

PHILIPS FACTORY VALVE CODES

Revision 10
15 February 2011

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.

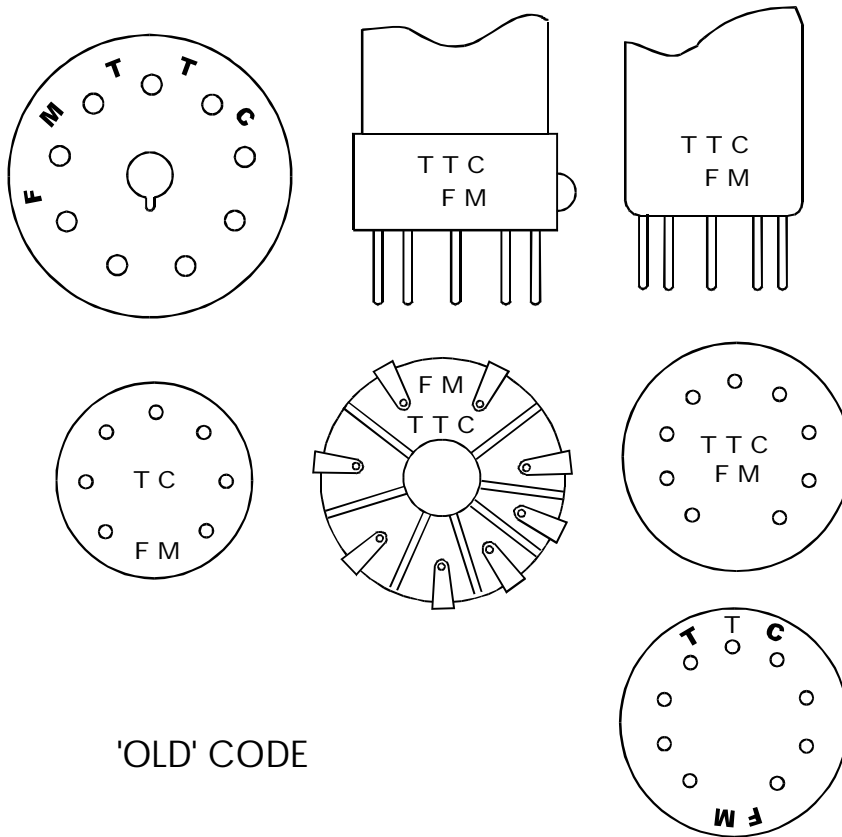
General observations:

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" in Philips code list but in some cases appears to indicate "Miniwatt" (Australia).
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

