MORE® CHANCE | 茂昌电子

CUSTOMER :	STD
PRODUCTS :	Unshielded Construction - DIP
PART NO :	MCDH Series
CUST P/ NO :	
DATE :	2025.04.16
SALES DEP :	
E-MAIL :	

VERSION :	REV.A
CHANGE PROJECT :	-
BEFORE :	-
AFTER :	-
CHANGE DATE :	-
CUSTOMER SIGNATURE :	-

APPROVAL BY :	*CHECK BY :*	*DRAWN BY :*
Honey Wei	***Leo Wang***	***May Gao***

CERTIFIED ISO 9001:2015 COMPANY · Pb lead-free · RoHS2 COMPLIANT · Halogen Free

CHANGE HISTORY

Ver	Revision Items	Before Revision	After Revision	Date
Rev.A	-	-	-	2025.04.16

MCDH Series

- *Unshielded Construction - DIP*
- *Operating Temperature up tp -25 ℃ ~ 85 ℃*
- *High Current up to 10.0 A*
- *Low DCR down to 18 mOhms*
- *Environmental Lead free*
- *Environmental RoHS2.0 compliant*
- *Environmental halogen free*
- *Storage Temperature ：-10 ℃ ~ +40 ℃.*

FEATURES

. High rated current for circuit design.
. Design by special lead wire to prevent open circuit failure.
. Low cost with rugged reliability and performance fixed nductor.

Applications

. Excellent as DC/DC converter boost or buck inductor.
Also used for filtering application.

PRODUCT IDENTIFICATION

MC	DH	46	Z	1R0	M
①	②	③	④	⑤	⑥

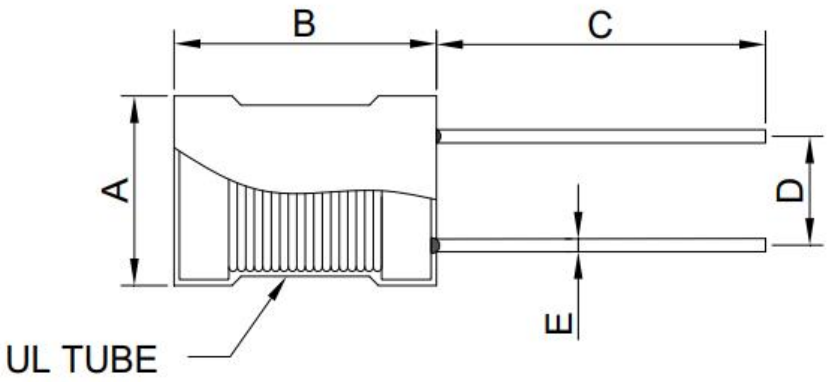
① Brand & Product classification.
② Product Series NO.
③ External Dimensions.
④ Separator code.
⑤ Inductance. (Exp. 1.0 uH = 1R0)

Example	Nominal Value
1R0	1.0uH
2R2	2.2uH
3R3	3.3uH
4R7	4.7uH

⑥Inductance Tolerance.(K：±10% ; M：±20% ; N：±30%)

Mechanical & Dimensions

(Unit: mm)



Code	Dimensions
A	6.0 Max
B	8.0 Max
C	10.0 Min
D	2.5 ± 0.5
E	0.5 Ref

Electrical Characteristics

Part Number[4]	Inductance[1] (μH)	DCR[2] (Ω) Max	I-sat[3] (mA) Max			
MCDH46Z1R0☐	1.0	0.15	300			
MCDH46Z1R2☐	1.2	0.15	300			
MCDH46Z1R5☐	1.5	0.20	300			
MCDH46Z1R8☐	1.8	0.20	300			
MCDH46Z2R2☐	2.2	0.25	300			
MCDH46Z2R7☐	2.7	0.25	300			
MCDH46Z3R3☐	3.3	0.25	300			
MCDH46Z3R9☐	3.9	0.30	300			
MCDH46Z4R7☐	4.7	0.30	300			
MCDH46Z5R6☐	5.6	0.35	300			
MCDH46Z6R8☐	6.8	0.35	300			
MCDH46Z8R2☐	8.2	0.35	300			
MCDH46Z100☐	10.0	0.60	200			
MCDH46Z120☐	12.0	0.65	200			
MCDH46Z150☐	15.0	0.75	200			
MCDH46Z180☐	18.0	0.85	200			
MCDH46Z220☐	22.0	1.00	200			
MCDH46Z270☐	27.0	1.20	200			
MCDH46Z330☐	33.0	1.30	200			
MCDH46Z390☐	39.0	1.50	200			
MCDH46Z470☐	47.0	1.60	200			
MCDH46Z560☐	56.0	1.65	200			
MCDH46Z680☐	68.0	1.80	200			
MCDH46Z820☐	82.0	1.85	200			
MCDH46Z101☐	100.0	2.00	200			

