

TYPE NUMBER	MFR	APP	COMP	GBP MIN	SLEW RATE MIN	V <sub>c+</sub> MAX	V <sub>c-</sub> MAX	T <sub>RR</sub> MAX	A <sub>VOL</sub> MIN	V <sub>IQ</sub> MAX	I <sub>B</sub> MAX	I <sub>OQ</sub> MAX	P <sub>TOT</sub> MAX	I <sub>OUT</sub> MIN	V <sub>OUT</sub> MIN	V <sub>ICM</sub> MAX	V <sub>IDF</sub> MAX	dV <sub>ICM</sub> /dT MAX	P <sub>O</sub> MAX	I <sub>O</sub> MAX	CM RR MIN	PS RR MIN	R <sub>IN</sub> MIN
MLF157G	MTU	XSR	INT	4MHZ	6V/US	+22V	-22V	125C	94dB	5MV	100PA	50PA	670MWF	5MA	12V	20V	40V	20UV/C		7MA	85dB	85dB	0.1T
MLF211G	MTU	CPR	EXT			+18V	-18V	85C	100dB	4MV	50PA	25PA	500MWF	8MA		15V	30V			6MA			
MLF211P	MTU	CPR	EXT			+18V	-18V	85C	100dB	4MV	50PA	25PA	500MWF	8MA		15V	30V			6MA			
MLF211U	MTU	CPR	EXT			+18V	-18V	85C	100dB	4MV	50PA	25PA	500MWF	8MA		15V	30V			6MA			
MLF311G	MTU	CPR	EXT			+18V	-18V	70C	100dB	10MV	150PA	75PA	500MWF	8MA		15V	30V			8MA			
MLF311P	MTU	CPR	EXT			+18V	-18V	70C	100dB	10MV	150PA	75PA	500MWF	8MA		15V	30V			8MA			
MLF311U	MTU	CPR	EXT			+18V	-18V	70C	100dB	10MV	150PA	75PA	500MWF	8MA		15V	30V			8MA			
MLF355AG	MTU	FET	INT	5MHZ	3V/US	+18V	-18V	70C	94dB	2MV	50PA	10PA	500MWF	5MA	12V	16V	30V	5UV/C		4MA	85dB	85dB	0.1T
MLF355G	MTU	FET	INT	5MHZ	2V/US	+18V	-18V	70C	88dB	10MV	100PA	20PA	500MWF	5MA	12V	16V	30V	20UV/C		4MA	80dB	80dB	0.1T
MLF356G	MTU	HSR	INT	4MHZ	10V/US	+18V	-18V	70C	94dB	2MV	50PA	10PA	500MWF	5MA	12V	16V	30V	5UV/C		10MA	85dB	85dB	0.1T
MLF356G	MTU	HSR	INT	1MHZ	7.5V/US	+18V	-18V	70C	88dB	10MV	200PA	50PA	500MWF	5MA	12V	16V	30V	20UV/C		10MA	80dB	80dB	0.1T
MLF357AG	MTU	XSR	INT	15MHZ	8V/US	+18V	-18V	70C	94dB	2MV	50PA	10PA	500MWF	5MA	12V	16V	30V	5UV/C		10MA	85dB	85dB	0.1T
MLF357G	MTU	XSR	INT	4MHZ	6V/US	+18V	-18V	70C	88dB	10MV	200PA	50PA	500MWF	5MA	12V	16V	30V	20UV/C		10MA	80dB	80dB	0.1T
MLM101AG	MTU	GPU	EXT			+22V	-22V	125C	94dB	2MV	75NA	10NA	500MWF	5MA	12V	15V	30V	15UV/C		3MA	80dB	80dB	1.5M
MLM101AU	MTU	GPU	EXT			+22V	-22V	125C	94dB	2MV	75NA	10NA	625MWF	5MA	12V	15V	30V	15UV/C		3MA	80dB	80dB	1.5M
MLM107G	MTU	GPK	INT			+22V	-22V	125C	94dB	2MV	75NA	10NA	500MWF	5MA	12V	15V	30V	15UV/C		3MA	80dB	80dB	1.5M
MLM107U	MTU	GPK	INT			+22V	-22V	125C	94dB	2MV	75NA	10NA	500MWF	5MA	12V	15V	30V	15UV/C		3MA	80dB	80dB	1.5M
MLM108AF	MTU	LBC	EXT			+20V	-20V	125C	98dB	0.5MV	2NA	0.2NA	500MWF	1MA	13V	15V	1V	5UV/C		6MA	96dB	96dB	30M
MLM108AG	MTU	LBC	EXT			+20V	-20V	125C	98dB	0.5MV	2NA	0.2NA	500MWF	1MA	13V	15V	1V	5UV/C		6MA	96dB	96dB	30M
MLM108AU	MTU	SBA	EXT			+20V	-20V	125C	98dB	0.5MV	2NA	0.2NA	500MWF	1MA	13V	15V	1V	5UV/C		6MA	96dB	96dB	30M
MLM108F	MTU	LBC	EXT			+20V	-20V	125C	96dB	2MV	2NA	0.2NA	500MWF	1MA	13V	15V	1V	15UV/C		6MA	85dB	80dB	30M
MLM108G	MTU	LBC	EXT			+20V	-20V	125C	96dB	2MV	2NA	0.2NA	500MWF	1MA	13V	15V	1V	15UV/C		6MA	85dB	80dB	30M
MLM108G	MTU	LBC	EXT			+20V	-20V	125C	96dB	2MV	2NA	0.2NA	500MWF	1MA	13V	15V	1V	15UV/C		6MA	85dB	80dB	30M
MLM110G	MTU	VFA	INT		15V/US	+18V	-18V	125C	0dB	4MV	3NA		500MWF	1MA	10V	15V	15V	50UV/C		6MA		70dB	10G
MLM111F	MTU	CPR	EXT			+18V	-18V	125C	100dB	3MV	100NA	10NA	500MWF			15V	30V			6MA			
MLM111G	MTU	CPR	EXT			+18V	-18V	125C	100dB	3MV	100NA	10NA	680MWF			15V	30V			6MA			
MLM111L	MTU	CPR	EXT			+18V	-18V	125C	100dB	3MV	100NA	10NA	625MWF			15V	30V			6MA			
MLM124L	MTU	QLQ	INT			+16V	-16V	125C	94dB	5MV	150NA	30NA	900MWF			16V	16V	35UV/C		2MA	70dB	65dB	