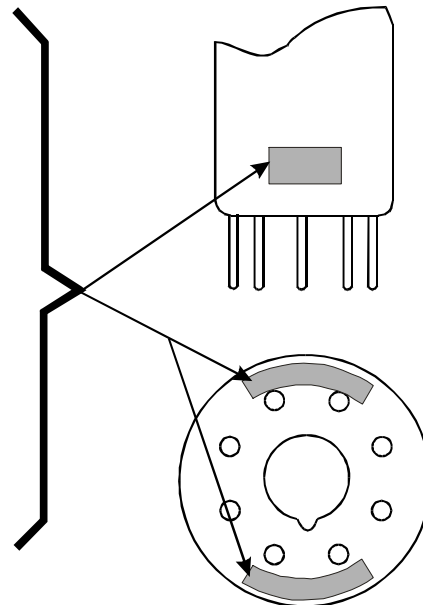
Examples of "correct" code format

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
4	English Electric Valve Co. (Mullard supply)
5	Toshiba, Japan
Ϛ	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)
⌌	Tungsrarn
⊥	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)	CZ	EC95	Df	6201
AD	EC88		8233		6ER5	Dk	PF86
AE	EL500	BR	5639		also	Dm	402
	6GB5	BS	2GK5		MX155	Dr	3AL5
AF	6EU7	BT	M2EL	Cd	6463	Dt	3CB6
AG	CV4035		38EL		CV5304	D2	3BZ6
AH	PY33	BU	XL84	Cf	VX8205	D+	LL500
AI	DL97	BW	XCC189	Ck	EC86		18GB5
AJ	ECC230	BX	XL36	Cm	ECC88 Bee		
	6080	BY	MX153	Cr	E184CC	EA	5Y3G
AL	AX50	BZ	YL1000	Ct	ECC186	EB	80 en
AM	PC97		M1DL		ECC282		80 dev
	4FY5		also		7316	EC	DL93
AN	PL1607		6083	C0	62BTA		3A4
AS	LC97		AX9909	C2	18046	ED	DL94
	YC97	Bf	CV4049	C3	E81L		3V4
	3FY5	B1	M2PE		6686		CV2983
AT	LF183		also	C4	V1ELL		also
	YF183		6155		ELL80		MX164
	4EH7	B2	M3DV (<i>sic</i>)	C5	E288CC	EE	DW2
AU	LF184	B3	M4PCF		8223	EF	1561
	YF184	B4	M7EF	C6	ECC808	EH	1805
	4EJ7	B5	95400	C7	EC900	EI	VP4B
AW	6GK5	B6	4-OA31	C8	PCF801	EJ	VX8179
AX	6GK6	B7	M9ECC.1		8GJ7	EK	EB41
Ad	85A1	B8	M13PCC	C9	XCF802	EL	EC37
Af	CV4011	B9	VX8250	C+	LCF802	EM	ECC31
	M8196	B+	3GK5		YCF802	EN	ECC32
A0	347				6LX8	EP	EF37A
A2	ZC1000	CA	35C3			ER	EF91
A3	E88C	CB	12CU5	DB	VX8252		6AM6
	8255	CC	6CU5	DC	LCF86	ES	1883
A4	EC800	CD	4GK5		YCF86	ET	EL35
A5	XL500	CE	CV1377		5HG8	EU	EZ35
A6	EC1000	CF	3CS6	DD	3BA6	EV	0A3
A7	PCF802	CG	0KL1B (p)	DE	6BZ6		CV3798
	9JW8	CH	ECF802	DF	6DE6	EW	FW4-500
A8	6CQ8		6JW8	DH	12AL5	EX	PM24M
A9	PY83	CI	PL84 min	DI	EL36	EY	PF183
			15CW5		6CM5	EZ	4614
BA	XCF86		also	DJ	PCC88	Ed	SP13
BB	6DK6		MX154		7DJ8	Ef	VX8194
BC	E86C	CJ	VX8189	DL	PY300	Ek	SP13C
BD	ECH800	CK	6AQ5A	DM	ECF801	Em	AZ11
BE	12DT8	CL	12AU6A		6GJ7	Er	1A7GT
BG	E80CF	CM	12C5	DP	PC900	Et	FC13
	7643	CN	PCF806		4HA5	E0	4633
BH	7475	CP	PEN40DD	DR	QV10-P8	E1	DAC32
BI	PEN4DD	CR	CZ30	DS	7453	E2	4618
BJ	CV4029	CS	6-OA31	DT	3BE6	E3	UY21
	5902	CT	8-OA31	DU	3DE6	E4	4654
	M8200	CU	PCC34	DV	75C1	E5	AL1
	also	CW	18045	DZ	EN33	E6	5Z4
	YL1000			Dd	PCF84	E8	6A8G
BN	E55L (M5EL)				also	E9	6J7
					PB-1	E+	4673

