

## Filter Inductors

### Toroid



### FEATURES

- Choice of encapsulated (TE) or dipped (TD) styles
- TD style combines low cost with excellent performance in commercial applications
- High Q and wide selection of Q versus frequency ranges in one small package.
- Large number of standard inductance values



**RoHS**  
COMPLIANT

### STANDARD ELECTRICAL SPECIFICATIONS (Applies to Core Only)

MODEL			TC CODE	TEMPERATURE COEFFICIENT	TEMPERATURE RANGE	TC AVAILABILITY		
TE-3 TD-3	TE-4 TD-4	TE-5 TD-5				Q0	Q3	Q4
X	X	X	TA	0 ± 1%	- 55 °C to + 125 °C		X	X
X	X	X	TD	0 ± 0.1%	0 °C to + 55 °C		X	X
X	X	X	TL*	+ 40 to + 110 ppm/°C + 85 to + 185 ppm/°C	- 55 °C to + 25 °C + 25 °C to + 85 °C			X
X	X	X	TM	0 ± 0.25 %	- 6 5°C to + 125 °C		X	X
X	X	X	TR	50 ppm/°C (Typical)	- 65 °C to + 125 °C	X		
X	X	X	TW	0 ± 0.25 %	- 55 °C to + 85 °C		X	X

\* Inverse of typical Temperature Coefficient of polystyrene capacitor.

### INDUCTANCE RANGE

TC CODE	TE-3 TD-3	TE-4 TD-4	TE-5 TD-5
Q0	50 µH to 15 mH	150 µH to 20 mH	1 mH to 100 mH
Q3	500 µH to 1 H	1 mH to 2 H	5 mH to 2 H
Q4	1 mH to 4 H	2 mH to 5 H	10 mH to 5 H

### DIMENSIONS in inches [millimeters]

MODEL	A	B	C	D	E	F	G
TE-3	0.685 [17.40]	0.385 [9.78]	1.0 [25.40]	0.025 [0.635]	0.500 [12.70]	0.093 [2.36]	0.250 [6.35]
TD-3	0.685 [17.40]	0.320 [8.13]	3.0 [76.20]	-	-	0.125 [3.18]	-
TE-4	1.06 [26.92]	0.500 [12.70]	1.0 [25.40]	0.032 [0.813]	0.900 [22.86]	0.120 [3.05]	0.450 [11.43]
TD-4	1.06 [26.92]	0.437 [11.10]	4.0 [101.60]	-	-	0.220 [5.59]	-
TE-5	1.33 [33.78]	0.735 [18.67]	1.0 [25.40]	0.032 [0.813]	1.0 [25.40]	0.144 [3.66]	0.500 [12.70]
TD-5	1.32 [33.53]	0.688 [17.48]	6.0 [152.40]	-	-	0.220 [5.59]	-

### ELECTRICAL SPECIFICATIONS

#### Tolerance:

TE-3, TD-3 = ± 1 % > 2 mH, ± 2 % 154 µH to 2 mH, ± 5 % < 150 µH  
TE-4, TD-4 = ± 1 % > 2 mH, ± 2 % < 2 mH  
TE-5, TD-5 = ± 1 % > 2mH, ± 2% < 2mH

**Insulation Resistance:** 1000 Megohm minimum

**Dielectric Strength:** 1000 V minimum (TE)  
500 V minimum (TD)

### MECHANICAL SPECIFICATIONS

**Terminal Strength:** 2 pounds pull test (TE)

**Vibration:** Per MIL-T-27 (TE)

**Shock:** Per MIL-T-27 (TE)

#### Weight:

TE-3 = 5.1 grams, TD-3 = 4.9 grams typical  
TE-4 = 20 grams, TD-4 = 17 grams typical  
TE-5 = 53 grams, TD-5 = 52 grams typical

### MATERIAL SPECIFICATIONS

**Coating:** Vinyl (TD), non-flammable, abrasion and moisture resistant. Resists most cleaning agents (Consult factory for chemicals which may be used)

