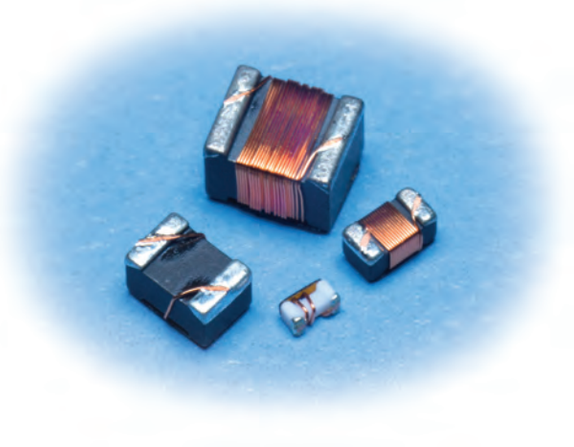
KOA SPEER ELECTRONICS, INC.

KQ

high Q inductor

EU RoHS COMPLIANT

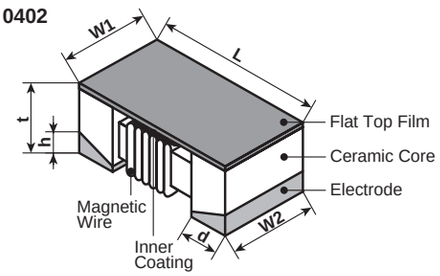


features

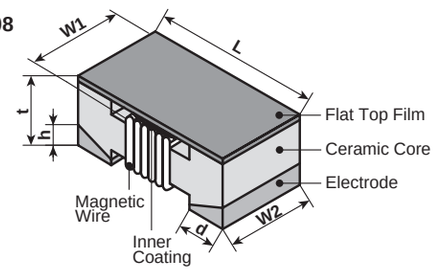
- Surface mount
- Operating temperature: -40°C ~ +125°C
- Flat top suitable for high speed pick-and-place components
- Excellent high frequency applications
- High Q factors and self-resonant frequency values
- Products with lead-free terminations meet EU RoHS requirements
- AEC-Q200 Qualified

dimensions and construction

0402



0603, 0805, 1008



Size Code	Dimensions inches (mm)					
	L	W1	W2	t	h	d
KQT0402	.039±.004 (1.0±0.1)	.02±.004 (0.5±0.1)	.02±.004 (0.5±0.1)	.022±.004 (0.55±0.1)	.006±.004 (0.15±0.1)	.01±.004 (0.25±0.1)
KQ0603	.063±.004 (1.6±0.1)	.039±.004 (1.0±0.1)	.033±.004 (0.85±0.1)	.035±.004 (0.9±0.1)	.01±.006 (0.25±0.15)	.014±.004 (0.35±0.1)
KQ0805	.079±.008 (2.0±0.2)	.059±.008 (1.5±0.2) (3.3nH-390nH) .063±.008 (1.6±0.2) (470nH-820nH)	.053±.004 (1.35±0.1)	.051±.008 (1.3±0.2)	.016±.006 (0.40±0.15)	.018±.004 (0.45±0.1)
KQ1008	.098±.008 (2.5±0.2)	.087±.008 (2.2±0.2)	.079±.004 (2.0±0.1)	.071 $^{+.008}_{-0}$ (1.8 $^{+0.2}_{-0}$)	.018±.006 (0.45±0.15)	.018±.004 (0.45±0.1)

ordering information

KQ	1008	T	TE	10N	J
Type	**Size Code**	**Termination Material**	**Packaging**	**Nominal Inductance**	**Tolerance**
KQ KQT	0402 0603 0805 1008	T: Sn	TP: 2mm pitch paper (0402: 10,000 pieces/reel) TD: 7" paper tape (0402: 2,000 pieces/reel) TE: 7" embossed plastic (0603, 0805, 1008: 2,000 pieces/reel)	3 digits: 10N: 10nH R10: 0.1µH 1R0: 1.0µH	B: ±0.1nH C: ±0.2nH G: ±2% H: ±3% J: ±5% K: ±10% M: ±20%

For further information on packaging, please refer to Appendix A.

