

PHILIPS FACTORY VALVE CODES

Revision 9
15 July 2009

1. Introduction

Most Philips valves are marked with a group of symbols which contain coded information relating to the type, place of manufacture or country of origin in the case of bought in valves, and the date of manufacture. Apart from the interest of knowing when and where a valve was made, the code group can still provide useful type identification when the commercial markings have become illegible.

This document details two code formats using the same type identifiers which were in use from 1948 to the end of manufacture of receiving valves. The code format changed from the 'old' to the 'new' system around 1955/6. From examination of actual valves it is clear that whatever may have been the decree from Eindhoven, there were apparent deviations on the ground at manufacturing plants in other locations. Again based on examination it seems that prior to the coding system described herein, a purely numerical system was in use for encoding the type and that for its own production, Mullard continued to use this until adopting the 'new' code in 1955.

Some of the information herein is open to interpretation, translation from fairly terse Dutch original documents or based on examination of actual valves. No claims of absolute accuracy are made.

2. The code

The code has the following elements, represented in the generic layout guide by the bold letters:

- T Type. May consist of one, two or three symbols.
- F Manufacturer or country of origin. One symbol.
- Y The least significant digit of the year of manufacture. This is only present in the 'new' code.
- M Month of manufacture. In the 'old' code this was represented by a sequence of 36 symbols which repeated every three years according to the following table:

Month	1948	1949	1950
	1951	1952	1953
	1954	1955	1956
Jan	A	R	t
Feb	B	S	0
Mar	C	T	1
Apr	D	U	2
May	E	W	3
Jun	F	X	4
Jly	H	Y	5
Aug	K	Z	6
Sep	L	d	7
Oct	M	k	8
Nov	N	m	9
Dec	P	r	+

In the 'new' code each month is represented by a simple sequential letter:

Jan	A	May	E	Sep	I
Feb	B	Jun	F	Oct	J
Mar	C	Jly	G	Nov	K
Apr	D	Aug	H	Dec	L

- W Week of manufacture within month. 1 first, 2 second etc. This seems to have only been added

from 1961 onwards although that does not mean that all valves made from 1961 bear it. A valve from Whyteleafe has been noted to have what looks like open week of year coding: □027.

C Change symbol. The intention of this is not clear but it may have been a symbol that was to be changed for each batch produced. In the 'old' code there was no year but the change symbol sequence was replaced in three year cycles such that this, taken together with the month symbol, would be a unique combination for any particular year. For example: Month W with change T would be unique to May 1955. The change sequence was as follows:

Batch:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	20
1948-1950	0	1	2	3	4	5	6	7	8	9	=	□	%	t	⋈	△	⊙
1951-1953	A	B	C	D	E	F	H	K	L	M	≡	>	d	r	~	↗	
1954-1956	N	P	R	S	T	U	W	X	Y	Z	+	k	⊥	m	∇	L	

In the 'new' code this was just a sequence of symbols which appear to have no purpose other than perhaps provide batch traceability. Evidence indicates that this aspect of the code may not have been applied too rigorously at some locations. It is found to be missing on examined valves of Australian Philips manufacture for example. It was not applied to bought in valves. The sequence to be applied was:

0 1 2 3 4 5 6 7 8 9 A B C D E F H K L M N P R S T U V W X Y Z d f m r t

Presumably this sequence was then repeated if necessary.

Examples of gas-filled cold cathode valves with the 'new' code are known with a suffix 'A' (and in one example 'TT') following the change code. This potentially gives rise to confusion with three symbol type codes however all examples have a numeric change symbol and no three symbol type code has been found to incorporate numerals. No other categories of device have so far been found with such marking.

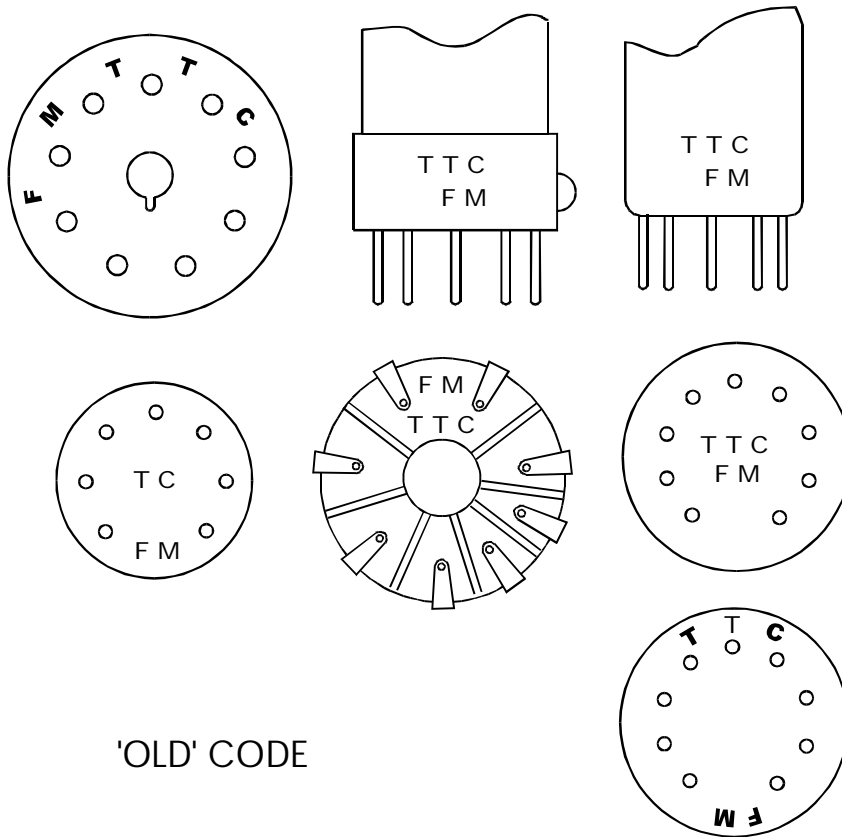
General observations:

In the type code list there are several examples of valves having two or more codes. This is generally due to differences in construction but there were errors of multiple allocation. There are also instances of two valves sharing one code. These may have been errors but the bulk of the listing here is taken from original documents "Codes for Receiving and SQ Tubes". One or more other list(s) existed and some codes were probably used again for other devices like CRTs or geiger-müller tubes for which there would be little likelihood of mistaken identity. In the list herein most types under one code are equivalents but where they are not, the word 'also' has been inserted to clarify the point. A few valves having very similar characteristics do sometimes have the same code, at least until another is allocated e.g. DY86 and DY87.

