

SERIES:

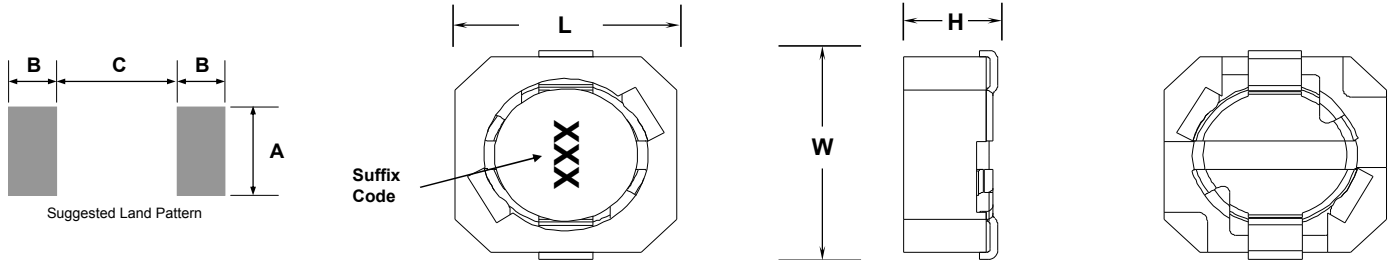
MGDQ1



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Low Profile, High Current Power Inductors



| Series Number | Maximum Dimensions | | | Reference Dimensions | | | | | | |
|---------------|--------------------|--------|--------|----------------------|--------|--------|--------|--------|--------|--------|
| | Units | L | W | H | X | Y | Z | A | B | C |
| MGDQ1 | inches | 0.256" | 0.272" | 0.118" | 0.181" | 0.043" | 0.063" | 0.069" | 0.049" | 0.171" |
| | [mm] | [6.50] | [6.90] | [3.00] | [4.60] | [1.10] | [1.60] | [1.75] | [1.25] | [4.35] |

Features:

- High energy storage and low resistance
- Reliable surface mounting, flat top for pick and place.
- Smaller real estate than other common inductors.
- Robust temperature deflection to prevent damage during solder reflow.
- Tape and Reel mechanical specifications available upon request.
- Operating Temperature -40°C to +85°C.
- Highly resistive core for EMI suppression applications.

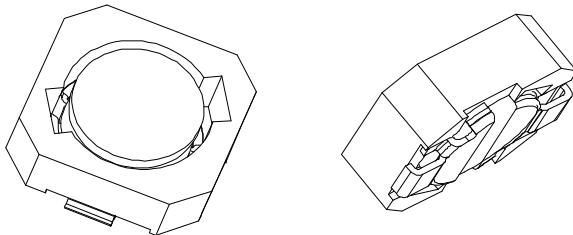
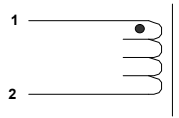
Notes:

- Inductance measured at 100kHz and 250mVrms.
- Isat is a maximum applied AC + DC current.
- Isat current is applied to produce a typical 35% drop in nominal inductance.
- Tolerance suffix of M = ±20%.
- DCR is a maximum at 20°C.



260°C Maximum reflow temperature per J-STD020
 Terminal Plating is Gold Flash over Ni

