

Metal PUI for Automotive Filed up to 150deg-C

SPM-VT series : 4 Shapes Total:52 item (each 13 item x 4)

SPM6545VT- 1R0M-D	SPM7054VT- 1R0M-D	SPM10065VT- 1R0M-D	SPM12565VT- 1R0M-D
SPM6545VT- 1R5M-D	SPM7054VT- 1R5M-D	SPM10065VT- 1R5M-D	SPM12565VT- 1R5M-D
SPM6545VT- 2R2M-D	SPM7054VT- 2R2M-D	SPM10065VT- 2R2M-D	SPM12565VT- 2R2M-D
SPM6545VT- 3R3M-D	SPM7054VT- 3R3M-D	SPM10065VT- 3R3M-D	SPM12565VT- 3R3M-D
SPM6545VT- 4R7M-D	SPM7054VT- 4R7M-D	SPM10065VT- 4R7M-D	SPM12565VT- 4R7M-D
SPM6545VT- 6R8M-D	SPM7054VT- 6R8M-D	SPM10065VT- 6R8M-D	SPM12565VT- 6R8M-D
SPM6545VT- 100M-D	SPM7054VT- 100M-D	SPM10065VT- 100M-D	SPM12565VT- 100M-D
SPM6545VT- 150M-D	SPM7054VT- 150M-D	SPM10065VT- 150M-D	SPM12565VT- 150M-D
SPM6545VT- 220M-D	SPM7054VT- 220M-D	SPM10065VT- 220M-D	SPM12565VT- 220M-D
SPM6545VT- 330M-D	SPM7054VT- 330M-D	SPM10065VT- 330M-D	SPM12565VT- 330M-D
SPM6545VT- 470M-D	SPM7054VT- 470M-D	SPM10065VT- 470M-D	SPM12565VT- 470M-D
SPM6545VT- 680M-D	SPM7054VT- 680M-D	SPM10065VT- 680M-D	SPM12565VT- 680M-D
SPM6545VT- 101M-D	SPM7054VT- 101M-D	SPM10065VT- 101M-D	SPM12565VT- 101M-D

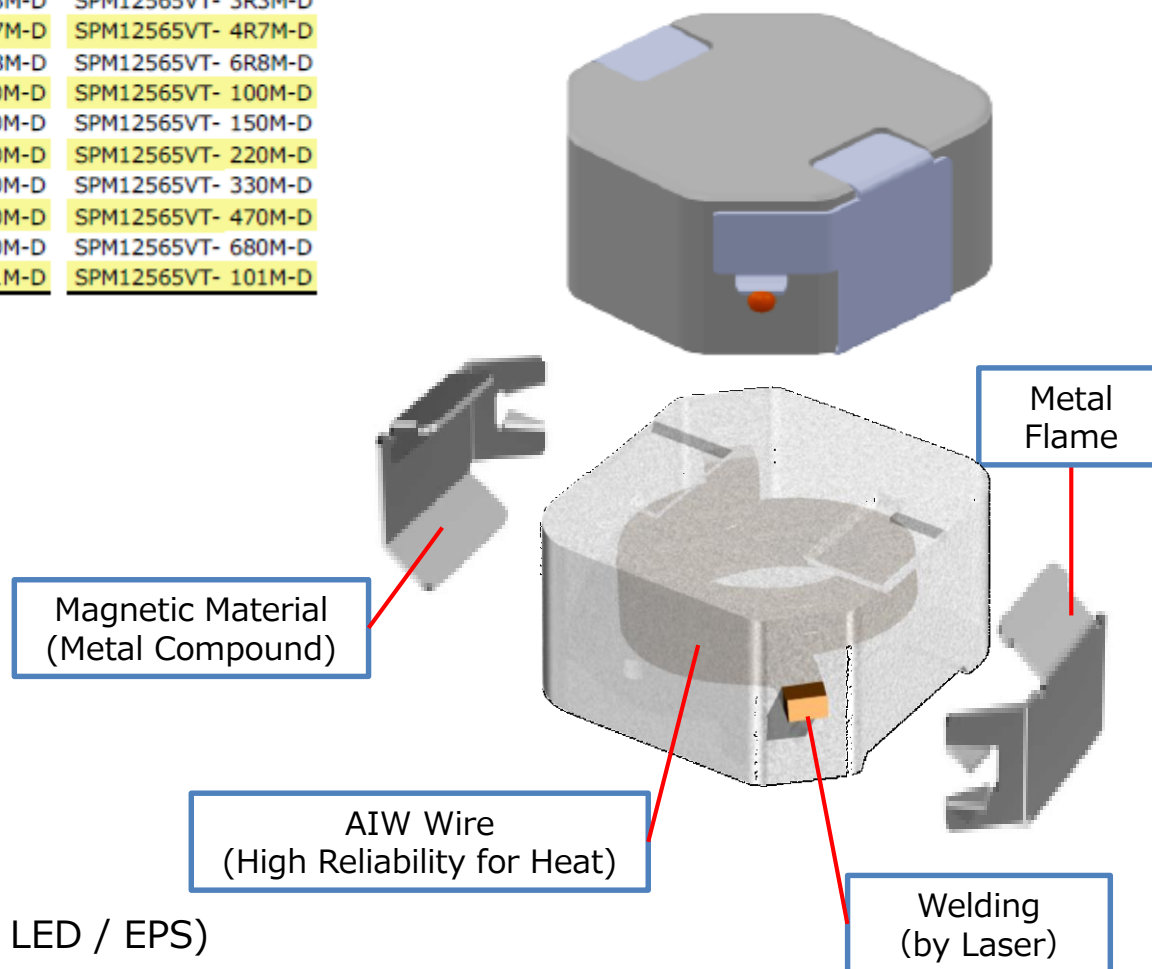
●Line Up

SPM6545V : 7.0 x 6.5 x 4.5 mm
SPM7054V : 7.5 x 7.0 x 5.4 mm
SPM10065V : 10.5 x 10 x 6.5 mm
SPM12565V : 13 x 12.5 x 6.5 mm