applications and ratings

Part Designation	Marking	Nominal Inductance (nH)	L Measuring Frequency (MHz)	Inductance Tolerance	Q Quality Factor Minimum	Q Measuring Frequency (MHz)	Self Resonant Frequency Minimum (MHz)	DC Resistance Maximum (Ω)	Allowable DC Current Maximum (mA)
KQT0402T**1N0*	—	1.0	250	B: ±0.1nH C: ±0.2nH	16	250	11000	0.045	1360
KQT0402T**1N9*		1.9					9600	0.070	1040
KQT0402T**2N0*		2.0			19				
KQT0402T**2N2*		2.2							960
KQT0402T**2N4*		2.4			18		8000	0.068	
KQT0402T**2N7*		2.7			17			0.120	700
KQT0402T**3N3*		3.3		H: ±3% J: ±5% K: ±10%	19		7200	0.066	840
KQT0402T**3N6*		3.6							
KQT0402T**3N9*		3.9							
KQT0402T**4N3*		4.3			18		6000	0.091	800
KQT0402T**4N7*		4.7							
KQT0402T**5N1*		5.1			20		5800	0.083	
KQT0402T**5N6*		5.6							760
KQT0402T**6N2*		6.2							
KQT0402T**6N8*		6.8					4800	0.086	680
KQT0402T**7N5*		7.5			22		5800	0.104	
KQT0402T**8N2*		8.2					4400		
KQT0402T**8N7*		8.7			20		4200	0.150	650
KQT0402T**9N0*		9.0			22		4160	0.104	680
KQT0402T**9N5*		9.5			20		4000	0.150	650
KQT0402T**10N*		10			21		3900	0.195	480
KQT0402T**11N*		11			24		3680	0.120	640
KQT0402T**12N*		12					3600		
KQT0402T**13N*		13					3450	0.180	560
KQT0402T**15N*		15					3280	0.172	
KQT0402T**16N*		16					3100	0.200	
KQT0402T**18N*		18			25			0.230	500
KQT0402T**19N*		19			24		3040	0.202	480
KQT0402T**20N*		20			25		3000	0.250	450
KQT0402T**22N*		22					2800	0.323	400
KQT0402T**23N*		23			24		2720	0.214	
KQT0402T**24N*		24			25		2700	0.322	
KQT0402T**27N*		27			24		2480	0.298	
KQT0402T**30N*		30			25		2400	0.354	
KQT0402T**33N*		33			24			0.393	
KQT0402T**34N*		34						0.550	340
KQT0402T**36N*		36					2320	0.560	320
KQT0402T**39N*		39			25		2300	0.550	300
KQT0402T**40N*		40			24		2240	0.620	320
KQT0402T**43N*		43			25		2200	0.810	300
KQT0402T**47N*		47			20		2100	0.830	150
KQT0402T**51N*		51			25			0.835	240
KQT0402T**56N*		56					2800	1.170	200
KQT0402T**68N*		68			22		2000	1.120	
KQT0402T**82N*		82					1800	1.810	140
KQT0402T**R10*		100					1600	2.090	130
KQT0402T**R12*		120					1500	2.320	120

* Add tolerance character (B, C, G, H, J, K, M)
** Add packaging code

applications and ratings (continued)