FA	4682	GK	CV136+	HW	CY2 dev	IX	ECC189
FB	4683		tight cathode		also	IY	PM84
FC	DL35	GL	CV136+		EL521	IZ	EF6N
	1C5GT		loose cathode	HX	CY31		also
FD	4688 C tech	GM	EM81	HY	60FX5		ORP30
FE	4689P C tech		6DA5	HZ	CK1 (M)	ld	95398
FF	6A8	GN	CV138+	Hd	ECL80	lf	EC156
FG	VX8114	GP	CV140+		6AB8	lk	EC157
FH	6K7	GR	CV417+	Hf	E83CC	lm	PF83
FI	60EH5	GS	CV465+		6681		also
FJ	HCH80	GT	CV466+	Hk	EF92		MX132
FK	4699.5 etc	GU	CV467+		6CQ6		
FL	6J8G	GV	4641	Hm	EL38	lr	EC158
FM	6F6G	GW	CV468+	Hr	DF21	lt	PY180
FN	6F6	GX	CV469+	Ht	DF22	l0	ORP11
FP	6V6G	GY	CV858+	H0	5ECC dev	l1	6211
FR	6V6GT	GZ	CV2129+	H2	DF70	l2	ORP10
FS	12SK7	Gf	ECC82	H3	CF50	l3	PC92
FT	12SQ7		12AU7	H4	DK21	l4	EF183
	also	Gk	UCH5	H5	EL44		6EH7
	8163	Gm	VX8140	H6	DK40	l5	EY180
FU	18040	Gr	EC52	H7	DL21	l6	ECC83
FV	PL3C23	G0	EBL31	H8	Z701U		12AX7
FW	25Z5	G1	PCF82	H9	DL40	l7	XCF80
FX	25Z6	G2	EC57	H+	DL41	l8	XCH81
FY	AB2 (V base)	G3	EBF89			l9	XF80
FZ	ABC1 dev		6DC8	IA	ORP20PW	l+	7025
Fd	ABL1 dev	G4	EA52	IB	ORP20		
Ff	7AU7	G5	EA52	IC	ECF83	JA	HCC85
Fk	EA70		6923	ID	E182CC	JB	EF184
Fm	AD1		1EA dev		7119		6EJ6
Fr	AF2	G6	EN93	IE	4152-02	JC	ORP31
Ft	AF3		6D4	IF	PC93	JD	PL500
F0	AF7	G+	V2ECC		also		27GB5
F1	43				5876	JE	PC88
F2	AK2 dev	HA	DF33	IG	6205		4DL4
F3	35L6GT	HB	AZ12		CV2432	JF	CBL6
F4	AL2	HC	AZ31	IH	185BT	JG	EA50
F5	AL4	HD	AZ41	II	EL360		2B35
F6	DF91		95104	IJ	VX8240	JH	ECF1
	1T4	HE	41		was used for	JP	EL30
F7	50L6GT	HF	DK33		Hamburg	JU	LCF80
F8	AZ1	HG	VX8141		PM84 till		YCF80
F9	78	HH	CBL1 dev		3.8.58		6LN8
F+	AZ4	HI	XC95	IK	PZ36	JZ	TH2
		HJ	EF97	IL	6286	Jd	UCC83
GA	ECC88		6ES6	IM	27SU	Jf	ECF806
GB	UM84	HK	CBL31	IN	ORP90	J0	MX150
GC	VX8167	HL	ECH41	IO	7527A	J7	4069
GD	QV9-P10	HM	UM5	IP	PCC189		ME1404
GE	EH90	HN	UL43	IR	TY86F	J8	3DT6
	6CS6	HP	UCH41	IS	GZ37	J9	V3ECH
GF	CV131+	HR	CL4		CV378	J+	LCL84
GG	VX8116	HS	GZ40 old	IT	6BJ6		YCL84
GH	CV133+	HT	CL33	IU	VX8227		10DX8
GI	PC95	HU	CY1	IV	E180CC		also
	4ER5	HV	CBC1 dev		7062		MX108/01
GJ	EL81F			IW	E181CC		