Suffixes are used to denote some characteristic of construction where this is shown in original documents, as follows:

bant	"Bantam" or "bantal".
Bee	The significance of this is not mentioned in original documents.
dev	Development or provisional number
en	'mit Einschmeltz-emaille'
min	Miniature.
new	New or revised construction.
old	Old construction

3. Code application



'OLD' CODE

Examples of deviations

Brasil
F Y M
T T C

Australia
T T
F Y M

Eindhoven
T T C
W F Y M

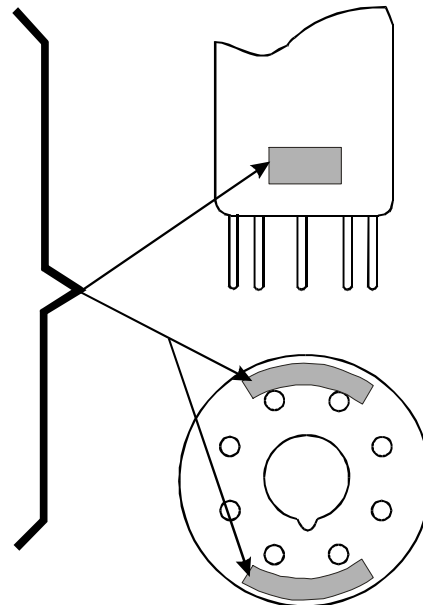
Examples of "correct" code format

T T C
F Y M

T T C
F Y M W

T T T C
F Y M W

T T T C
F Y M



'NEW' CODE

4. Factory symbols

A	Wiener Radio Werke "WIRAG", Wien
B	Mullard, Blackburn
C	Hendon Works, Alberton, Australia
D	Valvo, Hamburg
d	Ned. Instituut voor Fysisch Onderzoek
E	Hyperlec Brive (Correza)
F	La Radiotechnique, Suresnes
Ɔ	Marconi .Osram Valve Co.
f	Standard telephones and Cables Ltd. (later Thorn) East German origin (after 1 Jan 1970)
G	Mullard, Fleetwood Loewe Opta (after 22 Feb 1954)
I	Thorn-AEI Radio valve Co. Ltd. (Ediswan) , Mullard supply
J	Mullard, Tottenham (formerly Tungstram)
K	?
L	M.B.L.E., Bruxelles (Mazda)
m	?
N	Matsushita Electronics Corp., Takatsuki, Japan G.E.C. Mullard supply
O	? (Netherlands)
n	Matsushita Electronics Corp., Kyoto, Japan
P	Papesa, Buenos Aires
R	Mullard Radio valve Co., Mitcham
r	Philips Electronics Industries Ltd., Ontario, Canada
S	Lampara "Z", Barcelona
T	Philips, Eindhoven, afd 22652
t	T.I.C. Philips Export Corp., New York
†	C.I.F.T.E., Courbevoie
U	Thorn-AEI Radio Valve Co. Ltd. (Formerly B.T.H.)
V	Bharat Electronics (Private) Ltd, Bangalore 13, India
X	Philips, Sittard, afd 22127
x	Philips, Chilena de Productos Electronicos, Chile
Y	Philips, Sittard, afd 22117 and 22118
Z	Philips, Monza
1	Philips, Eindhoven, afd 22020
2	Philips, Eindhoven, afd 22021
Σ	Ferranti (Mullard supply)
3	Philips Eindhoven, volgroepen I and II, Schouwbroekseweg Fivre, Italy (after 1 Jan 1970)
ε	Marconi, Chelmsford (Mullard supply)
4	Venolanda S.A., Venezuela
⚡	English Electric Valve Co. (Mullard supply)
5	Toshiba, Japan
Ⓢ	Cinema Television (Mullard Supply)
6	Philips, Eindhoven. Radio valve lab. receiving valve technology group Russian origin
∅	Mullard Fleetwood (after 18 Nov 1954)

7	Philips, Eindhoven Radio valve lab. physics group. Hitachi, Japan
∇	Electrical and Musical Industries. (Mullard supply)
8	Philips, Eindhoven. Radio valve lab. glass group
9	Philips, Heerlen Radio valve lab. receiving valve technology group.
+	Philips, Sittard afd 22126
=	La Radiotechnique, Clichy (Neutron)
*	Amperex Electronic Corp., New York
%	Philips Eindhoven , afd 22851
△	Philips, Copenhagen
<	Philips Electrical Lamps Inc., Philipines Co. des Lampes
>	Visseaux, France Polish origin (after 1 Jan 1970)
±	La Radiotechnique, Chartres
≡	Electronic Tubes Ltd., (Mullard supply) IPERPESA, Peru (after 1 Jan 1970)
≠	Siemens und Halske, München
∧	Mullard Radio Valve Co. Ltd., Croydon (Waddon)
▣	Mullard Whyteleafe "A"
∠	Philips, Heerlen
⌋	Mullard, Salfords
Ψ	IBRAPE, Sao Paulo, Brasil
⌊	Purchases from third parties by Mullard
⊙	Mullard Whyteleafe "B" (Kenley)
⌋	Tungsrām
⊥	Telefunken and Telefunken Berlin
	Loewe Opta for Valvo, Hamburg
⌒	Elektronski Industija, Nis, Yugoslavia
:	Philips, Eindhoven. Radiation detector development

5. Single symbol type codes

These codes were applied to B7G types only.

