

# MGV High Current Molded SMT Power Inductors MGV1707 Series

#### **FEATURES AND APPLICATIONS**

Laird MGV series high current power inductors improve performance, reliability and power efficiency. A lower profile benefits consumer electronics and telecom design. Products feature extremely low DCR with greater efficiency and enable a large current in a small size. Inductors are of magnetic shielding and molded construction and perform in operating temperatures ranging from -40 C to 125 C including self-heating rise in temperature.

#### **FEATURES**

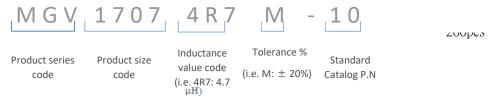
- Magnetic shielded structure
- · Low DCR and high efficiency
- Low profile and miniaturization
- High reliability

#### **APPLICATIONS**

- DC-DC Converter and Power Suppliers
- LCD TV'S and Gaming Console
- Tablet, Notebooks, Servers and Printers
- Networking and Data storage
- GPS, Set-top-box and Base stations
- Smart meters and Medical instruments



#### PART NUMBER EXPLANATION



**Note:** Automotive grade parts are also available, a specific P.N will be assigned upon request. Please contact laird local sales for details.

#### **ELECTRICAL SPECIFICATIONS**

- Tolerance: M: ±20% or N: ±30%
- Inductance tested at 100KHz, 1.0V
- Heat Rated Current (Irms) is defined based on temperature rise approximate 40°C without core loss (ambient temperature 25±5°C)
- Saturation Current (Isat) is the DC current at which the inductance drops off approximately 30% from its value without current. (ambient temperature 25±5°C)
- Operating temperature range: -40°C~+125°C (including self-heating temperature rise)
- Storage temperature range (packaging conditions): -10°C~+40°C and RH 60%(MAX.)

**Note:** Heat Rated Current (Irms) is tested on a typical PCB and apply a constant current in still air.

The temperature rise is dependent on the application system condition including PCB PAD pattern, trace width and thickness and adjacent components etc. It's suggested to verify the temperature rise of the component under the real operation application conditions.



### **Molded SMT Power Inductors**

					www.laird.	com	MGV1707	Series	Rev: A
SPECIF	FICATIO	N							
1.MECHA	NICAL & D	IMENSI	ONS					(UN	NIT: mm)
					I		Α	17.6	0±0.40
4							В	16.9	0±0.40
							С	6.70	)±0.30
A		3	+-	+ -	+ + +		D	11.9	0±0.30
	<del></del>	<b>-</b>					E	2.30	)±0.50
					E		L	18.	50 ref
	В		c	-	D -		G	12.	20 ref
							Н	12.	50 ref
					L		RE	MARK	
					<b>→</b> G <b>→</b>	ļ			
						Н			
						<b>—</b>			
						1			
2.PART N	UMBER N	OMENC	LATOR:						
MGV	1707	100	М -	1X	D: Inductance Tolera	nce.	(M=±20% ,N=	±30%)	
Α	В	С	D	Ε	E: "X"=0:Standard ca	talog	part number		
A: Pro	oduct Series.				"X"=1-9:Controlled	cust	omized part <b>c</b>	<b>r</b> differ	ent
B: Sei	ries number,	part size			performance t	han s	td catalog par	rt. And '	'5-9" is
C: Ind	luctance cod	е			for automotive	grad	e.		
	20	00pcs	200pcs	40	0pcs				
3.EQUIVA	LENT CIR	CUIT:							
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				-	<u> </u>				
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### **Molded SMT Power Inductors**

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SPECIFICAT	ION					
PART NUMBER	INDUCTANCE (uH)±20%	Irms(A) Typ.	Isat(A) Typ.	DCR(mΩ) Typ	DCR(mΩ) Max	REMARI
MGV17071R0M-10	1.00	52	70	1.6	2.0	
MGV17071R5M-10	1.50	47	65	2.0	2.5	
MGV17072R2M-10	2.20	43.5	62	2.4	2.7	
MGV17073R3M-10	3.30	28	54	3.5	3.9	
MGV17074R7M-10	4.70	25	50	4.8	5.5	
MGV17076R8M-10	6.80	19	39	8.4	9.2	
MGV1707100M-10	10.0	16.5	29	11.8	13.0	
MGV1707150M-10	15.0	12.5	27	17.8	20.5	
MGV1707220M-10	22.0	12.0	23	25.1	26.5	
MGV1707330M-10	33.0	10.7	20	38.0	44.0	
MGV1707470M-10	47.0	8.7	16	48.0	55.0	
MGV1707560M-10	56.0	7.8	15	54.0	62.0	
MGV1707680M-10	68.0	7.0	13	68.0	80.0	
MGV1707820M-10	82.0	5.7	12	87.0	100.0	
MGV1707101M-10	100.0	5.3	12	102.0	118.0	
GENERAL SPECI						
Inductance tested	<u> </u>				0 111 1	
Heat Rated Curre		based on tem	perature rise	approximate 40°	C without core lo	SS
(ambient temper						
Saturation Currer						
	current. (ambient t	•				
	rature range: -40°C	-			<u> </u>	
Storage temperate	ture range (packagii	ng conditions)	: -10°C~+40°C	and RH 60%(M <i>A</i>	AX.)	