Note:

1.In the range of (1R0~8R2),Test conditions are 7.96 MHz;In the range of (100~820),Test conditions are 2.52 MHz.
In the range of (101~821),Test conditions are 0.796 MHz.

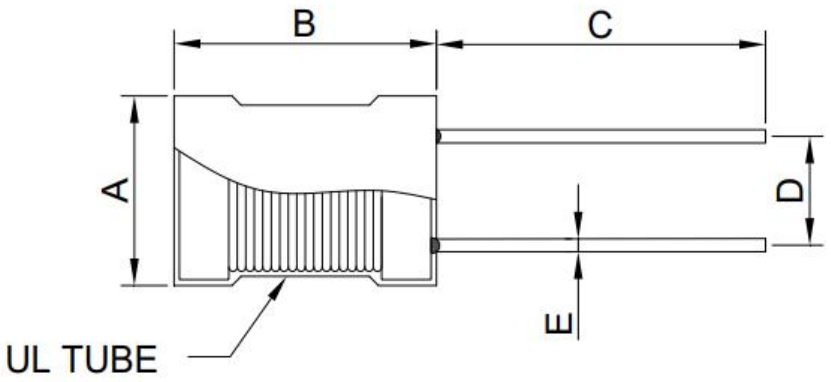
2.The nominal DCR is measured at 25℃ ambient temperature.

3.The I-sat that will cause initial inductance value approximately 10% rolloff.

4."☐" is for tolerance"K,M,N",In the range of (1R0~8R2),The tolerance range is "M=±20%",In the range of (100 UP)
The tolerance range is "K=±10%".

Mechanical & Dimensions

(Unit: mm)



Code	Dimensions
A	6.0 Max
B	8.0 Max
C	10.0 Min
D	2.5 ± 0.5
E	0.5 Ref

Electrical Characteristics

Part Number[4]	Inductance[1] (μH)	DCR[2] (Ω) Max	I-sat[3] (mA) Max			
MCDH46Z121☐	120.0	2.50	100			
MCDH46Z151☐	150.0	3.00	100			
MCDH46Z181☐	180.0	3.50	100			
MCDH46Z221☐	220.0	4.00	100			
MCDH46Z271☐	270.0	5.00	50			
MCDH46Z331☐	330.0	6.00	50			
MCDH46Z391☐	390.0	6.50	50			
MCDH46Z471☐	470.0	7.50	50			
MCDH46Z561☐	560.0	8.00	50			
MCDH46Z681☐	680.0	8.50	50			
MCDH46Z821☐	820.0	9.50	50			

Note:

1.In the range of (1R0~8R2),Test conditions are 7.96 MHz;In the range of (100~820),Test conditions are 2.52 MHz. In the range of (101~821),Test conditions are 0.796 MHz.