A	DA90	T	E90CC	4	EC92	□	HK90
B	DAF91	U	EAC91	5	UC92	▣	HY90
C	DAF96	V	12X4	6	DK92	∠	HF94
D	DCC90	W	EB91	7	DK92	⌋	DL95
E	DF91	X	EBC90	9	E92CC	⌊	PL5727
F	DF92	Y	EC91	9	DK93	⌋	85A2 Bee
G	EC93	Z	ECC91	+	DC90	↗	150B2 Bee
H	DF96	d	EF91	=	PL21 Bee	Ψ	150C2 Bee
J	5654	f	HL94	%	HF93	⊙	150B2 min
K	DK91	k	EF92	&	85A2 min	≈	6CB6
L	DK92	m	EF93	≡	90CV	⌋	UY92
M	DK96	r	EK90	⊙	150C2 min	∑	5726
N	DL92	t	EL91	=	HBC90	ε	EAA91
P	DL93	0	EZ90	>	HBC91	⌒	5726
R	DL94	1	EL90	~	90CG	*	EF95
S	DL96	2	EF94	∧	HL92		108C1
		3	EBC91			≠	E91H

6. Two symbol type codes

AC	AW43-89	BP	E55L (M6EL)	Cd	6463	Dt	3CB6
AD	EC88		8233		CV5304	D2	3BZ6
AE	EL500	BR	5639	Cf	VX8205	D+	LL500
	6GB5	BS	2GK5	Ck	EC86		18GB5
AF	6EU7	BT	M2EL	Cm	ECC88 Bee		
AG	CV4035		38EL	Cr	E184CC	EA	5Y3G
AH	PY33	BU	XL84	Ct	ECC186	EB	80 en
AI	DL97	BW	XCC189		ECC282		80 dev
AJ	ECC230	BX	XL36		7316	EC	DL93
	6080	BY	MX153	C0	62BTA		3A4
AL	AX50	BZ	YL1000	C2	18046	ED	DL94
AM	PC97		M1DL	C3	E81L		3V4
	4FY5		also		6686		CV2983
AN	PL1607		6083	C4	V1ELL		also
AS	LC97		AX9909		ELL80		MX164
	YC97	Bf	CV4049	C5	E288CC	EE	DW2
	3FY5	B1	M2PE		8223	EF	1561
AT	LF183	B2	M3DV	C6	ECC808	EH	1805
	YF183	B3	M4PCF	C7	EC900	EI	VP4B
	4EH7	B4	M7EF	C8	PCF801	EJ	VX8179
AU	LF184	B5	95400		8GJ7	EK	EB41
	YF184	B6	4-OA31	C9	XCF802	EL	EC37
	4EJ7	B7	M9ECC.1	C+	LCF802	EM	ECC31
AW	6GK5	B8	M13PCC		YCF802	EN	ECC32
AX	6GK6	B9	VX8250		6LX8	EP	EF37A
Ad	85A1	B+	3GK5			ER	EF91
Af	CV4011			DB	VX8252		6AM6
	M8196	CA	35C3	DC	LCF86	ES	1883
A0	347	CB	12CU5		YCF86	ET	EL35
A2	ZC1000	CC	6CU5		5HG8	EU	EZ35
A3	E88C	CD	4GK5	DD	3BA6	EV	0A3
	8255	CE	CV1377	DE	6BZ6		CV3798
A4	EC800	CF	3CS6	DF	6DE6	EW	FW4-500
A5	XL500	CG	0KL1B (p)	DH	12AL5	EX	PM24M
A6	EC1000	CH	ECF802	DI	EL36	EY	PF183
A7	PCF802		6JW8		6CM5	EZ	4614
	9JW8	CI	PL84 min	DJ	PCC88	Ed	SP13
A8	6CQ8		15CW5		7DJ8	Ef	VX8194
A9	PY83		also	DL	PY300	Ek	SP13C
			MX154	DM	ECF801	Em	AZ11
BA	XCF86	CJ	VX8189		6GJ7	Er	1A7GT
BB	6DK6	CK	6AQ5A	DP	PC900	Et	FC13
BC	E86C	CL	12AU6A		4HA5	E0	4633
BD	ECH800	CM	12C5	DR	QV10-P8	E1	DAC32
BE	12DT8	CN	PCF806	DS	7453	E2	4618
BG	E80CF	CP	PEN40DD	DT	3BE6	E3	UY21
	7643	CR	CZ30	DU	3DE6	E4	4654
BH	7475	CS	6-OA31	DV	75C1	E5	AL1
BI	PEN4DD	CT	8-OA31	DZ	EN33	E6	5Z4
BJ	CV4029	CU	PCC34	Dd	PCF84	E8	6A8G
	5902	CW	18045		also	E9	6J7
	M8200	CZ	EC95		PB-1	E+	4673
	also		6ER5	Df	6201		
	YL1000		also	Dk	PF86	FA	4682
BN	E55L (M5EL)		MX155	Dm	402	FB	4683
				Dr	3AL5		