**Standard Terminals:** Tinned copper (TE)  
Stranded, tinned copper, Teflon insulated (TD)

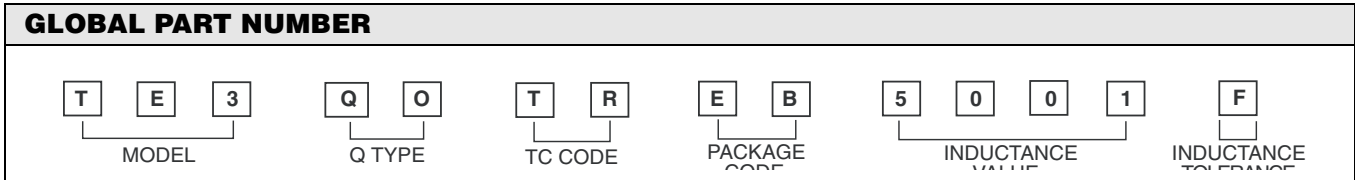
**Encapsulant:** Epoxy (TE)

#### Gauge:

TE-3 = 22 AWG, TD-3 = 26 AWG  
TE-4 = 20 AWG, TD-4 = 24 AWG  
TE-5 = 20 AWG, TD-5 = 24 AWG



DESCRIPTION						
TE-3	Q0	TR	5 mH	± 1 %	EB	e2
MODEL	Q TYPE	TC CODE	INDUCTANCE VALUE	INDUCTANCE TOLERANCE	PACKAGE CODE	JEDEC LEAD (Pb)-FREE STANDARD



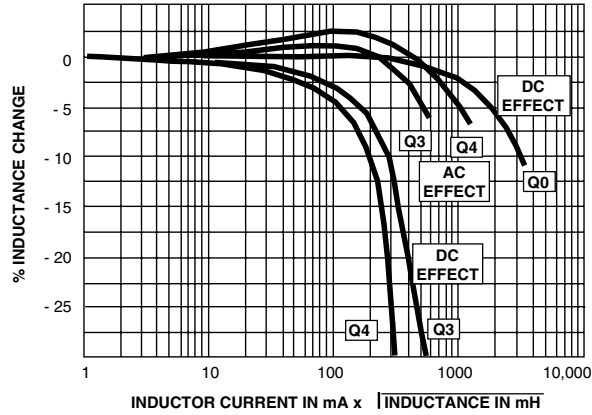
DC RESISTANCE AND SELF-RESONANT FREQUENCIES (Typical Values)							
MODEL	INDUCTANCE	DCR (Ohms)			SELF-RESONANT FREQUENCY (MHz)		
		Q0	Q3	Q4	Q0	Q3	Q4
TE-3, TD-3	50.0 µH	0.68	-	-	7.6	-	-
TE-3, TD-3	100.0 µH	1.0	-	-	5.1	-	-
TE-3, TD-3	332.0 µH	3.3	-	-	2.9	-	-
TE-3, TD-3	1.0 mH	6.9	1.5	0.82	1.4	1.1	1.0
TE-3, TD-3	3.32 mH	24.0	4.1	2.3	0.79	0.57	0.55
TE-3, TD-3	10.0 mH	84.0	14.0	5.9	0.40	0.29	0.25
TE-3, TD-3	15.0 mH	106.0	17.0	9.1	0.34	0.24	0.21
TE-3, TD-3	33.2 mH	-	40.0	18.0	-	0.14	0.12
TE-3, TD-3	100.0 mH	-	138.0	58.0	-	0.08	0.077
TE-3, TD-3	332.0 mH	-	555.0	220.0	-	0.04	0.038
TE-3, TD-3	1.0 H	-	1500.0	670.0	-	0.021	0.019
TE-3, TD-3	4.0 H	-	-	2700.0	-	-	0.009
TE-4, TD-4	150.0 µH	0.54	-	-	2.6	-	-
TE-4, TD-4	1.0 mH	2.8	0.7	-	1.0	0.75	-
TE-4, TD-4	2.0 mH	5.5	1.4	0.78	0.64	0.54	0.45
TE-4, TD-4	10.0 mH	27.0	4.9	2.5	0.24	0.21	0.18
TE-4, TD-4	20.0 mH	54.0	9.6	5.0	0.18	0.15	0.13
TE-4, TD-4	100.0 mH	-	56.0	23.0	-	0.059	0.051
TE-4, TD-4	1.0 H	-	570.0	260.0	-	0.016	0.014
TE-4, TD-4	2.0 H	-	1200.0	520.0	-	0.013	0.011
TE-5, TD-5	1.0 mH	1.8	-	-	0.80	-	-
TE-5, TD-5	3.32 mH	5.2	-	-	0.44	-	-
TE-5, TD-5	5.0 mH	6.5	1.8	-	0.33	0.32	-
TE-5, TD-5	10.0 mH	13.0	2.4	1.7	0.21	0.20	0.15
TE-5, TD-5	33.2 mH	49.0	8.8	3.9	0.12	0.11	0.086
TE-5, TD-5	100.0 mH	133.0	27.0	11.0	0.061	0.057	0.044
TE-5, TD-5	332.0 mH	-	80.0	44.0	-	0.032	0.024
TE-5, TD-5	1.0 H	-	222.0	121.0	-	0.016	0.012
TE-5, TD-5	2.0 H	-	475.0	217.0	-	0.012	0.008

