	Product Series	<b>GMAR</b>	Brand	<b>GOTREND</b>
	File Version	<b>GMAR-SERIES-V4R5</b>	Editor	<b>Teddy</b>
	Established Date	<b>2009.07.16</b>	Description	<b>Dip Choke High-Current</b>
	Latest Edit Date	<b>2020.11.16</b>	Pages	<b>Page : 2</b>

### Features & Application:

- \* High-Current, Low DCR, 0.22uH/56Amp ~ 33uH/8Amp
- \* Magnetic Shielded for excellent EMI effect
- \* No air-space and large energy storage capability
- \* Through-hole high-current
- \* PWM circuit inductance & isolation
- \* M/B, NB, IPC .... various switching power application

### Part No Expression Example:

**GMAR 151311 P - 0R9 M**

1 2 3 4 5

1. Product Code : GMAR
2. Size Code : 151311 = [ L ] 15 X [ W ] 13 X [ H ] 11
3. P=Pb Free < 1000ppm
4. [ L ] Value : Inductance Ex.: 0R9=0.9uH
5. [ L ] Tolerance: M=+/-20%,N=+/-30%

### Test Equipment :

- \* HP4284A , HP42841A - L , Isat , Irms , DCR

Standard Atmospheric Conditions :

Ambient Temp : 20 +/- 15°C

Relative Humidity : 65 +/- 20%

If there may be any doubt on the result , measurement shall be made within the following limits :

Ambient Temp : 25 +/- 5°C

Relative Humidity : 75 +/- 10%

### Operating & Storage Condition:

Operating Temp : -25 ~ +125°C

Storage Temp : -25 ~ +125°C

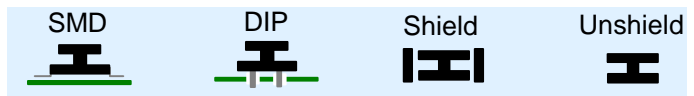
Storage Life Time: 12 Month @25°C , RH 40~65%

### Attention & Caution:

Please avoid following matters:

- \* Splashing water or salt water
- \* Toxic Gas (Hydrogen sulfide, Sulfurous acid, Chlorine, Ammonia)
- \* Vibrations or shocks which exceed the specified condition
- \* Dew condenses
- \* Please be careful for the stress to this product by board flexure or something after the mounting.
- \* This product meet IPC/JEDEC J-STD-020D standard-MSL , level 2a. It is recommended to bake and dehumidify at 150 degrees for 90 minutes or refer to IPC / JEDEC J-STD-033 corresponding to the baking conditions of MSL 2a level before use.

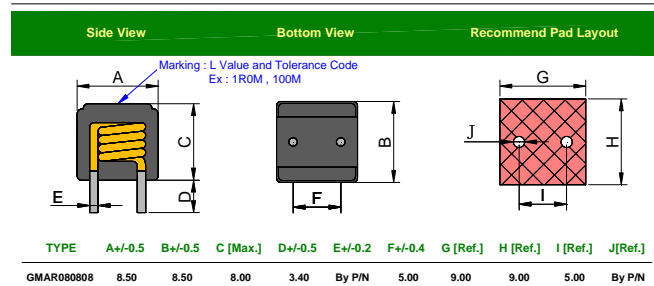
### Product Structure :



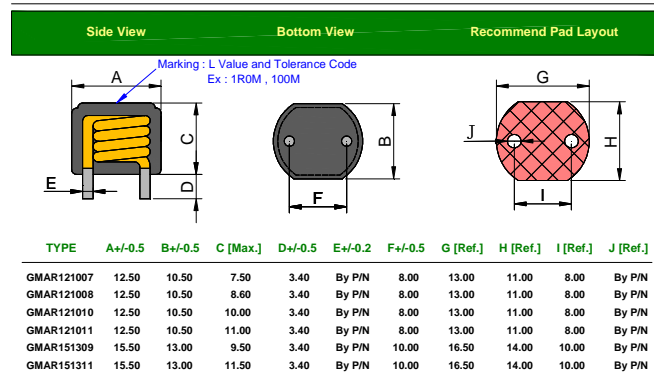
### 2005 RoHS Compliant - SGS Certified Result