### **Molded SMT Power Inductors**

www.laird.com MGV1707 Series Rev: A **SPECIFICATION Characteristics Curve** MGV17071R0M-10 MGV17071R5M-10 1.50 50 2.50 50 Temperature Rise (°C) 1.20 40 40 2.00 0.90 (nH) 0.90 (nH) 0.30 Inductance (uH) Temperature Rise 30 30 1.50 20 1.00 20 0.50 0.00 0.00 16 48 64 80 0 15 30 45 60 75 IDC(A) IDC(A) MGV17072R2M-10 MGV17073R3M-10 4.00 50 2.50 50 Temperature Rise (°C) Temperature Rise (°C) 3.20 40 2.00 Inductance (uH) nductance (uH) 2.40 30 1.50 1.60 20 1.00 20 0.80 0.50 0.00 0.00 0 24 36 48 60 12 60 24 36 48 IDC(A) IDC(A) MGV17074R7M-10 MGV17076R8M-10 10.00 50 6.00 50 40 40 8.00 4.80 Inductance (uH) Temperature Rise Temperature Rise nductance (uH) 30 3.60 30 6.00 2.40 20 4.00 20 1.20 10 2.00 10 0.00 0 0.00 0 12 60 24 36 48 10 20 50 IDC(A) IDC(A)



### **Molded SMT Power Inductors**

MGV1707 Series www.laird.com Rev: A **SPECIFICATION Characteristics Curve** MGV1707100M-10 MGV1707150M-10 15.00 50 20.00 50 12.00 40 40 16.00 emperature Rise Inductance (uH) Temperature Rise nductance (uH) 9.00 30 30 12.00 6.00 20 8.00 20 3.00 4.00 0.00 0 0.00 0 8 0 16 24 32 40 0 8 24 32 40 16 IDC(A) IDC(A) MGV1707220M-10 MGV1707330M-10 25.00 50 35.00 150 Temperature Rise (°C) 40 120 20.00 28.00 Inductance (uH) nductance (uH) Temperature Rise 15.00 30 21.00 90 10.00 20 14.00 5.00 10 7.00 30 0.00 0.00 0 0 5 10 15 20 25 0 6 12 18 30 24 IDC(A) IDC(A) MGV1707560M-10 MGV1707470M-10 60.00 50 50.00 50 Temperature Rise (°C) Temperature Rise (°C) 40 40.00 40 48.00 Inductance (uH) Inductance (uH) 36.00 30 30.00 30 20.00 20 20 24.00 10.00 10 12.00 0.00 0 0.00 0 0 12 16 20 4 8 12 16 20 8 IDC(A) IDC(A)

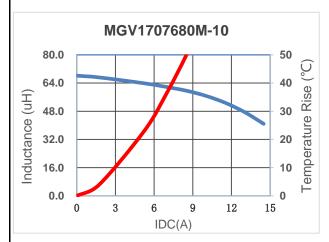


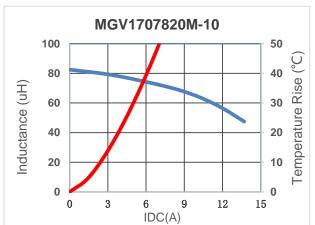
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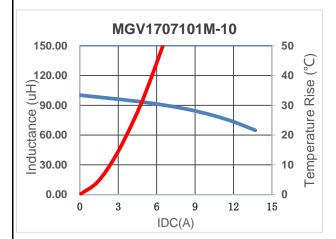
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### **SPECIFICATION**

