

Toko Coils

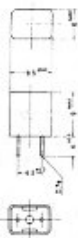
[G4OEP Homepage](http://g4oep.atSPACE.com/toko/toko.htm)

Signal chokes

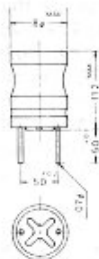
Fixed Value Inductors

Molded types, 7BA, 8RB, 10RB

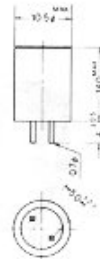
The Ambit range of low cost, ex-stock inductors includes a comprehensive range covering from 1uH to 120mH. A complete range in E24 series is available to special order, where a minimum order of 500 per value is requested. Sample quantities will be made available for pre-production purposes. Chokes listed here are held in quantity stocks, for immediate delivery. We anticipate that this selection should fill the majority of choke applications likely to arise.



7BA



8RB



10RB

All dimensions shown in millimetres

TOKO Type	7BA	8RB	10RB	Other	Inductance	Qu at Freq:	RΩ	I DC max.	Self resonant freq.
	144LY-	187LY-	181LY-			MHz		mA	MHz
1R0					1uH	30 7.96	1.0	30	360
1R5					1.5uH	30 7.96	1.0	30	230
2R2					2.2uH	30 7.96	1.0	30	150
3R3					3.3uH	30 7.96	1.0	30	100
4R7					4.7uH	30 7.96	1.5	30	80
6R8					6.8uH	30 7.96	1.5	30	60
8R2					8.2uH	30 7.96	1.5	30	50
100					10uH	30 7.96	2.0	30	37
150					15uH	30 2.52	2.0	30	29
180					18uH	30 2.52	2.0	30	25
220					22uH	30 2.52	2.0	30	21
330					33uH	30 2.52	2.5	30	17
470					47uH	30 2.52	3.0	30	11.5
680					68uH	30 2.52	3.0	30	10
101					100uH	30 2.52	4.0	30	8
	101				100uH	80 .796	2.0	200	
	151				150uH	80 .796	2.0	200	
221					220uH	30 .796	6.0	30	5.5
	221				220uH	80 .796	3.0	200	
331					330uH	30 .796	6.0	30	4.5
	331				330uH	80 .796	4.0	200	
471					470uH	30 .796	9.0	30	4.0
	471				470uH	80 .796	4.0	200	
	681				680uH	80 .796	4.0	200	
751					750uH	30 .796	12.0	30	3.5
102					1mH	30 .796	14.0	30	3.0
	102				1mH	90 .252	6.0	150	
	152				1.5mH	90 .252	9.0	150	
	222				2.2mH	90 .252	13.0	100	
	472				4.7mH	90 .252	18.0	50	
		682			6.8mH	100 .1	7.5	35	
	103				10mH	100 .0796	40	40	
	153				15mH	100 .0796	60	40	
	223				22mH	100 .0796	80	30	
	333				33mH	100 .0796	80	30	
		333			33mH	100 .050	20	17	
		433			43mH	50 .050	100	20	.195
		513			51mH	100 .050	49	12	
		104			100mH	100 .050	63	9	
		124			120mH	100 .050	75	8	

Notes: The rated DC current is not necessarily an indication of the fusing value of DC current, but it is the DC current that affects the stated inductance by more than 20%
The above Qs are minimum values, the resistances quoted are maximum values.

Numbering system:

The chokes are stamped with the value, and tolerance, in the following form:

H indicates ferrite type
 Y indicates 5mm pin spacing
 First two figures give value
 Third figure gives multiplier ie 10^0
 Final letter indicates tolerance J:5%, K:10%, M:20%. (All stock types 10% or better. Most are in fact 5% - 'J' types.)

[Many types of capacitor also employ a similar code - thus a ceramic plate capacitor marked '102' = $1nF$]

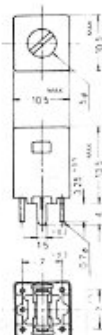
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Signal coils

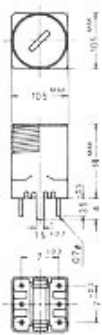
7 and 10mm shielded types: 7P, 7E, 7K, 10P, 10E, 10EZ, 10K

We offer the world's largest range of signal inductors from TOKO. The types described here are selected from the vast range available, to represent the standard types commonly employed in the range 10kHz to 100MHz. Custom windings are available for orders of 1000 pieces or over, and if a suitable style is not shown here - please ask for further details.