Schematic Diagram

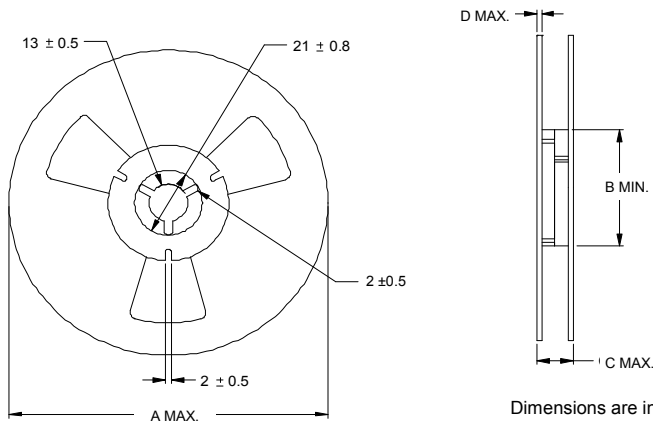


Contact CoEv for additional inductance values

| Lead Free Part Number | MGDQ1 | | | |
|-----------------------|-----------|--------------|--------------------|------------------|
| | L μ H | DCR Ω | I _{SAT} A | Tolerance Suffix |
| MGDQ1-00001 | 3.3 | 0.068 | 1.940 | M |
| MGDQ1-00002 | 4.7 | 0.080 | 1.630 | M |
| MGDQ1-00003 | 5.5 | 0.096 | 1.400 | M |
| MGDQ1-00004 | 10.0 | 0.15 | 1.10 | M |
| MGDQ1-00005 | 12.0 | 0.20 | 1.00 | M |
| MGDQ1-00006 | 15.0 | 0.23 | 0.90 | M |
| MGDQ1-00007 | 18.0 | 0.27 | 0.80 | M |
| MGDQ1-00008 | 22.0 | 0.34 | 0.74 | M |
| MGDQ1-00009 | 27.0 | 0.38 | 0.66 | M |
| MGDQ1-00010 | 33.0 | 0.45 | 0.59 | M |
| MGDQ1-00011 | 39.0 | 0.49 | 0.54 | M |
| MGDQ1-00012 | 47.0 | 0.69 | 0.50 | M |
| MGDQ1-00013 | 56.0 | 0.78 | 0.46 | M |
| MGDQ1-00014 | 68.0 | 1.07 | 0.42 | M |
| MGDQ1-00015 | 82.0 | 1.21 | 0.38 | M |
| MGDQ1-00016 | 100.0 | 1.39 | 0.34 | M |
| MGDQ1-00017 | 120.0 | 1.90 | 0.31 | M |
| MGDQ1-00018 | 150.0 | 2.18 | 0.28 | M |
| MGDQ1-00019 | 180.0 | 2.77 | 0.26 | M |
| MGDQ1-00020 | 220.0 | 3.12 | 0.23 | M |
| MGDQ1-00021 | 270.0 | 4.38 | 0.22 | M |
| MGDQ1-00022 | 330.0 | 4.94 | 0.19 | M |

Specifications subject to change

Call Toll Free: 888-978-2638 Website: www.tycopowercomponents.com



Dimensions are in millimeters unless specified.

| Series Number | Reel dimensions | | | | Reel Qty | Carton (Box) Qty. | Packaging Specification | |
|---------------|-----------------|--------|---------|--------|----------|-------------------|-------------------------|---------|
| | Units | A | B | C | | | | D |
| MGDQ1 | in. | 14.17" | 3.94" | 0.88" | 0.098" | 1500 | 9000 | 90-0043 |
| | [mm] | [360] | [100.0] | [22.4] | [2.50] | | | |

PACKAGING NOTE: Only pressure sensitive cover tape is to be used.

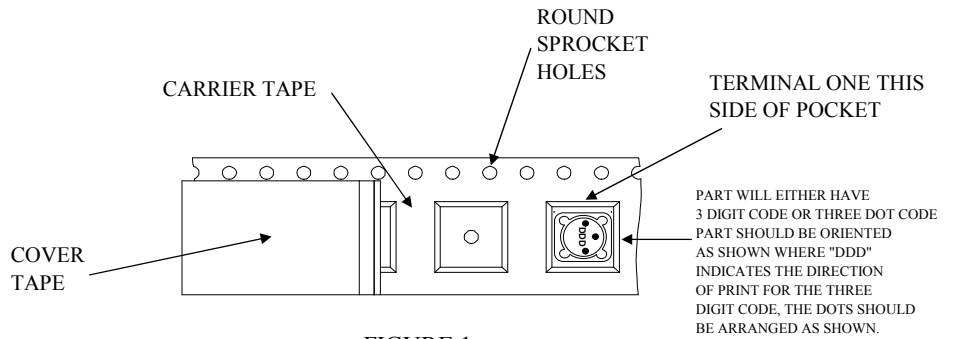
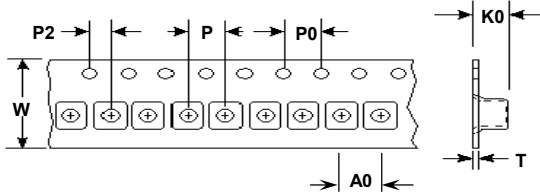