### **Characteristics Curve**





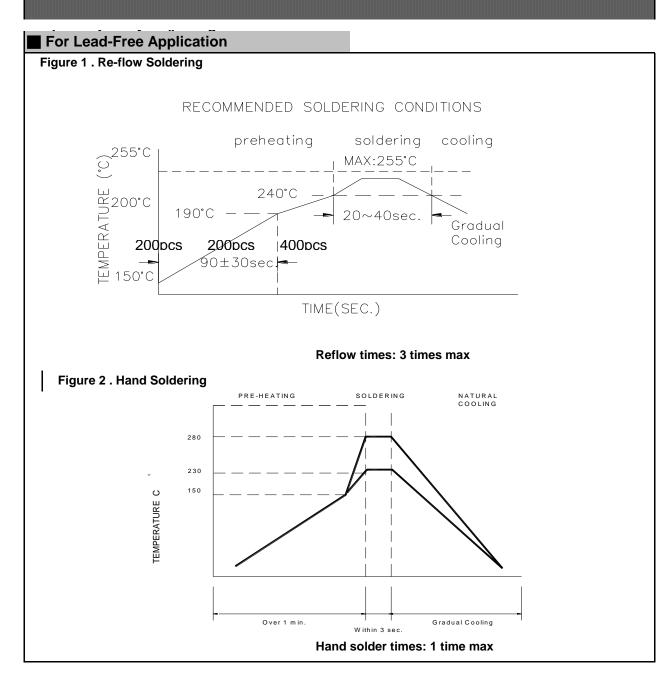




### **Molded SMT Power Inductors**

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Recommended Soldering Conditions





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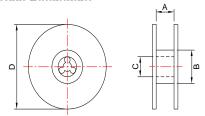
Reliability and Te	stina Conditions / Pin Tvpe Po	www.laird.com MGV1707 Series Rev: A wer Inductors						
SMD series(Consumer)								
Item	Reference	Additional Requirements						
Operating temperature range	-40°C ~ +125°C (Including self-temperature rise)							
Storage temperature and humidity range	Less than 40°C , 60% RH							
High Temperature Exposure (Storage)	MIL-STD-202 Method 108	85±2˚ℂ, 168+24hours						
Temperature Cycling	JESD22 Method JA-104	-40 °C →+85, transforming interval:20s, 100cycles						
Operational Life	MIL-PRF-2	85±℃, 168+24hours Apply maximum rated voltage and current according part drawing						
External Visual	MIL-STD-883 Method 2009	Inspect device construction, marking and workmanship. Electrical Test not required.						
Physical Dimension	JESD22 Method JB-100	Verify physical dimensions to the applicable device detail specification. Note: User(s) and Suppliers spec. Electrical Test not required						
Vibration	MIL-STD-202 Method 204	10~55Hz,1.5mm, 2 hours in each 3mutually perpendicular directions (total of 6 hours)						
Resistance to Soldering Heat	MIL-STD-202 Method 210	1. Max. 260±5°C,10±1s, 2 times 2.Solder Composition: Sn/3Ag/0.5Cu						
Solderability	J-STD-002	245±5°C, 5±1sec, Solder: Sn/3.0Ag/0.5Cu						
Electrical Characterization	Print Spec	Parametrically test per lot and sample size requirements, summary to show Min, Max, Mean and Standard deviation at room as well as Min and Max Operating temperatures						
Board Flex	AEC-Q200-005	2mm,30±1s						
Terminal Strength(SMD)	AEC-Q200-006	10N, 5S, X,Y direct						



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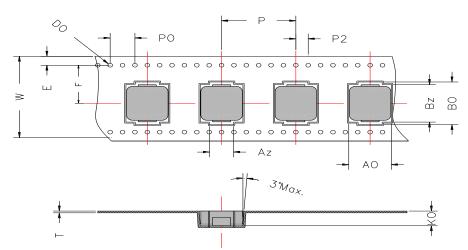
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## **PACKAGING Reel Dimension**



Type	A(mm)	B(mm)	C(mm)	D(mm)
13'x32	32.4+2/-0	100 ± 2	13+0.5/-0.2	330

### **Tape Dimension**

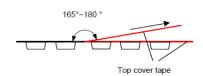


W	Е	F	Р	A0	В0	P2	P0	K0	t	D0	Az	Bz
32.0±0.3	1.75±0.1	14.20±0.1	24.0±0.1	17.5±0.1	18.5±0.1	2.0±0.05	4.0±0.1	7.5±0.1	0.50±0.05	1.5Ref.	12.6±0.1	17.5±0.1

#### **Packaging Quantity**

P/N	Chip/Reel	Inner Box	Outer Box	
MGV1707	200pcs	200pcs	400pcs	
Size	Э	-	-	

#### **Peeling Off Force**



The force peeling off cove tape is 10 to 100 grams							
in the arrow direction under the following conditions							
Room Temp							
(℃)	Speed						
5~35 45~85 860~1060 300							

- **%Storage Conditions** 1. Temperature and humidity conditions: -10-+40 $^{\circ}$ C and 60% RH.
- 2. Recommended products should be used within 12 month
- from the time of manufacturing.

  3. The packaging material should be kept where no chloring or sulfur exists in the air.
- 4. Allowable stacking condition of Packaging box: max height 1.5m or 5 boxes stacking