FC	DL35	GM	EM81	HZ	CK1 (M)	ld	95398
	1C5GT		6DA5	Hd	ECL80	lf	EC156
FD	4688 C tech	GN	CV138+		6AB8	lk	EC157
FE	4689P C tech	GP	CV140+	Hf	E83CC	lm	PF83
FF	6A8	GR	CV417+		6681		also
FG	VX8114	GS	CV465+	Hk	EF92		MX132
FH	6K7	GT	CV466+		6CQ6		
FI	60EH5	GU	CV467+	Hm	EL38	lr	EC158
FJ	HCH80	GV	4641	Hr	DF21	lt	PY180
FK	4699.5 etc	GW	CV468+	Ht	DF22	lo	ORP11
FL	6J8G	GX	CV469+	H0	5ECC dev	l1	6211
FM	6F6G	GY	CV858+	H2	DF70	l2	ORP10
FN	6F6	GZ	CV2129+	H3	CF50	l3	PC92
FP	6V6G	Gf	ECC82	H4	DK21	l4	EF183
FR	6V6GT		12AU7	H5	EL44		6EH7
FS	12SK7	Gk	UCH5	H6	DK40	l5	EY180
FT	12SQ7	Gm	VX8140	H7	DL21	l6	ECC83
FU	18040	Gr	EC52	H8	Z701U		12AX7
FV	PL3C23	G0	EBL31	H9	DL40	l7	XCF80
FW	25Z5	G1	PCF82	H+	DL41	l8	XCH81
FX	25Z6	G2	EC57			l9	XF80
FY	AB2 (V base)	G3	EBF89	IA	ORP20PW	l+	7025
FZ	ABC1 dev		6DC8	IB	ORP20		
Fd	ABL1 dev	G4	EA52	IC	ECF83	JA	HCC85
Ff	7AU7	G5	EA52	ID	E182CC	JB	EF184
Fk	EA70		6923		7119		6EJ6
Fm	AD1		1EA dev	IE	4152-02	JC	ORP31
Fr	AF2	G6	EN93	IF	PC93	JD	PL500
Ft	AF3		6D4		also		27GB5
F0	AF7	G+	V2ECC		5876	JE	PC88
F1	43			IG	6205		4DL4
F2	AK2 dev	HA	DF33		CV2432	JF	CBL6
F3	35L6GT	HB	AZ12	IH	185BT	JG	EA50
F4	AL2	HC	AZ31	II	EL360		2B35
F5	AL4	HD	AZ41	IJ	VX8240	JH	ECF1
F6	DF91		95104		was used for	JP	EL30
	1T4	HE	41		Hamburg	JU	LCF80
F7	50L6GT	HF	DK33		PM84 till		YCF80
F8	AZ1	HG	VX8141		3.8.58		6LN8
F9	78	HH	CBL1 dev	IK	PZ36	JZ	TH2
F+	AZ4	HI	XC95	IL	6286	Jd	UCC83
		HJ	EF97	IM	27SU	Jf	ECF806
GA	ECC88		6ES6	IN	ORP90	J0	MX150
GB	UM84	HK	CBL31	IO	7527A	J7	4069
GC	VX8167	HL	ECH41	IP	PCC189		ME1404
GD	QV9-P10	HM	UM5	IR	TY86F	J8	3DT6
GE	EH90	HN	UL43	IS	GZ37	J9	V3ECH
	6CS6	HP	UCH41		CV378	J+	LCL84
GF	CV131+	HR	CL4	IT	6BJ6		YCL84
GG	VX8116	HS	GZ40 old	IU	VX8227		10DX8
GH	CV133+	HT	CL33	IV	E180CC		also
GI	PC95	HU	CY1		7062		MX108/01
	4ER5	HV	CBC1 dev	IW	E181CC		
GJ	EL81F	HW	CY2 dev	IX	ECC189	KA	DL71
GK	CV136+		also	IY	PM84	KB	DLL21
	tight cathode		EL521	IZ	EF6N		also
GL	CV136+	HX	CY31		also		DLL31
	loose cathode	HY	60FX5		ORP30	KC	DF35

KD	E1C	LI	UBF89	MN	EK2	NR	UCH4
KE	EL34 old		19FL8	MP	EK32		also
KE2	EL34 new	LK	EFF51	MR	EL2		D3a
KF	DC89	LL	ECH11	MS	EL3N	NS	UCH11
KH	E424N	LM	ECH21	MT	EBF80 en	NT	UCH21
	A4110	LN	ECH33	MU	UB41	NU	UCH42
KI	M8144	LP	DA90	MV	TDD13		14K7
	CV4033		1A3	MW	EL6/100V	NV	TDD13C
KJ	EF98	LR	ECH35 Mull	MX	EL11	NW	UAF100
	6ET6	LS	ECH41	MY	EL12	NX	UCH100
KK	DAC21	LT	ECH80	MZ	EL20	NY	UCL11
	also		6AN7	Md	EL81	NZ	UF9
	DAC31	LU	ECL11		6CJ6	Nd	UF11
KL	E443H	LV	TDD4	Mf	PCF82	Nk	PY80 min
KM	E447	LW	DC79		also	Nm	UF41
KN	EC81	LX	EF93		MX145		12AC5
KP	EA40		6BA6	Mk	PL38	Nr	UF100
KS	EA51	LY	EE1	Mm	GZ30 new	Nt	UY2
KT	EAF41		ECP1		also	N0	UL100
KU	EB34	LZ	EF6		GZ40 old	N1	UM4
KV	CBC1 (M)	Ld	EW60	Mr	KB2	N2	UY1N
		Lf	ECL83	Mt	KBC1	N3	UF21
KW	EB40	Lk	EZ2	M0	EL32	N4	EL41 en
KX	EY51	Lm	EL91	M1	EL33	N5	UY41
	6X2		6AM5	M2	EBC80	N6	UY100
KY	EBC3	Lr	EZ4		6BD7	N7	UY42
KZ	EBC33	Lt	EF80	M3	EL39	N8	VCL11
Kd	EM1		6BX6	M4	EL41	N9	CF2
Kf	PL83 Bee	L0	EF8		6CK5	N+	VY2
Kk	EM4	L1	EF9	M5	EL42		
	also	L2	E1F		95105	PA	DL92
	EM100	L3	DF65	M6	EL42		3S4
Km	EM34	L4	EF11	M7	EL8	PB	DL72
	6CD7	L5	EF12	M8	EL51		also
Kt	EQ80	L6	EF22	M9	EL60		MX165
	6BE7	L7	EF36	M+	EL80 en	PC	ECH42
K0	EBF2	L8	EF39				6CU7
K1	PCC809	L9	EF40	NA	PL83 en	PD	EL61
K2	EZ41		also	NB	KF3	PE	PY80
K3	EBF11		CV2031	NC	KK2		19X3
K4	EBF32	L+	EF41	ND	KL4	PF	UF10
K5	EBF35		6CJ5	NE	AZ50	PG	6007
K6	EBL1			NF	UAF41	PH	Aa
K7	EBL21	MA	EF42	NG	5651	PJ	6907
K8	EBFS40	MB	EF50	NH	UAF42	PK	Ba
K9	EC40	MC	EF51		12S7	PL	Bas
K+	EC41	MD	EF100	NJ	ECH83	PM	Ca
		ME	DL65		6DS8	PN	Cas
LA	DK32	MF	EFM1		also	PP	Da
	1A7GT	MG	VX8207		MX156	PR	Ce
LB	EC81	MH	EFM11	NK	UL41	PS	Ed
	6R4	MI	EL86		45A5	PT	E2c
LC	ECC40		6CW5	NL	UBF11	PU	E2d
LD	UY11	MJ	EBF83	NM	UBL1	PV	EY88
LE	ECH3		6DR5	NN	UCH41		6AL3
LF	ECH4	MK	DL21S	NP	UBL21	PW	C3b
LG	VX8206	ML	EFP20			PX	C3e
LH	4671	MM	EFP60			PY	5Y3GT

