±20%	0.672	0.560	14	0.50	0.60	0.63	0.73
SPH4012H330MT	33±20%	0.756	0.630	13	0.45	0.55	0.57	0.68
SPH4012H360MT	36±20%	0.756	0.630	11	0.40	0.50	0.57	0.68
SPH4012H390MT	39±20%	1.188	0.990	11	0.55	0.62	0.47	0.54
SPH4012H470MT	47±20%	1.188	0.990	11	0.40	0.50	0.47	0.54
SPH4012H560MT	56±20%	1.320	1.100	10	0.35	0.45	0.45	0.52
SPH4012H680MT	68±20%	1.800	1.500	9.1	0.38	0.45	0.38	0.44
SPH4012H820MT	82±20%	2.040	1.700	7.7	0.30	0.38	0.36	0.42
SPH4012H101MT	100±20%	2.040	1.700	7	0.25	0.31	0.36	0.42

SPECIFICATIONS

SPH4018H Series

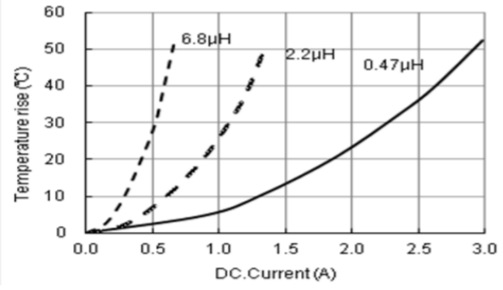
Part Number	Inductance	Max. DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz,1V	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
SPH4018HR33NT	0.33±30%	0.016	0.012	230	6.50	8.00	4.20	4.70
SPH4018HR47NT	0.47±30%	0.020	0.017	220	6.50	7.20	3.50	4.00
SPH4018H1R0NT	1.0±30%	0.032	0.027	90	4.00	4.80	3.20	3.70
SPH4018H1R5NT	1.5±30%	0.037	0.031	70	3.60	4.30	2.95	3.30
SPH4018H2R2MT	2.2±20%	0.050	0.042	60	3.00	3.40	2.20	2.90
SPH4018H3R3MT	3.3±20%	0.066	0.055	45	2.30	2.90	2.00	2.50
SPH4018H4R7MT	4.7±20%	0.084	0.070	35	2.00	2.20	1.70	2.10
SPH4018H6R8MT	6.8±20%	0.118	0.098	30	1.60	1.80	1.45	1.70
SPH4018H100MT	10±20%	0.180	0.150	25	1.30	1.50	1.20	1.50
SPH4018H150MT	15±20%	0.252	0.210	18	1.10	1.20	0.85	1.20
SPH4018H220MT	22±20%	0.348	0.290	15	0.90	1.10	0.70	1.00
SPH4018H330MT	33±20%	0.552	0.460	12	0.70	0.90	0.55	0.82
SPH4018H470MT	47±20%	0.744	0.620	11	0.57	0.70	0.50	0.66
SPH4018H680MT	68±20%	0.972	0.810	7.1	0.53	0.62	0.40	0.60
SPH4018H101MT	100±20%	1.560	1.300	5.2	0.49	0.57	0.40	0.47
SPH4018H151MT	150±20%	3.120	2.600	5.1	0.41	0.47	0.28	0.33
SPH4018H221MT	220±20%	3.840	3.200	4.2	0.33	0.38	0.25	0.29
SPH4018H331MT	330±20%	5.880	4.900	3.2	0.26	0.31	0.20	0.23

※1: All test data is referenced to 20°C ambient;
※2: Rated current: Isat or Irms, whichever is smaller;
※Isat: DC current at which the inductance drops approximate 30% from its value without current;
※Irms: DC current that causes the temperature rise (ΔT=40°C) from 20°C ambient.