Part Designation	Marking	Nominal Inductance (nH)	L Measuring Frequency (MHz)	Inductance Tolerance	Q Quality Factor Minimum	Q Measuring Frequency (MHz)	Self Resonant Frequency Minimum (MHz)	DC Resistance Maximum (Ω)	Allowable DC Current Maximum (mA)
KQ0603TTE1N6*	C	1.6	250	J: ±5% K: ±10%	24	250	12500	0.03	700
KQ0603TTE1N8*	0	1.8			16			0.045	
KQ0603TTE3N3*	X	3.3			22		6900	0.055	
KQ0603TTE3N6*	E	3.6						0.063	
KQ0603TTE3N9*	1	3.9						0.08	
KQ0603TTE4N3*	F	4.3					5900	0.063	
KQ0603TTE4N7*	G	4.7			20		5800	0.116	
KQ0603TTE5N1*	Y	5.1						0.115	
KQ0603TTE6N8*	2	6.8		G: ±2% J: ±5% K: ±10%	27			0.11	
KQ0603TTE7N5*	H	7.5			28		4800	0.106	
KQ0603TTE8N2*	A	8.2						0.12	
KQ0603TTE8N7*	J	8.7					4600	0.109	
KQ0603TTE9N5*	B	9.5					4800	0.125	
KQ0603TTE10N*	3	10			31			0.13	
KQ0603TTE11N*	K	11			33		4000	0.086	
KQ0603TTE12N*	4	12			35			0.13	
KQ0603TTE15N*	5	15						0.17	
KQ0603TTE16N*	L	16			34		3300	0.104	
KQ0603TTE18N*	6	18			35		3100	0.17	
KQ0603TTE22N*	7	22			38		3000	0.19	
KQ0603TTE23N*	S	23			37		2700	0.15	
KQ0603TTE24N*	M	24					2650	0.135	
KQ0603TTE27N*	8	27			40		2800	0.22	600
KQ0603TTE30N*	N	30			37		2250	0.144	
KQ0603TTE33N*	9	33			40		2300	0.22	
KQ0603TTE36N*	P	36			38		2080	0.25	
KQ0603TTE39N*	0	39			40		2200		
KQ0603TTE43N*	Q	43			39		2000	0.28	
KQ0603TTE47N*	1	47	200		38	200			
KQ0603TTE51N*	T	51					1900	0.30	
KQ0603TTE56N*	2	56						0.31	
KQ0603TTE68N*	3	68			37		1700	0.34	
KQ0603TTE72N*	4	72	150		34	150		0.49	400
KQ0603TTE82N*	5	82						0.54	
KQ0603TTER10*	6	100					1400	0.58	
KQ0603TTER11*	7	110			32		1350	0.61	300
KQ0603TTER12*	8	120					1300	0.65	
KQ0603TTER15*	9	150					1400	1.4	160
KQ0603TTER18*	0	180	100		25	100	1300	2.2	140
KQ0603TTER20*	U	200					1200	2.3	130
KQ0603TTER21*	V	210							
KQ0603TTER22*	1	220						2.5	120
KQ0603TTER25*	W	250			24		1000	2.4	
KQ0603TTER27*	2	270					900	2.3	170
KQ0603TTER30*	X	300					840	3.17	110
KQ0603TTER33*	3	330			30		800	3.0	100
KQ0603TTER39*	4	390					700	3.7	80
KQ0603TTER47*	5	470	50	J: ±5% K: ±10%		50	640	1.21	190
KQ0603TTER51*	V	510					610	1.26	170
KQ0603TTER56*	6	560					560	2.09	130
KQ0603TTER62*	W	620					590	1.89	150

* Add tolerance character (B, C, G, H, J, K, M)

applications and ratings (continued)