PZ	E452T	Rm	EZ22	S3	L416D	UG	6J5G
Pd	EL6/400V	Rr	FW4-800	S4	506	UH	EF43
Pk	EL12/325V	R0	CY32	S5	EY50	UI	5718
Pm	EL12/375V	R1	DL33	S6	4684		CV3930
Pr	EM4/100V		3Q5GT	S7	4688		also
Pt	UM4/165V	R2	EAC91	S8	CF3		EL802
P0	UM4/200V		M8097	S9	Cf	UJ	37EL
P1	UL44		CV4059	S+	Bh	UK	UF43
P2	EL43	R3	EB91			UL	3AV6
P3	EBC41	R4	EC53	TA	UY3	UM	6BQ6GBT
	6CV7	R5	DL70	TB	1832		6CU6
		R6	EL37	TC	UBC41 Bee	UN	LC900
P4	4689K	R7	GZ32	TD	UF5		3HA5
P5	EL43		5AQ4	TE	DF96	UP	EF81
P6	UL44 en	R8	EL44		1AJ4	UR	ECH4G
P7	4654K	R9	E446 (O)	TG	XCF801	US	DL67/65
P8	UBL3	R+	CV273	TH	DAF96	UT	UQ80
P9	UCH5				1AH5	UU	EAF42 Bee
P+	ABC1	SA	EC80 en		also	UV	AZ32
		SB	EZ80		MX142	UW	12SK7GT
RA	AF2	SC	UL2	TJ	LCF801	UX	DK96
RB	AL5	SD	DAF40		5GJ7		1AB6
RC	EL5	SE	EL45	TK	UCH42 Bee	UZ	E447 (E)
RD	VCL11	SF	AZ41 Bee	TM	UY42 Bee	Ud	12SQ7GT
RE	VY2	SG	5V4G	TP	UAF42 Bee	Uf	QQE03/12Bee
RF	X13	SH	ECH42 Bee	TR	UCH81	Uk	12SA7GT
	also	SI	EL95		19D8	Um	E90CC
	MX151		6DL5	TS	ECH34		5920
RG	M1EL	SJ	CV4109	TT	AY1		CV5214
	EL131	SK	DAF41	TU	EL50	Ur	LC95
RH	UF42		with add F	TV	AZ2		YC95
RI	E130L		DAF40	TY	Z805U		3ER5
	7534	SL	EL41 Bee	TZ	UF41 Bee	Ut	QQE02/5 Bee
RK	UBC41	SM	UY4	Td	EY80 min		7699
	14L7	SN	EBC41 Bee	Tf	XF85	U0	DY30
RL	C443	SP	DC80	Tk	ECC81		1B3GT
RM	DAF91		6DC	Tm	XL86	U1	XC900
	1S5	SR	EZ40 old	Tr	TD03-10B	U2	AC2
RN	DF92	SS	4060	Tt	EL82	U3	EL520
	1L4	ST	EF41 Bee		6DY5	U4	DF67/5
RP	DK91	SU	UBF80 en	T0	3AT6	U5	E446 (E)
	1R5	SV	18300	T1	PL82	U6	6SA7GT
RR	EAF42	SW	18042 en		16A5	U7	6SK7GT
	6CT7	SX	PL81	T2	KK32 Mull	U8	6SQ7GT
RS	EAF80		21A6	T3	DF74	U9	35Z5GT
RT	EL21	SY	EL34	T4	EL83 en	U+	UY41 Bee
RU	ECC35		6CA7	T5	MX161		
RV	EF55	SZ	EF80	T7	DF67	VA	18042
RW	ECC91	Sd	UCC40	T8	DL67		6086
	6J6	Sf	Z502S	T9	E83F en	VB	E80CC
RX	CCH35	Sk	UF6	T+	UCH81 min		6085
RY	EC91	Sm	EC55			VC	E80F
	6AQ4		TD03-10	UA	UL41 Bee		6084
RZ	EF54	Sr	DCC90	UB	L413S	VD	E80L
Rd	EF55		3A5	UD	A4110		6227
Rf	VX8196C	S0	EL81	UE	DL96	VE	E83F
	6AS6W	S1	CF7		3C4		6689
Rk	EL22	S2	EAF801	UF	DL67/5	VF	ECC81

