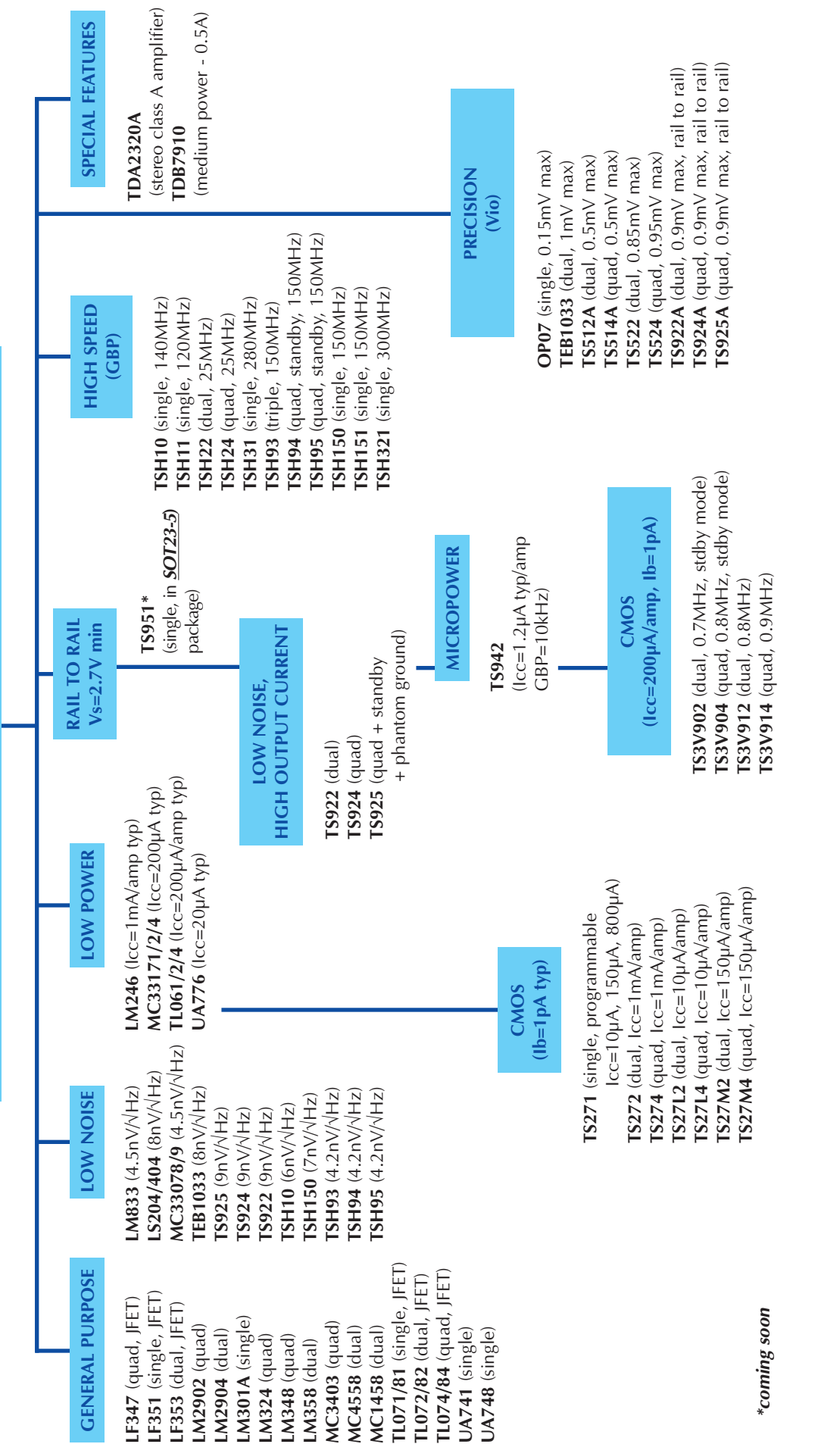


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Selection of Operational Amplifiers