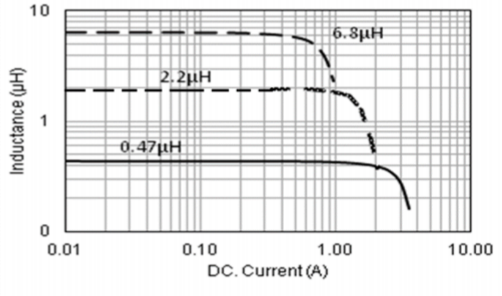
TYPICAL ELECTRICAL CHARACTERISTICS

SPH201610H Series

Temperature vs. DC Current Characteristics

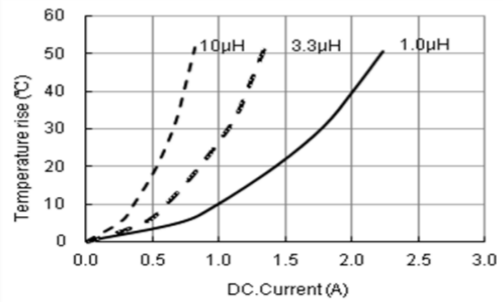


Inductance vs. DC Current Characteristics

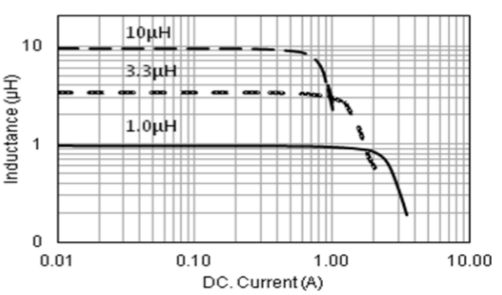


SPH252010H Series

Temperature vs. DC Current Characteristics



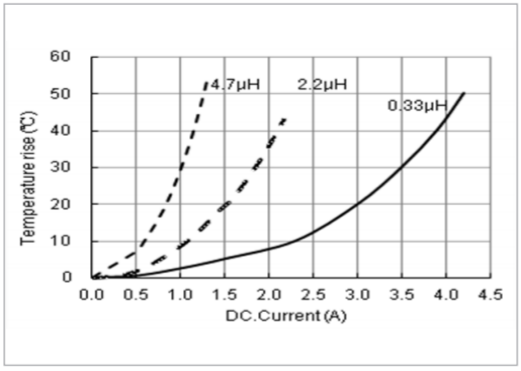
Inductance vs. DC Current Characteristics