Pb	Cd	Hg	Cr+6	PBB	PBDE
<1000ppm	ND	ND	ND	ND	ND

### Dimension : [ mm ]



### Dimension : [ mm ]



### Wave Solder Condition:

Pre-heat TEMP. 1 : 110 +/- 5 °C

Pre-heat TEMP. 2 : 90°C~145°C

Peak TEMP. : 260°C ~ 265°C / 3 ~ 6 sec.



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**Electrical Characteristics :**

PART NO.	L ( uH ) @200KHz , 0.1V , 0Amp [ ± 20% ]	Isat / Irms ( Amp ) Current Condition		DCR ( m Ohm ) [ Max. ] / [ Typ. ]	E ( mm ) [ ± 0.2 ]	J ( mm ) [ Ref. ]
		[ Max. ]	[ Max. ] / [ Typ. ]			
GMAR080808P-R10M	0.10	50.0 / 29.0	1.10 / 0.90	0.90	1.20	
GMAR080808P-R22M	0.22	31.0 / 24.5	1.45 / 1.30	0.90	1.20	
GMAR080808P-R33M	0.33	38.0 / 24.5	1.45 / 1.37	0.90	1.20	
GMAR080808P-R36M	0.36	30.0 / 24.5	1.45 / 1.37	0.90	1.20	
GMAR080808P-R47M	0.47	30.0 / 19.0	2.40 / 1.93	0.90	1.20	
GMAR080808P-R56M	0.56	28.0 / 19.0	2.40 / 1.93	0.90	1.20	
GMAR080808P-R68M	0.68	25.0 / 15.5	3.60 / 2.96	0.80	1.10	
GMAR080808P-R80M	0.80	23.0 / 15.4	4.10 / 3.49	0.80	1.10	
GMAR080808P-1R0M	1.00	21.0 / 14.3	4.10 / 3.49	0.80	1.10	
GMAR080808P-1R2M	1.20	21.0 / 14.6	4.10 / 3.50	0.80	1.10	
GMAR080808P-1R5M	1.50	18.0 / 10.1	7.20 / 5.83	0.70	1.10	
GMAR080808P-2R2M	2.20	16.0 / 10.0	9.00 / 7.46	0.70	1.10	
GMAR080808P-2R8M	2.80	15.0 / 9.5	10.20 / 8.54	0.70	1.10	
GMAR080808P-3R3M	3.30	14.0 / 9.2	11.00 / 8.98	0.70	1.10	
GMAR080808P-4R7M	4.70	12.0 / 8.0	15.00 / 12.04	0.70	1.10	
GMAR121007P-R22M	0.22	56.0 / 38.0	0.60 / 0.50	1.40	1.90	
GMAR121008P-R33M	0.33	48.0 / 33.0	0.80 / 0.70	1.40	1.90	
GMAR121008P-R39M	0.39	45.0 / 33.0	0.80 / 0.70	1.40	1.90	
GMAR121010P-R47M	0.47	40.0 / 30.0	1.00 / 0.85	1.50	1.80	
GMAR121010P-R56M	0.56	40.0 / 30.0	1.00 / 0.85	1.50	1.80	
GMAR121010P-R68M	0.68	40.0 / 30.0	1.00 / 0.85	1.50	1.80	
GMAR121010P-R80M	0.80	36.0 / 26.0	1.50 / 1.26	1.40	1.90	
GMAR121010P-1R0M	1.00	32.0 / 21.0	2.10 / 1.75	1.20	1.70	
GMAR121010P-1R5M	1.50	30.0 / 16.0	3.50 / 3.00	1.00	1.50	
GMAR121010P-2R2M	2.20	24.0 / 13.6	5.00 / 4.30	1.00	1.50	
GMAR121010P-2R8M	2.80	20.0 / 12.3	6.40 / 5.60	0.90	1.40	
GMAR121010P-3R3M	3.30	16.0 / 11.2	8.10 / 6.80	0.80	1.30	
GMAR121010P-4R7M	4.70	15.0 / 10.0	10.00 / 8.80	0.80	1.30	
GMAR121011P-8R2M	8.20	10.0 / 8.5	12.00 / 14.00	0.80	1.30	
GMAR151309P-R39M	0.39	54.0 / 37.0	0.70 / 0.60	1.70	2.30	
GMAR151309P-R47M	0.47	50.0 / 36.0	0.75 / 0.65	1.70	2.30	
GMAR151309P-R56M	0.56	50.0 / 36.0	0.75 / 0.65	1.70	2.30	
GMAR151311P-R80M	0.80	45.0 / 32.0	1.00 / 0.86	1.70	2.30	
GMAR151311P-1R0M	1.00	40.0 / 27.0	1.32 / 1.15	1.50	2.10	
GMAR151311P-1R2M	1.20	40.0 / 26.0	1.36 / 1.20	1.50	2.10	
GMAR151311P-1R5M	1.50	35.0 / 23.5	1.72 / 1.50	1.50	2.10	
GMAR151311P-2R2M	2.20	30.0 / 20.0	2.50 / 2.20	1.30	1.90	
GMAR151311P-4R7M	4.70	24.0 / 12.0	7.20 / 6.00	1.00	1.50	
GMAR151311P-6R8M	6.80	16.0 / 10.0	10.00 / 8.50	1.00	1.50	
GMAR151311P-100M	10.00	12.0 / 9.0	11.20 / 9.80	1.00	1.50	
GMAR151311P-150M	15.00	10.0 / 6.8	21.00 / 17.00	0.80	1.30	
GMAR151311P-220M	22.00	10.0 / 6.5	24.00 / 19.15	0.80	1.30	
GMAR151311P-330M	33.00	8.0 / 5.0	42.00 / 36.00	0.65	1.10	