KA	DL71	LD	UY11	MJ	EBF83	NM	UBL1
KB	DLL21	LE	ECH3		6DR5	NN	UCH41
	also	LF	ECH4	MK	DL21S	NP	UBL21
	DLL31	LG	VX8206	ML	EFP20	NR	UCH4
KC	DF35	LH	4671	MM	EFP60		also
KD	E1C	LI	UBF89	MN	EK2		D3a
KE	EL34 old		19FL8	MP	EK32	NS	UCH11
KE2	EL34 new	LK	EFF51	MR	EL2	NT	UCH21
KF	DC89	LL	ECH11	MS	EL3N	NU	UCH42
KH	E424N	LM	ECH21	MT	EBF80 en		14K7
	A4110	LN	ECH33	MU	UB41	NV	TDD13C
KI	M8144	LP	DA90	MV	TDD13	NW	UAF100
	CV4033		1A3	MW	EL6/100V	NX	UCH100
KJ	EF98	LR	ECH35 Mull	MX	EL11	NY	UCL11
	6ET6	LS	ECH41	MY	EL12	NZ	UF9
KK	DAC21	LT	ECH80	MZ	EL20	Nd	UF11
	also		6AN7	Md	EL81	Nk	PY80 min
	DAC31	LU	ECL11		6CJ6	Nm	UF41
KL	E443H	LV	TDD4	Mf	PCF82		12AC5
KM	E447	LW	DC79		also	Nr	UF100
KN	EC81	LX	EF93		MX145	Nt	UY2
KP	EA40		6BA6	Mk	PL38	N0	UL100
KS	EA51	LY	EE1	Mm	GZ30 new	N1	UM4
KT	EAF41		EEP1		also	N2	UY1N
KU	EB34	LZ	EF6		GZ40 old	N3	UF21
KV	CBC1 (M)	Ld	EW60	Mr	KB2	N4	EL41 en
		Lf	ECL83	Mt	KBC1	N5	UY41
KW	EB40	Lk	EZ2	M0	EL32	N6	UY100
KX	EY51	Lm	EL91	M1	EL33	N7	UY42
	6X2		6AM5	M2	EBC80	N8	VCL11
KY	EBC3	Lr	EZ4		6BD7	N9	CF2
KZ	EBC33	Lt	EF80	M3	EL39	N+	VY2
Kd	EM1		6BX6	M4	EL41		
Kf	PL83 Bee	L0	EF8		6CK5	PA	DL92
Kk	EM4	L1	EF9	M5	EL42		3S4
	also	L2	E1F		95105	PB	DL72
	EM100	L3	DF65	M6	EL42		also
Km	EM34	L4	EF11	M7	EL8		MX165
	6CD7	L5	EF12	M8	EL51	PC	ECH42
Kt	EQ80	L6	EF22	M9	EL60		6CU7
	6BE7	L7	EF36	M+	EL80 en	PD	EL61
K0	EBF2	L8	EF39			PE	PY80
K1	PCC809	L9	EF40	NA	PL83 en		19X3
K2	EZ41		also	NB	KF3	PF	UF10
K3	EBF11		CV2031	NC	KK2	PG	6007
K4	EBF32	L+	EF41	ND	KL4	PH	Aa
K5	EBF35		6CJ5	NE	AZ50	PJ	6907
K6	EBL1			NF	UAF41	PK	Ba
K7	EBL21	MA	EF42	NG	5651	PL	Bas
K8	EBFS40	MB	EF50	NH	UAF42	PM	Ca
K9	EC40	MC	EF51		12S7	PN	Cas
K+	EC41	MD	EF100	NJ	ECH83	PP	Da
		ME	DL65		6DS8	PR	Ce
LA	DK32	MF	EFM1		also	PS	Ed
	1A7GT	MG	VX8207		MX156	PT	E2c
LB	EC81	MH	EFM11	NK	UL41	PU	E2d
	6R4	MI	EL86		45A5	PV	EY88
LC	ECC40		6CW5	NL	UBF11		6AL3