●Inductance range
1~100μH

●Operating Temp. Range
-55~150℃

●Application
For Automotive field (ECM / Air Bag / LED / EPS)



SPM-HZ series for Automotive



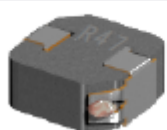
Metal PUI for Automotive Filed up to 125deg-C

SPM-HZ series : 4 Shapes Total:46 item



TDK Identification	TDK Identification	TDK Identification	TDK Identification
SPM5030T- R47M-HZ	SPM6530T- R47M-HZ	SPM10040T- R47M-HZ	SPM10054T- R47M-HZ
SPM5030T- R68M-HZ	SPM6530T- R68M-HZ	SPM10040T- R68M-HZ	SPM10054T- R68M-HZ
SPM5030T- 1R0M-HZ	SPM6530T- 1R0M-HZ	SPM10040T- 1R0M-HZ	SPM10054T- 1R0M-HZ
SPM5030T- 1R5M-HZ	SPM6530T- 1R5M-HZ	SPM10040T- 1R5M-HZ	SPM10054T- 1R5M-HZ
SPM5030T- 2R2M-HZ	SPM6530T- 2R2M-HZ	SPM10040T- 2R2M-HZ	SPM10054T- 2R5M-HZ
SPM5030T- 3R3M-HZ	SPM6530T- 2R2M-HZ	SPM10040T- 3R3M-HZ	SPM10054T- 3R3M-HZ
SPM5030T- 4R7M-HZ	SPM6530T- 3R3M-HZ	SPM10040T- 4R7M-HZ	SPM10054T- 4R7M-HZ
SPM5030T- 5R6M-HZ	SPM6530T- 4R7M-HZ	SPM10040T- 6R8M-HZ	SPM10054T- 6R8M-HZ
SPM5030T- 6R8M-HZ	SPM6530T- 5R6M-HZ	SPM10040T- 100M-HZ	SPM10054T- 100M-HZ
SPM5030T- 100M-HZ	SPM6530T- 6R8M-HZ	SPM10040T- 150M-HZ	SPM10054T- 150M-HZ
	SPM6530T- 100M-HZ	SPM10040T- 220M-HZ	SPM10054T- 220M-HZ
	SPM6530T- 150M-HZ		SPM10054T- 470M-HZ
	SPM6530T- 220M-HZ		SPM10054T- 680M-HZ



~105 deg.C	~125 deg.C	~150 deg.C												
Infotainment	ADAS, Body Application	Engine Application												
AEC-Q200 + PPAP		AEC-Q200 + PPAP												
														
<table><tr><td>5030</td><td>10040</td></tr><tr><td>6530</td><td>10054</td></tr></table>		5030	10040	6530	10054	<table><tr><td>3020</td><td>6545</td></tr><tr><td>4020</td><td>7054</td></tr><tr><td>5030</td><td>10065</td></tr><tr><td></td><td>12565</td></tr></table>	3020	6545	4020	7054	5030	10065		12565
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6530	10054													
3020	6545													
4020	7054													
5030	10065													
	12565													

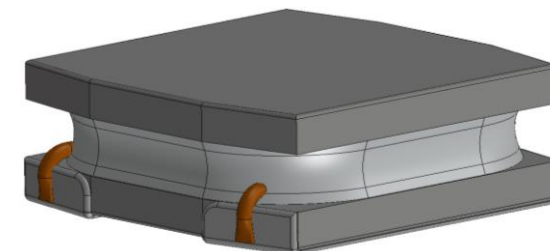
SPM-HZ series

SPM-VT-D series

Metal Power Inductor for Consumer Field up to 105deg-C

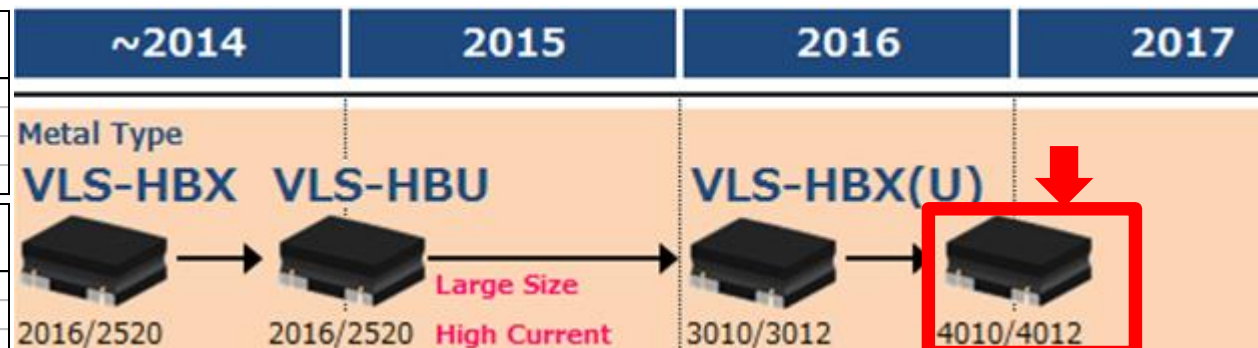
VLS40**-HBX series : 4 Shapes Total:39 item