10E & 10EZ



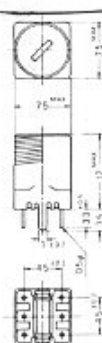
10P & 10PA



These are the most commonly used style of coil. The 10E has a single bobbin winding, with cup core adjustment held in the base; the 10EZ is essentially identical, except that the cup core is held in plastic molding in the can. The 10E, 10EZ and 10P can be supplied with a single internal capacitor for IF applications. Up to three independent windings are possible, with a maximum pinout of 6.

The 10P and 10PA are available up to 36mH maximum inductance; the 10E is available with a maximum inductance of 2mH. Ferrites for Qs up to 180 are available, together with grades suitable for LF, MF, HF.

7P (7E)



The 7P, like the 10P in the larger format, is a single bobbin winding, with cup core adjustment held in the outer shielding can of the assembly. The 7E is essentially a scaled version of the 10E. Both the 7P and 7E are widely used in high density layouts for LF, MF, HF applications. A single internal capacitor may be included for IF applications, up to a maximum value of 180pF. Due to the miniaturized construction, the available Q of both types is generally some 10-20% lower than their 10mm format counterparts.

The overall dimensions of the 7P and 7E are identical.

The maximum inductance for the 7P style is 20mH, and 1mH for 7E.

Winding options as per 10E series.

7E not shown

7K (Sim. appearance to 7E)



7K is an increasingly popular style used in custom applications for communications, radio control, and TV IFs. The basic area of operation is in the region 10MHz to 100MHz, with a maximum inductance of 10 μ H.

The construction differs from the 7P/7E, since the 7K uses a spiral former, with fixed cup core, and adjustable slug core, permitting fine adjustment, and excellent stability.

10K



Double 10K (10WF)
also double 10E (10WA)



The 10K, and double 10K, are the standard choice for high stability FM and TV IFs. The construction is similar to the 7K: a spiral former, with fixed cup core, and adjustable slug. The maximum inductance for the single 10K is 50uH, with ferrites suitable for use from 2MHz to 100MHz. The double form is available with a maxi-



In identical dimensions, a double 10E - the 10WA - is also available with a maximum inductance of 2mH per winding.

Signal coils

LF MPX/Dolby coils, LW, MW, SW RF, antenna & osc. FM/AM IFs

This compilation lists all the 'shelf standard types'. Other windings and configurations are available to special order, with a minimum order of 1000 pieces per item. A minimum order of 100 is occasionally possible at extra cost.