STANDARD INDUCTANCE VALUE													
The following standardization chart is offered for your design and ordering convenience. Each value listed is within one percent of the preceding and succeeding values shown. All decade multiples of these values, within the range shown for each model in the chart, are Vishay Dale standard values.  (Example: For a TE-3, 200 µH, 20 mH and 200 mH are all decade multiples of 2.00 and are all standard values.)	1.00	1.21	1.47	1.78	2.15	2.61	3.09	3.74	4.42	5.23	6.19	7.32	8.66
	1.02	1.24	1.50	1.82	2.21	2.67	3.16	3.83	4.53	5.36	6.34	7.50	8.87
	1.05	1.27	1.54	1.87	2.26	2.74	3.24	3.92	4.64	5.49	6.49	7.68	9.00
	1.07	1.30	1.58	1.91	2.32	2.80	3.32	4.00	4.75	5.62	6.65	7.87	9.09
	1.10	1.33	1.62	1.96	2.37	2.87	3.40	4.02	4.87	5.76	6.81	8.00	9.31
	1.13	1.37	1.65	2.00	2.43	2.94	3.48	4.12	4.99	5.90	6.98	8.06	9.53
	1.15	1.40	1.69	2.05	2.49	3.00	3.57	4.22	5.00	6.00	7.00	8.25	9.76
	1.18	1.43	1.74	2.10	2.55	3.01	3.65	4.32	5.11	6.04	7.15	8.45	