MLM124P	MTU	QLQ	INT			+16V	-16V	125C	94dB	5MV	150NA	30NA	900MWF			16V	16V	35UV/C		2MA	70dB	65dB	
MLM139AL	MTU	QCP	EXT			+18V	-18V	125C	94dB	2MV	100NA	25NA	900MWF			18V	18V			2MA			
MLM139L	MTU	QCP	EXT			+18V	-18V	125C	88dB	5MV	100NA	25NA	900MWF			18V	18V			2MA			
MLM158G	MTU	DLQ	INT			+16V	-16V	125C	94dB	5MV	150NA	30NA	500MWF	10MA		16V	32V	30UV/C		3MA	70dB	65dB	
MLM158U	MTU	DLQ	INT			+16V	-16V	125C	94dB	5MV	150NA	30NA	500MWF	10MA		16V	32V	30UV/C		3MA	70dB	65dB	
MLM201AG	MTU	GPU	EXT			+22V	-22V	85C	94dB	2MV	75NA	10NA	500MWF	5MA	12V	15V	30V	15UV/C		3MA	80dB	80dB	1.5M
MLM201AP1	MTU	GPU	EXT			+22V	-22V	85C	94dB	2MV	75NA	10NA	625MWF	5MA	12V	15V	30V	15UV/C		3MA	80dB	80dB	1.5M
MLM201AU	MTU	GPU	EXT			+22V	-22V	85C	94dB	2MV	75NA	10NA	625MWF	5MA	12V	15V	30V	15UV/C		3MA	80dB	80dB	1.5M
MLM207G	MTU	GPK	INT			+22V	-22V	85C	94dB	2MV	75NA	10NA	500MWF	5MA	12V	15V	30V	15UV/C		3MA	80dB	80dB	1.5M
MLM210G	MTU	VFA	INT		15V/US	+18V	-18V	85C	0dB	4MV	3NA		500MWF	1MA	10V	15V	15V	50UV/C		6MA		70dB	10G
MLM211F	MTU	CPR	EXT			+18V	-18V	85C	100dB	3MV	100NA	10NA	500MWF			15V	30V			6MA			
MLM211G	MTU	CPR	EXT			+18V	-18V	85C	100dB	3MV	100NA	10NA	680MWF			15V	30V			6MA			
MLM211L	MTU	CPR	EXT			+18V	-18V	85C	100dB	3MV	100NA	10NA	625MWF			15V	30V			6MA			
MLM224L	MTU	QGK	INT			+16V	-16V	85C	94dB	5MV	150NA	30NA	900MWF			16V	16V	35UV/C		2MA	70dB	65dB	
MLM224P	MTU	QGK	INT			+16V	-16V	85C	94dB	5MV	150NA	30NA	570MWF			16V	16V	35UV/C		2MA	70dB	65dB	
MLM239AL	MTU	QCP	EXT			+18V	-18V	85C	94dB	2MV	250NA	50NA	900MWF	6MA		18V	18V			2MA			
MLM239AP	MTU	QCP	EXT			+18V	-18V	85C	94dB	2MV	250NA	50NA	900MWF	6MA		18V	18V			2MA			
MLM239L	MTU	QCP	EXT			+18V	-18V	85C	88dB	5MV	250NA	50NA	900MWF	6MA		18V	18V			2MA			
MLM239P	MTU	QCP	EXT			+18V	-18V	85C	88dB	5MV	250NA	50NA	900MWF	6MA		18V	18V			2MA			
MLM301AG	MTU	GPU	EXT			+18V	-18V	75C	88dB	7.5MV	250NA	50NA	500MWF	5MA	12V	15V	30V	30UV/C		3MA	70dB	70dB	0.5M
MLM301AP1	MTU	GPU	EXT			+18V	-18V	75C	88dB	7.5MV	250NA	50NA	625MWF	5MA	12V	15V	30V	30UV/C		3MA	70dB	70dB	0.5M
MLM301AU	MTU	GPU	EXT			+18V	-18V	75C	88dB	7.5MV	250NA	50NA	625MWF	5MA	12V	15V	30V	30UV/C		3MA	70dB	70dB	0.5M
MLM307G	MTU	GPK	INT			+18V	-18V	70C	88dB	7.5MV	250NA	50NA	500MWF	5MA	12V	15V	30V	30UV/C		3MA	70dB	70dB	0.5M
MLM307P1	MTU	GPK	INT			+18V	-18V	70C	88dB	7.5MV	250NA	50NA	500MWF	5MA	12V	15V	30V	30UV/C		3MA	70dB	70dB	0.5M
MLM307U	MTU	GPK	INT			+18V	-18V	70C	88dB	7.5MV	250NA	50NA	500MWF	5MA	12V	15V	30V	30UV/C		3MA	70dB	70dB	0.5M
MLM308AF	MTU	LBC	EXT			+18V	-18V	70C	98dB	0.5MV	7NA	1NA	500MWF	1MA	13V	15V	1V	5UV/C		6MA	96dB	96dB	10M
MLM308AG	MTU	LBC	EXT			+18V	-18V	70C	98dB	0.5MV	7NA	1NA	500MWF	1MA	13V	15V	1V	5UV/C		6MA	96dB	96dB	10M
MLM308AP1	MTU	LBC	EXT			+18V	-18V	70C	98dB	0.5MV	7NA	1NA	500MWF	1MA	13V	15V	1V	5UV/C		6MA	96dB	96dB	10M
MLM308AU	MTU	LBC	EXT			+18V	-18V	70C	98dB	0.5MV	7NA	1NA	500MWF	1MA	13V	15V	1V	5UV/C		6MA	96dB	96dB	10M
MLM308F	MTU	LBC	EXT			+18V	-18V	70C	88dB	7.5MV	7NA	1NA	500MWF	1MA	13V	15V	1V	30UV/C		6MA	80dB	80dB	10M
MLM308G	MTU	LBC	EXT			+18V	-18V	70C	88dB	7.5MV	7NA	1NA	500MWF	1MA	13V	15V	1V	30UV/C		6MA	80dB	80dB	10M
MLM308P1	MTU	LBC	EXT			+18V	-18V	70C	88dB	7.5MV	7NA	1NA	500MWF	1MA	13V	15V	1V	30UV/C		6MA	80dB	80dB	10M