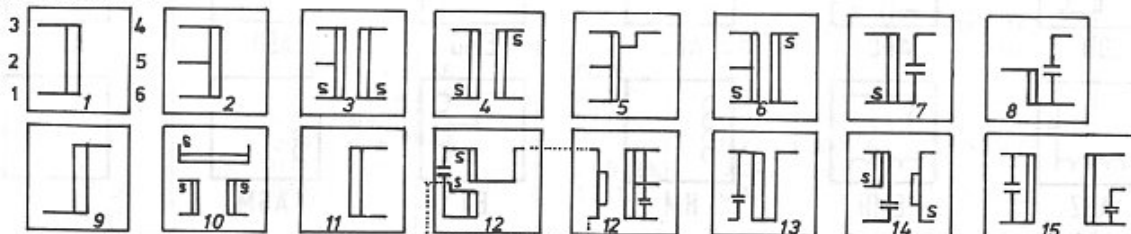
	Type no.	Use	Colour	Q	Int. CpF (or L)	Turns					Base No.
						1-2	2-3	1-3	4-6	other	
10PA for mpx	CAN1898HM	mpx	orange	50	7mH			396			1
	CAN1980BX	mpx	yellow	50	7mH	40		396			5
	CAN1979A	mpx	white	50	11.75mH	257	257	514	257	1-4:198%	3
	CAN1896HM	mpx	black	85	22mH	695					1
10ME Directly equiv. to above 10P	87BN134HM2	mpx	orange	55	7mH			349			1
	87BN135BX2	mpx	yellow	55	7mH	35	314	349	174		5
	87BN133AT02	mpx	white	55	11.8mH	226	226	452	226		3
	87BN132HM2	mpx	black	100	22mH			618			1
	87BN1326HM	mpx	black	100	3.5mH	75					1
10PA misc	CAN1A350EK	LWrf	red	100	3.5mH	27	234	261	27		6
	CLNS30568Z	dolby	black	70	23mH			640			1
	CLNS30569Z	dolby	black	100	36mH			780			1
10E/10EZ for 455-470 kHz and MW/LW	YRCS11098AC2	1st amif	orange	90	180pF	140	25	165	4		6
	YRCS12374AC2	2nd if	yellow	90	180pF	127	38	165	6		6
	YRCS11100AC2	3rd if	black	140	180pF	104	36	140	20		6
	YHCS1A589P	am if	blue	150	180pF	15	125	140	6		6
	YHCS1A590R	am if	white	150	180pF	80	60	140	15		6
	YMCS2A740AAE	trap	brown	90	180pF			158			7
	YHCS17103DG	trap	white	140	180pF					2-6:149	8
	YHCS17104GO	if osc	yellow	110	180pF	98	67	165			2
	YHCS17105R2	3rd if	black	140	150pF*	68	68	136	68		6
	YXNS6A139	lw pad	green	80	940uH					1-4:185	9
	YXNS6A140HM	lw pad	red	80	120uH			64			1
	YXRS18576AQ	mw osc	green	120	100uH			59	36		4
	YMR80046N	mw osc	blue	70	158uH	2	79	81	9		6
	YMR516726ZMS	mw osc	blue	130	158uH	2	[3-4:83]			[5-6:9]	10
	YXRS17065	mw osc	red	80	180uH	3	77	80	12		6
	RWR331208N	mw rf	red	70	330uH	2	92	94	8		6
	RWO6A6408	mw rf	red	80	360uH	95	3	98	12		6
	YXNS30450NK	mpx	blue	80	2mH				270		11

*1 To obtain a double tuned IF stage, couple pin2 of the 589 to pin 6 of the 590 via 120pF. Input across pins 1&3 on the 590, output across pins 4&6 of the 590. Remember to ground pin 4 of the 590, and pin 1 of the 589.

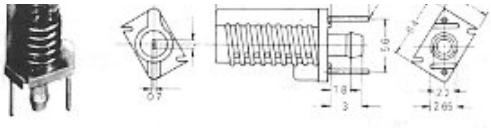

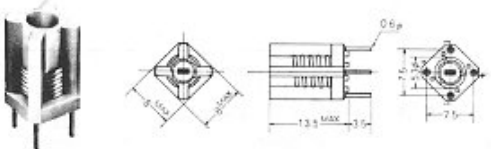

10WA double tuned	WFDC11115P	am if	pink	80	200pF	107				3-4:45	12
	WFDC11115S	am if	pink	80	200pF						