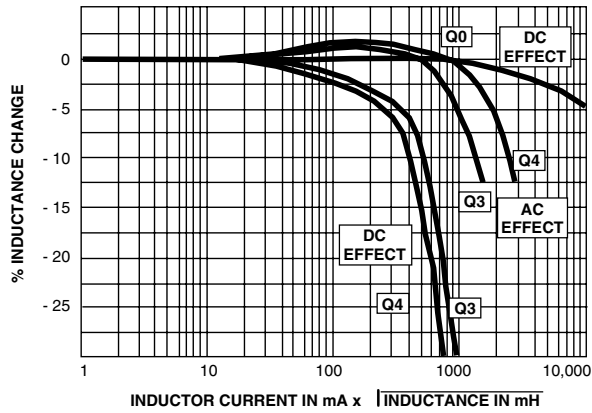


**PERFORMANCE GRAPHS: INDUCTANCE VS DC BIAS, INDUCTANCE VS AC EXCITATION**

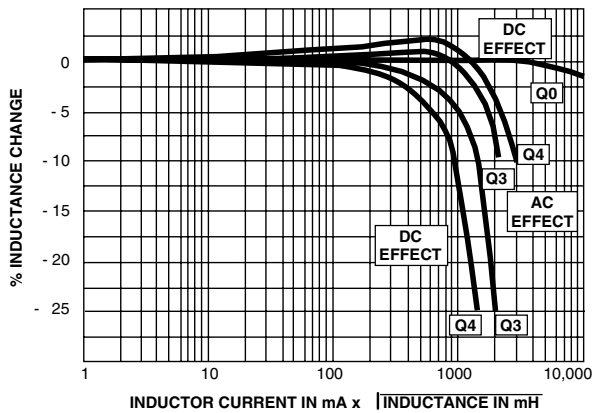
TE-3, TD-3



TE-4, TD-4

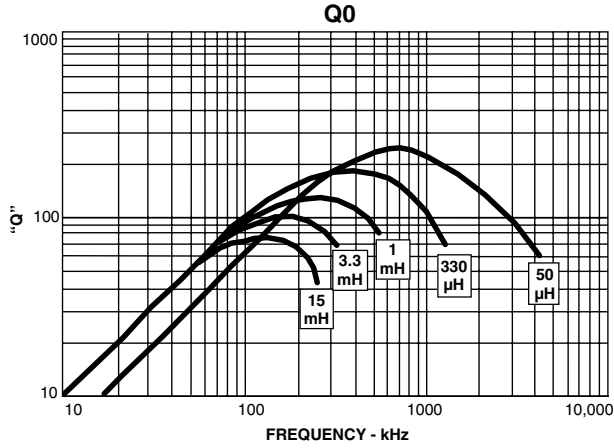


TE-5, TD-5

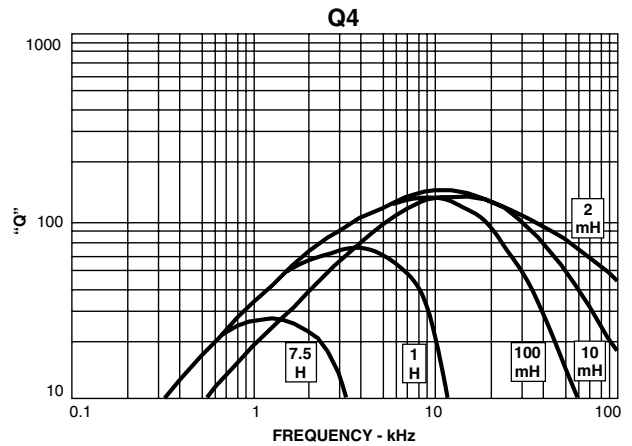
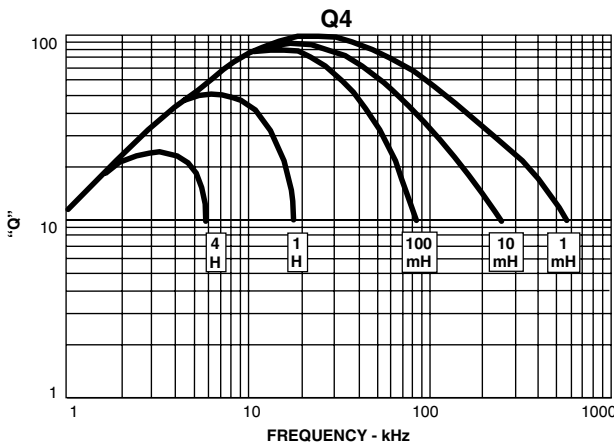
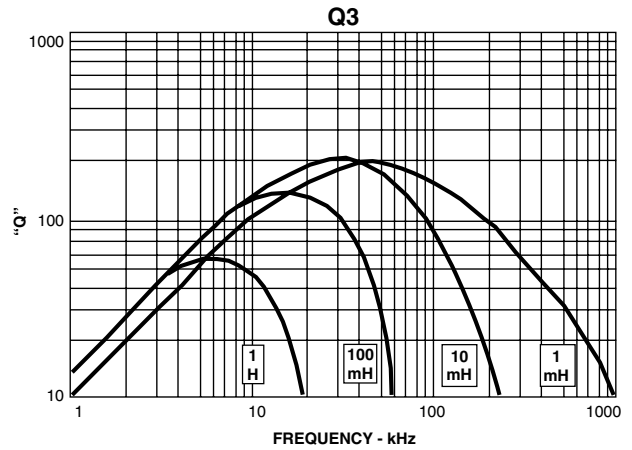
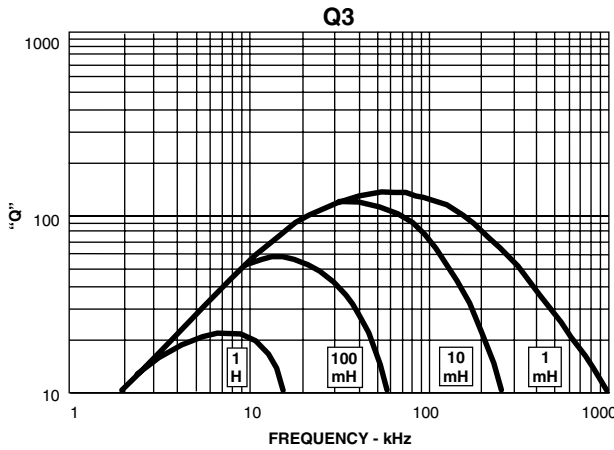
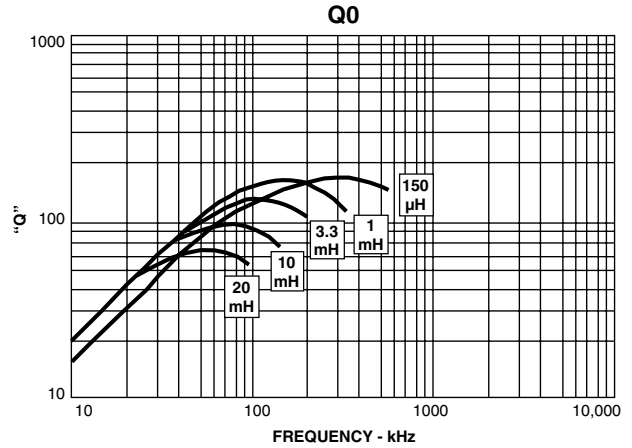