TDK Identification	TDK Identification	TDK Identification	TDK Identification
VLS4010HBX- R47M	VLS4012HBX- R68M	VLS4015HBX- 1R0M	VLS4020HBX- 1R0M
VLS4010HBX- R68M	VLS4012HBX- 1R0M	VLS4015HBX- 1R5M	VLS4020HBX- 1R5M
VLS4010HBX- 1R0M	VLS4012HBX- 1R5M	VLS4015HBX- 2R2M	VLS4020HBX- 2R2M
VLS4010HBX- 1R5M	VLS4012HBX- 2R2M	VLS4015HBX- 3R3M	VLS4020HBX- 3R3M
VLS4010HBX- 2R2M	VLS4012HBX- 3R3M	VLS4015HBX- 4R7M	VLS4020HBX- 4R7M
VLS4010HBX- 3R3M	VLS4012HBX- 4R7M	VLS4015HBX- 6R8M	VLS4020HBX- 6R8M
VLS4010HBX- 4R7M	VLS4012HBX- 6R8M	VLS4015HBX- 100M	VLS4020HBX- 100M
VLS4010HBX- 6R8M	VLS4012HBX- 100M	VLS4015HBX- 150M	VLS4020HBX- 150M
VLS4010HBX- 100M	VLS4012HBX- 150M	VLS4015HBX- 220M	VLS4020HBX- 220M
VLS4010HBX- 150M	VLS4012HBX- 220M		
VLS4010HBX- 220M			



4010 shape make large Inductance value item (10μH / 15μH / 22μH) possible especially for Boost circuit

Shape & Dimensions		L (mm)	W (mm)	H (mm)
	VLS4010HBX	4.0±0.2	4.0±0.2	1.0max.
	VLS4012HBX	4.0±0.2	4.0±0.2	1.2max.
	VLS4015HBX	4.0±0.2	4.0±0.2	1.5max.
	VLS4020HBX	4.0±0.2	4.0±0.2	2.0max.
Electrical Performance		L (μH)	DCR (ohm)	Isat (A)
	VLS4010HBX	0.47~22	0.030~1.006	5.75~0.97
	VLS4012HBX	0.68~22	0.040~0.768	6.65~1.28
	VLS4015HBX	1.0~22	0.042~0.582	6.89~1.46
	VLS4020HBX	1.0~22	0.049~0.513	7.70~1.82



CLF-NI-D High-L series for Automotive



Ferrite PUI with high Inductance for Automotive Field up to 150deg-C

CLF-NI-D High-L series : 4 Shapes Total:13 item added

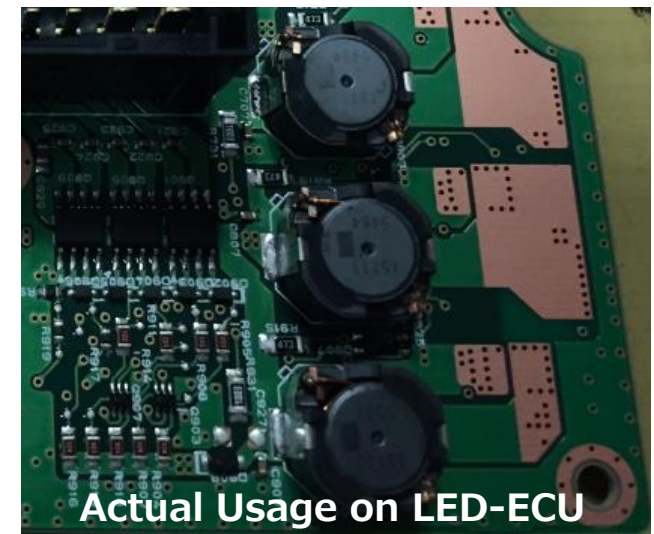
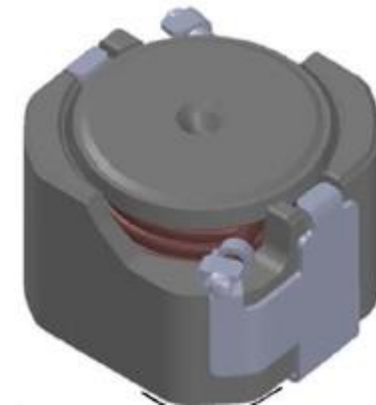
CLF6045NIT- 1R0N-D	CLF7045NIT- 1R0N-D	CLF10060NIT- 1R0N-D	CLF12577NIT- 1R0N-D
CLF6045NIT- 1R5N-D	CLF7045NIT- 1R5N-D	CLF10060NIT- 1R5N-D	CLF12577NIT- 1R5N-D
CLF6045NIT- 2R2N-D	CLF7045NIT- 2R2N-D	CLF10060NIT- 2R2N-D	CLF12577NIT- 2R2N-D
CLF6045NIT- 3R3N-D	CLF7045NIT- 3R3N-D	CLF10060NIT- 3R3N-D	CLF12577NIT- 3R3N-D
CLF6045NIT- 4R7N-D	CLF7045NIT- 4R7N-D	CLF10060NIT- 4R7N-D	CLF12577NIT- 4R7N-D
CLF6045NIT- 6R8N-D	CLF7045NIT- 6R8N-D	CLF10060NIT- 6R8N-D	CLF12577NIT- 6R8N-D
CLF6045NIT- 100M-D	CLF7045NIT- 100M-D	CLF10060NIT- 100M-D	CLF12577NIT- 100M-D
CLF6045NIT- 150M-D	CLF7045NIT- 150M-D	CLF10060NIT- 150M-D	CLF12577NIT- 150M-D
CLF6045NIT- 220M-D	CLF7045NIT- 220M-D	CLF10060NIT- 220M-D	CLF12577NIT- 220M-D
CLF6045NIT- 330M-D	CLF7045NIT- 330M-D	CLF10060NIT- 330M-D	CLF12577NIT- 330M-D
CLF6045NIT- 470M-D	CLF7045NIT- 470M-D	CLF10060NIT- 470M-D	CLF12577NIT- 470M-D
CLF6045NIT- 680M-D	CLF7045NIT- 680M-D	CLF10060NIT- 680M-D	CLF12577NIT- 680M-D
CLF6045NIT- 101M-D	CLF7045NIT- 101M-D	CLF10060NIT- 101M-D	CLF12577NIT- 101M-D
CLF6045NIT- 151M-D	CLF7045NIT- 151M-D	CLF10060NIT- 151M-D	CLF12577NIT- 151M-D
CLF6045NIT- 221M-D	CLF7045NIT- 221M-D	CLF10060NIT- 221M-D	CLF12577NIT- 221M-D
CLF6045NIT- 331M-D	CLF7045NIT- 331M-D	CLF10060NIT- 331M-D	CLF12577NIT- 331M-D
CLF6045NIT- 471M-D	CLF7045NIT- 471M-D	CLF10060NIT- 471M-D	CLF12577NIT- 471M-D