7P for 455-470 kHz IFTs	7MCS2197R	am if	blue	110	180pF	15	125	140	6		6
	7MCS2198R	am if	black	110	180pF	104	36	140	20		6
	7MCS2199DC	am if	white	110	180pF	80	60	140	15		6
	7MCS2194AAE	trap	brown	110	180pF			140			7
7E 455-470kHz Radio control etc. IFTs.	LMC4100A	am if	yellow	105	150pF						6
	LMC4101A	am if	white	105	150pF						6
	LMC4102A	am if	black	105	150pF						6
	LMC4200A	am if	yellow	60	150pF	164	41	205	4		6
	LMC4201A	am if	white	60	150pF	143	62	205	4		6
	LMC4202A	am if	black	60	150pF	134	74	208	42		6
	LLC238	am if	white	70	150pF	143	62	205	8		6
	LLC4827	am if	yellow	70	150pF	126	79	205	10		6
	LLC4828	am if	black	70	150pF	153	52	205	26		6
10K FM IFs, detectors 10.7MHz	KALS4520A	fm if	red	100	50pF	8	7	15	1		6
	KACS1506A	fm if	black	100	51pF	3	12	15	2		6
	KAC6184A	fm if	black	65	82pF	10	3	13	3		6
	TKAC34342	fm if	black	70	51pF			15	1		4
	TKAC34343	trap	black	70	51pF						13
	KACSK586HM	fm det	pink	100	82pF			12			1
	KAC8448PJQ	fm det	pink	65	68pF		14		11		14
	KAC8449SZ	fm det	blue	65	68pF	7	7	14	1		6
10WF double tuned	125LCS30035	fm if	pink	75	82pF			12			15
	125LCS30036	fm if	blue	75	82pF						15
7P & 7E fm ifs 10.7MHz	119LC30099N	fm if	orange	90	82pF	8	2	10	4		6
	85FC4402SEJ	fm if	blue	100	100pF	6	6	12	1		3
10K Coils for shortwave	KANK3333R	sw1 rf	violet	60	45uH	14	41	55	4		6
	KANK3334R	sw2 rf	yellow	85	5.5uH	7	11	18	3		6
	KANK3335R	sw3 rf	pink	85	1.2uH	4	4	8	2		6
	KAN3426R	sw1 osc	white	65	38uH	3	48	51	4		6
	KANK3337R	sw2 osc	green	50	5uH	2	25	27	3		6
	KANK3428R	sw3 osc	blue	60	1.1uH	2	10	12	3		6
	K2027 (unshlded)	sw2 rf	none	90	9uH	3	25	28	6		3
10E fm if	94AES30465N	fm if	brown	75	120pF	6	3	9	1		6

Base connections:



Rigid coils for VHF			TOKO molded coil series				
Type	Form	Dimensions (mm)	Tuning Method	Range MHz MHz MHz 1 10 100	L Range	Qu (typ.)	Tap & Sec. coil
S18					0.03μH ~ 0.4μH	100~200 at 58MHz 160~220 at 100MHz	Pri.; 1 tap; Sec.; None
MC115					0.03μH ~ 0.20μH	50~160 at 58MHz 110~180 at 100MHz	No tap & no Sec.
MC116					0.03μH ~ 0.48μH	50~140 at 58MHz 110~140 at 100MHz	No tap & no Sec.
						130	

MC108			0.03 μ H ~ 0.17 μ H	~ 190 at 100MHz	Single Winding only; no tap
MC111			0.03 μ H ~ 0.50 μ H	50~140 at 58MHz 110~140 at 100MHz	Single Winding, 2 taps possible; Sec. Available

A full range of the S18 series coils is held in stock, and these are listed below. Of the other types, sample and small quantities are available from stock in styles, MC115, MC116 and MC111. An additional publication, entitled 'Molded coils for VHF' is available at 15p, and lists all standard types of these and others, together with full electrical and mechanical detail. Trimmers for the hexagonal ferrite cores, and slot types are available in molded nylon from stock.

Core Material	Ordering Code No.	Colour Code	Centre Frequency MHz	Tuning Range Capacitor pF	L (Ref) μ H	Qu. Min.	Turns	TOKO PART NUMBER
ALUMINIUM	301AN-0100	White	100	85 (3%)	0.03	100	1½	M-20160
	-0200	Red	100	51 (3%)	0.05	100	2½	M-20002
	-0300	Orange	100	32.7 (3%)	0.064	85	3½	M-20003
	-0400	Yellow	100	31 (3%)	0.082	75	4½	M-20006
	-0500	Green	100	25 (3%)	0.098	95	5½	M-20158
	-0600	Blue	100	21 (1.5%)	0.12	90	6½	M-20004
	-0700	Violet	100	17.8 (1.5%)	0.141	90	7½	M-20007
	-0800	White	100	15 (1.5%)	0.168	90	8½	M-20156
FERRITE 30-60 MHz	301KN-0100	White	44	210 (6%)	0.06	120	1½	M-20162
	-0200	Red	54	107 (6%)	0.08	68	2½	M-20161
	-0300	Orange	58	60 (6%)	0.12	150	3½	M-25025
	-0400	Yellow	75	27.7 (3%)	0.16	100	4½	M-20066
	-0500	Green	65	27 (3%)	0.27	100	5½	M-20067
	-0600	Blue	58	26 (1.5%)	0.27	100	6½	M-20068
	-0700	Violet	58	21.8 (3%)	0.34	180	7½	M-20159
	-0800	White	58	19 (1.5%)	0.40	155	8½	M-25232