Part Designation	Marking	Nominal Inductance (nH)	L Measuring Frequency (MHz)	Inductance Tolerance	Q Quality Factor Minimum	Q Measuring Frequency (MHz)	Self Resonant Frequency Minimum (MHz)	DC Resistance Maximum (Ω)	Allowable DC Current Maximum (mA)
KQ0603TTER68*	7	680	50	J: ±5% K: ±10%	30	50	540	1.97	140
KQ0603TTER72*	C	720					530	2.04	130
KQ0603TTER75*	X	750							
KQ0603TTER82*	8	820					490	3.09	110
KQ0603TTER91*	Y	910					480	2.95	120
KQ0603TTE1R0*	9	1000					440	5.13	90
KQ0603TTE1R2*	0	1200					400	5.45	80
KQ0805TTE3N3*	0	3.3	250	J: ±5% K: ±10%	50	1500	6000	0.08	600
KQ0805TTE6N8*	1	6.8				1000	5500	0.11	
KQ0805TTE8N2*	2	8.2					4700	0.12	
KQ0805TTE12N*	3	12		G: ±2% J: ±5% K: ±10%		500	4000	0.15	
KQ0805TTE15N*	4	15					3400	0.17	
KQ0805TTE18N*	5	18					3300	0.20	
KQ0805TTE20N*	Y	20			55		2600	0.22	500
KQ0805TTE22N*	6	22							
KQ0805TTE27N*	7	27					2500	0.25	
KQ0805TTE33N*	8	33			60		2050	0.27	
KQ0805TTE39N*	9	39					2000	0.29	
KQ0805TTE43N*	4	43	200				1650	0.34	
KQ0805TTE47N*	0	47						0.31	
KQ0805TTE56N*	1	56					1550	0.34	
KQ0805TTE68N*	2	68					1450	0.38	
KQ0805TTE82N*	3	82	150		65		1300	0.42	400
KQ0805TTER10*	4	100					1200	0.46	
KQ0805TTER12*	5	120			50	250	1100	0.51	
KQ0805TTER15*	6	150	100				920	0.56	
KQ0805TTER16*	H	160					870	0.64	
KQ0805TTER17*	J	170							
KQ0805TTER18*	7	180							
KQ0805TTER19*	D	190					850	0.70	
KQ0805TTER20*	E	200							
KQ0805TTER21*	F	210							
KQ0805TTER22*	8	220							
KQ0805TTER23*	K	230			48		650	1.0	350
KQ0805TTER24*	L	240							
KQ0805TTER25*	G	250							
KQ0805TTER27*	9	270							
KQ0805TTER33*	0	330					600	1.4	310
KQ0805TTER39*	1	390					560	1.5	290
KQ0805TTER47*	2	470	50	J: ±5% K: ±10%	33	100	375	1.76	250
KQ0805TTER56*	3	560	25		23	50	340	1.9	230
KQ0805TTER68*	4	680					188	2.2	190
KQ0805TTER72*	A	720					200	2.3	
KQ0805TTER82*	5	820					215	2.35	180
KQ1008TTE10N*	10N	10	50	J: ±5% K: ±10% M: ±20%	50	500	4100	0.08	1000
KQ1008TTE12N*	12N	12					3300	0.09	
KQ1008TTE15N*	15N	15					3000	0.10	
KQ1008TTE18N*	18N	18				350	2500	0.11	
KQ1008TTE22N*	22N	22			55		2400	0.12	
KQ1008TTE27N*	27N	27					1600	0.13	
KQ1008TTE33N*	33N	33			60		1600	0.14	

* Add tolerance character (C, G, H, J, K, M)

applications and ratings (continued)

Part Designation	Marking	Nominal Inductance (nH)	L Measuring Frequency (MHz)	Inductance Tolerance	Q Quality Factor Minimum	Q Measuring Frequency (MHz)	Self Resonant Frequency Minimum (MHz)	DC Resistance Maximum (Ω)	Allowable DC Current Maximum (mA)
KQ1008TTE39N*	39N	39	50	J: ±5%,K:±10% M:±20%	60	350	1500	0.15	1000
KQ1008TTE47N*	47N	47			65			0.16	
KQ1008TTE56N*	56N	56					1300	0.18	
KQ1008TTE68N*	68N	68						0.20	
KQ1008TTE82N*	82N	82			60		1000	0.22	
KQ1008TTER10*	R10	100	25	G: ±2% J: ±5% K: ±10%				0.56	650
KQ1008TTER12*	R12	120					950	0.63	
KQ1008TTER15*	R15	150			45	100	850	0.70	580
KQ1008TTER18*	R18	180					750	0.77	620
KQ1008TTER22*	R22	220					700	0.84	500
KQ1008TTER27*	R27	270					600	0.91	500
KQ1008TTER33*	R33	330					570	1.05	450
KQ1008TTER39*	R39	390					500	1.12	470
KQ1008TTER47*	R47	470					450	1.19	
KQ1008TTER56*	R56	560					415	1.33	400
KQ1008TTER62*	R62	620					375	1.40	300
KQ1008TTER68*	R68	680						1.47	400
KQ1008TTER75*	R75	750					360	1.54	360
KQ1008TTER82*	R82	820					350	1.61	400
KQ1008TTER91*	R91	910			35	50	320	1.68	380
KQ1008TTE1R0*	1R0	1000					290	1.75	370
KQ1008TTE1R2*	1R2	1200	7.9				250	1.6	310
KQ1008TTE1R5*	1R5	1500					200	1.7	300
KQ1008TTE1R8*	1R8	1800			28		160	1.9	270
KQ1008TTE2R2*	2R2	2200						2.2	250
KQ1008TTE2R7*	2R7	2700			22	25	140	2.3	
KQ1008TTE3R3*	3R3	3300					110	2.7	230
KQ1008TTE3R9*	3R9	3900			20		100	2.8	
KQ1008TTE4R7*	4R7	4700					90	3.1	210
KQ1008TTE5R6*	5R6	5600			15	7.9	80	2.5	240
KQ1008TTE6R8*	6R8	6800					70	2.8	200
KQ1008TTE8R2*	8R2	8200					65	3.0	170
KQ1008TTE100*	100	10000					60	3.4	150