For detailed explanations of column heading notations, see App. A.

Also for ready references the more important abbreviations used in the column headings are listed below:

LEFT HAND PAGE

APP = application (codes at APP.E.)

CMRR = common mode rejection ratio

CMF = compensation (frequency)

dV<sub>id</sub> = input offset voltage temperature drift

GBP = gain bandwidth product

I<sub>b</sub> = input bias current

I<sub>o</sub> = input bias offset current

I<sub>q</sub> = quiescent supply current

MFR = manufacturer (codes at App.C.I)

P<sub>o</sub> = quiescent power consumer

PSRR = power supply rejection ratio

V<sub>CM</sub> = common mode input voltage rating

V<sub>OH</sub> = differential input voltage rating

V<sub>IO</sub> = input offset voltage

V<sub>s</sub> = dc supply voltage

RIGHT HAND PAGE

Lead out coding summary (details at APP.G.) for different cases (APP.F.)

A = gain adjust

B = bias adjust

C = case

E- = inverting input

E+ = non-inverting input

F,\* = input frequency compensation

G = ground

J = high level input

K = output, open collector

L = output, open emitter

M = metal case

N = not connected

Q = special terminal

R,R\* = outputs

S = strobe

T,\* = offset balance

V+ = +ve dc supply

V- = -ve dc supply

W = guard ring

X = blank position, no lead

++ = +ve supplementary dc supply

-- = -ve supplementary dc supply

φ,\* = output frequency compensation

CASE (APP.F.)	LD 1	LD 2	LD 3	LD 4	LD 5	LD 6	LD 7	LD 8	LD 9	LD 10	LD 11	LD 12	LD 13	LD 14	LD 15	LD 16	EUROPE SUBSTITUTION	USA SUBSTITUTION	IS S	TYPE NUMBER	
T05-8/1M	T	E-	E+	V-	T*	R	V+	N	.	.	.	.	.	.	.	.	UAF157HM	LF157H	0	MLF157G	
T05-8/1M	G	E+	E-	V-	T	T*S	R	V+	.	.	.	.	.	.	.	.	.	LF211H	0	MLF211G	
DIL-8/1P	G	E+	E-	V-	T	T*S	R	V+	.	.	.	.	.	.	.	.	.	MLF211U	0	MLF211P	
DIL-8/1C	G	E+	E-	V-	T	T*S	R	V+	.	.	.	.	.	.	.	.	.	MLF111U	0	MLF211U	
T05-8/1M	G	E+	E-	V-	T	T*S	R	V+	.	.	.	.	.	.	.	.	UAF311H	LF311H	0	MLF311G	
DIL-8/1P	G	E+	E-	V-	T	T*S	R	V+	.	.	.	.	.	.	.	.	.	MLF211U	0	MLF311P	
DIL-8/1C	G	E+	E-	V-	T	T*S	R	V+	.	.	.	.	.	.	.	.	.	MLF211U	0	MLF311U	
T05-8/1M	T	E-	E+	V-	T*	R	V+	N	.	.	.	.	.	.	.	.	UAF355AHC	LF355AH	0	MLF355AG	
T05-8/1M	T	E-	E+	V-	T*	R	V+	N	.	.	.	.	.	.	.	.	UAF355HC	LF355H	0	MLF355G	
T05-8/1M	T	E-	E+	V-	T*	R	V+	N	.	.	.	.	.	.	.	.	UA356AHC	LF356AH	0	MLF356AG	
T05-8/1M	T	E-	E+	V-	T*	R	V+	N	.	.	.	.	.	.	.	.	UA356HC	LF356H	0	MLF356G	
T05-8/1M	T	E-	E+	V-	T*	R	V+	N	.	.	.	.	.	.	.	.	UAF357AHC	LF357AH	0	MLF357AG	
T05-8/1M	T	E-	E+	V-	T*	R	V+	N	.	.	.	.	.	.	.	.	UAF357HC	LF357H	0	MLF357G	
T05-8/1M	FT	E-	E+	V-M	T*	R	V+	F*	.	.	.	.	.	.	.	.	SFC2101A	LM101AH	0	MLM101AG	
DIL-8/1C	FT	E-	E+	V-	T*	R	V+	F*	.	.	.	.	.	.	.	.	.	SNS2101AJ	0	MLM101AU	
T05-8/1M	N	E-	E+	V-M	N	R	V+	N	.	.	.	.	.	.	.	.	SFC2107M	LM107H	0	MLM107G	
DIL-8/1C	N	E-	E+	V-	N	R	V+	N	.	.	.	.	.	.	.	.	SNS2107JP	LM107J	0	MLM107U	
FLP-10/3C	N	E-	E+	N	V-	R	V+	F*	F	.	.	.	.	.	.	.	UA108AF	LM108AJ	0	MLM108AF	
T05-8/1M	F	N	E-	V-	N	R	V+	F*	.	.	.	.	.	.	.	.	SFC2108A	LM108AH	0	MLM108AG	
DIL-8/1C	F	E-	E+	V-	N	R	V+	F*	.	.	.	.	.	.	.	.	SFC2108A	LM108AH	0	MLM108AU	
FLP-10/3C	N	N	E-	E+	N	V-	R	V+	F*	F	.	.	.	.	.	.	SFC2108PM	LM108F	0	MLM108F	
T05-8/1M	F	E-	E+	V-	N	R	V+	F*	.	.	.	.	.	.	.	.	SFC2108M	LM108H	0	MLM108G	
DIL-8/1U	F	E-	E+	V-	N	R	V+	F*	.	.	.	.	.	.	.	.	.	SFC2110M	LM110H	0	MLM110G
T05-8/1M	T	N	E+	V-	L	R	V+	T*	.	.	.	.	.	.	.	.	SFC2110M	LM110H	0	MLM110G	
FLP-10/3C	G	E-	E+	V-	T	T*S	N	R	V+	.	.	.	.	.	.	.	SNS2111FA	LM111F	0	MLM111F	
T05-8/1M	G	E+	E-	V-	T	T*S	R	V+	.	.	.	.	.	.	.	.	SFC2111M	LM111H	0	MLM111G	
DIL-14/1C	N	G	E+	E-	N	V-	T	T*S	R	N	V+	N	N	N	.	.	SNS2111J	LM111D	0	MLM111L	
DIL-14/1C	R1	E-1	E+1	V+1	E+2	E-2	R2	R3	E-3	E+3	G	E+4	E-4	R4	.	.	.	LM124L	0	MLM124L	
DIL-14/1P	R1	E-1	E+1	V+1	E+2	E-2	R2	R3	E-3	E+3	G	E+4	E-4	R4	.	.	.	LM124L	0	MLM124P	
DIL-14/1C	R2	R1	V+1	E-1	E+1	E-2	E+2	E+3	E-3	E-4	E+4	G	R4	R3	.	.	.	LM139AD	0	MLM139AL	
DIL-14/1C	R2	R1	V+1	E-1	E+1	E-2	E+2	E+3	E-3	E-4	E+4	G	R4	R3	.	.	.	LM139J	0	MLM139L	
T05-8/1M	R1	E-1	E+1	G	E+2	E-2	R2	V+	.	.	.	.	.	.	.	.	.	LM158H	0	MLM158G	
DIL-8/1C	R1	E-1	E+1	G	E+2	E-2	R2	V+	.	.	.	.	.	.	.	.	.	LM158U	0	MLM158U	
T05-8/1M	FT	E-	E+	V-M	T*	R	V+	F*	.	.	.	.	.	.	.	.	SFC2101A	LM201AH	0	MLM201AG	
DIL-8/1P	FT	E-	E+	V-	T*	R	V+	F*	.	.	.	.	.	.	.	.	.	SNS2101AJ	0	MLM201AP1	
DIL-8/1C	FT	E-	E+	V-	T*	R	V+	F*	.	.	.	.	.	.	.	.	.	SNS2101AJ	0	MLM201AU	
T05-8/1M	N	E-	E+	V-M	N	R	V+	N	.	.	.	.	.	.	.	.	.	SFC2207	LM207H	0	MLM207G
T05-8/1M	T	N	E+	V-	L	R	V+	T*	.	.	.	.	.	.	.	.	.	SFC2210	LM210H	0	MLM210G
FLP-10/3C	G	E+	E-	N	V-	T	T*S	N	R	V+	.	.	.	.	.	.	.	SNS2111FA	LM211F	0	MLM211F
T05-8/1M	G	E+	E-	V-	T	T*S	R	V+	.	.	.	.	.	.	.	.	.	SFC2211	LM211H	0	MLM211G
DIL-14/1C	N	G	E+	E-	N	V-	T	T*S	R	N	V+	N	N	N	.	.	SNS2111J	LM211D	0	MLM211L	
DIL-14/1C	R1	E-1	E+1	V+1	E+2	E-2	R2	R3	E-3	E+3	G	E+4	E-4	R4	.	.	SG224J	LM224J	0	MLM224L	
DIL-14/1P	R1	E-1	E+1	V+1	E+2	E-2	R2	R3	E-3	E+3	G	E+4	E-4	R4	.	.	SG224J	LM224D	0	MLM224P	
DIL-14/1C	R2	R1	V+1	E-1	E+1	E-2	E+2	E+3	E-3	E-4	E+4	G	R4	R3	.	.	.	LM239AD	0	MLM239AL	
DIL-14/1P	R2	R1	V+1	E-1	E+1	E-2	E+2	E+3	E-3	E-4	E+4	G	R4	R3	.	.	.	LM239AJ	0	MLM239AP	
DIL-14/1C	R2	R1	V+1	E-1	E+1	E-2	E+2	E+3	E-3	E-4	E+4	G	R4	R3	.	.	.	LM239J	0	MLM239L	
DIL-14/1P	R2	R1	V+1	E-1	E+1	E-2	E+2	E+3	E-3	E-4	E+4	G	R4	R3	.	.	.	LM239J	0	MLM239P	
T05-8/1M	FT	E-	E+	V-	T*	R	V+	F*	.	.	.	.	.	.	.	.	.	SFC2301A	LM301AH	0	MLM301AG
DIL-8/1P	FT	E-	E+	V-	T*	R	V+	F*	.	.	.	.	.	.	.	.	.	SFC2301ADC	LM301AJ	0	MLM301AP1
DIL-8/1C	FT	E-	E+	V-	T*	R	V+	F*	.	.	.	.	.	.	.	.	.	SFC2301ADC	LM301AJ	0	MLM301AU
T05-8/1M	N	E-	E+	V-M	N	R	V+	N	.	.	.	.	.	.	.	.	.	SFC2307	LM307H	0	MLM307G
DIL-8/1P	N	E-	E+	V-	N	R	V+	N	.	.	.	.	.	.	.	.	.	SFC2307DC	LM307J	0	MLM307P1
DIL-8/1C	N	E-	E+	V-	N	R	V+	N	.	.	.	.	.	.	.	.	.	SFC2307DC	LM307J	0	MLM307U
FLP-10/3C	N	N	E-	E+	N	V-	R	V+	F*	F	.	.	.	.	.	.	.	LM208AF	0	MLM308AF	
T05-8/1M	F	E-	E+	V-M	N	R	V+	F*	.	.	.	.	.	.	.	.	.	SFC2308A	LM308AH	0	MLM308AG
DIL-8/1P	F	E-	E+	V-	N	R	V+	F*	.	.	.	.	.	.	.	.	.	MLM308AU	0	MLM308AP1	
DIL-8/1C	F	E-	E+	V-	N	R	V+	F*	.	.	.	.	.	.	.	.	.	MLM308AU	0	MLM308AU	
FLP-10/3C	N	N	E-	E+	N	V-	R	V+	F*	F	.	.	.	.	.	.	.	SFC2208PT	LM208F	0	MLM308F
T05-8/1M	F	E-	E+	V-M	N	R	V+	F*	.	.	.	.	.	.	.	.	.	SFC2308A	LM308AH	0	MLM308G
DIL-8/1P	F	E-	E+	V-	N	R	V+	F*	.	.	.	.	.	.	.	.	.	SFC2308DC	LM308N	0	MLM308P1