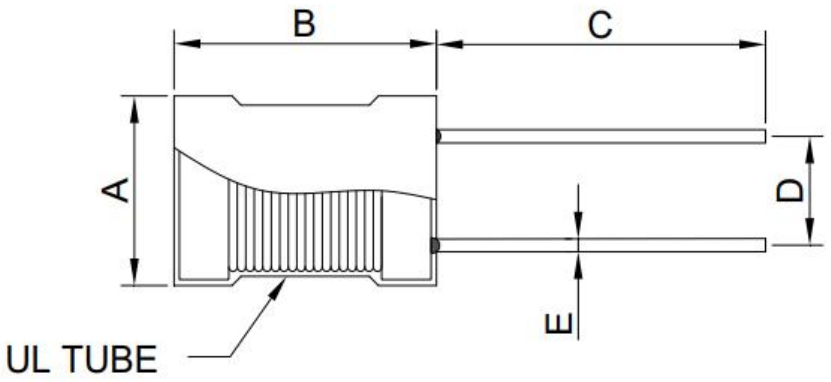
2.The nominal DCR is measured at 25℃ ambient temperature.

3.The I-sat that will cause initial inductance value approximately 10% rolloff.

4."☐" is for tolerance"K,M,N",In the range of (1R0~8R2),The tolerance range is "M=±20%",In the range of (100 UP) The tolerance range is "K=±10%".

Mechanical & Dimensions

(Unit: mm)



Code	Dimensions
A	8.0 Max
B	10.0 Max
C	10.0 Min
D	3.5 ± 0.5
E	0.65 Ref

Electrical Characteristics

Part Number[4]	Inductance[1] (μH)	DCR[2] (Ω) Max	I-sat[3] (mA) Max			
MCDH68Z102☐	1000	4.0	110			
MCDH68Z122☐	1200	4.7	95			
MCDH68Z152☐	1500	5.9	90			
MCDH68Z182☐	1800	6.0	80			
MCDH68Z222☐	2200	7.3	70			
MCDH68Z272☐	2700	9.0	65			
MCDH68Z332☐	3300	10.0	60			
MCDH68Z392☐	3900	11.0	55			
MCDH68Z472☐	4700	15.0	52			
MCDH68Z562☐	5600	16.0	50			
MCDH68Z682☐	6800	22.0	45			
MCDH68Z822☐	8200	25.0	40			
MCDH68Z103☐	10000	32.5	35			
MCDH68Z123☐	12000	53.0	32			
MCDH68Z153☐	15000	62.0	30			
MCDH68Z183☐	18000	68.0	28			
MCDH68Z223☐	22000	78.0	25			
MCDH68Z273☐	27000	90.0	22			
MCDH68Z333☐	33000	150.0	20			
MCDH68Z393☐	39000	160.0	16			
MCDH68Z473☐	47000	190.0	15			

Note:

1.In the range of (102~473),Test conditions are 252 KHz.

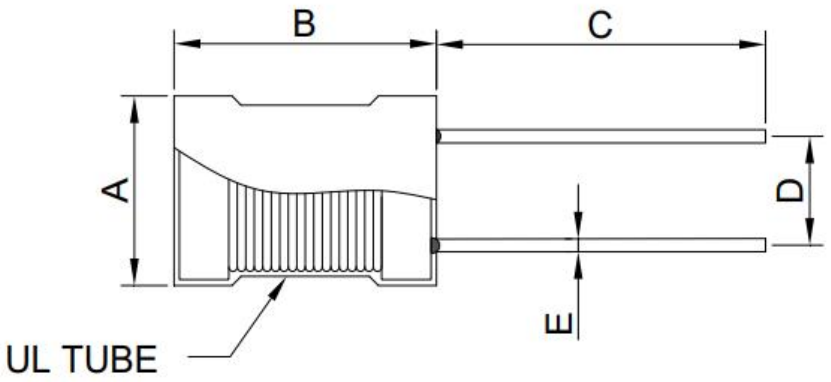
2.The nominal DCR is measured at 25℃ ambient temperature.

3.The I-sat that will cause initial inductance value approximately 10% rolloff.

4."☐" is for tolerance"K,M,N",In the range of (1R0~8R2),The tolerance range is "M=±20%",In the range of (100 UP) The tolerance range is "K=±10%".