* Add tolerance character (C, G, H, J, K, M)

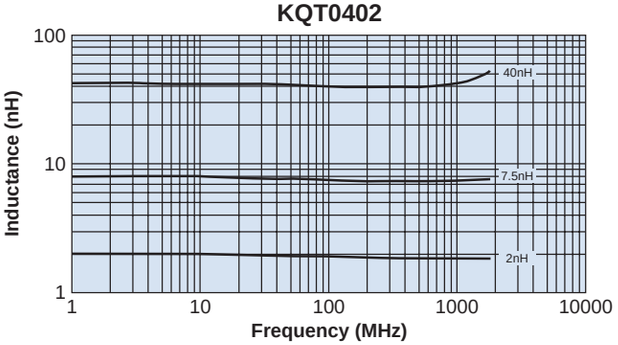
Operating Temperature Range: -40°C ~ +125°C

The operating temperature range of the coil (ambient temperature + self heating) must remain at +125°C or less

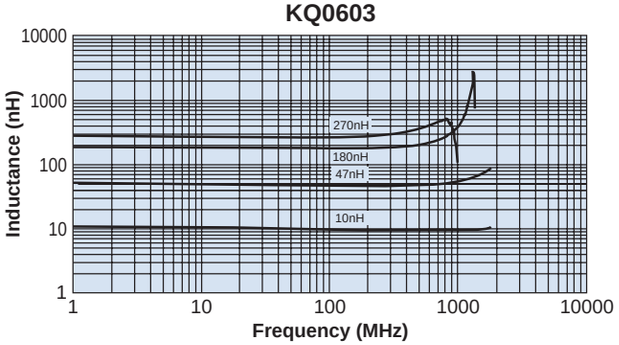
environmental applications

L-Frequency Characteristics

KQT0402



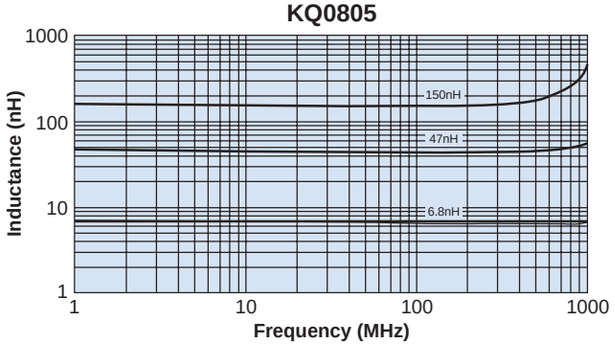
KQ0603



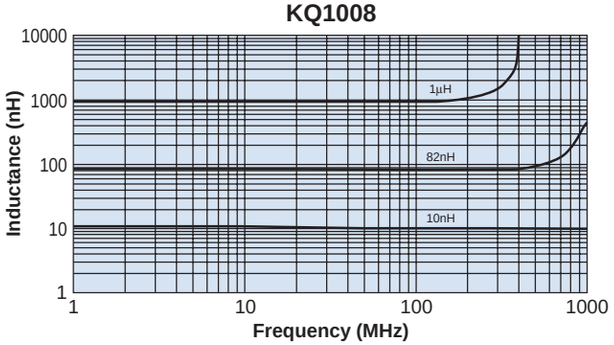
environmental applications (continued)

