

Part E T830 VCO PCB Information

This part of the manual provides the parts list, grid reference index, PCB layouts and circuit diagram for the T830 VCO PCB. There is a detailed table of contents at the start of Section 2.

Section	Title	IPN	Page
1	Introduction		1.1
2	T830 VCO PCB	220-01176-03	2.1

1 Introduction

PCB Identification

All PCBs are identified by a unique 10 digit “internal part number” (IPN), e.g. 220-12345-00, which is screen printed onto the PCB (usually on the top side), as shown in the example below:



The last 2 digits of this number define the issue status, which starts at 00 and increments through 01, 02, 03, etc. as the PCB is updated. Some issue PCBs never reach full production status and are therefore not included in this manual. A letter following the 10 digit IPN has no relevance in identifying the PCB for service purposes.

Note: It is important that you identify which issue PCB you are working on so that you can refer to the appropriate set of PCB information.

Parts Lists

The 10 digit numbers (000-00000-00) in this Parts List are “internal part numbers” (IPNs). We can process your spare parts orders more efficiently and accurately if you quote the IPN and provide a brief description of the part.

The components listed in this parts list are divided into two main types: those with a circuit reference (e.g. C2, D1, R121, etc.) and those without (miscellaneous and mechanical).

Those with a circuit reference are grouped in alphabetical order and then in numerical order within each group. Each component entry comprises three or four columns, as shown below:

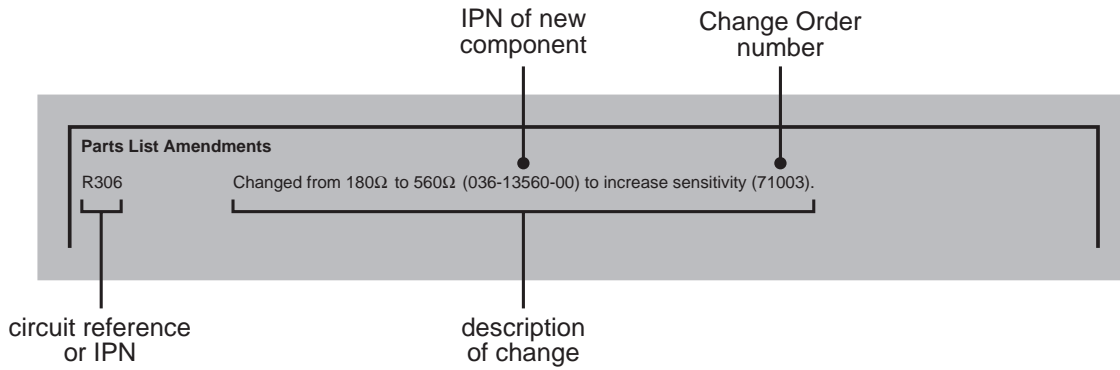
Ref	Var	IPN	Description
C126		015-06100-08	CAP CER 1206 CHIP 100N 10% X7R 50V
C127		020-09220-01	CAP ELECT RADL 220M 16V 10X12.5MM
C128		015-06100-08	CAP CER 1206 CHIP 100N 10% X7R 50V
C129		015-06100-08	CAP CER 1206 CHIP 100N 10% X7R 50V
&C130	10	015-25100-08	CAP CER 0805 CHIP 10N 10% X7R 50V
&C130	15	015-24470-08	CAP CER 0805 CHIP 4N7 10% X7R 50V
&C130	20	015-25100-08	CAP CER 0805 CHIP 10N 10% X7R 50V
&C130	25	015-24470-08	CAP CER 0805 CHIP 4N7 10% X7R 50V
C131		015-24100-08	CAP CER 0805 CHIP 1N 10% X7R 50V
C132		015-24470-08	CAP CER 0805 CHIP 4N7 10% X7R 50V
C133		015-05470-08	CAP CER 1206 CHIP 47N 10% X7R 50V

circuit reference - lists components in alphanumeric order
 variant column - indicates that this is a variant component which is fitted only to the product type listed
 description - gives a brief description of the component
 Internal Part Number - order the component by this number

The mechanical and miscellaneous section lists the variant and common parts in IPN order.

Parts List Amendments

At the front of the parts list is the Parts List Amendments box (an example of which is shown below). This box contains a list of component changes which took place after the parts list and diagrams in this section were compiled. These changes (e.g. value changes, added/deleted components, etc.) are listed by circuit reference in alphanumeric order and supersede the information given in the parts list or diagrams. Components without circuit references are listed in IPN order. The number in brackets at the end of each entry refers to the Tait internal Change Order document.