# Appendix A

# Explanatory notes to tabulations

The general layout plan of the information in the tables of this compendium should be immediately evident from the data tabulation explanatory chart set out overleaf.

Supporting Appendices with additional information are:

- App. B Glossary of *Opamp Terms*
- App. C Tabulation *Codes for Manufacturers*
- App. D IC Manufacturers' *House Numbers*
- App. E Tabulation *Codes for Applications*
- App. F *Case Outline and Leadout Diagrams*
- App. G Codes for *Leadout Connections*

Unit symbols used in the tables are:

- A = amperes
- C = °centigrade
- dB = decibels
- G = gigaohms (megohms  $\times 10^3$ )
- GHZ = gigahertz (megahertz  $\times 10^3$ )
- K = kilohms
- KHZ = kilohertz
- M = megohms
- MA = milliamperes, mA
- MAX = maximum
- MHZ = megahertz
- MIN = minimum
- MV = millivolts
- MWC = milliwatts, case at 25C
- MWF = milliwatts, free air at 25C
- MWH = milliwatts, heat sink, 25C
- NA = nanoamps (microamps  $\times 10^{-3}$ )
- NV = nanovolts (microvolts  $\times 10^{-3}$ )
- PA = picoamps (microamps  $\times 10^{-12}$ )
- R = ohms
- T = teraohms (megohms  $\times 10^6$ )
- V = volts
- WC = watts, case at 25C
- WF = watts, free air at 25C
- WH = watts, heatsink, 25C
- $\mu$ A = microamps
- $\mu$ S = microseconds
- $\mu$ V = microvolts
- $\mu$ W = microwatts
- $\mu$ WF = microwatts, free air at 25C

Where a unit symbol appears in the middle of a value, it indicates the position of the decimal point, e.g. 3K3 = 3.3K.

Appendix A

TYPE NUMBER	MFR	APP	CMP	GBP MIN	SLEW RATE MIN	V <sub>S+</sub> MAX	V <sub>S-</sub> MAX	T <sub>OP</sub> MAX	A <sub>VOL</sub> MIN	V <sub>IO</sub> MAX	I <sub>B</sub> MAX	I <sub>IO</sub> MAX	P <sub>TOT</sub> MAX	I <sub>OUT</sub> MIN	V <sub>OUT</sub> MIN	V <sub>ICM</sub> MAX	V <sub>IDF</sub> MAX	dV <sub>IO</sub> /dT MAX	P <sub>O</sub> MAX	I <sub>O</sub> MAX	CMRR MIN	PSRR MIN	R <sub>IN</sub> MIN	
(EXAMPLE) LH0022CH	NAU	FET	INT	.3MHZ	1V/μS	+22V	-22V	85C	97dB	6MV	25pA	5pA	500mW	10mA	10V	15V	30V	15μV/C	85mW	3mA	70dB	70dB	0.1T	
<p>TYPE No. NUMERO-ALPHABETIC LISTING</p> <p>MFR = MANUFACTURER CODED AS APP. C</p> <p>APP = APPLICATION CODED AS APP. E</p> <p>CMP = FREQUENCY COMPENSATION WITH INT = INTERNAL EXT = EXTERNAL</p> <p>GBP MIN = UNITY GAIN BANDWIDTH PRODUCT, MIN; IN KHZ, MHZ, or GHZ</p> <p>SLEW RATE, MIN. IN VOLTS PER MICROSECOND. V/μS</p> <p>V<sub>S+</sub> MAX = MAX. PERMISSIBLE +VE DC SUPPLY VOLTAGE IN VOLTS, V</p> <p>V<sub>S-</sub> MAX = MAX PERMISSIBLE -VE DC SUPPLY VOLTAGE IN VOLTS, V</p> <p>T<sub>OP</sub> MAX = MAX. PERMISSIBLE OPERATIONAL AMBIENT TEMPERATURE IN °C.</p> <p>A<sub>VOL</sub> MIN = MIN. OPEN-LOOP VOLTAGE GAIN IN DB</p> <p>V<sub>IO</sub> MAX = MAX INPUT OFFSET VOLTAGE AT 25°C IN MV or μV.</p> <p>I<sub>B</sub> MAX = MAX. INPUT BIAS CURRENT AT 25°C IN MA, μA, nA or pA</p> <p>P<sub>TOT</sub> MAX = MAX. PERMISSIBLE POWER DISSIPATION IN W, mW, μW WITH F = FREE AIR 25°C, C = CASE 25°C, H = HEATSINK 25°C.</p> <p>I<sub>IO</sub> MAX = MAX. INPUT OFFSET CURRENT AT 25°C IN MA, μA, nA, OR pA</p> <p>I<sub>O</sub> MAX = MAX. QUIESCENT (NO SIGNAL, NO LOAD) CURRENT CONSUMPTION IN MA</p> <p>P<sub>O</sub> MAX = MAX. QUIESCENT (NO SIGNAL, NO LOAD) POWER CONSUMPTION IN MW</p> <p>dV<sub>IO</sub>/dT MAX = MAX. INPUT OFFSET VOLTAGE TEMPERATURE DRIFT IN μV/C OR MV/C</p> <p>V<sub>IDF</sub> MAX = MAX. PERMISSIBLE DIFFERENTIAL INPUT VOLTAGE IN V.</p> <p>V<sub>ICM</sub> MAX = MAX. PERMISSIBLE COMMON-MODE INPUT VOLTAGE IN VOLTS, V</p> <p>V<sub>OUT</sub> MIN = GUARANTEED MIN. OUTPUT VOLTAGE, PEAK VALUE, IN VOLTS, V</p> <p>I<sub>OUT</sub> MIN = GUARANTEED MINIMUM OUTPUT CURRENT, PEAK VALUE, IN MA OR μA.</p> <p>R<sub>IN</sub> MIN = MIN IN-PUT RESISTANCE</p> <p>PSRR MIN = MIN. POWER SUPPLY REJECTION RATIO IN DB</p> <p>CMRR MIN = MIN. COMMON MODE REJECTION RATIO IN DB</p>																								
<p>[NOTE: FOR FURTHER EXPLANATION OF SPECIAL TERMS SEE APP. B]</p>																								