VG	E81CC	WS	ECL86	X1	XF183	Y4.1	EABC80 en
	6201		6GW8	X2	ECC186 (L)	Y5	VY1
VH	EC92 new		also	X3	DL620	Y6	6BU8
VI	UC92 new		CV4011		5672	Y7	EFL200
VJ	ECC89	WU	C3JA	X4	EL300		6Y9
	6FC7	WV	DW4-350	X5	PL300	Y8	ECH81 en
VK	5842	WW	18042 Bee	X6	6CY5	Y9	EC80
	417A	WX	EL3	X7	EL502		6Q4
VL	E94CC	WY	18045	X9	E9Z dev	Y+	PL57
VM	ORP92	WZ	UM34/165V	X+	EL504		
VN	PC96	Wd	EF94		6GB5A	ZA	6DT6
	also		6AU6			ZB	12FK6
	ZM1030	Wf	E83F Bee	YC	DM70	ZC	UL41 Bee
VP	95124	Wk	CV4098		1M3		Ag plated pins
VR	E188CC	Wm	PY82		also	ZD	12AD6
	7308		19Y3		DM71	ZE	E80T
VS	EM84	Wr	EBF81 min	YD	ECH81		6218
	6GF6	Wt	DK92		6AJ8	ZF	PL81B
VT	XCC82		1AC6	YE	EC56	ZG	HL90
	7AU7	W0	EBF81	YF	EF80 en		12AQ5
VU	PCF86	W1	PCL86	YG	ECF200	ZH	ECL85
VV	PL136		14GW8		6X9		6GV8
	35FV5	W2	XR1-1600A	YH	ECL80 en	ZI	EF71 rel
VW	EL183	W5	E182F	YI	DF60	ZJ	CV3986
VX	PCL85	W6	ECC2000		5678		6021
	18GV8	W7	VX8195C	YJ	CV1868	ZK	6AD6
	Valvo PCL805	W8	18046 Bee	YK	ECC81	ZL	6BL6
VY	UY89	W9	PFL200	YL	PL81 en	ZM	6J8
VZ	6AN7A			YM	PL82 en	ZN	12BL6
Vm	7378	XA	401	YN	PY80 en	ZP	12J8
Vt	MX149	XB	XY88	YP	PY82	ZS	5854
			16AQ3	YR	ECH200	ZX	LFL200
WA	PM22A	XC	CV468 Ultra		6V9		11Y9
WB	6BD7 min	XD	CV4086	YS	E186F	ZV	VX8222C
WC	6BH5 min	XE	M6EF		7737	ZY	LY88
	also	XF	12DJ8	YT	XCL84		20AQ3
	6AF9	XG	GZ41	YU	18500	ZZ	4068
WD	6M5 min	XH	PCH200	YV	DY87	Zd	5719
	also		9V9	YW	18501	Zf	EF40 Bee
	EF800	XI	5899	YX	18502	Zk	5749
WE	PY32 bant		CV477		also		6BA6W
WF	ORP50	XJ	5644		MX130	Zm	6005
WG	M3EFP	XK	PCF200	YY	EZ90		6AQ5W
WH	9U8		8X9		6X4	Zr	6080WA
	also	XL	PCF201	YZ	EBC90	Zt	ECF201
	EL803S		8U9		6AT6		6U9
WI	5840	XN	95106	Yd	EK90	Z2	LCF200
WJ	EF730	XR	PY800A		6BE6		5X9
	5636	XT	E235L	Ym	DL22N	Z3	LCF201
WK	E80CC Bee	XV	DW4-350	Yr	E81L Bee		5U9
	also		DW4-500	Yt	EC97	Z4	XCF200
	E1T	XW	E236L		6FY5	Z5	XCF201
WL	CV4084	XX	E282F	Y0	PY81	Z6	PY801
WM	E80F Bee	Xf	EL34 bant		17Z3	Z7	ZP1080
WN	25L6GT	Xr	E84L	Y2	EC81	Z8	ZP1081
WP	E80L Bee		7320	Y3	EF85	Z9	4067
WR	UM34	Xt	PL2D21		6BY7	Z+	6111
		X0	XF184	Y4.0	EABC80 min		

dA	6112	d9	UCH81 en	f9	ECC83 low	mE	CV302 not
dB	7895		also		microphony		finished
dC	PL6574		EL803		also	mF	CV303 not
dD	DY86	d+	UF80 en		CV4110		finished
	1S2		also	f+	M10PL	mG	UCL83
	DY87		YL1080			mH	12AU7S
	1S2A		YL1081	kA	UF85	mI	CV4039
dE	6CG7				also		M8096
dF	LCH200	fA	LA4-250		CV4111	mJ	EF89 Bee
	5V9	fB	LB4-2	kB	EZ80 en new		also
dG	12X4	fC	MX124/01	kC	EZ80		YL1130
dH	LL86	fD	MX133		6V4	mK	AB2 (O)
	10CW5	fE	EL505	kD	EZ40	mN	GZ34
dI	5949		6GK6		6BT4	mP	UF85 min
dJ	PCL84	fG	TD1-100A		CV3891	mR	UCH81 en
	15DQ8	fJ	N22LL	kE	GZ40	mS	EF80 Bee
dK	LL521		19KF6	kG	UM81	mT	UABC80 en
dL	GY501	fK	ECL82 Bee	kI	EM87	mU	EL83
	3BH2		also		6HU6		6CK6
	V2VY		EF802	kJ	MX147	mV	CV1672
dM	XL521	fL	EL83 Bee		also	mW	PL83
dN	LCL85		also		18504		15A6
	10GV8		ECC801S	kK	4662		also
dP	CV287	fM	PL84 Bee	kM	EL84		CV359
dR	YL1220	fN	UCL82 Bee		6BQ5	mX	E82CC
dS	6AU6WB	fP	UF86		EL84 Bee	mY	G5S6
dT	EN91	fR	QQE02/5 Bee	kN	DY51	md	UF80
dU	PL435		QQV02-6		1BG2	mk	UF85
dV	LCC189	fS	N22PL	kP	E3LL dev	mm	EF85 en
	5ES8	fT	N22XL	kR	ECF86	mr	E280F
	also	fU	M6ECC		6HG8	mt	EZ40 Bee new
	PL5822Du	fV	LSD2	kU	HN309	m0	EZ80 Bee
dW	PL522	fW	Z303C	kV	EY87	m1	PY80
dX	EF5000	fX	E33CC	kW	1S4	m2	EY80
dY	CV4108	fY	EM84	kZ	5R4GYS		6U3
dZ	V6ECC	fZ	EC71	kd	ECH84	m3	PY82 Bee
dd	PD500	fd	EF732		6JX8	m4	EABC80
	9ED4	ff	CV2281	kk	EAM86		6AK8
df	PY500	fk	EF731		6GX8	m5	E283CC
	42EC4	fm	5609	km	XCL86	m6	ECH81 Bee
dk	PL505	fr	5U8	kr	DF61N	m7	UCH81 Bee
	40GK6	ft	12BY7A	kt	M4ECC	m8	EC8010
dm	V7PCL	f0	LY81	k0	XF86	m9	ECC84
dr	CV2901		11R3		also	m+	ECC809
dt	LCL86	f1	5609V		N7ELL		
d0	M8EC	f2	VX8234	k1	TS65	rA	EF804S
d1	EA53	f3	GZ34 bant	k3	D12L	rB	95107
d2	EL136		CV1377	k4	D20F	rC	DC80
	6FV5	f4	ECL84	k5	XCL85	rD	PABC80
d3	E810F		6DX8	k6	ECC82		9AK8
	7788	f5	6972	k7	XC97	rE	UABC80
d4	M13PL	f6	M7EC	k8	CV4517	rF	EF805S
d5	M6DY		EC98	k9	PY800	rG	K81A
d6	GY86	f7	EY500	k+	5894	rH	QQE03/12Bee
d7	PY81 en		6EC4				QQV03-10
d8	UABC80 en	f8	24DF	mA	PABC80 en	rI	ME1403
				mC	ECC83	rJ	UF89 Bee
				mD	6AM6S	rM	6252