Mechanical & Dimensions

(Unit: mm)



Code	Dimensions
A	13.0 Max
B	19.0 Max
C	10.0 Min
D	6.5 ± 0.5
E	0.8 Ref

Electrical Characteristics

Part Number[4]	Inductance[1] (μH)	DCR[2] (Ω) Max	I-sat[3] (A) Max			
MCDH1016Z4R7☐	4.7	0.018	10.0			
MCDH1016Z6R8☐	6.8	0.020	10.0			
MCDH1016Z8R2☐	8.2	0.022	10.0			
MCDH1016Z100☐	10.0	0.027	7.6			
MCDH1016Z120☐	12.0	0.024	7.5			
MCDH1016Z150☐	15.0	0.031	6.5			
MCDH1016Z180☐	18.0	0.039	6.0			
MCDH1016Z220☐	22.0	0.039	5.4			
MCDH1016Z330☐	33.0	0.047	4.4			
MCDH1016Z470☐	47.0	0.053	3.8			
MCDH1016Z560☐	56.0	0.068	3.4			
MCDH1016Z680☐	68.0	0.078	3.0			
MCDH1016Z101☐	100.0	0.099	2.5			
MCDH1016Z121☐	120.0	0.128	2.0			
MCDH1016Z151☐	150.0	0.182	1.8			
MCDH1016Z181☐	180.0	0.195	1.6			
MCDH1016Z221☐	220.0	0.312	1.4			
MCDH1016Z271☐	270.0	0.320	1.3			
MCDH1016Z331☐	330.0	0.390	1.2			
MCDH1016Z391☐	390.0	0.40	1.1			
MCDH1016Z471☐	470.0	0.49	1.0			
MCDH1016Z561☐	560.0	0.52	0.95			
MCDH1016Z681☐	680.0	0.88	0.80			
MCDH1016Z821☐	820.0	0.89	0.75			
MCDH1016Z102☐	1000.0	1.50	0.65			

Note:

1..Inductance is measured at 1 KHz and 1.0 Vrms

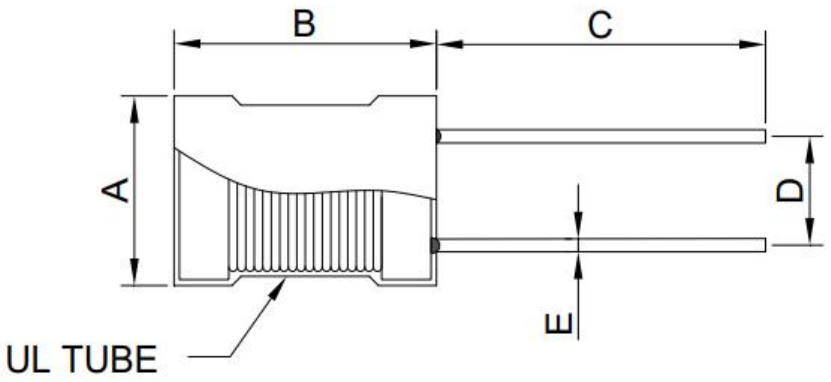
2.The nominal DCR is measured at 25℃ ambient temperature.

3.The I-sat that will cause initial inductance value approximately 10% rolloff.

4."☐" is for tolerance"K,M,N",In the range of (1R0~8R2),The tolerance range is "M=±20%",In the range of (100 UP) The tolerance range is "K=±10%".

Mechanical & Dimensions

(Unit: mm)



Code	Dimensions
A	13.0 Max
B	19.0 Max
C	10.0 Min
D	6.5 ± 0.5
E	0.8 Ref

Electrical Characteristics

Part Number[4]	Inductance[1] (μH)	DCR[2] (Ω) Max	I-sat[3] (A) Max			
MCDH1016Z122☐	1200	1.15	0.60			
MCDH1016Z152☐	1500	1.3	0.52			
MCDH1016Z182☐	1800	1.8	0.50			
MCDH1016Z222☐	2200	2.0	0.45			
MCDH1016Z332☐	3300	4.6	0.35			
MCDH1016Z472☐	4700	5.6	0.30			
MCDH1016Z682☐	6800	7.0	0.25			
MCDH1016Z752☐	7500	7.7	0.24			
MCDH1016Z822☐	8200	10.4	0.23			
MCDH1016Z103☐	10000	11.7	0.18			
MCDH1016Z123☐	12000	13.8	0.16			
MCDH1016Z153☐	15000	15.6	0.15			
MCDH1016Z223☐	22000	23.4	0.10			

Note:

1..Inductance is measured at 1 KHz and 1.0 Vrms

2.The nominal DCR is measured at 25℃ ambient temperature.