## Appendix A

### LEFT HAND PAGE

For detailed explanations of column heading notations, see App. A.

Also for ready references the more important abbreviations used in the column headings are listed below:

- APP = application  
(codes at APP.E.)
- CMRR = common mode rejection ratio
- CMP = compensation  
(frequency)
- $dV_{io}/dT$  = input offset voltage temperature drift
- GBP = gain bandwidth product
- $I_b$  = input bias current
- $I_{io}$  = input bias offset current
- $I_Q$  = quiescent supply current
- MFR = manufacturer  
(codes at App.C.)
- $P_Q$  = quiescent power consumer
- PSRR = power supply rejection ratio
- $V_{icm}$  = common mode input voltage rating
- $V_{idc}$  = differential input voltage rating
- $V_{io}$  = input offset voltage
- $V_S$  = dc supply voltage

### RIGHT HAND PAGE

Lead out coding summary (details at APP.G.) for different cases (APP.F.)

- A = gain adjust
- B = bias adjust
- C = case
- E- = inverting input
- E+ = non-inverting input
- F,F\* = input frequency compensation
- G = ground
- J = high level input
- K = output, open collector
- L = output, open emitter
- M = metal case
- N = not connected
- Q = special terminal
- R,R\* = outputs
- S = strobe
- T,T\* = offset balance
- V+ = +ve dc supply
- V- = -ve dc supply
- W = guard ring
- X = blank position, no lead
- + + = +ve supplementary dc supply
- - = -ve supplementary dc supply
- $\phi, \phi^*$  = output frequency compensation

CASE (APP. F.)	LD 1	LD 2	LD 3	LD 4	LD 5	LD 6	LD 7	LD 8	LD 9	LD 10	LD 11	LD 12	LD 13	LD 14	LD 15	LD 16	EUROPE SUBSTITUTION	USA SUBSTITUTION	ISS	TYPE NUMBER	
T05-8/1M	T	E-	E+	V-	T*	R	V+	N	.	.	.	.	.	.	.	.	.	.	LH0022H	0	LH0022CH

CASE = PACKAGE OF DIFFERENT TYPES CODED ACCORDING TO APP. F - FIRST NUMBER INDICATES NUMBER OF LEAD POSITIONS EG DIL-14 = 14 LEAD DUAL-IN-LINE PACKAGE

LD1, LD2, ETC = LEAD NUMBERS WITH CONNECTIONS ACCORDING TO PAGE FOOTNOTE OR APP. G.

EURO SUBSTITUTION = PROELECTRON STANDARD OR OTHER TYPE AVAILABLE IN EUROPE

USA SUBSTITUTION = SUGGESTED ALTERNATIVE AVAILABLE IN USA.

