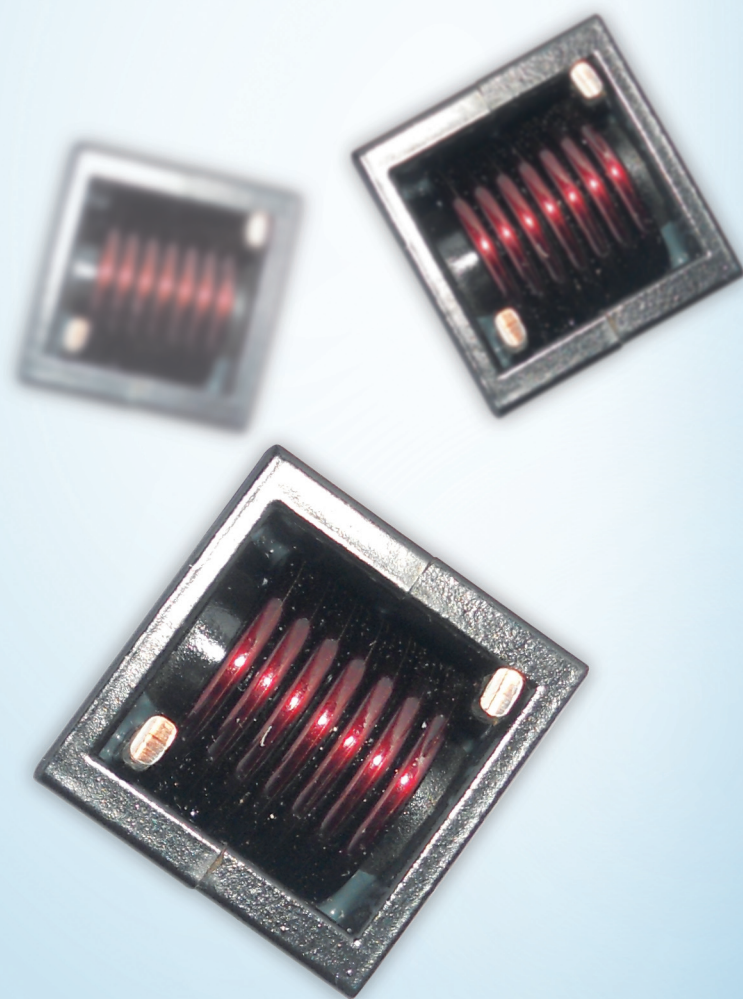




Magnetic Components

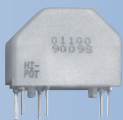
Product Data Short Form



Belief in Technology

Power Magnetics

Transformers

					
Model	HM32	HM33	HM41	HM42	HM110
Industry Style	Current Sense	Current Sense	Gate Drive	Gate Drive	Flyback
Inductance Range	0.2mH to 85mH	180μH to 3,000μH	140μH to 830μH	300uH to 3300uH	30uH to 180uH
Turns Ratio	1:10 to 1:200	1:30 to 1:125	1:0.67 to 1:2	1:1, 1:1:1, 2:1:1	Various output voltages
Operating Frequency	20KHz plus	20KHz plus	20KHz to 300KHz	20kHz to 300kHz	100kHz to 500kHz
DC Resistance Range	0.2Ω to 4.5Ω	1.0Ω to 7.36Ω	0.06Ω to 0.156Ω	0.30 to 2.0 Ohms	3.0 to 600m Ohms
Core Type	Toroid	EE	Toroid	EE and Toroid	ER, EP, EFD
Operating Case Temp. Range	-25°C to +105°C	-25°C to +105°C	-25°C to +85°C	-40°C to +125°C	-40°C to +125°C
Packaging Options	Bulk	Tape & Reel	Bulk	Tape & Reel	Tape & Reel

Specifications subject to change without notice.
We are capable of any core type.