3.The I-sat that will cause initial inductance value approximately 10% rolloff.

4."☐" is for tolerance"K,M,N",In the range of (1R0~8R2),The tolerance range is "M=±20%",In the range of (100 UP) The tolerance range is "K=±10%".

Recommended Soldering Conditions

Figure 1. Wave Soldering

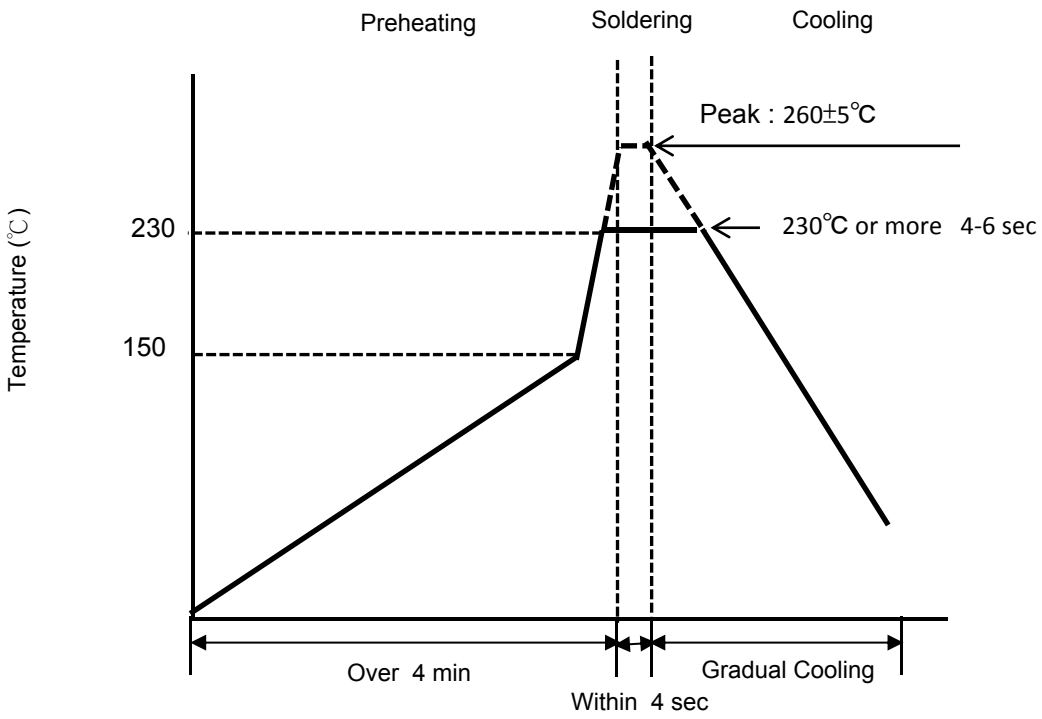
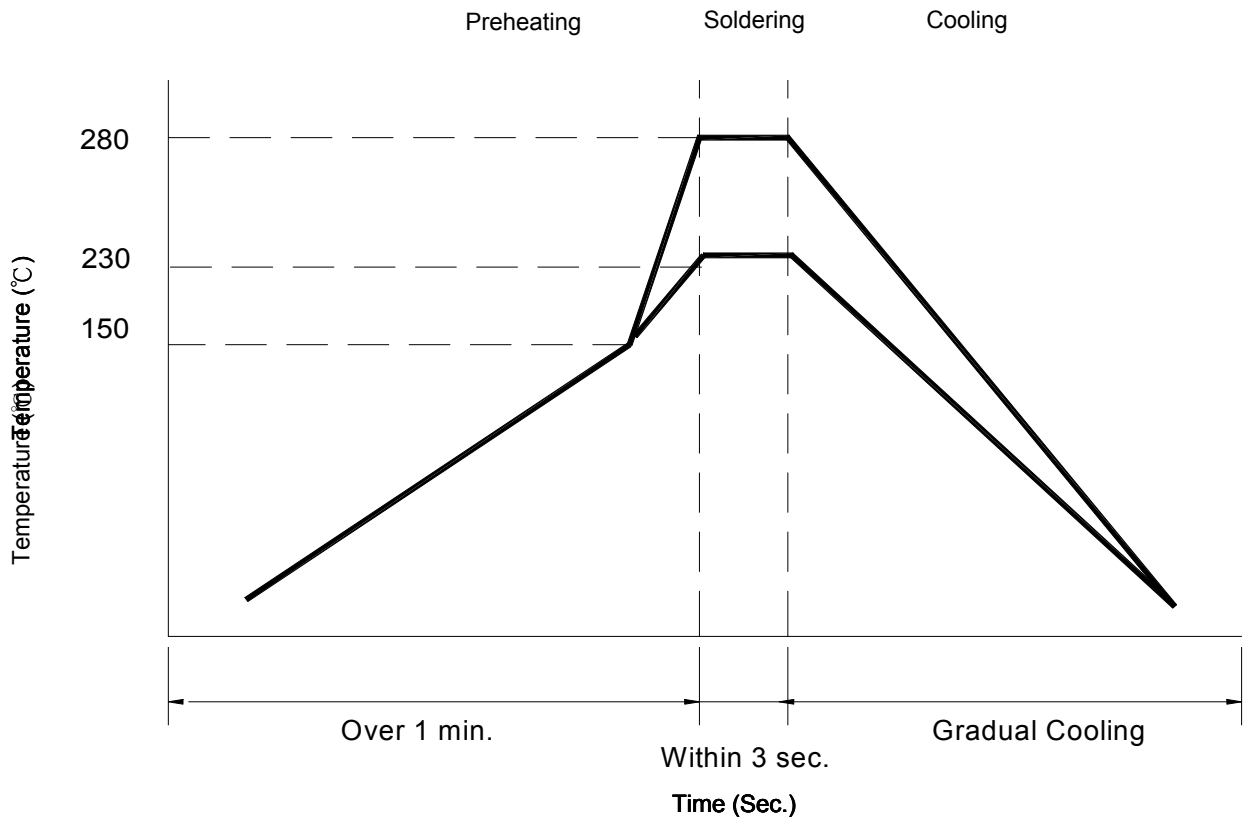