Variant Components

A variant component is one that has the same circuit reference but different value or specification in different product types. Where two products share the same PCB, the term “variant” is also used to describe components unplaced in one product. Variant components have a character prefix, such as “&”, “=” or “#”, before the circuit reference (e.g. &R100).

The table below explains the variant prefixes used in T800 Series II products:

If the variant prefix is. . .	the component will. . .
&	change according to channel spacing
=	change according to frequency stability
#	change according to frequency band
%	change or be placed/unplaced for special applications
*	be unplaced in one product (where two products share the same PCB)

Grid Reference Index

This section contains a component grid reference index to help you find components and labelled pads on the PCB layouts and circuit diagrams. This index lists the components and pads in alphanumeric order, along with the appropriate alphanumeric grid references, as shown below:

Device	PCB	Circuit
C126	2:A6	2-R7
C127	1:A8	2-P4
C128	2:B7	2-P2
C129	2:C12	2-E3
&C130	2:D8	2-B8
C131	2:C9	2-H6
C132	2:D8	2-B8
C133	2:D6	2-E1

components listed in alphanumeric order

PCB layout reference

circuit diagram reference

component location on the sheet

sheet number

component location on the layer

layer number -
1 = top side layer
2 = bottom side layer

2 T830 VCO PCB

This section contains the following information.

IPN	Section	Page
220-01176-03	Parts List	2.3
	Mechanical & Miscellaneous Parts	2.5
	Grid Reference Index	2.6
	PCB Layout - Bottom Side	2.7
	PCB Layout - Top Side	2.8
	Circuit Diagram	2.9

T830 VCO Parts List (IPN 220-01176-03)

How To Use This Parts List

The components listed in this parts list are divided into two main types: those with a circuit reference (e.g. C2, D1, R121, etc.) and those without (miscellaneous and mechanical).

Those with a circuit reference are grouped in alphabetical order and then in numerical order within each group. Each component entry comprises three or four columns: the circuit reference, variant (if applicable), IPN and description. A letter in the variant column indicates that this is a variant component which is fitted only to the product type listed. Static sensitive devices are indicated by an (S) at the start of the description column.

The mechanical and miscellaneous section lists the variant and common parts in IPN order.

The Parts List Amendments box below lists component changes that took place after the parts list and diagrams in this section were compiled. These changes (e.g. value changes, added/deleted components, etc.) are listed by circuit reference in alphanumeric order and supersede the information given in the parts list or diagrams. Components without circuit references are listed in IPN order.

Parts List Amendments

#C6 Tx High (A): incorrectly listed as 22p (015-22220-01) - correct value is 18p (015-22180-01).
 Tx High (A): changed from 18p (015-22180-01) to 15p (015-22150-01) to improve the loop voltage tuning range at the top of the band (710943/44).

Ref	Var	IPN	Description	Ref	Var	IPN	Description
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Variant Code	Description	T837 (MHz)
A	Tx high	148 - 174
B	Tx low	136 - 156