Custom Capability/Application Summary

A. Power									
		Main Line Xfmr		Inductor		EMI Filter		Gate Drive	
		Power	Distrib.	Power	DC-DC	Diff	Com.	MdXfmr (MOSFET)	Current Sense
Application Related									
Line Input (70-400V)		•				•			
Operating Frequency (10kHz-5MHz)		•	•	•	•	•		•	•
Digital Application									
Internal Safety Standards		•		•				•	•
Core: Material & Configuration									
Ferrite:	EE & ER	•	•	•				•	
	ETD	•	•						
	EFD	•	•						
Buckle						•			
PQ		•	•						
POT			•						
RM			•						
UU								•	•
Slug				•		•			
Drum				•	•	•	•		
Toroid*			•				•	•	•
Powder Iron: Toroid*, ER				•	•	•			
Package									
SMD		•	•	•	•	•	•	•	•
Through-Hole			•	•	•	•	•	•	•

* Also available in molypermalloy powder iron and tape wound amorphous metal materials

If your circuit performance dictates specific parameters not listed, please contact BI Technologies engineering.
We would need the following to assist you in your design:

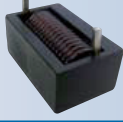
- Operating frequency
- Turns ratio
- Withstanding voltage
- Output power in watts
- Size/shape restrictions or limits
- Impedances
- Circuit topology
- Duty cycle

Power Magnetics

High Current SMD Inductors

					
Model	HM72A/HM72B	HM65/HA65	HM73	HM70	HM69/HM69S/69C
Package Sizes	6x6, 10x10, 12x12mm	10X10, 13X13, 26X26mm	6x6, 10x10, 12x12mm	9x10, 10x12, 13x13mm	5x6 to 13x15
Inductance Range	0.1μH to 33μH	0.5μH to 68μH	0.1μH to 26.5μH	0.7μH to 10μH	25nH to 300nH
DC Resistance Range	0.6mOhms to 332mOhms	2.1 mOhms to 13.5 mOhms	0.55mOhms to 30mOhms	1 mOhms to 12 mOhms	0.17mOhms to 0.7mOhms
Peak Current Rating	1.8A to 56A	5A to 29A	3.5A to 40A	7A to 30A	10A to 70A
Operating Frequency	to 3MHz	to 3MHz	to 800kHz	to 400kHz	to 3MHz
Core Type	Shielded Molded Powdered Iron	Shielded Ferrite	Shielded Powdered Iron	Shielded Powdered Iron	Shielded Ferrite
Operating Case Temp. Range	-40° C to +155° C	-40° C to +155° C	-40° C to +155° C	-40° C to +155° C	-40° C to +125° C
Packaging Options	Tape & Reel	Tape & Reel	Tape & Reel	Tape & Reel	Tape & Reel

High Current Through-Hole Inductors

					
Model	HA55	HM37	HM55	HM56	HM58
Package Sizes	22x23, 23x30, 23x36mm	7x10, 9x16mm	7x7, 11x11, 13x13mm	10x10, 11x11, 13x13mm	11x11mm
Inductance Range	7μH to 20μH	170nH to 320nH	3μH to 5.6μH	0.15μH to 8.0μH	0.36μH to 1.3μH
DC Resistance Range	1.7 mOhms to 3.4 mOhms	0.37 mOhms to 0.47 mOhms	0.8 mOhms to 7.7 mOhms	0.6 mOhms to 7.9 mOhms	0.68 mOhms to 1.1 mOhms
Peak Current Rating	40A to 60A	50A to 58A	9A to 40A	18A to 75A	17A to 40A
Operating Frequency	to 400kHz	to 3MHz	to 400kHz	to 3MHz	to 1MHz
Core Type	Shielded Powdered Iron	Shielded Ferrite	Shielded Powdered Iron	Shielded Ferrite	Shielded Ferrite
Operating Case Temp. Range	-40° C to +155° C	-40° C to +130° C	-40° C to +155° C	-40° C to +125° C	-40° C to +125° C
Packaging Options	Bulk	Tray	Tray	Tray	Tray

Specifications subject to change without notice. For Custom Applications Please Contact Us.

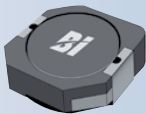
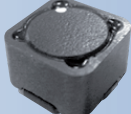
Selecting Minimum Inductance For A Buck Or Boost Converter:

Example #1, Step-Down (Buck) Converter

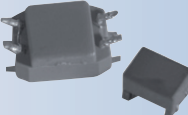
Input Voltage (VIN): +22V to +26V Output Voltage (VO): +5V
 Switching Frequency (F): 50KHz
 Maximum DC Output Current (IDC MAX.): 2.5A Minimum DC Output Current (IDC MIN.): 0.5A
 Voltage Drop Across Switcher (VSW): 0.5V Voltage Drop Across Diode (VD): .. 0.5V

1. Determine the minimum on time of the transistor switch. $T_{ON} (MIN.) = \frac{V_O + V_D}{F \times E_{IN} (MAX.)} = \frac{5 + 0.5}{50000 \times 26} = 4.23\mu s$
2. Assume the peak to peak ripple current, ΔI_L , equal to twice the min. value of DC output current.
3. Calculate the minimum inductance. $L_{MIN.} = \frac{[E_{IN} (MAX.) - V_O - V_D] T_{ON} (MIN.)}{\Delta I_L} = \frac{(26 - 5 - 0.5) (4.23 \times 10^{-6})}{2 \times 0.5} = 86.7\mu H$
4. Refer to our catalog and select the smallest part meeting min. IDC and inductance requirement.