CLF6045NIT-681M-D	CLF7045NIT-681M-D	CLF10060NIT-681M-D	CLF12577NIT-681M-D
CLF6045NIT-102M-D	CLF7045NIT-102M-D	CLF10060NIT-102M-D	CLF12577NIT-102M-D
CLF6045NIT-152M-D	CLF7045NIT-152M-D	CLF10060NIT-152M-D	CLF12577NIT-152M-D
			CLF12577NIT-222M-D

- Line Up (Added High Inductance Value)
CLF6045NI-D : 680μH / 1mH / 1.5mH
CLF7045NI-D : 680μH / 1mH / 1.5mH
CLF12577NI-D : 680μH / 1mH / 1.5mH / 2.2mH

- Operating Temp. Range : -55~150℃

- Application
For Automotive field (ECM / Air Bag / LED / EPS)

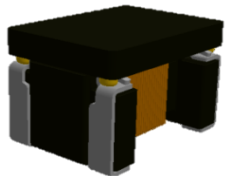


ACT25B series for Automotive

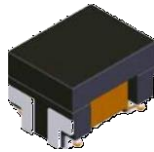


Smallest Common mode filter for Automotive LAN up to 150deg-C

ACT25B series : Line up



ACT45B



ACT1210



ACT25B

- 1) ACT25B-110-2P
- 2) ACT25B-220-2P
- 3) ACT25B-510-2P



Basic concept

- 1) Keep high characteristics for CAN-Bus by product design of low magnetic resistance
- 2) Keep high quality and reliability by same structure of ACT45B



Product spec

Dimensions	2520 (2.5 × 2.0 × 2.0mm)
Electric characteristics	L:11, 22, 51uH
Temp. range	-40~+150℃
Reliability (Limit condition)	Temp. cycle test : -40~+150℃ 3000cyc. Humidity test : 85℃/85%RH 3000h
Mechanical strength	Board bending:2.0mm min. Share strength:4.9N min.

←Actual Usage on Central Gateway ECU

ALT4532H-10G for Commercial Telecom Field

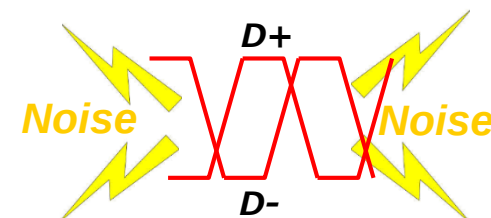
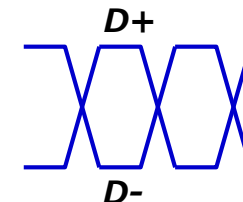