PW	C3b	Rf	VX8196C	S0	EL81	UE	DL96
PX	C3e		6AS6W	S1	CF7		3C4
PY	5Y3GT	Rk	EL22	S2	EAF801	UF	DL67/5
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		6BH5
P7	4654K	R9	E446 (O)	TG	XCF801	UR	ECH4G
P8	UBL3	R+	CV273	TH	DAF96	US	DL67/65
P9	UCH5				1AH5	UT	UQ80
P+	ABC1	SA	EC80 en		also	UU	EAF42 Bee
		SB	EZ80		MX142	UV	AZ32
RA	AF2	SC	UL2	TJ	LCF801	UW	12SK7GT
RB	AL5	SD	DAF40		5GJ7	UX	DK96
RC	EL5	SE	EL45	TK	UCH42 Bee		1AB6
RD	VCL11	SF	AZ41 Bee	TM	UY42 Bee	UZ	E447 (E)
RE	VY2	SG	5V4G	TP	UAF42 Bee	Ud	12SQ7GT
RF	X13	SH	ECH42 Bee	TR	UCH81	Uf	QQE03/12Bee
	also	SI	EL95		19D8	Uk	12SA7GT
	MX151		6DL5	TS	ECH34	Um	E90CC
RG	M1EL	SJ	CV4109	TT	AY1		5920
	EL131	SK	DAF41	TU	EL50		CV5214
RH	UF42		with add F	TV	AZ2	Ur	LC95
RI	E130L		DAF40	TY	Z805U		YC95
	7534	SL	EL41 Bee	TZ	UF41 Bee		3ER5
RK	UBC41	SM	UY4	Td	EY80 min	Ut	QQE02/5 Bee
	14L7	SN	EBC41 Bee	Tf	XF85		7699
RL	C443	SP	DC80	Tk	ECC81	U0	DY30
RM	DAF91		6DC	Tm	XL86		1B3GT
	1S5	SR	EZ40 old	Tr	TD03-10B	U1	XC900
RN	DF92	SS	4060	Tt	EL82	U2	AC2
	1L4	ST	EF41 Bee		6DY5	U3	EL520
RP	DK91	SU	UBF80 en	T0	3AT6	U4	DF67/5
	1R5	SV	18300	T1	PL82	U5	E446 (E)
RR	EAF42	SW	18042 en		16A5	U6	6SA7GT
	6CT7	SX	PL81	T2	KK32 Mull	U7	6SK7GT
RS	EAF80		21A6	T3	DF74	U8	6SQ7GT
RT	EL21	SY	EL34	T4	EL83 en	U9	35Z5GT
RU	ECC35		6CA7	T5	MX161	U+	UY41 Bee
RV	EF55	SZ	EF80	T7	DF67		
RW	ECC91	Sd	UCC40	T8	DL67	VA	18042
	6J6	Sf	Z502S	T9	E83F en		6086
RX	CCH35	Sk	UF6	T+	UCH81 min	VB	E80CC
RY	EC91	Sm	EC55				6085
	6AQ4		TD03-10	UA	UL41 Bee	VC	E80F
RZ	EF54	Sr	DCC90	UB	L413S		6084
Rd	EF55		3A5	UD	A4110		