ISS = ISSUE NUMBER OF DATA ENTRY

TYPE No. REPEATED ON R.H. MARGIN

# Appendix C

## Tabulation Codes for Manufacturers

<b>ADU</b>	<b>Advanced Micro Devices Inc.,</b> 901 Thompson Pl., Sunnyvale, CA 94086, USA	<b>ITU</b>	DA14 5HT, UK <b>ITT Semiconductors</b> 74 Commerce Way, Woburn, MA, 01801, USA
<b>ANG</b>	<b>Analog Devices Ltd,</b> Central Ave., East Molesey, KT8 9BR, Surrey, UK	<b>MNG</b>	<b>Mitsubishi Shoji Kaisha Ltd,</b> Bow Bells House, Bread St., London, EC4, UK
<b>ANU</b>	<b>Analog Devices Inc.,</b> P.O. Box 280, Norwood, Mass., 02062	<b>MNJ</b>	<b>Mitsubishi Electric Corp.,</b> 2-12 Marunouchi, Chiyoda-ku, Tokyo, Japan
<b>BLG</b>	<b>Bell &amp; Howell Ltd,</b> Lennox Road, Basingstoke, Hants, UK	<b>MTG</b>	<b>Motorola Ltd</b> (Semiconductor Products Div.), York House, Empire Way, Wembley, Middlesex, HA9 0PR, UK
<b>BLU</b>	<b>Bell &amp; Howell</b> (Control Products Divison), 706 Bostwick Ave, Bridgeport, Conn. 06605, USA	<b>MTU</b>	<b>Motorola Semiconductor Products Inc.,</b> 5005 E. McDowell Road, Phoenix, AZ, 85008, USA
<b>BUG</b>	<b>Burr-Brown International Ltd,</b> 17 Exchange Rd, Watford, WQD1 7EB, Herts., UK	<b>MUG</b>	<b>Mullard Ltd,</b> Mullard House, Torrington Place, London, WC1E 7HD, UK
<b>BUU</b>	<b>Burr-Brown Research Corp.,</b> P.O. Box 11400, Tucson, AZ, 85734, USA	<b>NAG</b>	<b>National Semiconductor (UK) Ltd,</b> Harpur Centre, Bedford, MK40 3LF, UK
<b>CMG</b>	<b>Computing Techniques Ltd,</b> Brookers Rd, Billingshurst, Sussex, RH14 9RZ, UK	<b>NAU</b>	<b>National Semiconductor Corp.,</b> 2900 Semiconductor Drive, Santa Clara, CA, 95051, USA
<b>DAG</b>	<b>Datel UK Ltd,</b> Stephenson Close, Portway Ind. Estate, Andover, Hants, UK	<b>NIJ</b>	<b>Nippon Electric Co. Ltd,</b> 1753 Shimonumabe, Nakahara-ku, Kawasaki, Japan
<b>DAU</b>	<b>Datel Systems Inc.,</b> 1020 Turnpike St., Canton, MA 02021, USA	<b>OAU</b>	<b>Opamp Labs Inc.,</b> 1033 N. Sycamore Ave., Los Angeles, CA 90038, USA
<b>FAG</b>	<b>Fairchild Camera &amp; Instrument (UK) Ltd,</b> 230 High St., Potters Bar, Herts., UK	<b>OBS</b>	Obsolete – no longer commercially available.
<b>FAU</b>	<b>Fairchild Semiconductor</b> 464 Ellis St., Mountain View, CA 94042, USA	<b>OTU</b>	<b>Optical Electronics Inc.,</b> P.O. Box 11140, Tucson, AZ, 85734, USA
<b>FEG</b>	<b>Ferranti Ltd,</b> (Electronic Department), Gem Mill, Chadderton, Oldham, Lancs., OL9 8NP, UK	<b>PLG</b>	<b>Plessey Semiconductors,</b> Cheney Manor, Swindon, Wilts., SN2 2QW, UK
<b>FUJ</b>	<b>Fujitsu Ltd,</b> 1015 Kamikodanaka, Kawasaki, Japan	<b>PRG</b>	<b>Precision Monolithics</b> (Bourns Trimpot Ltd) 17/27 High St., Hounslow, Middlesex, UK
<b>HAG</b>	<b>Harris Semiconductor (Memec) Ltd,</b> The Firs, Whitchurch, Nr. Aylesbury, Bucks., HP22 4JU, UK	<b>PRU</b>	<b>Precision Monolithics (Bourns) Inc.,</b> 1500 Space Park Drive, Santa Clara, CA, 95050, USA
<b>HAU</b>	<b>Harris Semiconductor</b> P.O. Box 883, Melbourne, FL, 32901, USA	<b>RAG</b>	<b>Raytheon Semiconductor</b> The Pinnacles, Harlow, Essex, CM19 5BB, UK
<b>HIJ</b>	<b>Hitachi Ltd</b> (Semiconductor and IC Div.), 1450 Josuihonimachi, Kodaira City, Tokyo, Japan	<b>RAU</b>	<b>Raytheon Semiconductor,</b> 350 Ellis Street, Mountain View, CA, 94042, USA
<b>ING</b>	<b>Intersil Inc.,</b> 8 Tessa Rd, Richfield Trading Estate, Reading, Berks., UK	<b>RCG</b>	<b>RCA (Great Britain) Ltd,</b> Lincoln Way, Windmill Road, Sunbury-on- Thames, Middlesex, UK
<b>INU</b>	<b>Intersil Inc.,</b> 10900 N. Tantau Ave, Cupertino, CA, 95014, USA	<b>RCU</b>	<b>RCA Solid State Division</b> Route 202, Somerville, NJ, 08876, USA
<b>ITG</b>	<b>ITT Semiconductors</b> Maidstone Rd, Fooks Cray, Sidcup, Kent,	<b>SAJ</b>	<b>Sanken Electric Co. Ltd,</b> 1-22-8 Nishi-Ikebukuro, Toshima-Ku, Tokyo, Japan

Appendix C

<b>SGG</b>	<b>SGS-ATES (UK) Ltd,</b> Planar House, Walton Street, Aylesbury, Bucks., UK	<b>SPU</b>	<b>Sprague Electric Company</b> (Semiconductor Div.), 115 Northeast Cutoff, Worcester, MA, 01606, USA
<b>SGI</b>	<b>SGS-ATES Componenti Spa,</b> Via Olivetti, 2 Agrate Brianza, 20041, Milan, Italy	<b>TDG</b>	<b>Teledyne Semiconductor,</b> Heathrow House, Bath Road, Cranford, Hounslow, Middlesex, TW5 9QP, UK
<b>SHG</b>	<b>Shindengen Hyokuto Boeki Haisha Ltd,</b> St. Alphage House, Fore St., London, EC2Y 5DA, UK	<b>TDU</b>	<b>Teledyne (Amelco) Semiconductor,</b> 1300 Terra Bella Ave, Mountain View, CA, 94032, USA
<b>SHJ</b>	<b>Shindengen Electric Mfg Co., Ltd,</b> New Ohtemachi Bldng, 2-1, 2-chome, Ohtemachi, Chiyoda-ku, Tokyo, Japan	<b>TEB</b>	<b>Teledyne-Philbrick,</b> Heathrow House, Bath Road, Cranford, Hounslow, Middlesex, TW5 9QP, UK
<b>SIG</b>	<b>Siemens Ltd,</b> Great West Road, Brentford, Middlesex, TW8 9DG, UK	<b>TEU</b>	<b>Teledyne-Philbrick,</b> Allied Drive at Route 128, Dedham, MA, 02026, USA
<b>SIW</b>	<b>Siemens Aktiengesellschaft,</b> Richard-Strauss-Strasse 76, D-8000 Munchen 2, Postfach 202109, W. Germany	<b>TGG</b>	<b>Texas Instruments Ltd,</b> Manton Lane, Bedford, UK
<b>SJG</b>	<b>Signetics International Corporation</b> Yeoman House, 63 Croydon Rd, London, SE20, UK	<b>TGU</b>	<b>Texas Instruments Inc.</b> (Components Group), P.O. Box 5012, Dallas, Texas, 75222, USA
<b>SJU</b>	<b>Signetics Corp.,</b> 811 East Arques Ave, Sunnydale, CA. 94086, USA	<b>THF</b>	<b>Thomson-CSF (Sescosem),</b> 50 Rue Jean Pierre Timbaud, BP 120, 92403, Courbevoie, France
<b>SKU</b>	<b>Silicon General Inc.,</b> 7382 Bolsa Avenue, Westminster, CA, 92683, USA	<b>THG</b>	<b>Thomson-CSF (UK) Ltd,</b> Ringway House, Bell Rd, Daneshill, Basingstoke, Hants., RG24 0QG, UK.
<b>SLG</b>	<b>Siliconix Ltd,</b> 30A High St., Thatcham, Newbury, Berks., RG13 4JG, UK	<b>TKJ</b>	<b>Tokyo Sanyo Electric Co. Ltd</b> (Semiconductor Div.), Oizumachi, Oragun, Gumma, Japan
<b>SLU</b>	<b>Siliconix Incorporated,</b> 2201 Laurelwood Road, Santa Clara, CA, 95054, USA	<b>TOG</b>	<b>Toshiba (UK) Ltd,</b> Toshiba House, Great South West Rd, Feltham, Middlesex, UK
<b>SOJ</b>	<b>Sony Semiconductor Corp.,</b> 14-1, Asa hi-sho 4, Atsuigi-shi, Kanagawa-ken, 243, Japan	<b>TOJ</b>	<b>Toshiba (Tokyo Shibaura) Electric Co.,</b> 2-1, 5-chome, Ginza Chuo-ku, Tokyo, Japan
<b>SPG</b>	<b>Sprague Electric (UK) Ltd,</b> 159 High St., Yiewsley, W. Drayton, Middlesex, UB7 7RY, UK	<b>TRU</b>	<b>Transitron Electronic Corp.,</b> 168 Albion St., Wakefield, MA, 01881, USA
		<b>ZEU</b>	<b>Zeltex Inc.,</b> 940 Detroit Ave, Concord, CA, 94518, USA

# Appendix D

## IC Manufacturers'

### House Numbers

(General Note: Manufacturers often adopt their own 'in-house' serial numbering for their ICs. Listed below are the initial letters of numerical series used by different manufacturers.)