SMD pulse transformer for high speed 10Gbps Ethernet

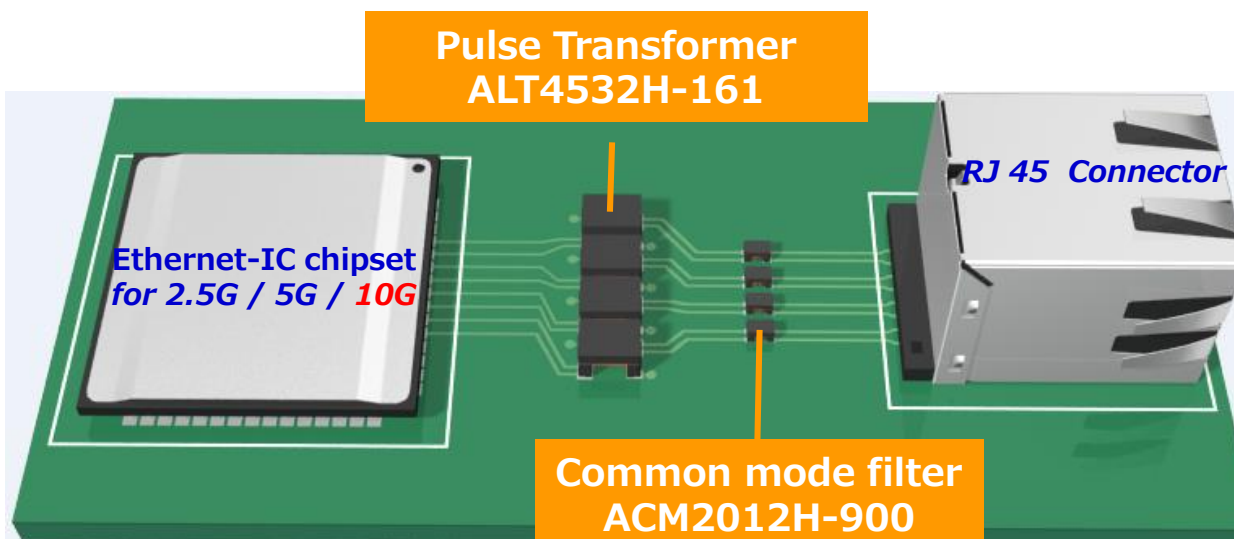
ALT4532H-161 will be covered not only 10G but also 2.5G and 5G



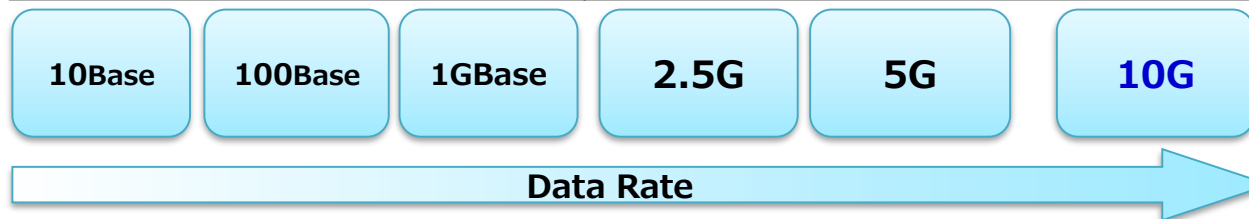
Good Balance



Poor Balance



ALT3232M-151 ALT4532M-201 ALT4532M-351 + ACM2012E/ MCZ1210	ALT4532H-161 + ACM2012H-900-2P (Design Stage)
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MLS2012 series- Metal Core Multilayer Inductor



Multilayer Metal Power Inductor for Consumer

MLS2012 series : 3 item

Case Size [mm]	Height [mm]	Part No.	L [μH]	Rdc [ohm]		Isat [A]		Itemp [A]	
	Max.		±20%	Max.	Typ.	Max.	Typ.	Max.	Typ.
2012	0.8	MLS2012AR47C	0.47	0.056	0.043	3.0	3.4	1.9	2.3
		MLS2012A1R0C	1.00	0.123	0.095	1.8	2.1	1.3	1.6
		MLS2012A2R2C	2.20	0.370	0.287	1.2	1.5	0.75	0.9

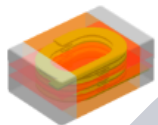
	Feature	MLP	MLS
Material	High Bs Material	-	O
	Very Low loss material	-	O
	Low loss Material	O	-
Design	Low DCR Design	O	O
	Low ACR Design	-	O

High performance

Material

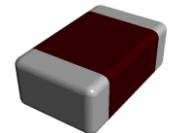
Material

Low loss material



MLP series
(for DCDC converter)

Low DCR structure
Magnetic gap structure



MLS series
(for DCDC converter)

High Bs material
Very Low loss material
Low DCR structure
Low ACR structure

MHQ0402PSA High-L series



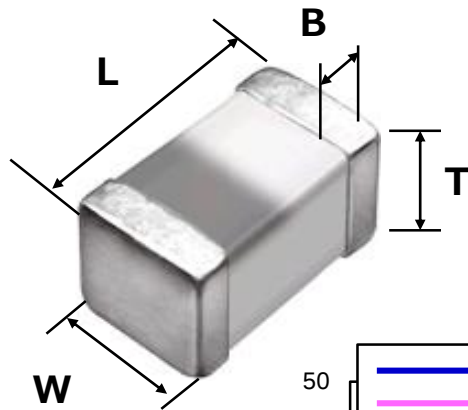
Multilayer Super High-Q RF Inductor up to 22 μ H

MHQ0402PSA series : Total: 59 item

Inductance Line-Up : 0.2 ~ 22 μ H

0.2 ~ 4.3nH (0.1nH step)

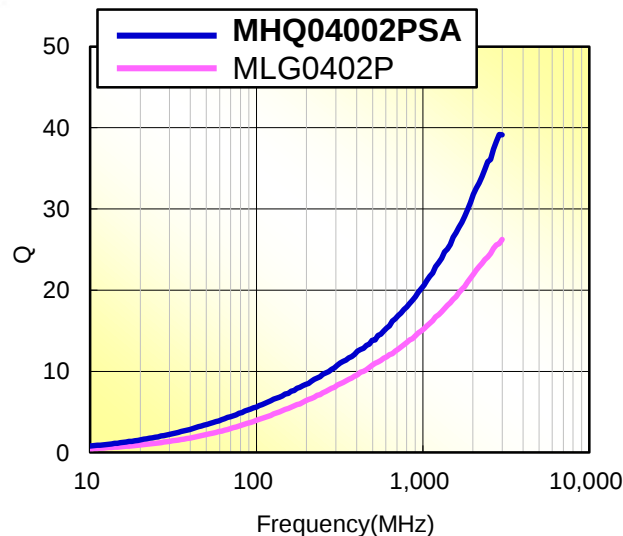
4.7 ~ 22nH (E24 step) → High-L series (added 17 item)