March 1998

Device	Single	Dual	Quad	Package Note 1	V _{io} max. (mV) Note 2	I _{cc} per op (mA typ.)	I _{out} (mA typ.)	I _b max. full temp. range	GBP (MHz typ.)	SR (V/μs typ.)	MINIMUM OUTPUT SWING (V)	Supply Range (V)	Temperature Range	Comments
LM301A	●			N,D	2	1.8	30	100nA	1	0.5	+ -10 (V _{cc} =+15V - R _I =2kΩ)	4 to 44	0/70 °C ; -40/+105°C	Offset nulling capability
LM346		●		N,D	5	0.25	20	250nA	1	0.5	+ -12 (V _{cc} =+15V - R _I =10kΩ)	4 to 44	0/70 °C ; -40/+105°C	Programmable electrical characteristics
LS204		●		N,D	2.5	0.35	23	300nA	3	1.5	+ -13 (V _{cc} =+15V - R _I =2kΩ)	6 to 36	0/70 °C ; -40/+105°C	Low noise (8nV/√Hz) & low distortion (0.01% at f=1kHz)
LS404		●		N,D	2.5	0.325	23	200nA	3	1.5	+ -13 (V _{cc} =+15V - R _I =2kΩ)	6 to 36	0/70 °C ; -40/+105°C	Low noise (8nV/√Hz) & low distortion (0.01% at f=1kHz)
MC33078		●		N,D	2	2	29	800nA	15	7	+ -13.2 (V _{cc} =+15V - R _I =2kΩ)	5 to 30	-40/+105°C	Very low noise (4.5nV/√Hz)
MC33079		●		N,D	2.5	2	29	800nA	15	7	+ -13.2 (V _{cc} =+15V - R _I =2kΩ)	5 to 30	-40/+105°C	Very low noise (4.5nV/√Hz)
MC33171/2/4	●	●	●	N,D	4.5	0.22	6	200nA	2.1	2	+ -13.6 (V _{cc} =+15V - R _I =10kΩ)	4 to 44	-40/+105°C	Offset nulling capability for MC33171
MC3403		●		N,D	5	0.7	30	800nA	1	0.5	+ -10 (V _{cc} =+15V - R _I =2kΩ)	3 to 36	0/70 °C ; -40/+105°C	Low distortion (0.02% at f=1kHz)
MC4558		●		N,D	5	1.15	20	500nA	5.5	2.2	+ -10 (V _{cc} =+15V - R _I =2kΩ)	4 to 44	0/70 °C ; -40/+105°C	Low noise (12nV/√Hz) & low distortion (0.008% at f=1kHz)
TL071/72/84	●	●	●	N,D	10/6/3	1.4	40	20nA	4	16	+ -10 (V _{cc} =+15V - R _I =2kΩ)	6 to 36	0/70 °C ; -40/+105°C	JFET inputs
TS271	●			N,D	10/5/2	prog.	60	150pA	prog.	prog.	+ -8.75 (V _{cc} =+10V - R _I =1MΩ)	3 to 18	0/70 °C ; -40/+125°C	Offset nulling capability
TS272/4		●	●	N,D	10/5/2	1	60	150pA	3.5	5.5	+ -8.15 (V _{cc} =+10V - R _I =10kΩ)	3 to 18	0/70 °C ; -40/+125°C	Common Mode Input Voltage Range includes Ground
TS27L2/4		●	●	N,D	10/5/2	0.01	60	150pA	0.1	0.04	+ -8.75 (V _{cc} =+10V - R _I =1MΩ)	3 to 18	0/70 °C ; -40/+125°C	Common Mode Input Voltage Range includes Ground
TS27M2/4		●	●	N,D	10/5/2	0.15	60	150pA	1	0.6	+ -8.65 (V _{cc} =+10V - R _I =100kΩ)	3 to 18	0/70 °C ; -40/+125°C	Common Mode Input Voltage Range includes Ground
OP07	●			N	0.15	2.7	-	9nA	0.5	0.17	+ -11.5 (V _{cc} =+15V - R _I =2kΩ)	6 to 44	-40/+105°C	Low input offset voltage drift (0.5μV/°C typical)
TEB1033		●		N,D	1	0.5	23	200nA	2	1	+ -4.6 (V _{cc} =+6V - R _I =600 Ω)	4 to 36	0/70 °C ; -40/+105°C	Low noise (8nV/√Hz) & low distortion (0.008% at f=1kHz)
TS512/4		●	●	N,D	2.5/0.5	0.35	23	300nA	3	1.5	+ -13 (V _{cc} =+15V - R _I =2kΩ)	6 to 36	-40/+125°C	Low noise (8nV/√Hz) & low distortion (0.03% at f=1kHz)
TS522		●		N,D	0.85	2	29	800nA	15	7	+ -13.2 (V _{cc} =+15V - R _I =2kΩ)	5 to 30	-40/+125°C	Very low noise (4.5nV/√Hz)