9

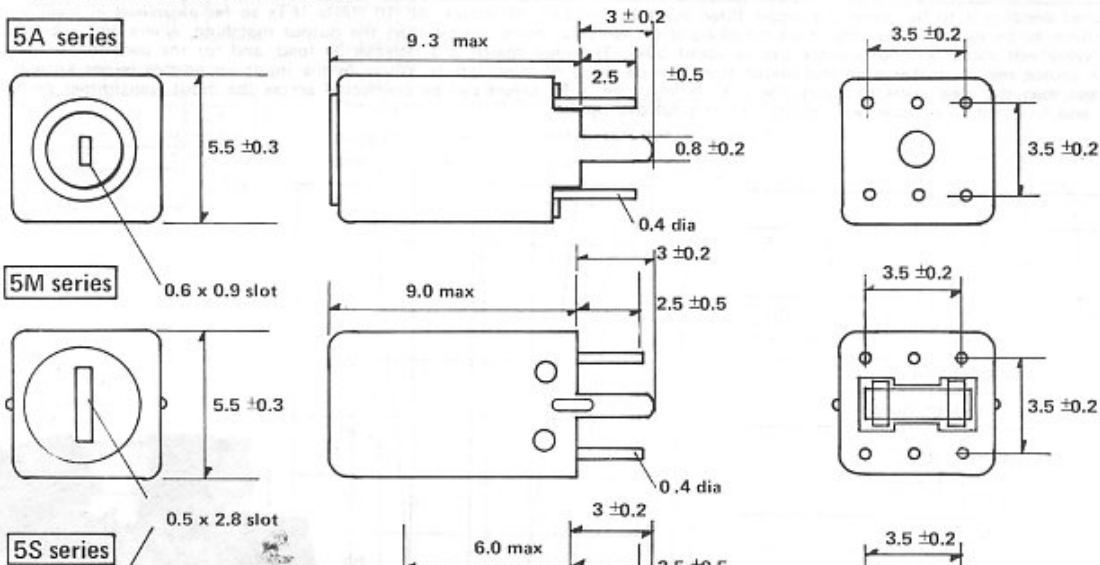
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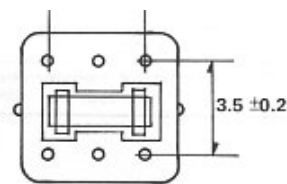
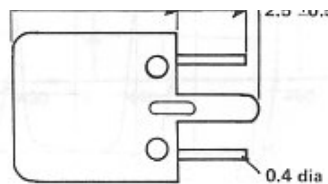
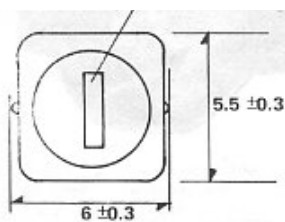
Toko



A COMPLETELY NEW RANGE OF SUB-MINIATURE TUNEABLE COILS FOR IF, RF and oscillator

ALL DIMENSIONS SHOWN IN MM





TOKO's new miniature coils series, in 5mm format

This series supercedes the previous range of 5E coils, and offers many distinct advantages:

- ♦ A complete range from 100kHz to 175MHz
- ♦ 5A and 5M types may incorporate tuning capacitors if required
- ♦ Large adjustment aperture, with redesigned core support system to minimize breakages in alignment
- ♦ Improved packing density

The 5A - for 30 -175MHz

These miniature shielded coils are well suited to all types of VHF application, up to a maximum inductance of 0.3uH. The 5A is recommended for many types of communication application, including oscillators, multipliers and rejectors - however, the relatively lower 'Q' of such a compact design may make one TOKO's larger format coils better in RF and mixer applications.

In many paging applications and remote control systems at VHF, the 5A is the smallest tuneable inductor you can obtain in the world - where necessary or advantageous, the 5A is available without a screening can for improved circuit Q.