C2		015-23680-08	CAP CER 0805 680P 10% X7R 50V
#C3	A	015-22180-01	CAP CER 0805 18P 5% NPO 50V
#C3	B	015-22180-01	CAP CER 0805 18P 5% NPO 50V
#C4	A	015-22220-01	CAP CER 0805 22P 5% NPO 50V
#C4	B	015-22220-01	CAP CER 0805 22P 5% NPO 50V
#C5	A	015-22220-01	CAP CER 0805 22P 5% NPO 50V
#C5	B	015-22220-01	CAP CER 0805 22P 5% NPO 50V
#C6	A	015-22220-01	CAP CER 0805 22P 5% NPO 50V
#C6	B	015-22180-01	CAP CER 0805 18P 5% NPO 50V
#C7	A	015-22270-01	CAP CER 0805 27P 5% NPO 50V
#C7	B	015-22330-01	CAP CER 0805 33P 5% NPO 50V
C8		015-23120-01	CAP CER 0805 120P 5% NPO 50V
C9		015-23680-08	CAP CER 0805 680P 10% X7R 50V
C10		015-21220-01	CAP CER 0805 2P2+-1/4P NPO 50V
C11		015-23680-08	CAP CER 0805 680P 10% X7R 50V
C12		015-23680-08	CAP CER 0805 680P 10% X7R 50V
C13		025-08100-02	CAP TANT BEAD 10M 10% 16V
C14		015-23680-08	CAP CER 0805 680P 10% X7R 50V
C15		015-23680-08	CAP CER 0805 680P 10% X7R 50V
C16		015-22560-01	CAP CER 0805 56P 5% NPO 50V
C17		015-22560-01	CAP CER 0805 56P 5% NPO 50V
C18		015-23680-08	CAP CER 0805 680P 10% X7R 50V
C19		015-05470-08	CAP CER 1206 47N 10% X7R 50V
C20		015-23680-08	CAP CER 0805 680P 10% X7R 50V
C21		015-23680-08	CAP CER 0805 680P 10% X7R 50V
C22		015-23680-08	CAP CER 0805 680P 10% X7R 50V
C23		015-21820-01	CAP CER 0805 8P2+-1/4P NPO 50V
C24		015-21680-01	CAP CER 0805 6P8+-1/4P NPO 50V
C25		015-23680-08	CAP CER 0805 680P 10% X7R 50V
#C26	A	036-10000-00	RES M/F 0805 ZERO OHM
#C26	B	036-10000-00	RES M/F 0805 ZERO OHM
CV1		028-02111-00	16PF TRM CAP PISTON PREC.
D1		001-00012-63	S) DIODE VARICAP BB809
D2		001-00012-63	S) DIODE VARICAP BB809
D3		001-00012-63	S) DIODE VARICAP BB809
D4		001-00012-63	S) DIODE VARICAP BB809
L1		056-00021-56	IND FXD 3.3UH AX 10X4.2 PHEN
L2		056-00021-60	IND FXD 330NH AX N/MAG 6.6*2.7
#L3	A	055-01004-00	COIL TROID 103NH 22P 9T T830TX
#L3	B	055-01000-00	COIL TOROID 110NH 22P 10T T830
L4		056-00021-52	IND FXD 820NH 10% NON MAGNETIC
L5		056-00021-56	IND FXD 3.3UH AX 10X4.2 PHEN
L6		052-08135-35	COIL A/W 3.5T/3.5MM HOR 0.8MM
L7		056-00021-56	IND FXD 3.3UH AX 10X4.2 PHEN
L8		052-08130-45	COIL A/W 4.5T/3.0MM HOR 0.8MM
Q1		000-10003-10	S) XSTR SMD BFFJ310 JFET UHF
Q2		000-10057-10	S) XSTR SMD BR571 NPN SOT23
Q3		000-10057-10	S) XSTR SMD BR571 NPN SOT23
Q4		000-10008-57	S) XSTR SMD BCW70 PNP SOT23 SS
Q5		000-00032-47	S) XSTR MRF559 NPN XPACK 0.5W
R1		036-12220-00	RES M/F 0805 22E 5%
R3		036-11470-00	RES M/F 0805 4E7 10%
#R5	A	036-13390-00	RES M/F 0805 390E 5%
#R5	B	036-13390-00	RES M/F 0805 390E 5%
R6		036-12560-00	RES M/F 0805 56E 5%
R7		036-14100-00	RES M/F 0805 1K 5%
R8		036-12560-00	RES M/F 0805 56E 5%
R9		036-14100-00	RES M/F 0805 1K 5%
R10		036-12100-00	RES M/F 0805 10E 5%
R11		036-14270-00	RES M/F 0805 2K7 5%
R12		036-13180-00	RES M/F 0805 180E 5%
R13		036-12220-00	RES M/F 0805 22E 5%
R14		036-12560-00	RES M/F 0805 56E 5%
R15		036-12220-00	RES M/F 0805 22E 5%
R16		036-13270-00	RES M/F 0805 270E 5%
R17		036-13270-00	RES M/F 0805 270E 5%
R18		036-12180-00	RES M/F 0805 18E 5%
R19		036-14100-00	RES M/F 0805 1K 5%
R20		036-14680-00	RES M/F 0805 6K8 5%
R21		036-14100-00	RES M/F 0805 1K 5%
R22		036-14220-00	RES M/F 0805 2K2 5%
R23		036-12180-00	RES M/F 0805 18E 5%
R24		036-12220-00	RES M/F 0805 22E 5%
R25		036-13220-00	RES M/F 0805 220E 5%

T830 VCO Mechanical & Miscellaneous Parts (220-01176-03)

IPN	Description
220-01176-03	PCB T83X VCO
240-00025-36	PLUG 32WAY 1ROW PC MTG HARWIN
345-00040-10	SCRW M3X6MM P/POZ ST BZ
345-00060-08	SCRW M5 X 16 CH SLOT PLASTIC
350-00016-42	SPACER 5MM HI 8MM ST 2.5MM HO
352-00010-14	NUT M5 HEX PLASTIC T800 TOROID
353-00010-10	WSHR M3 FLAT 7MMX0.6MM ST BZ
353-00010-13	WSHR M3 S/PROOF INT BZ
353-00010-41	WSHR M6 NYLON BULTE LOCK