Unit: mm

L	0.40+/-0.02
W	0.20+/-0.02
T	0.20+/-0.02
B	0.08+/-0.03

Q vs Frequency
Characteristics

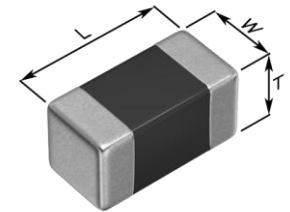


TDK P/N	Inductance (nH) @500MHz	Q min @500 MHz	Rdc max (ohm)	SRF min (GHz)	Idc max (mA)	M.P. Status
MHQ0402PSA4N7	4.7±3%	10	0.800	5	200	Available
MHQ0402PSA5N1	5.1±3%	10	0.800	5	200	Available
MHQ0402PSA5N6	5.6±3%	10	0.800	5	200	Available
MHQ0402PSA6N2	6.2±3%	10	1.000	5	200	Available
MHQ0402PSA6N8	6.8±3%	10	1.000	5	200	Available
MHQ0402PSA7N5	7.5±3%	10	1.200	4	180	Available
MHQ0402PSA8N2	8.2±3%	10	1.200	4	180	Available
MHQ0402PSA9N1	9.1±3%	8	1.500	3.5	130	Available
MHQ0402PSA10N	10±3%	8	1.600	3.5	130	Available
MHQ0402PSA11N	11±3%	8	1.700	3	130	Available
MHQ0402PSA12N	12±3%	8	1.900	2.7	130	Available
MHQ0402PSA13N	13±3%	8	2.000	2.7	120	Available
MHQ0402PSA15N	15±3%	8	2.100	2.7	120	Available
MHQ0402PSA16N	16±3%	8	2.100	2.5	120	Available
MHQ0402PSA18N	18±3%	8	2.200	2.5	110	Available
MHQ0402PSA20N	20±3%	8	2.400	2.4	110	Available
MHQ0402PSA22N	22±3%	8	2.500	2.3	110	Available

Multilayer Noise Suppression Filter for FM band on Audio line

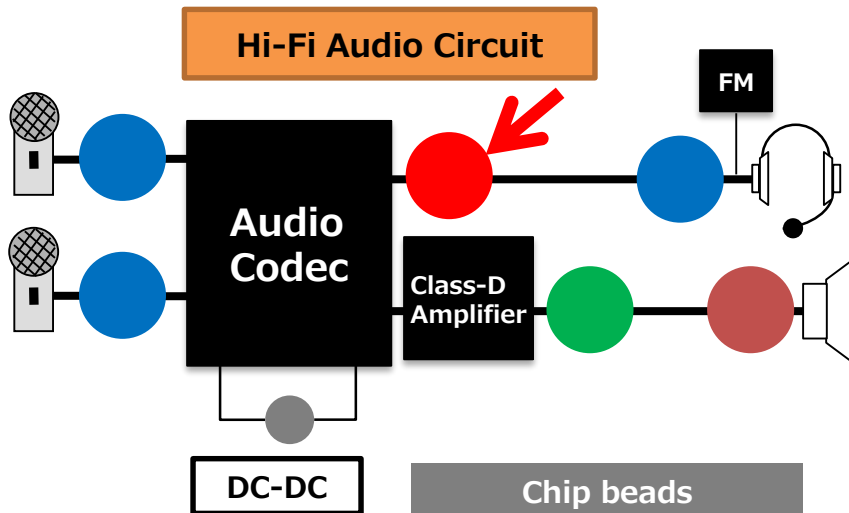
MAF1005FS series : 1 item (Impedance :1,000ohm)

	0603 mm (0201 inch)	1005 mm (0402 inch)	1608 mm (0603 inch)
For Cellular Band (at 700MHz-2GHz)	MAF0603G	MAF1005G	MAF1608G
Class D Amp noise (at 100MHz-400MHz)			MAF1608FA
For FM band (at 66MHz-108MHz)		MAF1005FS	