The 5M - for 100kHz to 15MHz

The 5M series are approximately the same size as the 5A types - and in the same dimensions, an internal capacitor of up to 1500pF may be accommodated. The 5M types are well suited AM and FM IF applications, RF and oscillator stages. Despite its diminutive appearance, the 5M possesses an environmental specification that enables its use in professional and communications equipment destined for use in vigorous climatic conditions.

The 5S - for 100kHz to 15MHz

The 5S range cover basically the same applications as the 5M - except with approx. 30% less height. The smaller overall size means that Q is slightly lower, and the maximum inductance available slightly lower - but for miniature radio equipment, there is no better suited component. Using the KV1210 varicap tuning diode - a complete AM/FM radio can be constructed using TDA1083 ICs, that is less than 9mm thick overall.

GENERAL INFORMATION

The introduction of the 5A, 5M and 5S coils realizes new standards in miniature RF/IF transformer design. The original 5mm series - TOKO's famous 5E range - is now discontinued, and types originally designed for 5E are being provided in 5S or 5M styles. Sample types of the three ranges are being held for customer evaluation - mainly based on the existing 5E range, and versions that have been scaled down from popular 10mm and 7mm styles.

All three types fit into the same basic PC pattern.

Design Data for the 5A, 5M and 5S

Type	Prefix	Frequency range	Inductance range	Adjustment range	Qu±20% at MHz	Temperature coeff.: ppm/°C
5A		30 - 175MHz	0.03 to 0.3uH	Lo±6%	70-100 @ 100	(-10 to +60) 0 - 150
5M	5MMC	0.2 - 1.0MHz	20 to 1000uH	Fo±2%	110 @ .455	0±150
	5MMN			Lo±4%		870±150
	5MNR	0.5 - 3.0MHz	20 to 560 uH	Lo±6%	90 @ 1.4	0±150
	5MAC	2.0 - 15MHz	1.0 to 30 uH	Fo±2%	100 @ 10.7	0±60
	5MAN	2.0 - 15MHz	1.0 to 30uH	Lo±4%	100 @ 10.7	220±60
	5MFC	2.0 - 15MHz	1.0 to 15 uH	Fo±2%	110 @ 10.7	0±60
5S	5MFC			Lo±4%		220±60
	5SLC	0.2 - 1.0MHz	20 to 680uH	Fo±2%	70 @ .455	0±250
	5SLN			Lo±4%		750±250
	5SNR	0.5 - 3.0MHz	20 to 360uH	Lo±6%	70 @ 1.4	0±150
	5SPC	2.0 - 15MHz	1.0 to 28 uH	Fo±2%	70 @ 10.7	0±120
	5SPN			Lo±4%		220±120
	5SFC	2.0 - 15MHz	1.0 to 15 uH	Fo±2%	70 @ 10.7	0±120
	5SFN			Lo±4%		220±120

General Specifications**5A**

Core torque: 10 to 150 gm.cm

Dielectric strength: No abnormality when applying 100v DC between case and pins, or between primary and secondary for a period of one minute

Insulation resistance: Greater than 100M Ω at 100v DC between case and pins, and primary and secondary windings

Solder dipping: No apparent defect when the pins are dipped up to 2mm from the base surface in molten solder at 270°C for a period of 5 seconds

Vibration testing: Applying a 1.5mm amplitude vibration for two hours along each of three axes, and cycling the frequency from 10Hz to 55Hz in 60 seconds the change in inductance will be within $\pm 1\%$ of the initial value, and the change in Q within $\pm 20\%$ Shock testing: After the application of a 100G shock for 0.01 seconds, along each of three axes - the shift from initial values of L and Q will be $\pm 1\%$ and $\pm 20\%$ respectivelyHumidity testing: After exposure to 90/95% relative humidity for a period of 96 hours, at 40°C - the shift from initial values of L and Q will be $\pm 1\%$ and $\pm 20\%$ respectively

5M and 5S as 5A, except 20-300gm.cm core torque

Internal Capacitors - 5M and 5S types only

The following internal capacitors are available for either 5M or 5S coils

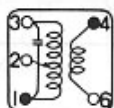
18, 22, 27, 33, 39, 47 pF T.C. - 220 ppm/°C

180, 1500 pF T.C. - 750 ppm/°C

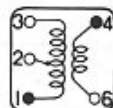
Base connections

For 5M and 5S types, the internal capacitor may only be fitted between pins 1-3, 4-6, 3-6, 1-4

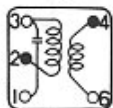
These base connections are in accordance with standard practise in 7 and 10mm series coils



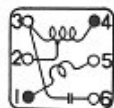
N(1)



N(2)



M



L

● Black dot indicates start of winding.