Figure 2. Hand Soldering



Reliability and Testing Conditions

Item	Specification	Conditions
Operating temperature range	-25°C ~ +85°C (Including self-temperature rise)	
Storage temperature and humidity range	-10°C ~ +40°C , 70% RH Max	
Solderability	More than 90% of the terminal electrode should be covered with solder.	- Preheat: 150 ℃, 60 sec - Solder: Sn96.5%-Ag3%-Cu0.5% - Temperature: 245±5℃ - Flux for lead free: Rosin 9.5% - Dip time: 4±1 sec - Depth: completely cover the termination
Resistance to Soldering Heat	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	- Solder technique simulation: Dip - Temperature (°C): 260 ± 3 (solder temp) - Time (s): 10 ± 1 - Temperature ramp / immersion and emersion rate: 25 mm/s ± 6 mm/s - Number of heat cycles: 1
Resistance to High Temperature	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	500 hrs. at 85°C±3°C Unpowered. Measured after exposure in the room condition for 24hrs.
Resistance to Low Temperature	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	500 hrs. at -25°C±2°C. Unpowered. Measured after exposure in the room condition for 24hrs
Resistance to Humidity	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	After 500 hours in 40±2°C and 90 to 95% humidity , and Measured after exposure in the room condition for 24hrs.
Thermal shock	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	After 10 cycles of following condition. Step / Temperature (℃) / Times (min.) 1 / -25±2°C / 30 2 / Room Temperature / Within 3 3 / 85±3°C / 30 4 / Room Temperature / Within 3
Vibration Test	Inductance within ±20% of initial value and appearance shall not break.	After vibration for 1hour, In each of three orientations at sweep vibration (10~55~10Hz) with 1.52mm P-P Amplitudes.