TS524		●		N,D	0.95	2	29	800nA	15	7	+ -13.2 (V _{cc} =+15V - R _I =2kΩ)	5 to 30	-40/+125°C	Very low noise (4.5nV/√Hz)
TS951*	●			D,L	6	0.9	20	200nA	3	1	2.58 (V _{cc} =3V - R _I =600 Ω)	2.7 to 12	-40/+125°C	Input & Output Rail to Rail - low distortion
TS922		●		N,D,P	3/0.9	1	80	100nA @ 25°C	4	1	2.77 (V _{cc} =3V - R _I =600 Ω)	2.7 to 12	-40/+125°C	Input & Output Rail to Rail - low noise (9nV/√Hz)
TS924			●	N,D,P	3/0.9	1	80	100nA @ 25°C	4	1.3	2.77 (V _{cc} =3V - R _I =600 Ω)	2.7 to 12	-40/+125°C	Input & Output Rail to Rail - low noise (9nV/√Hz)
TS925			●	N,D,P	3/0.9	1	80	100nA @ 25°C	4	1.3	2.77 (V _{cc} =3V - R _I =600 Ω)	2.7 to 12	-40/+125°C	Input & Output Rail to Rail - standby, phantom ground
TS942		●		N,D	10/5/2	1.2μA	5	150pA @ 25°C	0.01	0.005	2.7 (V _{cc} =3V - R _I =10kΩ)	2.7 to 10	-40/+85°C	Micropower - Output Rail to Rail - fully specified at V _{cc} = 3V & 5V
TS3V902		●		N,D	10/5	0.2	40	300pA	0.7	0.5	2.8 (V _{cc} =3V - R _I =10kΩ)	2.7 to 16	-40/+125°C	Input & Output Rail to Rail - standby mode
TS3V904			●	N,D	10/5	0.2	40	300pA	0.8	0.5	1.9 (V _{cc} =3V - R _I =600 Ω)	2.7 to 16	-40/+125°C	Input & Output Rail to Rail - standby mode
TS3V912		●		N,D	10/5/2	0.2	40	300pA	0.8	0.4	1.9 (V _{cc} =3V - R _I =600 Ω)	2.7 to 16	-40/+125°C	Input & Output Rail to Rail - fully specified at V _{cc} = 3V & 5V
TS3V914			●	N,D	10/5	0.2	40	300pA	0.8	0.5	1.9 (V _{cc} =3V - R _I =600 Ω)	2.7 to 16	-40/+125°C	Input & Output Rail to Rail - fully specified at V _{cc} = 3V & 5V
TSH10	●			N,D	10	20	70	30μA @ 25°C	140	150	5 (V _{cc} =10V - R _I =100 Ω)	7 to 12	-40/+105°C	Low noise (6nV/√Hz at f=1MHz)
TSH11	●			N,D	15	20	70	300pA @ 25°C	120	150	5 (V _{cc} =10V - R _I =100 Ω)	7 to 12	-40/+105°C	Low cost
TSH150	●			N,D	5	23	100	30μA @ 25°C	150	190	6 (V _{cc} =10V - R _I =100 Ω)	7 to 12	0/70 °C ; -40/+105°C	Low noise (7nV/√Hz at f=1kHz) & low distortion (0.02%)
TSH151	●			N,D	10	23	100	300pA @ 25°C	150	200	6 (V _{cc} =10V - R _I =100 Ω)	7 to 12	0/70 °C ; -40/+105°C	Low distortion (0.02% at f=1kHz)
TSH22/4		●	●	N,D	2.5	2.15	37	650nA @ 25°C	25	15	3.5 (V _{cc} =5V - R _I =2kΩ)	3 to 30	-40/+125°C	Very low distortion (0.003% at f=1kHz)
TSH31	●			N,D	15	20	70	300pA @ 25°C	280	300	5 (V _{cc} =10V - R _I =100 Ω)	7 to 12	-40/+105°C	Low cost
TSH321	●			N,D	10	23	100	300pA @ 25°C	300	400	6 (V _{cc} =10V - R _I =100 Ω)	7 to 12	-40/+105°C	Very fast settling time (60ns)
TSH93		triple		N,D	3	4.5	36	20μA	150	110	6 (V _{cc} =10V - R _I =600 Ω)	7 to 12	-40/+125°C	High Audio & Video performances - standby mode - low noise (4.2nV/√Hz)
TSH94		●		N,D	3	4.5	36	20μA	150	110	6 (V _{cc} =10V - R _I =600 Ω)	7 to 12	-40/+125°C	High Audio & Video performances - standby mode - low noise (4.2nV/√Hz)