rN	DY86	tT	M11EL	0m	UF89	2D	EF73
	DY87		EL5070	0r	XL504	2E	EF95
rS	GZ33	tU	ECC85	0t	N55RPY		6AK5
	CV378	tV	GZ34	00	18016	2F	EL70
	GZ34 made in	tW	4373	02	EY81	2G	EY802
	Eindhoven	tX	18046 en		6R3	2H	EN32
rT	E180F	tY	EBC81 Bee	03	6SA7GT/M		also
	6688	tZ	PCC85	04	6SK7GT/M		PL6574
rU	HF93		9AQ8	05	6SQ7GT/M	2I	UBC80
	12BA6	td	6A8GT	06	N54RPY	2J	CV4012
rV	E181CC Bee	tf	LA4-2	07	UY85 Bee	2K	5643
rW	EL85		VX8168	08	PL95		EN70
	6BN5	tk	75	09	E95F	2L	EY70
rX	EL84 min		CV614		5654	2M	EY91
rY	4699N	tm	EF804		6AK5W	2N	DAF70
rZ	6BK4	tr	EL81 Bee	0+	UBC81	2P	LSD3
rd	EM85	tt	PL81 Bee			2R	LSD3A
rk	XL505	t1	PL508	1B	03DF dev	2S	LSD5
rm	LL505	t2	PL504	1C	04DL dev	2T	LSD7
rr	CV2031	t3	N22EL	1D	CV4011	2U	LSD8
rt	PCC84	t4	V7PL		also	2V	XCL82
	7AN7		PL802		03DF dev	2W	LSD24
r0	4646	t5	V10PL	1E	DF62	2Y	ME1401
r1	DF64	t6	UL84	1F	DAF92		4065
r2	DL64	t7	EL508		1U5	2Z	ME1402
r3	1AX2		6KW6		CV3912		4066
r4	5814A	t8	6BK4A	1G	UCL82	2a	7645 Ampx
r5	12AT7WB	t9	Z500T		50BM8	2d	GY802
r7	PCF80	t+	Z501T	1J	CV4009	2f	EL86 Bee
	9A8			1V	PL81F	2k	PCF810
r8	EM80	0B	LY500	1W	DL69	2m	3A3
	6BR5	0C	PL5822	1Y	AN1	2r	PL521
r9	6SN7GT	0D	ECC180	1f	EBF82	2t	5837A
r+	ED500		6BQ7A	1k	EL821	23	MX108
		0E	PL57K		6CH6	24	MX118
tA	N23PL	0F	YL1080	1m	CV2507	25	MX119
tB	EL503		YL1081	1r	DC70	27	11AF9
tC	UY85	0G	ECL82	1t	DF66	28	PCL83
tD	EY86		6BM8	10	DF72	29	XY500
	6S2	0H	EBC81	11	DL66	2+	XL508
	EY87		6BD7A	12	DL68		
	6S2A	0I	EY70 rel	13	DL95	3B	TD03-5
tE	EF86 Bee	0J	CV4005		3Q4	3E	Z300T
tF	E99F	0K	12SN7GT	14	DL73	3F	Z800U
	7694	0L	25Z6GT	15	DL75	3G	E82M
tH	25Y5 (J base)	0M	12SA7GT	16	DL98	3H	Z801U
tl	VX8163	0N	18015		3B4	3I	UF81
tJ	PL82 Bee	0P	PCC89	17	DY70	3J	CV4019
tK	4694		7EF7	18	EA76	3K	Z900T
tL	M5DY	0S	KT66		6489	3L	E91H
	DY802	0U	12SK7GT/M	19	EC70		6687
tM	PC86	0W	12SQ7GT/M	1+	EC90	3M	6CB6
	4CM4	0Z	EC83.1		6C4	3N	EL90
tN	ECC86	0d	LL504				6AQ5
tP	UCC85	0f	DM160	2A	EF70	3P	85A2
tR	EF89		6977		CV467	3U	EBC91
	6DA6	0k	UM80	2B	EF71		6AV6
tS	PCL81		19BR5	2C	EF72	3V	Z70U