Biggest Feature : Low THD / Low DCR

*THD+N : Total harmonics distortion + noise



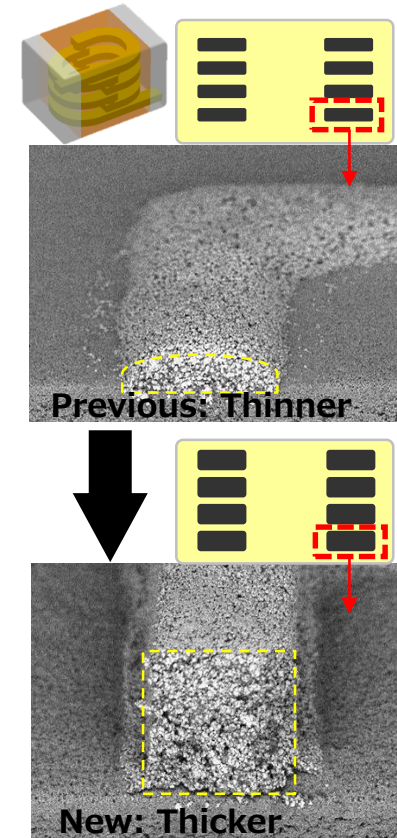
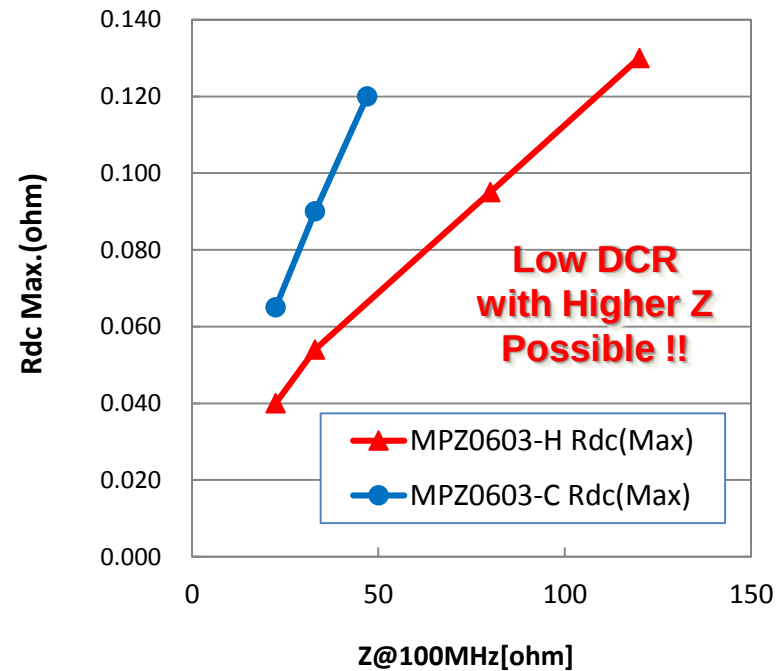
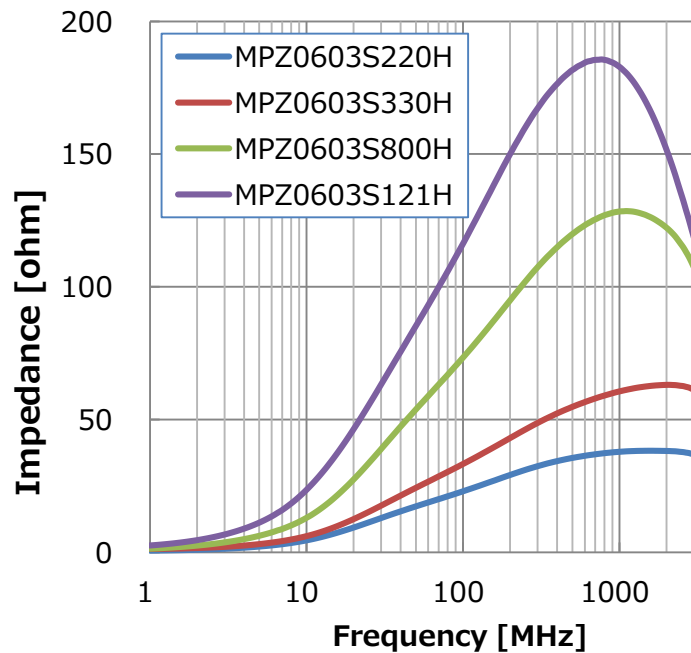
type	Feature	Series	Use
G type	High impedance for Cellular band (G type : 700MHz to 2GHz)	MAF1005G 	Headphone microphone
		MAF1608G 	Speaker
F type	High impedance for FM band (FS type : 66MHz to 108MHz)	MAF1005FS 	Headphone
	High impedance for Class-D Amplifier noise (FA type : 100MHz to 400MHz)	MAF1608FA 	Speaker

MPZ0603S-H series –Low DCR High current Bead

Multilayer Ferrite Beads for large current

MPZ0603 series : 4 item

Part No.	Z at 100MHz (ohm)	Rdc max. (ohm)	Rated Current (mA)	Operating Temperature Range
MPZ0603S220H	22+/-25%	0.040	1900	-55 to +125 deg.C
MPZ0603S330H	33+/-25%	0.054	1600	
MPZ0603S800H	80+/-25%	0.095	1200	
MPZ0603S121H	120+/-25%	0.130	1000	



TFM-ALMA series Inductor for Automotive



252012 case-size Thin Film Metal PUI for Automotive Field

TFM252012ALMA series : 1 Shape : 6 item (added)

Identification	Identification
TFM201610ALMAR47MTAA	TFM252012ALMAR47MTAA
TFM201610ALMA1R0MTAA	TFM252012ALMA1R0MTAA
TFM201610ALMA1R5MTAA	TFM252012ALMA1R5MTAA
TFM201610ALMA2R2MTAA	TFM252012ALMA2R2MTAA
	TFM252012ALMA3R3MTAA
	TFM252012ALMA4R7MTAA