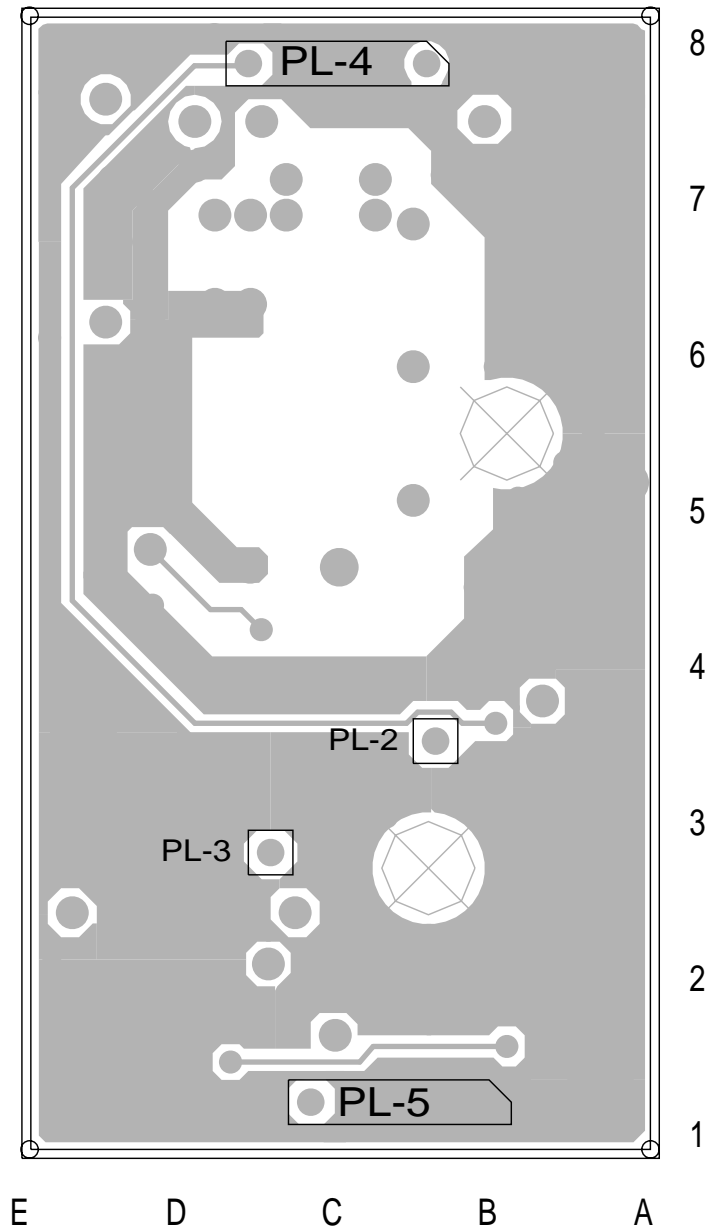
T830 VCO Grid Reference Index (IPN 220-01176-03)