**PERFORMANCE GRAPHS: TYPICAL Q VS FREQUENCY**

TE-3, TD-3

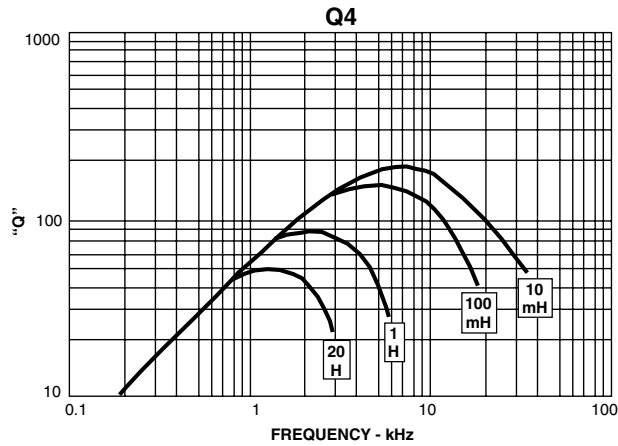
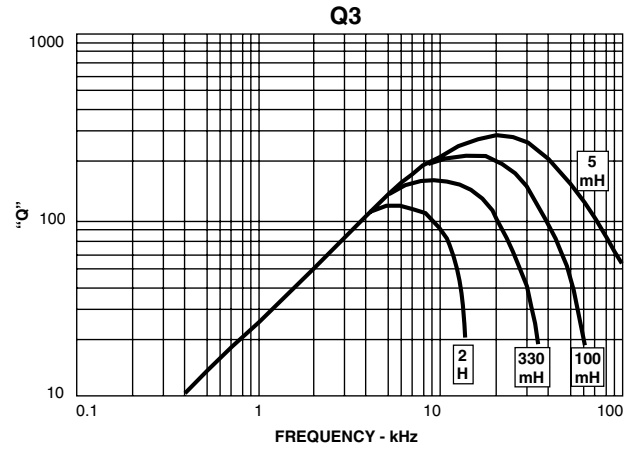
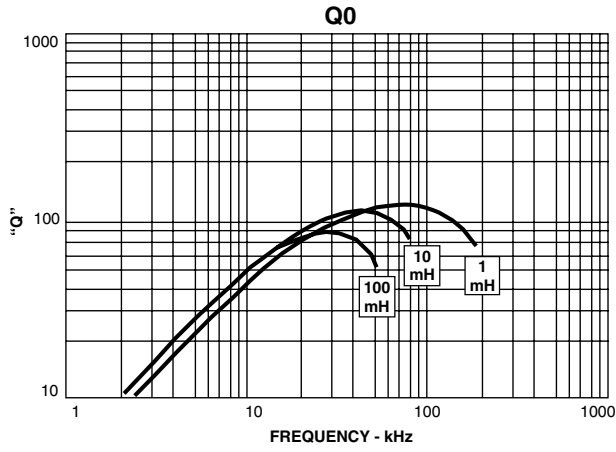


TE-4, TD-4



**PERFORMANCE GRAPHS: TYPICAL Q VS FREQUENCY**

TE-5, TD-5



**MARKING**

- Vishay Dale
- Model
- Q type
- TC code
- Inductance value
- Inductance tolerance
- Date code



## Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.