

SERIES:

MGDQ5

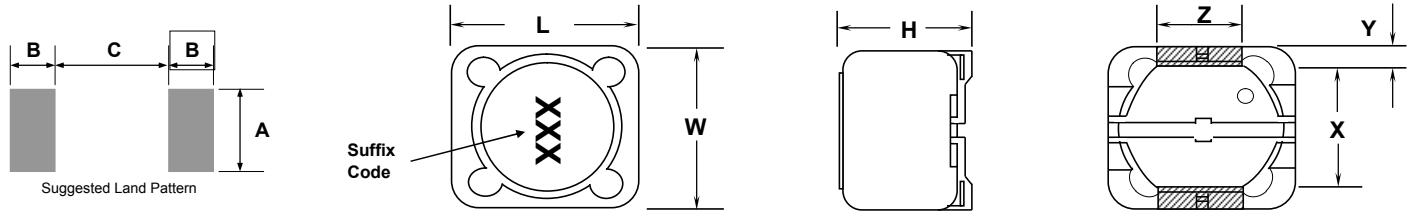
**COEV**  
MAGNETICS

tyco Electronics

3003 9th Avenue SW  
PO Box 50  
Watertown, SD 57201  
Toll free: 888-978-2638  
Ph: 605-886-3326  
Fax: 605-886-8995



Low Profile, High Current Power Inductors



| Series Number | Maximum Dimensions |         |         |        | Reference Dimensions |        |        |        |        |        |
|---------------|--------------------|---------|---------|--------|----------------------|--------|--------|--------|--------|--------|
|               | Units              | L       | W       | H      | X                    | Y      | Z      | A      | B      | C      |
| MGDQ5         | inches             | 0.504"  | 0.504"  | 0.236" | 0.315"               | 0.087" | 0.197" | 0.202" | 0.084" | 0.307" |
|               | [mm]               | [12.80] | [12.80] | [6.00] | [8.00]               | [2.20] | [5.00] | [5.13] | [2.13] | [7.80] |

#### 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.

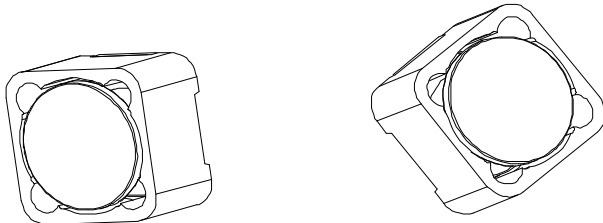
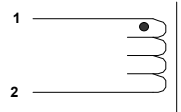
#### Notes:

- 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

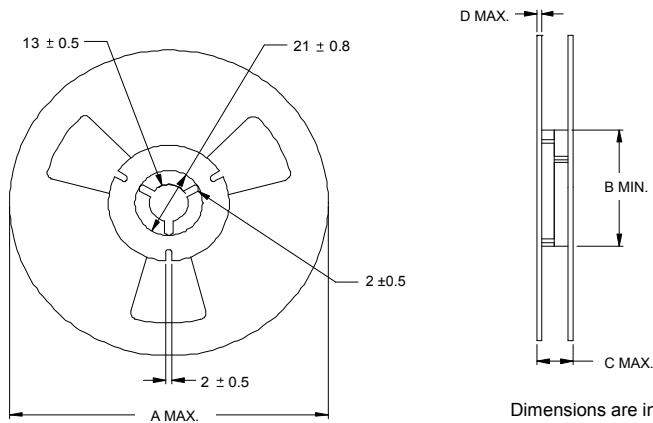


Contact CoEv for additional inductance values

| MGDQ5                 |           |              |                    |                  |
|-----------------------|-----------|--------------|--------------------|------------------|
| Lead Free Part Number | L $\mu$ H | DCR $\Omega$ | I <sub>SAT</sub> A | Tolerance Suffix |
| MGDQ5-00001           | 1.5       | 0.003        | 16.00              | M                |
| MGDQ5-00002           | 2.4       | 0.009        | 13.50              | M                |
| MGDQ5-00003           | 3.3       | 0.007        | 12.70              | M                |
| MGDQ5-00004           | 4.7       | 0.018        | 10.00              | M                |
| MGDQ5-00005           | 10        | 0.025        | 4.00               | M                |
| MGDQ5-00006           | 12        | 0.027        | 3.50               | M                |
| MGDQ5-00007           | 15        | 0.030        | 3.30               | M                |
| MGDQ5-00008           | 18        | 0.034        | 3.00               | M                |
| MGDQ5-00009           | 22        | 0.036        | 2.80               | M                |
| MGDQ5-00010           | 27        | 0.051        | 2.30               | M                |
| MGDQ5-00011           | 33        | 0.057        | 2.10               | M                |
| MGDQ5-00012           | 39        | 0.068        | 2.00               | M                |
| MGDQ5-00013           | 47        | 0.075        | 1.80               | M                |
| MGDQ5-00014           | 56        | 0.110        | 1.70               | M                |
| MGDQ5-00015           | 68        | 0.120        | 1.50               | M                |
| MGDQ5-00016           | 82        | 0.140        | 1.40               | M                |
| MGDQ5-00017           | 100       | 0.160        | 1.30               | M                |
| MGDQ5-00018           | 120       | 0.170        | 1.10               | M                |
| MGDQ5-00019           | 150       | 0.230        | 1.00               | M                |
| MGDQ5-00020           | 180       | 0.290        | 0.90               | M                |
| MGDQ5-00021           | 220       | 0.400        | 0.80               | M                |
| MGDQ5-00022           | 270       | 0.460        | 0.75               | M                |
| MGDQ5-00023           | 330       | 0.510        | 0.68               | M                |
| MGDQ5-00024           | 390       | 0.690        | 0.65               | M                |
| MGDQ5-00025           | 470       | 0.770        | 0.58               | M                |
| MGDQ5-00026           | 560       | 0.860        | 0.54               | M                |
| MGDQ5-00027           | 680       | 1.200        | 0.48               | M                |
| MGDQ5-00028           | 820       | 1.340        | 0.43               | M                |
| MGDQ5-00029           | 1000      | 1.530        | 0.40               | M                |

Specifications subject to change

Call Toll Free: 888-978-2638 Website: [www.tycopowercomponents.com](http://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        |          |                   |                         |
| MGDQ5         | in.             | 12.99"  | 3.94"     | 1.16"    | 0.098"   | 650      | 3250              | 90-0053                 |
|               | [mm]            | [ 330 ] | [ 100.0 ] | [ 29.5 ] | [ 2.50 ] |          |                   |                         |