<b>AD</b>	Analog Devices	<b>OP</b>	Precision Monolithics
<b>ADO</b>	Analog Devices	<b>P</b>	Teledyne-Philbrick
<b>AM</b>	Advanced Micro Devices; Datel	<b>PF</b>	Teledyne-Philbrick
<b>AMD</b>	Advanced Micro Devices	<b>PG</b>	General Instruments (obs.)
<b>AMLM</b>	Advanced Micro Devices	<b>PP</b>	Teledyne-Philbrick
<b>AMSSS</b>	Advanced Micro Devices	<b>RA</b>	Radiation (now Harris)
<b>AMU</b>	Advanced Micro Devices	<b>RC</b>	Raytheon
<b>C</b>	Bell & Howell	<b>RL</b>	Raytheon
<b>CA</b>	RCA	<b>RM</b>	Raytheon
<b>CIA</b>	Teledyne-Philbrick	<b>RSN</b>	Raytheon
<b>CMP</b>	Precision Monolithics	<b>RV</b>	Raytheon
<b>CN</b>	Ferranti	<b>S</b>	Signetics
<b>DA</b>	Teledyne-Philbrick	<b>SA</b>	Teledyne-Philbrick
<b>EP</b>	Teledyne-Philbrick	<b>SE</b>	Signetics; Mullard
<b>ESL</b>	Teledyne-Philbrick	<b>SFC</b>	Thomson-CSF
<b>FSL</b>	Teledyne-Philbrick	<b>SG</b>	Silicon General
<b>FSS</b>	Ferranti	<b>SH</b>	Fairchild
<b>HA</b>	Harris	<b>SK</b>	RCA
<b>HEPC</b>	Motorola	<b>SL</b>	Plessey; Teledyne-Philbrick
<b>ICH</b>	Intersil	<b>SN</b>	Texas Instruments
<b>ICL</b>	Intersil	<b>SP</b>	Teledyne-Philbrick
<b>JM</b>	Fairchild	<b>SQ</b>	Teledyne-Philbrick
<b>JSF</b>	Thomson-CSF	<b>SSS</b>	Precision Monolithics
<b>L</b>	Analog Devices; SGS-ATES	<b>SU</b>	Signetics; Mullard
<b>LA</b>	Teledyne-Philbrick	<b>T</b>	Teledyne-Philbrick Transitron
<b>LF</b>	National Semiconductor	<b>TA</b>	AEG-Telefunken
<b>LH</b>	National Semiconductor	<b>TAA</b>	Proelectron Standard
<b>LM</b>	National Semiconductor	<b>TBA</b>	Proelectron Standard
<b>M</b>	Mitsubishi	<b>TBB</b>	Proelectron Standard
<b>MC</b>	Motorola Semiconductors	<b>TBC</b>	Proelectron Standard
<b>MCC</b>	Motorola Semiconductors	<b>TBE</b>	Proelectron Standard
<b>MCCF</b>	Motorola Semiconductors	<b>TCA</b>	Proelectron Standard
<b>MCE</b>	Motorola Semiconductors	<b>TDA</b>	Proelectron Standard
<b>MCH</b>	Motorola Semiconductors	<b>TDB</b>	Proelectron Standard
<b>MIC</b>	ITT Semiconductors	<b>TDC</b>	Proelectron Standard
<b>MLF</b>	Motorola; Teledyne-Philbrick	<b>TDE</b>	Proelectron Standard
<b>MLM</b>	Motorola Semiconductors	<b>TL</b>	AEG-Telefunken
<b>MLMC</b>	Motorola Semiconductors	<b>TOA</b>	Transitron
<b>MONO-OP</b>	Precision Monolithics	<b>TSC</b>	Transitron
<b>N</b>	Signetics; Mullard	<b>U</b>	Fairchild
<b>NC</b>	General Instruments (obs.)	<b>ULN</b>	Sprague
<b>NE</b>	Signetics; Mullard	<b>ULS</b>	Sprague
<b>NH</b>	National Semiconductor	<b>USL</b>	Teledyne-Philbrick
		<b>ZA</b>	Zeltex
		<b>ZEL</b>	Zeltex
		<b>ZLD</b>	Ferranti
		<b>ZN</b>	Ferranti
		<b>μA</b>	Fairchild



# Appendix E

## Tabulation Codes for Applications

<b>BDO</b>	Balanced differential-output amplifier	<b>PAA</b>	Parametric amplifier
<b>CDA</b>	Current-difference amplifier	<b>PIA</b>	Precision instrumentation amplifier
<b>CHP</b>	Chopper-stabilized amplifier	<b>PRA</b>	Programmable opamp
<b>CPR</b>	DC comparator	<b>QCD</b>	Quad current-difference amplifier
<b>DBD</b>	Dual balanced differential-output amplifier	<b>QCP</b>	Quad comparator
<b>DCP</b>	Dual Comparator	<b>QFE</b>	Quad fet-input opamp
<b>DFE</b>	Dual fet-input opamp	<b>Q GK</b>	Quad general-purpose, internally-compensated, opamp
<b>DGK</b>	Dual general purpose opamp	<b>QGU</b>	Quad general-purpose, uncompensated, opamp
<b>DGU</b>	Dual general-purpose uncompensated opamp	<b>QLQ</b>	Quad low-quiescent-power opamp
<b>DHS</b>	Dual high-slew-rate opamp	<b>QPI</b>	Quad precision instrumentation amplifier
<b>DLN</b>	Dual low-noise opamp	<b>QPR</b>	Quad programmable opamp
<b>DPI</b>	Dual precision instrumentation amplifier	<b>QSB</b>	Quad super-beta opamp
<b>DPR</b>	Dual programmable opamp	<b>SBA</b>	Super-beta opamp
<b>DSB</b>	Dual super-beta opamp	<b>TCP</b>	Triple comparator
<b>FET</b>	Fet-input opamp	<b>TFE</b>	Triple fet-input opamp
<b>GPK</b>	General-purpose, internally-compensated, opamp	<b>TGK</b>	Triple general-purpose, internally compensated, opamp
<b>GPU</b>	General-purpose, uncompensated, opamp	<b>TGU</b>	Triple general-purpose, uncompensated, opamp
<b>HCO</b>	High current output opamp	<b>TLN</b>	Triple low-noise opamp
<b>HIR</b>	High input resistance opamp	<b>TLP</b>	Triple low-quiescent-power opamp
<b>HPO</b>	High power output opamp	<b>TOT</b>	Triple operational transconductance amplifier
<b>HSR</b>	High slew rate opamp	<b>TPI</b>	Triple precision instrumentation amplifier
<b>HVO</b>	High voltage output opamp	<b>TPR</b>	Triple programmable opamp
<b>LBC</b>	Low input bias current opamp	<b>TSB</b>	Triple super-beta opamp
<b>LCD</b>	Low input offset current drift opamp	<b>VFA</b>	Voltage-follower amplifier
<b>LNA</b>	Low noise opamp	<b>WBA</b>	Wide-band opamp
<b>LOC</b>	Low input offset current opamp	<b>XHG</b>	Extra-high-gain opamp
<b>LOV</b>	Low input offset voltage opamp	<b>XLP</b>	Extra-low quiescent power opamp
<b>LQP</b>	Low quiescent power opamp	<b>XSR</b>	Extra-high slew rate opamp
<b>LVD</b>	Low input offset voltage drift opamp	<b>XWB</b>	Extra-wide-band opamp
<b>MWB</b>	Medium-wideband opamp		
<b>OTA</b>	Operational transconductance amplifier		