Medium Current SMD Inductors

					
Model	HM66/HM66A	HM78/HM78D	HM79	HM71	HM62
Package Sizes	3x3 to 10x10mm	7x7, 12x12mm	4x4, 5x6, 7x8, 9x10mm	4x6, 9x12, 15x18mm	3x3 to 4x4mm
Inductance Range	1.0μH to 2200μH	0.3μH to 4800μH	1.0μH to 820μH	1.0μH to 1000μH	1.0μH to 220μH
DC Resistance Range	5.8 mOhms to 4.0 Ohms	7 mOhms to 15.6 Ohms	5 mOhms to 2.5 Ohms	9.0 mOhms to 13.8 Ohms	0.7 Ohms to 7.5 Ohms
Peak Current Rating	50mA to 13A	135mA to 18A	0.24A to 8.0A	50mA to 8.6A	0.2A to 2.1A
Operating Frequency	to 3MHz	to 3MHz	to 3MHz	to 1MHz	to 3MHz
Core Type	Shielded Ferrite	Shielded Ferrite	Unshielded Ferrite	Unshielded Ferrite	Unshielded Ferrite
Operating Case Temp. Range	-40° C to +125° C	-40° C to +125° C	-40° C to +125° C	-40° C to +125° C	-40° C to +85° C
Packaging Options	Tape & Reel	Tape & Reel	Tape & Reel	Tape & Reel	Tape & Reel

Common Mode Chokes

				
Model	HM67	HM85	HM86	HM19
Package Sizes	2x3, 3x5, 6x9mm	12x14 to 18x19mm	11x11, 14x14mm	30x30, 40x40mm
Inductance Range	5μH to 4700μH	150μH to 22mH	25μH to 1600μH	1mH to 16mH
DC Resistance Range	100 mOhms to 1.2 Ohms	10 mOhms to 850 mOhms	3.1 mOhms to 350 mOhms	20 mOhms to 240 mOhms
Peak Current Rating	200mA to 1A	500mA to 5.6A	500mA to 5.7A	1.8A to 7.5A
Withstanding Voltage	125 to 300vdc	500Vdc	500Vdc	250Vdc
Core Type	Ferrite	Ferrite Toroid	Ferrite Toroid	Ferrite
Operating Case Temp. Range	-40° C to +125° C	-40° C to +125° C	-40° C to +125° C	-40° C to +105° C
Packaging Options	Tape & Reel	Tape & Reel	Tape & Reel	Tray

Example #2, Step-Up (Boost) Converter

Input Voltage (VIN): +12V to +15V Output Voltage (VO): +24V
 Switching Frequency (F): 50KHz
 Maximum DC Output Current (IDC MAX.): 1.5A
 Voltage Drop Across Switcher (VSW): 0.5V Minimum DC Output Current (IDC MIN.): 0.5V

1. Assume a maximum ripple current of 12.5% of inductor current. IL (AVE)
2. Determine the minimum on time of the switcher. $T_{ON} (MIN.) = \frac{[V_O - E_{IN} (MAX.) + V_D]}{F V_O} = \frac{24 - 15 + 0.5}{50000 \times 24} = 7.92\mu s$
3. Determine the average current through inductor. $I_L (AVE) = \frac{[1.05 (V_O + V_D) I_{DC}]}{E_{IN}} = \frac{1.05 (24 + 0.5) 1.5}{15} = \sim 2.57A$
4. Determine peak to peak ripple current. $\Delta I_L = 2 (P/100) I_L (AVE) = 2 \times 12.5\% \times 2.57 = 0.643$
5. Calculate the minimum inductance. $L_{MIN.} = \frac{[E_{IN} (MAX.) - V_{SW}] T_{ON} (MIN.)}{\Delta I_L} = \frac{(15 - 0.5) (7.92 \times 10^{-6})}{0.643} = \sim 179\mu s$
6. Refer to our catalog and select the smallest part meeting Min. LDC and inductance requirement.