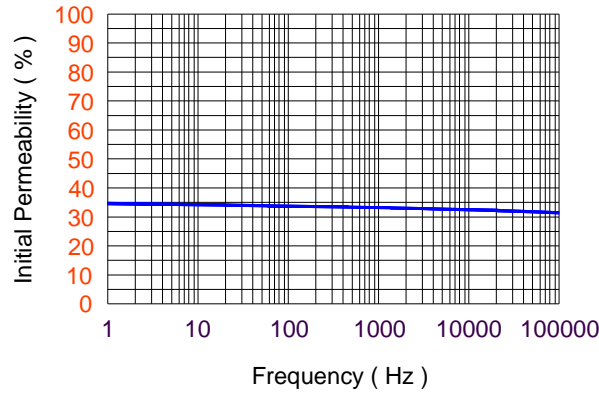
- \* Test Condition@200KHz,0.1Vrms, 25°C Ambient
- \* Isat=Current loading caused L value drop approximately 20%
- \* Irms=Current loading caused the parts temperature rise about 40°C



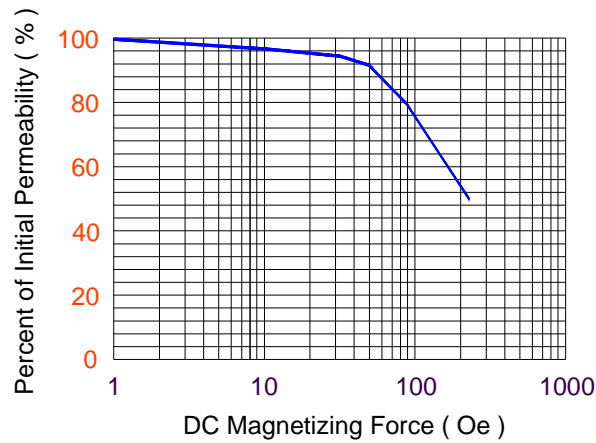
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**Material Character Curve:**