VD	E80L		E1T	XX	E282F	Y0	PY81
	6227	WL	CV4084	Xf	EL34 bant		17Z3
VE	E83F	WM	E80F Bee	Xr	E84L	Y2	EC81
	6689	WN	25L6GT		7320	Y3	EF85
VF	ECC81	WP	E80L Bee	Xt	PL2D21		6BY7
VG	E81CC	WR	UM34	X0	XF184	Y4.0	EABC80 min
	6201	WS	ECL86	X1	XF183	Y4.1	EABC80 en
VH	EC92 new		6GW8	X2	ECC186 (L)	Y5	VY1
VI	UC92 new		also	X3	DL620	Y6	6BU8
VJ	ECC89		CV4011		5672	Y7	EFL200
	6FC7	WU	C3JA	X4	EL300		6Y9
VK	5842	WV	DW4-350	X5	PL300	Y8	ECH81 en
	417A	WW	18042 Bee	X6	6CY5	Y9	EC80
VL	E94CC	WX	EL3	X7	EL502		6Q4
VM	ORP92	WY	18045	X9	E9Z dev	Y+	PL57
VN	PC96	WZ	UM34/165V	X+	EL504		
	also	Wd	EF94		6GB5A	ZA	6DT6
	ZM1030		6AU6			ZB	12FK6
VP	95124	Wf	E83F Bee	YC	DM70	ZC	UL41 Bee
VR	E188CC	Wk	CV4098		1M3		Ag plated pins
	7308	Wm	PY82		also	ZD	12AD6
VS	EM84		19Y3		DM71	ZE	E80T
	6GF6	Wr	EBF81 min	YD	ECH81		6218
VT	XCC82	Wt	DK92		6AJ8	ZF	PL81B
	7AU7		1AC6	YE	EC56	ZG	HL90
VU	PCF86	W0	EBF81	YF	EF80 en		12AQ5
VV	PL136	W1	PCL86	YG	ECF200	ZH	ECL85
	35FV5		14GW8		6X9		6GV8
VW	EL183	W2	XR1-1600A	YH	ECL80 en	ZI	EF71 rel
VX	PCL85	W5	E182F	YI	DF60	ZJ	CV3986
	18GV8	W6	ECC2000		5678		6021
	Valvo PCL805	W7	VX8195C	YJ	CV1868	ZK	6AD6
VY	UY89	W8	18046 Bee	YK	ECC81	ZL	6BL6
VZ	6AN7 min	W9	PFL200	YL	PL81 en	ZM	6J8
	6AN7A			YM	PL82 en	ZN	12BL6
Vm	7378	XA	401	YN	PY80 en	ZP	12J8
Vt	MX149	XB	XY88	YP	PY82	ZR	150B2
			16AQ3	YR	ECH200	ZS	5854
WA	PM22A	XC	CV468 Ultra		6V9	ZX	LFL200
WB	6BD7 min	XD	CV4086	YS	E186F		11Y9
WC	6BH5 min	XE	M6EF		7737	ZV	VX8222C
	6BH5A	XF	12DJ8	YT	XCL84	ZY	LY88
	also	XG	GZ41	YU	18500		20AQ3
	6AF9	XH	PCH200	YV	DY87	ZZ	4068
WD	6M5 min		9V9	YW	18501	Zd	5719
	also	XI	5899	YX	18502	Zf	EF40 Bee
	EF800		CV477		also	Zk	5749
WE	PY32 bant	XJ	5644		MX130		6BA6W
WF	ORP50	XK	PCF200	YY	EZ90	Zm	6005
WG	M3EFP		8X9		6X4		6AQ5W
WH	9U8	XL	PCF201	YZ	EBC90	Zr	6080WA
	also		8U9		6AT6	Zt	ECF201
	EL803S	XN	95106	Yd	EK90		6U9
WI	5840	XR	PY800A		6BE6	Z2	LCF200
WJ	EF730	XT	E235L	Ym	DL22N		5X9
	5636	XV	DW4-350	Yr	E81L Bee	Z3	LCF201
WK	E80CC Bee		DW4-500	Yt	EC97		5U9
	also	XW	E236L		6FY5	Z4	XCF200