Product Selector Guide

Surface Mount Inductors																						
Model Number		Size mm Max.			Inductance @ Zero DC μH							Rated Current @ 25°C A					Rated Current @ 25°C A					
		L	W	Ht	0.001	0.01	0.1	1	10	100	1000	10000	0.01	0.1	1	10	100	0.1m	1m	10m	100m	1
HM36		HM36-1211XXXLF	12.5	10.5	7.5	0.95 3.6							[12] [25]					1.4m 3.5m				
		HM36-1311XXXLF	13.1	11.2	8.0	0.95 6							[10] [25]					1.4m 4.92m				
HM62		HM62-2610XXXLF	3.00	2.80	1.00	1.0 22							0.33 1.40					110m 1.813				
		HM62-2815XXXLF	3.00	3.00	1.50	1.5 47							0.20 1.05					69m 1.980				
		HM62-3214XXXLF	3.50	3.50	1.40	1.0 100							0.28 2.10					106m 4.850				
		HM62-3715XXXLF	4.00	4.00	1.50	2.2 220							0.21 1.90					86.4m 7.502				
HM65		HM65-HXXXLF	13.50	12.50	5.60/6.00	1.0 7.2							7.8 20					2.5m 13.5m				
		HM65-XXXXLF	13.50	12.50	5.60	1.5 10							5.0 14					2.5m 13.5m				
		HM65-PXXXLF	13.50	12.50	6.00	1.0 2.5							10 20					2.5m 3.4m				
		HM65-MXXXLF	10.40	10.40	5.60	0.5 2.5							12 29					2.2m 6m				
HM66		HM66-10XXXLF	4.30	4.30	1.80	1.5 33							0.32 1.55					55m 675m				
		HM66-15XXXLF	4.30	4.30	1.85	1.5 33							0.32 1.55					55m 675m				
		HM66-20XXXLF	5.20	5.20	2.10	1.0 39							0.30 1.72					45m 709m				
		HM66-30XXXLF	5.20	5.20	3.00	1.2 180							0.22 2.56					23.6m 1.540m				
		HM66-40XXXLF	6.20	6.20	2.00	4.1 100							0.36 1.95					57m 1.200m				
		HM66-50XXXLF	6.20	6.20	3.00	2.5 100							0.42 2.60					18m 520m				
		HM66-60XXXLF	7.20	7.20	3.00	3.0 100							0.54 3.00					24m 535m				
		HM66-62XXXLF	6.70	6.20	2.00	1.0 1.8							2.47 3.50					23m 36m				
		HM66-70XXXLF	7.20	7.20	4.00	3.3 220							0.45 3.50					20m 820m				
HM66-80XXXLF	10.50	10.70	4.00	1.5 1000							0.33 10.00					8.10m 2.853						
HM66A		HM66A-0312XXXLF	3.2	3.2	1.2	1.2 22							0.22 0.85					117m 1.650				
		HM66A-0315XXXLF	3.2	3.2	1.5	2.2 33							0.25 1.00					150m 2.200				
		HM66A-0318XXXLF	3.2	3.2	1.8	2.2 47							0.23 1.10					117m 1.820				
		HM66A-0420XXXLF	4.2	4.2	2.0	1.0 100							0.10 1.50					58m 2.120				
		HM66A-0520XXXMLF	5.3	5.3	2.0	1.2 47							0.35 2.15					44m 730m				
		HM66A-0530XXXMLF	5.3	5.3	3.0	1.2 2200							0.05 3.80					22m 19				
		HM66A-0628XXXMLF	6.2	6.2	3.0	4.7 100							0.42 1.60					43m 744m				
		HM66A-0630XXXNLF	6.3	6.2	3.0	2.5 100							0.40 2.60					17.6m 520m				
		HM66A-0728XXXMLF	7.2	7.2	3.0	3.3 47							0.54 1.60					44m 408m				
		HM66A-0730XXXMLF	7.2	7.2	3.2	3.3 100							0.35 1.80					28m 540m				
		HM66A-0732XXXMLF	7.2	7.2	3.4	3.3 1000							0.13 1.90					28m 5.736m				
		HM66A-0745XXXMLF	7.2	7.2	4.8	3.3 1000							0.14 2.50					24m 2.736m				
		HM66A-1030XXXNLF	10.4	10.3	3.0	10 150							0.70 2.70					58.1m 876.3m				
		HM66A-1045XXXMLF	10.4	10.4	4.8	10 1500							0.22 3.0					43m 4.080				
		HM66A-1050XXXNLF	10.4	10.3	5.0	1.5 1000							0.35 8.3					5.8m 1.9464				
		HM66A-1255XXXLF	12.8	12.8	5.9	6 1500							0.29 3.6					20m 2.076				
		HM66A-1265XXXLF	12.8	12.8	6.9	2 150							1 10					14m 328m				
		HM66A-1275XXXLF	12.8	12.8	7.9	1.2 220							1.3 13					8m 310m				