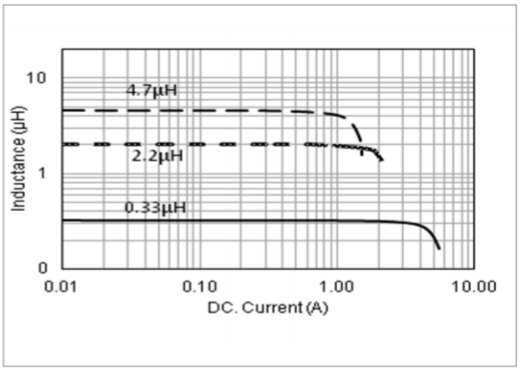
TYPICAL ELECTRICAL CHARACTERISTICS

SPH252012H Series

Temperature vs. DC Current Characteristics

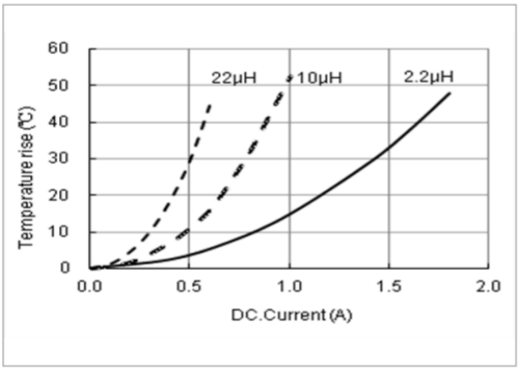


Inductance vs. DC Current Characteristics

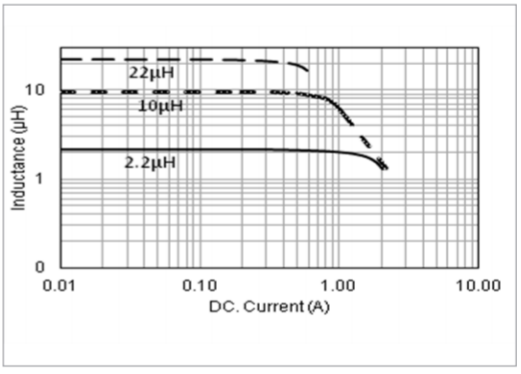


SPH3012H Series

Temperature vs. DC Current Characteristics

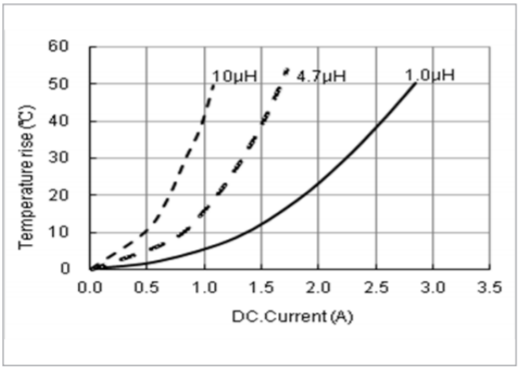


Inductance vs. DC Current Characteristics

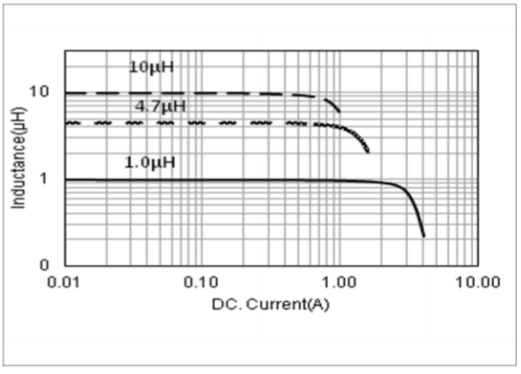


SPH3015H Series

Temperature vs. DC Current Characteristics

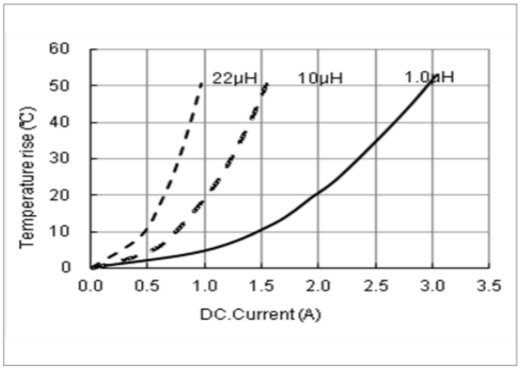


Inductance vs. DC Current Characteristics

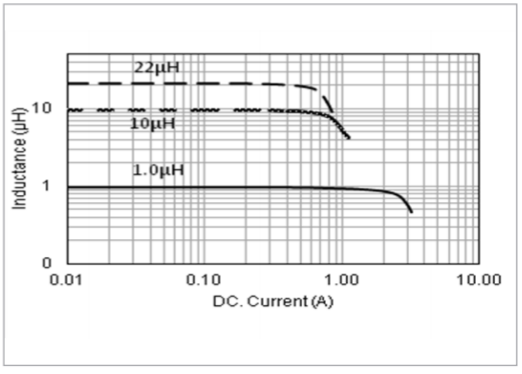


SPH4012H Series

Temperature vs. DC Current Characteristics



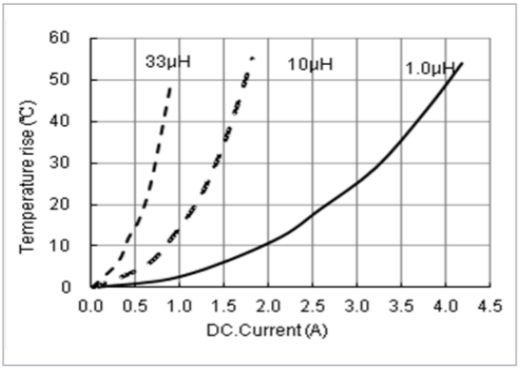
Inductance vs. DC Current Characteristics



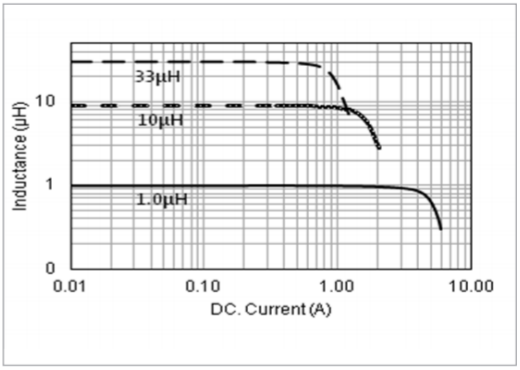
TYPICAL ELECTRICAL CHARACTERISTICS

SPH4018H Series

Temperature vs. DC Current Characteristics



Inductance vs. DC Current Characteristics



单击下面可查看定价，库存，交付和生命周期等信息

>>Sunlord(顺络)