Z5	XCF201	d3	E810F	f5	6972	k9	PY800
Z6	PY801		7788	f6	M7EC	k+	5894
Z7	ZP1080	d4	M13PL		EC98		
Z8	ZP1081	d5	M6DY	f7	EY500	mA	PABC80 en
Z9	4067	d6	GY86		6EC4	mC	ECC83
Z+	6111	d7	PY81 en	f8	24DF	mD	6AM6S
		d8	UABC80 en	f9	ECC83 low	mE	CV302 not
dA	6112	d9	UCH81 en		microphony		finished
dB	7895		also		also	mF	CV303 not
dC	PL6574		EL803		CV4110		finished
dD	DY86	d+	UF80 en	f+	M10PL	mG	UCL83
	1S2		also			mH	12AU7S
	DY87		YL1080	kA	UF85	mI	CV4039
	1S2A		YL1081		also		M8096
dE	6CG7				CV4111	mJ	EF89 Bee
dF	LCH200	fA	LA4-250	kB	EZ80 en new		also
	5V9	fB	LB4-2	kC	EZ80		YL1130
dG	12X4	fC	MX124/01		6V4	mK	AB2 (O)
dH	LL86	fD	MX133	kD	EZ40	mN	GZ34
	10CW5	fE	EL505		6BT4	mP	UF85 min
dI	5949		6GK6		CV3891	mR	UCH81 en
dJ	PCL84	fG	TD1-100A	kE	GZ40	mS	EF80 Bee
	15DQ8	fJ	N22LL	kG	UM81	mT	UABC80 en
dK	LL521		19KF6	kI	EM87	mU	EL83
dL	GY501	fK	ECL82 Bee		6HU6		6CK6
	3BH2		also	kJ	MX147	mV	CV1672
	V2VY		EF802		also	mW	PL83
dM	XL521	fL	EL83 Bee		18504		15A6
dN	LCL85		also	kK	4662		also
	10GV8		ECC801S	kM	EL84		CV359
dP	CV287	fM	PL84 Bee		6BQ5	mX	E82CC
dR	YL1220	fN	UCL82 Bee		EL84 Bee	mY	G5S6
dS	6AU6WB	fP	UF86	kN	DY51	md	UF80
dT	EN91	fR	QQE02/5 Bee		1BG2	mk	UF85
dU	PL435		QQV02-6	kP	E3LL dev	mm	EF85 en
	6268	fS	N22PL	kR	ECF86	mr	E280F
dV	LCC189	fT	N22XL		6HG8	mt	EZ40 Bee new
	5ES8	fU	M6ECC	kU	HN309	m0	EZ80 Bee
	also	fV	LSD2	kV	EY87	m1	PY80
	PL5822Du	fW	Z303C	kW	1S4	m2	EY80
dW	PL522	fX	E33CC	kZ	5R4GYS		6U3
	5C22	fY	EM84	kd	ECH84	m3	PY82 Bee
dX	EF5000	fZ	EC71		6JX8	m4	EABC80
dY	CV4108	fd	EF732	kk	EAM86		6AK8
dZ	V6ECC	ff	CV2281		6GX8	m5	E283CC
dd	PD500	fk	EF731	km	XCL86	m6	ECH81 Bee
	9ED4	fm	5609	kr	DF61N	m7	UCH81 Bee
df	PY500	fr	5U8	kt	M4ECC	m8	EC8010
	42EC4	ft	12BY7A	k0	XF86	m9	ECC84
dk	PL505	f0	LY81		also	m+	ECC809
	40GK6		11R3		N7ELL		
dm	V7PCL	f1	5609V	k1	TS65	rA	EF804S
dr	CV2901	f2	VX8234	k3	D12L	rB	95107
dt	LCL86	f3	GZ34 bant	k4	D20F	rC	DC80
d0	M8EC		CV1377	k5	XCL85	rD	PABC80
d1	EA53	f4	ECL84	k6	ECC82		9AK8
d2	EL136		6DX8	k7	XC97	rE	UABC80
	6FV5			k8	CV4517	rF	EF805S