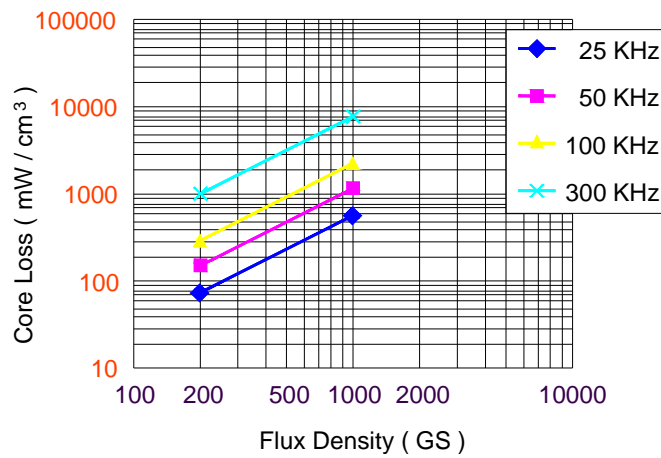
**Initial permeability VS Frequency**



**Percent of Initial Permeability VS DC Magnetizing Force**



**Core Loss VS Flux Density**



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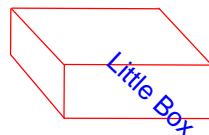
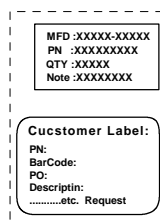
**Reliability :**

NO	ITEM	TEST CONDITIONS	Sample Qty/pes	Specification	Result																
1	Dimension	Actual Size ...	10	Meet Spec	ok																
2	Thermal Shock (Temperature Cycle)	Temperature : -25 ° C~+125 ° C kept stabilized for 30 minutes each Cycle : 100 Cycle ( Power off )	10	Elec. no variation Appearance no deformation	ok																
3	Humidity Resistance	Humidity: 90%~ 95% RH Temperature: 40± 2 ° C Test Time: 96± 2 Hours	10	Elec. no variation Appearance no deformation	ok																
4	HighTemperature	Temperature: 125± 2 ° C Testing Time: 96± 2 Hours	10	Elec. no variation Appearance no deformation	ok																
5	Low Temperature	Temperature: -25 ± 2 ° C Time: 96± 2 Hours	10	Elec. no variation Appearance no deformation	ok																
6	Temperature and Humidity Cycle	<table border="1"> <thead> <tr> <th>Step</th> <th>Temp</th> <th>Humidity</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>25± 2 ° C</td> <td>90~95%RH</td> <td>3.0Hr</td> </tr> <tr> <td>2</td> <td>55± 2 ° C</td> <td>95~96%RH</td> <td>5.0Hr</td> </tr> <tr> <td>3</td> <td>25± 2 ° C</td> <td>90~95%RH</td> <td>3.0Hr</td> </tr> </tbody> </table> Cycle: 20 Cycles	Step	Temp	Humidity	Time	1	25± 2 ° C	90~95%RH	3.0Hr	2	55± 2 ° C	95~96%RH	5.0Hr	3	25± 2 ° C	90~95%RH	3.0Hr	10	Elec. no variation Appearance no deformation	ok
Step	Temp	Humidity	Time																		
1	25± 2 ° C	90~95%RH	3.0Hr																		
2	55± 2 ° C	95~96%RH	5.0Hr																		
3	25± 2 ° C	90~95%RH	3.0Hr																		
7	Vibration	Frequency: 10Hz~50Hz Amplitude: 1.5mm Direction: X,Y,Z Time: 2 Hours each	10	Elec. no variation Appearance no deformation	ok																
8	Solderability	Solder : Sn96.5 / Ag3.0 / Cu0.5 Per-Heating : 150± 10 ° C / 1min. to 2min. Solder Temperature: 245± 5 ° C Immersion Time 4s ± 1s Electrode shall be at least 75%	10	Elec. no variation Appearance no deformation	ok																

**Package Information:**

**BOX Package: cm**

Small Box : 200 pcs  
Large Box : 800 pcs



4 Little Box in