↑ Already Registered

● Line Up

TFM201610 : 2.0 x 1.6 x 1.0 mm

TFM252012 : 2.5 x 2.0 x 1.2 mm

● Inductance Range

TFM201610 : 0.47~2.2μH

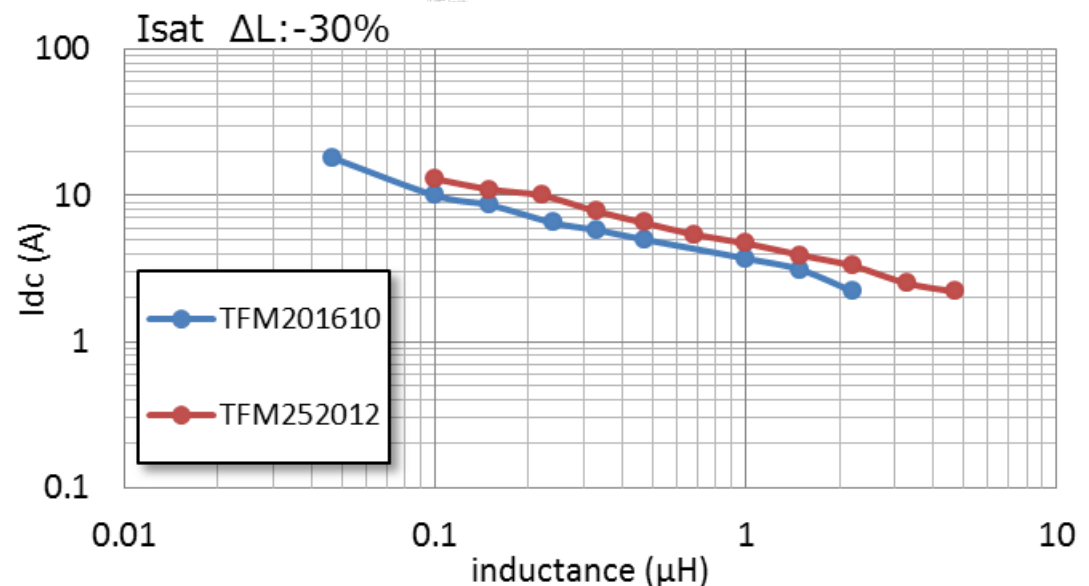
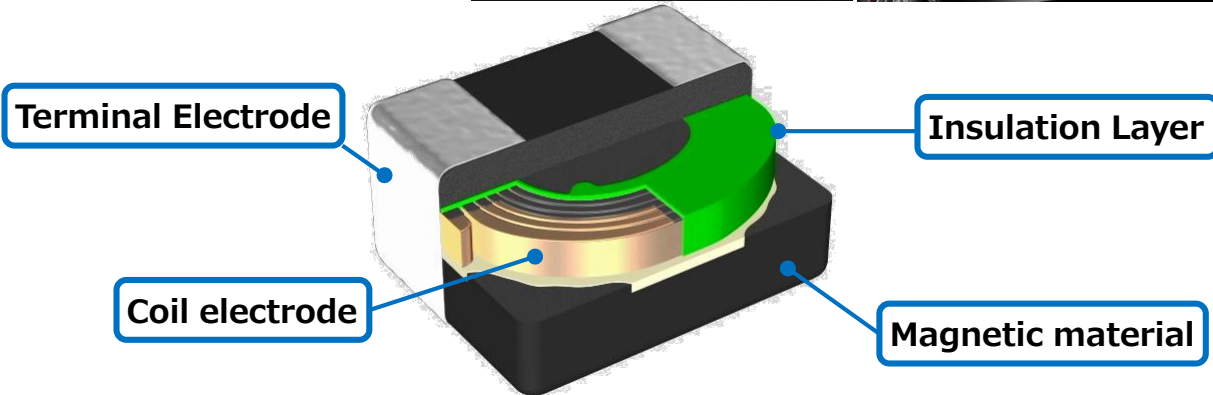
TFM252012 : 0.47~4.7μH

● Operating Temp Range

-55~150°C

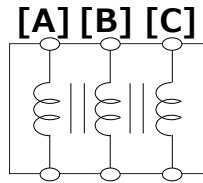
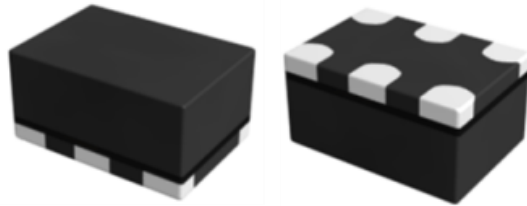
● Application

For Automotive field (ADAS / ECU)



0906 case-size 3 Line Thin Film CMF for MIPI C-PHY Interface

- Shapes : 0.875 x 0.65 Thickness 0.40mm



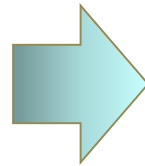
Scc21 : 25dB @700M~1G
Cutoff : 4GHz
RDC : 3.0ohm



D-PHY

1.0Gbps
(~2Gbps)

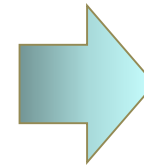
Sdd21 fc : 3GHz



M-PHY

2.9Gbps
(HS-G2)

Sdd21 fc : 5GHz



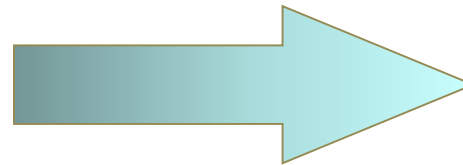
C-PHY

5.7Gbps
(Trio)

Need 3 line CMF

●Current : MIPI D-PHY

Differential
transmission(2lines) × 4Lane
2.5Gbps/lanex4=10Gbps



●Future : MIPI C-PHY

Single Ended(3lines) × 3Lane
5.7Gbps/lanex3=17.1Gbps



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