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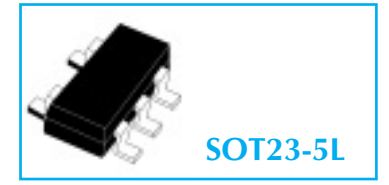
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Note 2 : multiple grades are indicated with "/"

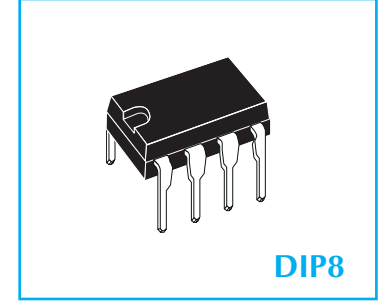
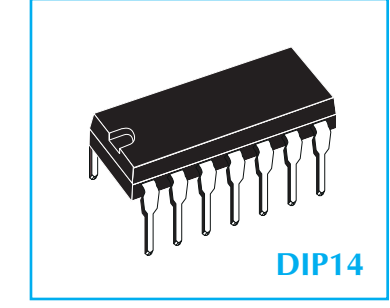
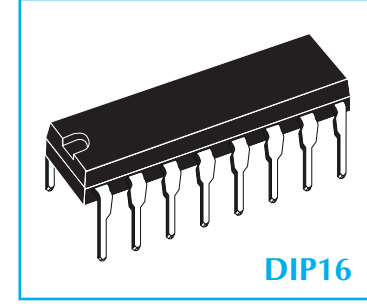
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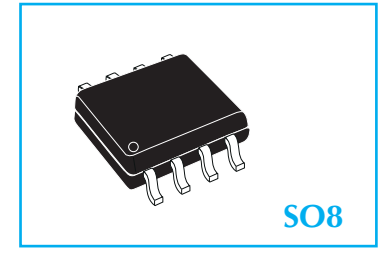
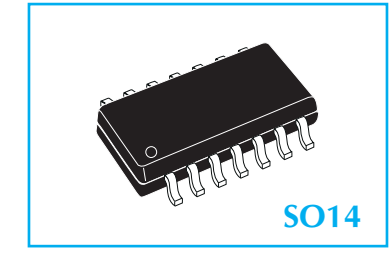
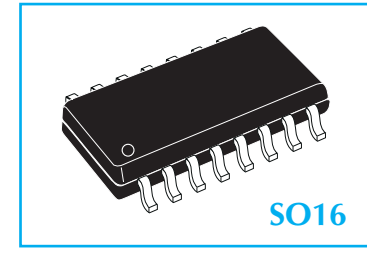
Tiny Package



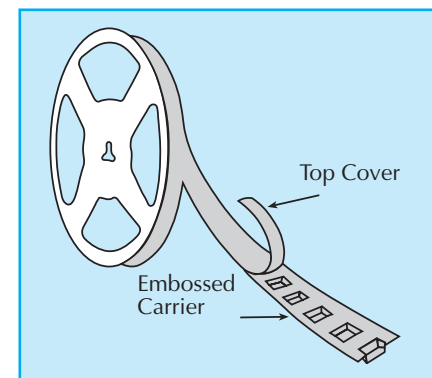
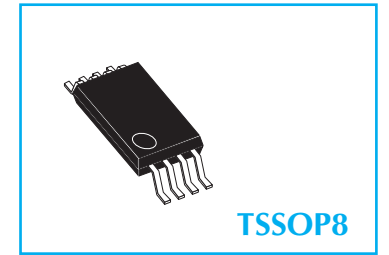
Dual in Line Packages



Small Outline Packages



Thin Shrink Small Outline Packages



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SO16	16	2.500
TSSOP8	12	2.500
TSSOP16	16	2.500
SOT23-5	8	-

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