() : denotes typical value [] : denotes saturation current rating



Surface Mount Inductors

Model Number		Size mm Max.			Inductance @ Zero DC μH	Rated Current @ 25°C A			Rated Current @ 25°C A		
		L	W	Ht							
HM70		HM70-XXXXLFL	*	*	*	0.65	10	{9}	{31}	1.26	15m
HM71		HM71-10XXXLF	6.60	4.45	2.92	1	1000	0.07	2.9	50m	13.8
		HM71-20XXXLF	12.95	9.40	3.00	10	1000	0.05	2.0	110m	8.4
		HM71-30XXXLF	12.95	9.40	5.40	1	1000	0.3	6.8	9m	3
		HM71-40XXXLF	12.95	9.40	11.43	10	1000	0.1	3.5	40m	2
		HM71-50XXXLF	18.54	15.24	7.11	1	1000	0.56	8.6	9m	1.8
HM71S		HM71S-0603XXXLF	6.60	4.45	2.92	1	10m	[0.017]	[1.4]	40m	73
		HM71S-1305XXXLF	12.95	9.40	5.08	1	1000	[0.32]	[5.6]	21m	8.3
		HM71S-1807XXXLF	18.54	15.24	7.62	10	1000	[0.80]	[8.0]	40m	2.01
HM72A HM72B		HM72A-06XXXLF	7.23	6.80	3.00	0.1	33	{1.8}	{26.2}	1.7m	332m
		HM72A-10XXXLF	11.50	10.50	4.00	0.15	4.7	{7.3}	{33.7}	0.8m	16.50m
		HM72A-12XXXLLF	13.50	13.00	3.50	0.1	6.8	{8}	{40}	0.96m	24.75m
		HM72A-12XXXLF	13.50	13.00	5.00	0.47	10	{8.3}	{40.5}	1.3m	25.50m
		HM72A-12XXXHLF	13.50	13.00	6.50	0.15	20	{6.7}	{56}	0.6m	40.50m
HM73		HM73-10XXXLF	7.50	6.90	3.50/5.00	0.1	6.4	3.5	22	1.65m	30m
		HM73-10XXXLLF	7.23	6.73	3.15/3.20	0.1	1.0	6	22	1.40m	8.8m
		HM73-12XXXLF	7.50	6.73	5.00		0.68		16		3.2m
		HM73-S12XXXLF	7.50	6.73	4.50	1.0	1.8	6	10	4m	7.3m
		HM73-15XXXLF	11.70	10.50	4.00/7.30	0.108	4.7	8	30	0.70m	5.00m
		HM73-S15XXXLF	11.70	10.50	4.50		2.1		11		7.8m
		HM73-20XXXLF	13.50	13.00	4.50	1.0	1.5	13	16	3.30m	4.40m
		HM73-30XXXLF	14.00	13.00	5.50	0.6	4.6	9	27	1.25m	8.30m
		HM73-31XXXLF	13.00	13.00	5.00	6.4	10	5.6	6.50	25.0m	26.0m
		HM73-40XXXLF	14.60	13.00	6.50/7.00	0.15	3.3	15	40	0.55m	4.70m
		HM73-50XXXLF	13.50	13.00	7.50/9.00	9.1	26.5	4.5	8	10.8m	25.2m
		HM73-60XXXLF	15.00	13.00	7.30/8.20	1.0	2.02	20	30	1.2m	2.22m
HM76		HM76-10XXXJLF	7.30	4.78	3.23	1.0	470	0.12	2.90	30m	11.55
		HM76-20XXXJLF	12.90	9.40	3.50	10	1000	0.05	2.00	70m	6.00
		HM76-30XXXJLF	13.46	9.40	5.90	1.0	1000	0.30	8.50	10m	3.15
		HM76-40XXXJLF	16.10	15.80	7.21	3.3	1000	0.65	9.80	10m	1.45
		HM76-50XXXJLF	18.95	15.24	7.21	0.78	1000	0.56	15.00	3m	1.8
HM77		HM77-XXXX1LF	8.64	8.64	6.35	1.1	22.7	1.0	3.4	12.5m	125m
		HM77-XXXX2LF	11.35	11.35	8.89	5.2	167	0.94	4.8	19.1m	380m
		HM77-XXXX3LF	14.50	14.50	8.89	3.8	672	0.72	8.0	8.3m	862m
		HM77-XXXX4LF	15.88	15.24	9.14	1.25	1134	0.74	13.3	5.7m	1.250
		HM77-XXXX5LF	18.40	14.90	9.14	2.8	4.2	10.9	11.4	6.9m	7.5m
		HM77-XXXX6LF	20.40	18.03	11.30	2.7	1950	0.71	13.0	6.8m	1.700
		HM77-XXXX7ALF	17.00	17.00	10.16	2.8	4.2	11.4	13.9	4.0m	6.2m