L-Frequency Characteristics

KQ0805

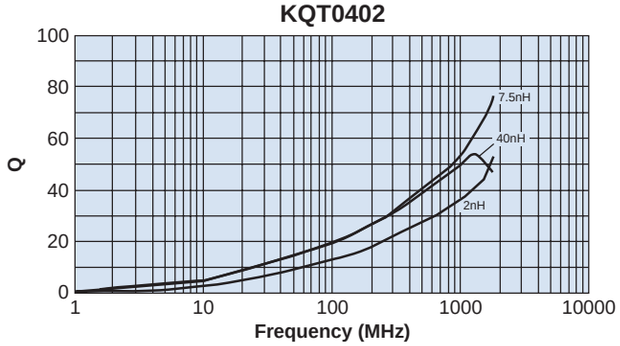


KQ1008

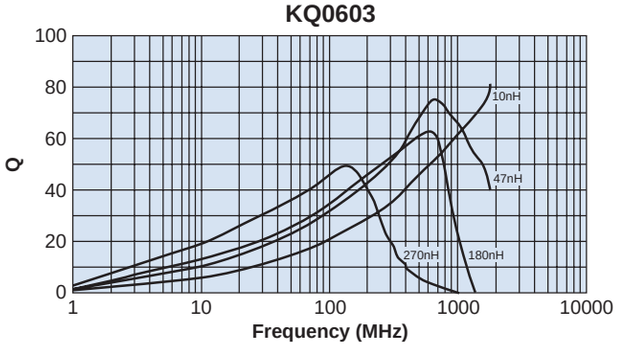


Q-Frequency Characteristics

KQT0402



KQ0603



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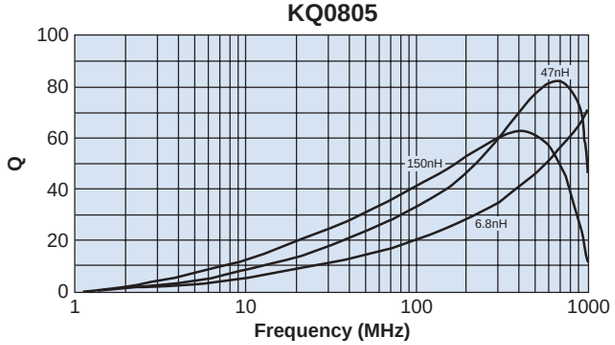
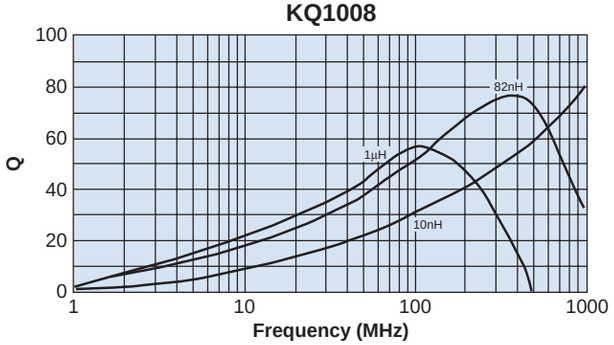


KQ1008



Test equipment: HP4291A impedance analyzer

Performance Characteristics

Parameter	Requirements Maximum Limit	Δ L/L Δ Q/Q Typical	Test Method
Resistance to Soldering Heat	No significant abnormality in appearance Δ L/L: ±5%, Δ Q/Q: ±10%	Δ L/L: ±2.7% Δ Q/Q: ±6.6%	260°C ± 5°C, 10s ± 1s
Rapid Change of Temperature	No significant abnormality in appearance Δ L/L: ±5%, Δ Q/Q: ±10%	Δ L/L: ±2.1% Δ Q/Q: ±5.3%	-40°C (30min.)/ +125°C (30min.) 100 cycles
Low Temperature Exposure	No significant abnormality in appearance Δ L/L: ±5%, Δ Q/Q: ±10%	Δ L/L: ±1.8% Δ Q/Q: ±2.8%	-40°C ± 2°C, 1000h
High Temperature Exposure	No significant abnormality in appearance Δ L/L: ±5%, Δ Q/Q: ±10%	Δ L/L: ±1.8% Δ Q/Q: ±5.3%	125°C ± 2°C, 1000h
Moisture Exposure	No significant abnormality in appearance Δ L/L: ±5%, Δ Q/Q: ±10%	Δ L/L: ±0.9% Δ Q/Q: ±6.9%	40°C ± 2°C, 90%~95%RH, 1000h
Resistance to Solvent	No damage and marking shall remain legible	—	Accordance with MIL-STD 202F Method 215

X-ON Electronics

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