How To Use This Grid Reference Index

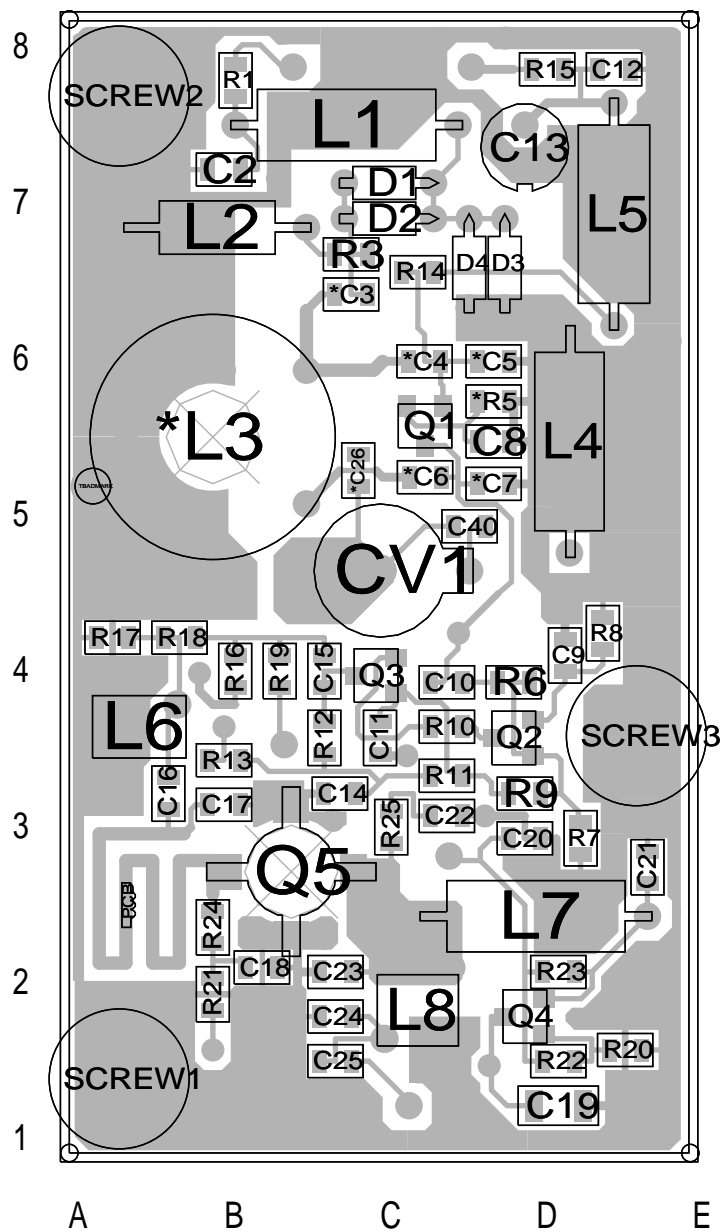
The first digit in the PCB layout reference is a "1" or "2", indicating the top or bottom side layout respectively, and the last two characters give the location of the component on that diagram.

The first digit in the circuit diagram reference is the sheet number, and the last two characters give the location of the component on that sheet.

<u>Device</u>	<u>PCB</u>	<u>Circuit</u>	<u>Device</u>	<u>PCB</u>	<u>Circuit</u>	<u>Device</u>	<u>PCB</u>	<u>Circuit</u>	<u>Device</u>	<u>PCB</u>	<u>Circuit</u>
C2	1:B7	1-B3	R8	1:D4	1-G3						
#C3	1:C6	1-D4	R9	1:D3	1-G4						
#C4	1:C6	1-D4	R10	1:C4	1-G4						
#C5	1:D6	1-D3	R11	1:C3	1-G5						
#C6	1:C5	1-E4	R12	1:C4	1-G5						
#C7	1:D5	1-E3	R13	1:B3	1-G6						
C8	1:D6	1-F3	R14	1:C7	1-F5						
C9	1:D4	1-H3	R15	1:D8	1-G6						
C10	1:C4	1-F3	R16	1:B4	1-H4						
C11	1:C4	1-G4	R17	1:A4	1-H4						
C12	1:D8	1-F6	R18	1:B4	1-H5						
C13	1:D7	1-G6	R19	1:B4	1-H6						
C14	1:C3	1-G5	R20	1:E2	1-J6						
C15	1:C4	1-H5	R21	1:B2	1-K6						
C16	1:B3	1-J5	R22	1:D2	1-J7						
C17	1:B3	1-J4	R23	1:D2	1-K7						
C18	1:B2	1-J5	R24	1:B2	1-K5						
C19	1:D1	1-J6	R25	1:C3	1-K5						
C20	1:D3	1-J7									
C21	1:E3	1-K6									
C22	1:C3	1-K5									
C23	1:C2	1-K4									
C24	1:C2	1-L4									
C25	1:C2	1-L5									
#C26	1:C5	1-D4									
C40	1:D5	1-D3									
CV1	1:C5	1-D3									
D1	1:C7	1-B4									
D2	1:C7	1-C4									
D3	1:D7	1-B3									
D4	1:D7	1-C3									
L1	1:C8	1-B3									
L2	1:B7	1-C3									
#L3	1:B6	1-D4									
L4	1:D6	1-E3									
L5	1:D7	1-F6									
L6	1:A4	1-J4									
L7	1:D2	1-K6									
L8	1:C2	1-L5									
PL-2	2:B4	2-F3									
PL-3	2:C3	2-G3									
PL-4	2:C8	2-F4									
PL-5	2:C1	2-G4									
Q1	1:C6	1-F3									
Q2	1:D4	1-G3									
Q3	1:C4	1-G4									
Q4	1:D2	1-K7									
Q5	1:B3	1-K5									
R1	1:B8	1-B3									
R3	1:C7	1-C4									
#R5	1:D6	1-F3									
R6	1:D4	1-G3									
R7	1:D3	1-G3									



T830 VCO PCB - Bottom Side
220-01176-03



T830 VCO PCB - Top Side
220-01176-03