() : denotes typical value * : Refer to specifications [] : denotes saturation current rating { } : denotes heating current rating



Surface Mount Inductors											
Model Number		Size mm Max.			Inductance @ Zero DC μH						
		L	W	Ht	0.001	0.01	0.1	1	10	100	1000
					Rated Current @ 25°C A						
					0.01	0.1	1	10	100	Rated Current @ 25°C A	
					0.1m	1m	10m	100m	1	10	100
HM78	HM78-10XXXLF	7.40	7.40	3.80	10			68		0.42	1
	HM78-20XXXLF	7.40	7.40	5.20	10			270		0.31	1.65
	HM78-30XXXLF	7.50	7.50	3.50	10			1000		0.16	1.68
	HM78-40XXXLF	7.50	7.50	4.50	10			820		0.20	2
	HM78-45XXXLF	12.50	12.50	4.50	3.9			330		0.50	6.50
	HM78-50XXXLF	12.50	12.50	6.20	1.5			1800		0.30	13
	HM78-60XXXLF	12.50	12.50	8.00	1.4			220		1.2	12
HM78D (Parallel Connection)	HM78D-128XXXLF	12.50	12.50	8.05	4.7			1000		<0.6>	<7.4>
	HM78D-755XXXLF	7.70	7.70	4.80	0.33			1000		<0.27>	<6.2>
HM78D (Series Connection)	HM78D-128XXXLF	12.50	12.50	8.05	18.8			4800		<0.3>	<3.6>
	HM78D-755XXXLF	7.70	7.70	4.80	1.176			4036		<0.135>	<3.1>
HM79	HM79-10XXXLF	4.80	4.30	3.50	1.0			33		0.56	2.56
	HM79-20XXXLF	6.10	5.50	4.80	1.0			220		0.35	8
	HM79-30XXXLF	8.10	7.30	3.80	10			330		0.28	1.44
	HM79-40XXXLF	8.10	7.30	5.30	10			470		0.34	2.30
	HM79-45XXXLF	8.10	7.30	6.10				2.3			9
	HM79-46XXXLF	8.10	7.30	8.10				1.5			14
	HM79-50XXXLF	10.30	9.30	4.30	10			560		0.32	2.38
	HM79-60XXXLF	10.30	9.30	5.70	10			820		0.24	2.60
HM79S	HM79S-63XXXLF	6.50	5.90	3.50	10			68		0.42	1
	HM79S-74XXXLF	8.15	7.35	4.90	10			270		0.33	1.65
	HM79S-105XXXLF	10.40	9.40	5.50	10			680		0.28	2.06
	HM79S-125XXXLF	13.00	12.10	5.90	10			3300		0.16	2.65
HM87	HM87-0610XXXLF	6.50	5.60	1.10	1.2			330		0.13	2.1
	HM87-0612XXXLF	6.50	5.60	1.20	1.2			100		0.235	1.8
	HM87-0620XXXLF	6.50	5.60	2.00	1.0			1000		0.08	2.5
	HM87-0915XXXLF	9.30	7.87	1.55	4.7			1000		0.1	1.6
HM88	HM88-1009XXXLF	10.50	9.50	5.60				1			14
	HM88-1412XXXLF	14.00	12.10	6.50				1			25
HM100	HM100-25XXXLF	28.0	25.5	8.8	1.0			2.0		35	70

() : denotes typical value * : Refer to specifications [] : denotes saturation current rating { } : denotes heating current rating < > : denotes RMS current rating.



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