When ordering:

Please specify by:

- (a) coil type
- (b) inductance, or centre frequency if IFT
- (c) capacitor value if IFT
- (d) operational frequency range
- (e) Q required
- (f) temperature range (coefficient)
- (g) base connections from above table
- (h) if you require a type scaled from any other TOKO range, please specify original part number
- (i) please try to use coils from the list of standard parts which is published and updated from time to time

General Application Information

Do not use ferrous tools for adjustment of cores, the high density of the coil structure makes the effect of ferrous trimming tools particularly severe. Locate all coils away from magnetic fields, such as high density speaker magnets etc.

For best RF performance, always use the largest possible format of coil permissible in a given design brief.

TOKO (UK) Ltd., Ward Royal Parade, Alma Road, Windsor, Berkshire.

Distributed and stocked by Ambit International, 2 Gresham Road, Brentwood, Essex. CM14 4HN tel (0277) 227050

TOKO coil additions

Style	Type no	Colour	Q	Int CpF	Turns:	1-2	2-3	1-3	4-6	other	Base type (see part one of cat) & notes
10KC	MKXCSK3464BM	black	100	27				8	2		3 - 27MHz HiQ RF coil for RC etc
10E	YWOS6A356EK	blue	70+	156uH nom		2	64	66	7		6 - low self capacity MW osc coil
10EZ	RWO6A775EK	green	80+	630uH nom		9	114	123	13		6 - LW and RDF band oscillator coil
10EZ	154FN8A6438EK	violet	100+	45uH		10	30	40	8		6 - SW1 RF / ANT, HiZ, HiQ
10EZ	154FN8A6439EK	yellow	110+	5.5uH		4	10	14	6		6 - SW2 RF / ANT, HiZ, HiQ
10K	KXNK3767EK	black	80+	1.2uH		2	6	8	5		6 - SW3 RF / ANT, HiZ, HiQ
10EZ	154AN7A6440EK	white	90+	38uH		10	31	41	9		6 - SW1 OSC HiZ
10EZ	154AN7A6441EK	green	70+	5uH		4	11	15	7		6 - SW2 OSC HiZ
10K	KXNK3766EK	blue	80+	1.1uH		2	6	8	5		6 - SW3 OSC HiZ

2088LR3152N - a 19/38kHz mono mpX pilot tone filter (smaller sized version of 1908LR3152N)

2088LR3155N - a 26/38kHz mono filter for pilot cancel stereo decoder applications

5S coils:

Certain stock types are now available, being based on scaled down values from 10mm types:

			1-2	2-3	1-3	4-6	Q
5SNR-0188N	from RWR331208	for MW antenna/rf and osc applications.	13	127	140	52	57+
5SNR-0187N	from YMR80046N	for MW/LW osc applications	2	93	95	14	75+
5SNR-0332N	from YWOS6A356EK	for MW/LW osc applications	2	92	94	10	70+
5SPN-0186N	from 94AES-30466N	for 10.7/9MHz IF filter matching etc	7	3	10	2	67+
5SPC-0185A	from KALS4520A	for 10.7/9MHz IF and filter matching	7	8	15	1	78+
5SPC-0210Z	from KACSK586HM	for 10.7MHz quadrature detection			15		95+
5SLC-0184AC	from YHCS11100AC2	for 455-470kHz IF and detector applications	137	43	180	27	77+
5SLC-0333R	from YRCS12374AC2	for 455-470kHz IF applications	142	43	185	7	80+
5SLC-0190N	from YLE4A888EK	for 455-470 IF and detector applications	58	58	116	16	85+
5SLC-0331R	from YHCS1A590R	for 455-470kHz IF/detector and filter matching	104	76	180	20	80+