# Appendix G

## Codes for Leadout Connections

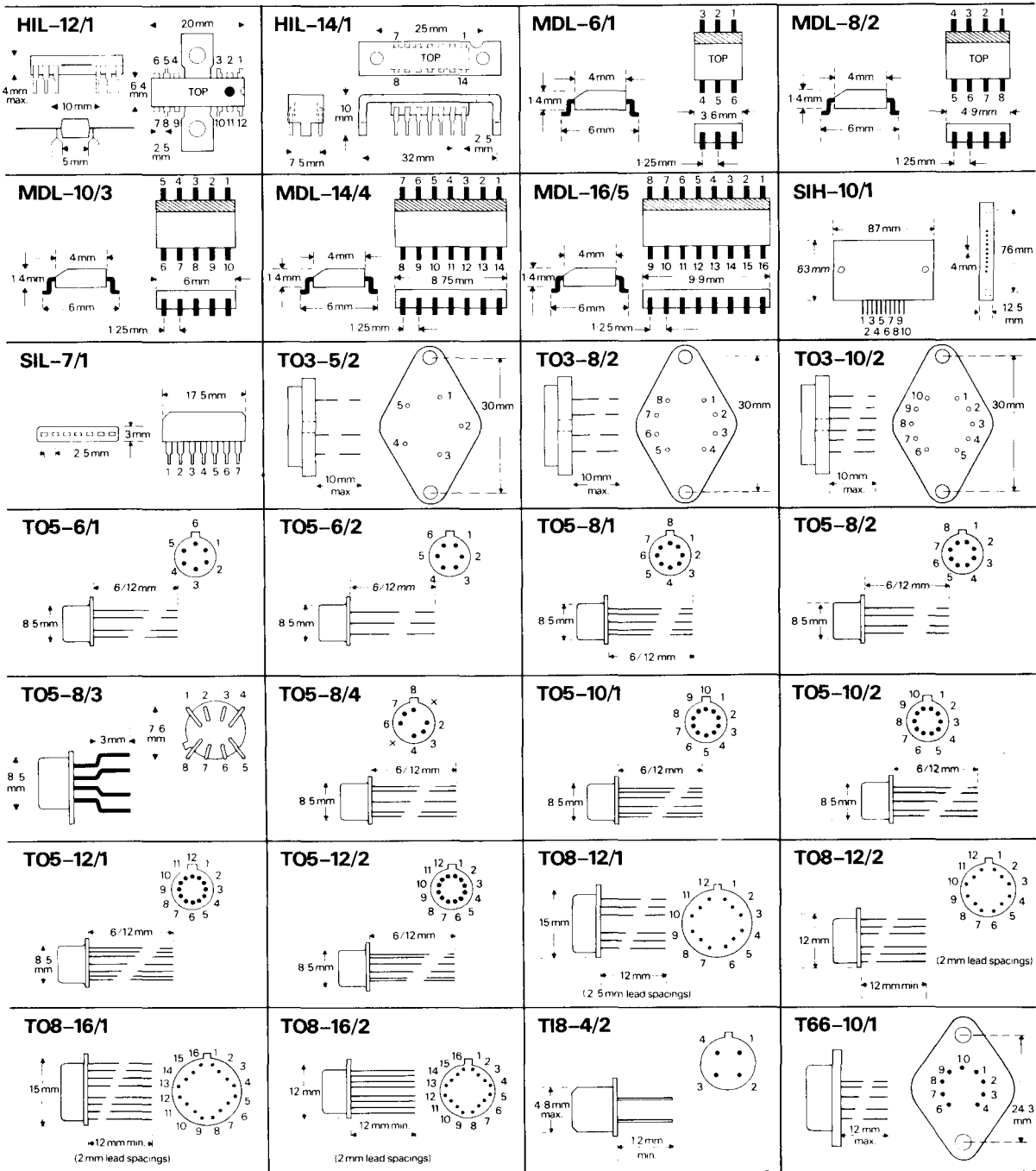
### *I: Connection Codes in Serial Order*

A	= Gain adjust, 1
A*	= Gain adjust, 2
B	= Bias adjust or set
C	= Case, package, screen
E+	= Input, non-inverting, low-level
E-	= Input, inverting, low-level
F	= Input frequency compensation, 1
F*	= Input frequency compensation, 2
G	= Ground, common, earth, zero volts
J+	= Input, non-inverting, high-level
J-	= Input, inverting, high-level
K	= Output, open collector
L	= Output, open emitter
M	= Metal casing
N	= Not connected, i.e. isolated lead
Q	= Special terminal (consult manufacturer's data)
R	= Output, 1
R*	= Output, 2
S	= Strobe
T	= Offset balance, trim or null, 1
T*	= Offset balance, trim or null, 2
V+	= +ve dc supply
V-	= -ve dc supply
W	= Guard ring
X	= Blank position, lead omitted
++	= +ve supplementary dc supply
--	= -ve supplementary dc supply
φ	= Output frequency compensation, 1
φ*	= Output frequency compensation, 2

### *II: Lead Assignments in Alphabetical Order*

Balance, offset, 1 = T
Balance, offset, 2 = T*
Bias adjust = B
Blank position, without lead = X
Case = C
Compensation, input, 1 = F
Compensation, input, 2 = F*
Compensation, output, 1 = φ
Compensation, output, 2 = φ*
DC supply, +ve = V+
DC supply, -ve = V-
Frequency compensation, input, 1 = F
Frequency compensation, input, 2 = F*
Frequency compensation, output, 1 = φ
Frequency compensation, output, 2 = φ*
Gain adjust, 1 = A
Gain adjust, 2 = A*
Ground = G
Guard ring = W
Input, inverting, high-level = J-
Input, non-inverting, high-level = J+
Input, inverting, low-level = E-
Input, non-inverting, low-level = E+
Input offset voltage, adjust, 1 = T
Input offset voltage, adjust, 2 = T*
Lead omitted, blank position = X
Lead in position but not connected = N
Metal case = M
Not connected, but lead in position = N
Null, offset, 1 = T
Null, offset, 2 = T*
Offset voltage adjust, 1 = T
Offset voltage adjust, 2 = T*
Output, 1 = R
Output, 2 = R*
Output, open-collector = K
Output, open-emitter = L
Package = C
Special purpose terminal (data sheet to be consulted) = Q
Strobe = S
Supply, dc, +ve = V+
Supply, dc, -ve = V-
Supply, dc, supplementary, +ve = ++
Supply, dc, supplementary, -ve = --
Trim (offset voltage), 1 = T
Trim (offset voltage), 2 = T*

Appendix F



Appendix F