3X	150C2	48	PL38M	6J	Z303C	7k	6K8GT
3Y	HBC90	49	2A		GC10B	7m	6Q7G
	12AT6	4+	CCH3		DDB32	7r	6Q7GT
3Z	HF94			6K	MX103	7t	12J7G
	12AU6	5A	CV9	6L	MX120	70	3AU6
3d	HBC91	5C	XY81	6M	MX122	71	39EF
	12AV6	5D	HCH81	6N	MX123	76	5876A
3f	PCL82 Bee	5E	QE04/10	6P	MX124	7+	18503
3k	HK90	5F	CV1863	6R	MX125		
	12BE6	5H	5Z4GT	6S	MX126	8A	12J7GT
3m	DC90		CV2748	6T	E180CC Bee	8B	12K7G
3r	HY90	5I	50EH5	6U	Z50T	8C	12K7GT
	35W4	5K	ECC33	6W	M8097	8D	12K8G
3t	HL92	5L	ECC34	6X	CV2742	8E	12K8GT
	50C5	5M	EF37	6Y	CV4015	8F	12Q7G
30	E92CC	5N	EL33A		M8161	8G	CV4034
31	EC92			6Z	CV4031	8H	12Q7GT
32	UC92	5P	EL38M		M8081	8I	E81L en
	9AB4	5R	EL820	6f	EZ36	8K	12SJ7GT
33	EAA91	5S	EY84		11EZ	8L	19BG6G
	EB91		6374	6r	EL822	8M	25Y5G
	6AL5	5T	IW4-350	60	VX8124	8P	25Z6G
34	DK93	5U	ME1400	62	VX8182	8R	CV4007
35	K50A	5V	CV4050	63	VX8136C	8S	35Z4GT
38	6BZ6	5W	PEN-A4	64	VX8137C	8T	35Z5G
39	ECF80	5X	PEN36C		CV4004	8U	CV2204
	6BL8	5Y	PL33	65	M8162	8W	C3m
3+	UCC84	5Z	PL820		VX8162C		R20F
		5d	PY31	66	EL85 min		CV5232
4A	EF74	5f	UL84 Bee	67	4383	8Y	EF86
4E	CV521	5k	PZ30	68	55395		6267
4F	LL508	5m	UCF80	69	E91AA		M8195
4G	EF83	5r	UL46		5726	8Z	PY32
4I	UCH80	5t	UR1C		6AL5W	8d	CCH3 Mull
4J	CV5029	51	18512	6+	EL180	8f	E90F
4M	MX112	52	UBF80				7693
4N	MX115		17C8	7B	6SJ7GT	8k	PY88
4P	CV2246	53	HCH81 en	7C	5U4G		30AE3
4R	EBF80	54	01DAF	7D	R199899	8m	DDC38
4S	EY82	55	75B1	7E	PCL82	8r	95108
	6N3	56	95A1		16A8	8t	EZ81
4U	EC93	57	DM71	7F	DF97		6CA4
4W	HL94		1N3		1AN5	84	6156
	30A5		also	7H	DC96	88	5893A
4X	ECF82		EL802	7J	M8163		
	6U8	59	CV4010	7L	E88CC	9A	5Z3
	CV5065		M8100		6922	9B	6AS5
4d	100117	5+	CV4014	7M	17ECC dev	9C	6A7
4f	PY81 Bee		M8083	7R	5X4G	9D	6C5GT
4k	K51A			7S	5Z4G	9E	6F6GT
	OG82 dev	6A	CV4025	7T	5Z4GT	9F	6J5GT
4r	EM71		M8079	7U	6BG6G	9G	6AS6
41	6263A	6B	7247	7W	6J7G	9H	6L6G
43	PL36	6C	DCF60	7X	6J7GT	9J	VX8084
	25E5	6D	DF61	7Y	6K7G	9K	6L6GA
44	UY92	6E	DF63	7Z	6K7GT	9L	6X5
45	UL44	6H	ME1201AG	7d	6K8G	9M	25A6G
47	EB4			7f	M2EC	9N	42

9P	PP35
9R	PP36
9S	PP60
9V	5840
	CV3929
9Z	Z500E
9k	UY82
9m	EL41 A tech
9r	EF86 en
9t	PY83
90	ET51
92	CV2469
93	VCRX437C
97	QQV04-16
	7377
99	MX152
+0	ZM1032
*C	Z70U
	Z700U
*F	90C1 (?)
*T	Z521M
*U	Z522M
∩C	Z70U

7. Three symbol type codes

AAA	PL509	ACL	PB1
AAB	LL802	ACM	D3a
AAC	ECF80A		7721
	6GH8A	ACN	5876
AAD	EL509	ACR	6FQ7
	6GK6A	ACS	12AD6A
AAE	LL509	ACT	12BX6
AAF	XL509	ACU	25AV5GA
AAG	N30EL	ACV	20LF6
	6LF6	ACW	XCF80A
AAH	10GK6	ACY	8AF9
AAK	6HT5	ACZ	ECC801S
AAL	CV9620		
AAM	3HQ5	ADA	40LF6
AAN	6HQ5		7984
AAP	ECF202	ADB	CV6189
	6AJ9	ADC	PY500A
AAR	PCL805 Siem	ADD	EY500A
AAS	27LF6	ADE	LY500A
AAT	7586	ADF	XY500A
AAU	5893	ADG	EL91N
AAV	6263	ADH	15GK6
AAW	6264	ADK	N25PC
AAX	5676	ADR	N20PL
AAY	5687	ADS	PCF808
AAZ	5751	ADU	6LV6
ABA	7587	AEA	16AF9
ABB	50B5		
ABC	1817	AHA	PD510
ABD	N1EFL		
	6AF9	MCH	CV6189
ABE	5963	MCT	PL95
ABG	6264A	MER	TH2
ABK	5642	MES	YL1220
ABL	12BY7	MET	ZP1080
ABM	12AT5	MEU	ZP1081
ABP	5R4GY	MEW	K81A
ABR	ECC8100	MEX	N54RPY
ABS	12AU7WA	MFC	6D4
	6189	MFD	CV287
ABT	EL805	MFF	N55RPY
ABU	ECL805	MFZ	CV359
ABV	LD500	MGC	VX8250
ABW	XD500	MGF	VX8252
ABY	CV4110	MGM	ZM1005
ABZ	CV4111		
ACB	DW4-500		
ACC	EF800		
ACD	EF802		
ACE	6CF6		
ACF	EL521		
ACG	EL802		
ACH	EL803		
ACK	EL803S		