rG	K81A	tM	PC86	0W	12SQ7GT/M	1+	EC90
rH	QQE03/12Bee		4CM4	0Z	EC83.1		6C4
	QQV03-10	tN	ECC86	0d	LL504		
rl	ME1403	tP	UCC85	0f	DM160	2A	EF70
rJ	UF89 Bee	tR	EF89		6977		CV467
rM	6252		6DA6	0k	UM80	2B	EF71
rN	DY86	tS	PCL81		19BR5	2C	EF72
	DY87	tT	M11EL	0m	UF89	2D	EF73
rS	GZ33		EL5070	0r	XL504	2E	EF95
	CV378	tU	ECC85	0t	N55RPY		6AK5
	GZ34 made in	tV	GZ34	00	18016	2F	EL70
	Eindhoven	tW	4373	02	EY81	2G	EY802
rT	E180F	tX	18046 en		6R3	2H	EN32
	6688	tY	EBC81 Bee	03	6SA7GT/M		also
rU	HF93	tZ	PCC85	04	6SK7GT/M		PL6574
	12BA6		9AQ8	05	6SQ7GT/M	2I	UBC80
rV	E181CC Bee	td	6A8GT	06	N54RPY	2J	CV4012
rW	EL85	tf	LA4-2	07	UY85 Bee	2K	5643
	6BN5		VX8168	08	PL95		EN70
rX	EL84 min	tk	75	09	E95F	2L	EY70
rY	4699N		CV614		5654	2M	EY91
rZ	6BK4	tm	EF804		6AK5W	2N	DAF70
rd	EM85	tr	EL81 Bee	0+	UBC81	2P	LSD3
rk	XL505	tt	PL81 Bee			2R	LSD3A
rm	LL505	t1	PL508	1B	03DF dev	2S	LSD5
rr	CV2031	t2	PL504	1C	04DL dev	2T	LSD7
rt	PCC84	t3	N22EL	1D	CV4011	2U	LSD8
	7AN7	t4	V7PL		also	2V	XCL82
r0	4646		PL802		03DF dev	2W	LSD24
r1	DF64	t5	V10PL	1E	DF62	2Y	ME1401
r2	DL64	t6	UL84	1F	DAF92		4065
r3	1AX2	t7	EL508		1U5	2Z	ME1402
r4	5814A		6KW6		CV3912		4066
r5	12AT7WB	t8	6BK4A	1G	UCL82	2a	7645 Ampx
r7	PCF80	t9	Z500T		50BM8	2d	GY802
	9A8	t+	Z501T	1J	CV4009	2f	EL86 Bee
r8	EM80			1V	PL81F	2k	PCF810
	6BR5	0B	LY500	1W	DL69	2m	3A3
r9	6SN7GT	0C	PL5822	1Y	AN1	2r	PL521
r+	ED500	0D	ECC180	1f	EBF82	2t	5837A
			6BQ7A	1k	EL821	23	MX108
tA	N23PL	0E	PL57K		6CH6	24	MX118
tB	EL503	0F	YL1080	1m	CV2507	25	MX119
tC	UY85		YL1081	1r	DC70	27	11AF9
tD	EY86	0G	ECL82	1t	DF66	28	PCL83
	6S2		6BM8	10	DF72	29	XY500
	EY87	0H	EBC81	11	DL66	2+	XL508
	6S2A		6BD7A	12	DL68		
tE	EF86 Bee	0I	EY70 rel	13	DL95	3B	TD03-5
tF	E99F	0J	CV4005		3Q4	3E	Z300T
	7694	0K	12SN7GT	14	DL73	3F	Z800U
tH	25Y5 (J base)	0L	25Z6GT	15	DL75	3G	E82M
tl	VX8163	0M	12SA7GT	16	DL98	3H	Z801U
tJ	PL82 Bee	0N	18015		3B4	3I	UF81
tK	4694	0P	PCC89	17	DY70	3J	CV4019
tL	M5DY		7EF7	18	EA76	3K	Z900T
	DY802	0S	KT66		6489	3L	E91H
		0U	12SK7GT/M	19	EC70		6687

3M	6CB6	4r	EM71	6A	CV4025	7U	6BG6G
3N	EL90	41	6263A		M8079	7W	6J7G
	6AQ5	43	PL36	6B	7247	7X	6J7GT
3P	85A2		25E5	6C	DCF60	7Y	6K7G
3U	EBC91	44	UY92	6D	DF61	7Z	6K7GT
	6AV6	45	UL44	6E	DF63	7d	6K8G
3V	Z70U	47	EB4	6H	ME1201AG	7f	M2EC
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	50	6693	6+	EL180	8f	E90F
4M	MX112	51	18512				7693
4N	MX115	52	UBF80	7B	6SJ7GT	8k	PY88
4P	CV2246		17C8	7C	5U4G		30AE3
4R	EBF80	53	HCH81 en	7D	R199899	8m	DDC38
4S	EY82	54	01DAF	7E	PCL82	8r	95108
	6N3	55	75B1		16A8	8t	EZ81
4U	EC93	56	95A1	7F	DF97		6CA4
4W	HL94	57	DM71		1AN5	84	6156
	30A5		1N3	7H	DC96	88	5893A
4X	ECF82		also	7J	M8163		
	6U8		EL802	7L	E88CC	9A	5Z3
	CV5065	59	CV4010		6922	9B	6AS5
4d	100117		M8100	7M	17ECC dev	9C	6A7
4f	PY81 Bee	5+	CV4014	7R	5X4G	9D	6C5GT
4k	K51A		M8083	7S	5Z4G	9E	6F6GT
	OG82 dev			7T	5Z4GT	9F	6J5GT

9G	6AS6
9H	6L6G
9J	VX8084
9K	6L6GA
9L	6X5
9M	25A6G
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		