FIGURE 1
CARRIER TAPE AND PART



| Series | W ±0.3 | P ±0.1 | P0 ±0.1 | P2 ±0.1 | K0 ±0.05 | T ±0.05 | A0 ±0.1 |
|--------|--------|--------|---------|---------|----------|---------|---------|
| MGDQ1 | 16.0 | 12.0 | 4.00 | 2.00 | 3.40 | 0.35 | 6.6 |



Customer Packaging Specifications
For Print Distribution to Customers

| Series | Revision |
|--------------|-----------|
| MGDQ1 | B0 |
| Sheet 2 of 3 | |

| Item | Specification | Test Method/Condition |
|--------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Environmental | | |
| Static Humidity | After exposure part remains within specified electrical parameters for L, Q and DCR. | Precondition at 25°C for 60 minutes. Expose parts to an environment of +40°C with 90 to 95% R.H. for 240 hours. |
| Storage Life | After exposure part remains within specified electrical parameters for L, Q and DCR. | Subject parts to an environment of 85°C 85% R.H. for 168 hours. After exposure allow parts to dry for 4 hours before measurements are taken. |
| Temperature Cycle | After exposure part remains within specified electrical parameters for L, Q and DCR. | 10 cycles (Air to Air) 1 cycle shall consist of: 30 minutes exposure to +85°C 30 minutes exposure to -40°C Allow 20 minutes transition between extremes. |
| Temperature Shock | After exposure part remains within specified electrical parameters for L, Q and DCR. | 10 cycles (Air to Air) 1 cycle shall consist of: 30 minutes exposure to -55°C 30 minutes exposure to +125°C 15 seconds maximum transition between temperatures |
| IR Reflow | (B0) 10 seconds at 260°C max. | (B0) Post test parts shall pass all electrical specifications after reflow. There shall be no visible signs of solder flow or leakage from the part. |
| General | | |
| Storage Temperature Range | -40°C to +85°C | |
| Operating Temperature Range | -40°C to +85°C | |
| Flammability | IEC 695-2-2 | Withstands needle-flame test |
| Other | | |
| Vibration | After exposure part remains within specified electrical parameters for L, Q and DCR. | 1 cycle of 30 minutes of the following: 5 - 7 Hz constant displacement of 0.75 inches, 5 minutes 7 - 30 Hz constant acceleration of 1.5 Gs, 10 minutes 31 - 50 Hz constant displacement of 0.33 inches, 5 minutes 50 - 500 Hz constant acceleration of 1.2 Gs, 10 minutes |
| Mechanical Shock | After exposure part remains within specified electrical parameters for L, Q and DCR. | MGDQ1 Series - 500 Gs per axis, 2 directions |
| Solderability | Wetting shall cover 90% minimum of each termination | Dip pads in RMA flux, 63/37 solder (Sn/Pb) at 232°C for 5 seconds ±2 seconds. |
| Component Adhesion (Push Test) | Component shall withstand 6 lb. push force minimum without delaminating from mounting surface. | Apply and measure force with a digital force gauge set. |
| Resistance to Solvent | | Withstands 6 minutes of alcohol. Withstands 3 minutes forced spray Freon TMS |
| Chemical | | |
| Ionic Contamination | Conductivity: pH: Chlorides: Sodium: Potassium: | 11 µOhms/cm maximum 5.5 to 9 65 ppm maximum 20 ppm maximum 10 ppm maximum |



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| Sheet 3 of 3 | |