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

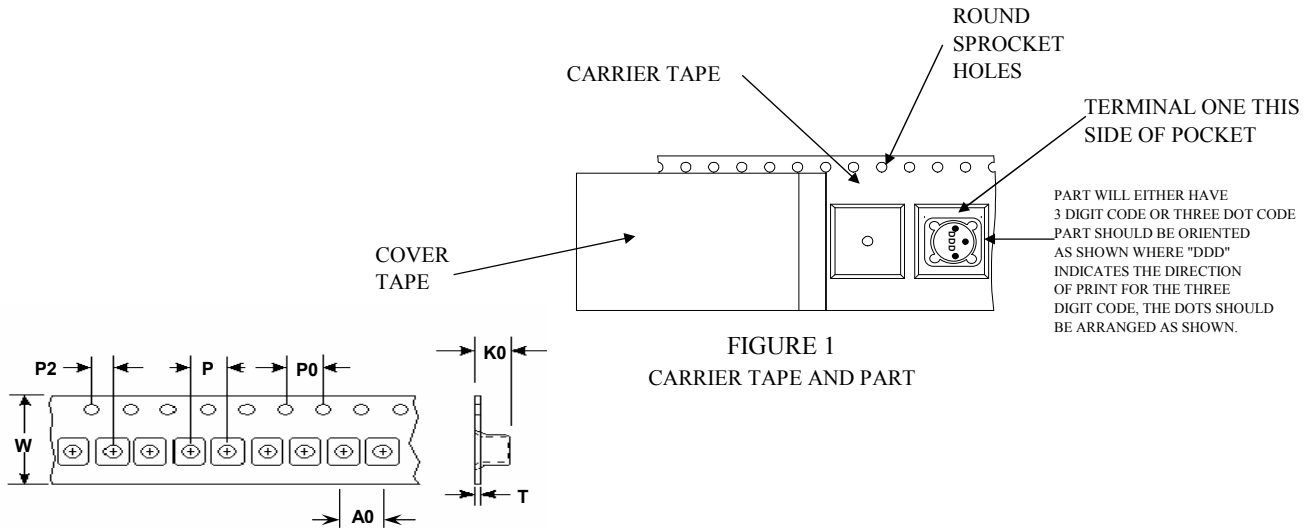


FIGURE 1  
CARRIER TAPE AND PART

| Series | W ±0.3 | P ±0.1 | P0 ±0.1 | P2 ±0.1 | K0 ±0.05 | T ±0.05 | A0 ±0.1 |
|--------|--------|--------|---------|---------|----------|---------|---------|
| MGDQ5  | 24.0   | 16.0   | 4.00    | 2.00    | 6.30     | 0.35    | 12.6    |



**Customer Packaging Specifications**  
For Print Distribution to Customers

| Series       | Revision  |
|--------------|-----------|
| <b>MGDQ5</b> | <b>A0</b> |
| Sheet 2 of 3 |           |

| Item                                       | Specification                                                                                  | Test Method/Condition                                                                                                                                                                                                                                                                        |
|--------------------------------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Environmental</b>                       |                                                                                                |                                                                                                                                                                                                                                                                                              |
| 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:<br>30 minutes exposure to +85°C<br>30 minutes exposure to -40°C<br>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:<br>30 minutes exposure to -55°C<br>30 minutes exposure to +125°C<br>15 seconds maximum transition between temperatures                                                                                                                      |
| IR Reflow                                  | 10 seconds at 260°C max.                                                                       | Post test parts shall pass all electrical specifications after reflow. There shall be no visible signs of solder flow or leakage from the part.                                                                                                                                              |
| <b>General</b>                             |                                                                                                |                                                                                                                                                                                                                                                                                              |
| 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                                                                                                                                                                                                                                                                 |
| <b>Other</b>                               |                                                                                                |                                                                                                                                                                                                                                                                                              |
| Vibration                                  | After exposure part remains within specified electrical parameters for L, Q and DCR.           | 1 cycle of 30 minutes of the following:<br>5 - 7 Hz constant displacement of 0.75 inches, 5 minutes<br>7 - 30 Hz constant acceleration of 1.5 Gs, 10 minutes<br>31 - 50 Hz constant displacement of 0.33 inches, 5 minutes<br>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<br>MGDQ2 Series - 500 Gs per axis, 2 directions<br>MGDQ3 Series - 500 Gs per axis, 2 directions<br>MGDQ4 Series - 500 Gs per axis, 2 directions<br>MGDQ5 Series - 500 Gs per axis, 2 directions<br>MGDQ6 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.<br><br>Withstands 3 minutes forced spray Freon TMS                                                                                                                                                                                                          |
| <b>Chemical</b>                            |                                                                                                |                                                                                                                                                                                                                                                                                              |
| Ionic Contamination                        | Conductivity:<br>pH:<br>Chlorides:<br>Sodium:<br>Potassium:                                    | 11 µOhms/cm maximum<br>5.5 to 9<br>65 ppm maximum<br>20 ppm maximum<br>10 ppm maximum                                                                                                                                                                                                        |
| <b>For Print Distribution to Customers</b> |                                                                                                |                                                                                                                                                                                                         |
|                                            |                                                                                                | Series                                                                                                                                                                                                                                                                                       |
|                                            |                                                                                                | Revision                                                                                                                                                                                                                                                                                     |
|                                            |                                                                                                | MGDQ5                                                                                                                                                                                                                                                                                        |
|                                            |                                                                                                | A0                                                                                                                                                                                                                                                                                           |
|                                            |                                                                                                | Sheet 3 of 3                                                                                                                                                                                                                                                                                 |