



Audio & Video

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Audio Amplifiers

Speaker Amplifiers

Portable Amplifier 1.9W+1.9W Stereo Speaker Amplifier													
Part No.	Supply Voltage (V)	Power Dissipation (W)	Quiescent Current (mA)	Standby Current (μA)	Voltage Gain (dB)	Output Power (W)		Distortion (%)	Output Noise Voltage (μVrms)	Package			
BD7836EFV	4.5 to 5.5	1.0	5	0.1	6/10/15.6/21.6	1.9 (V _{DD} =5V, 4Ω, THD+N=1%)		0.1	16	HTSSOP-B20			
Portable Amplifier 1.1W to 1.5W Monaural Speaker Amplifier													
Part No.	Supply Voltage (V)	Power Dissipation (W)	Quiescent Current (mA)	Standby Current (μA)	Voltage Gain (dB)	Output Power(R _L =8Ω, THD=10%)		Distortion (%)	Output Noise Voltage (dBV)	Package			
						V _{CC} =3.6V	V _{CC} =5.0V						
BD7830NUV	2.4 to 5.5	0.53	3.2	0	0 to 20	0.77W	1.5W	0.1	-100	VSON008V2030			
Portable Amplifiers Analog Input Monaural Class-D Speaker Amplifiers													
Part No.	Supply Voltage (V)	Power Dissipation (W)	Quiescent Current (mA)	Voltage Gain (dB)	Output Power (W)		Distortion (%)	Output Noise Voltage (μVrms)	ALC Circuit	Package (mm)			
					(V _{DD} =5V, R _L =4Ω, THD+N=10%)	(V _{DD} =3.6V, R _L =8Ω, THD+N=10%)							
BD5460GUL	2.5 to 5.5	0.69	2.0 (V _{DD} =3.6V)	6	2.5 (V _{DD} =5V, R _L =4Ω, THD+N=10%)	0.85 (V _{DD} =3.6V, R _L =8Ω, THD+N=10%)	0.3 (V _{DD} =3.6V)	30	—	VCSP50L1 1.6 × 1.6			
BD5461GUL	2.5 to 5.5	0.69	2.0 (V _{DD} =3.6V)	12	2.5 (V _{DD} =5V, R _L =4Ω, THD+N=10%)	0.85 (V _{DD} =3.6V, R _L =8Ω, THD+N=10%)	0.3 (V _{DD} =3.6V)	40	—	VCSP50L1 1.6 × 1.6			
BD27400GUL	2.5 to 5.5	0.69	2.9 (V _{DD} =3.6V)	External Variable	2.5 (V _{DD} =5V, R _L =4Ω, THD+N=10%)	0.85 (V _{DD} =3.6V, R _L =8Ω, THD+N=10%)	0.3 (V _{DD} =3.6V)	40	—	VCSP50L1 1.5 × 1.5			
BD5632NUX	2.5 to 5.5	0.52	2.7 (V _{DD} =3.6V)	6	2.5 (V _{DD} =5V, R _L =4Ω, THD+N=10%)	0.85 (V _{DD} =3.6V, R _L =8Ω, THD+N=10%)	0.3 (V _{DD} =3.6V)	40	—	VSON008X2030			
BD5634NUX	2.5 to 5.5	0.52	2.7 (V _{DD} =3.6V)	12	2.5 (V _{DD} =5V, R _L =4Ω, THD+N=10%)	0.85 (V _{DD} =3.6V, R _L =8Ω, THD+N=10%)	0.3 (V _{DD} =3.6V)	40	—	VSON008X2030			
BD5638NUX	2.5 to 5.5	0.52	2.7 (V _{DD} =3.6V)	18	2.5 (V _{DD} =5V, R _L =4Ω, THD+N=10%)	0.85 (V _{DD} =3.6V, R _L =8Ω, THD+N=10%)	0.3 (V _{DD} =3.6V)	40	—	VSON008X2030			
BD5465GUL	2.5 to 5.5	0.69	3.3 (V _{DD} =3.6V)	12	0.6 (V _{DD} =3.6 to 5.5V)		0.3 (V _{DD} =3.6V)	40	✓	VCSP50L1 1.8 × 1.8			
BD5466GUL	2.5 to 5.5	0.69	3.0 (V _{DD} =3.6V)	18	1.5 (V _{DD} =5V, R _L =4Ω, THD+N≤1%)	0.5 (V _{DD} =3.6V, R _L =8Ω, THD+N≤1%)	0.3 (V _{DD} =3.6V)	40	✓	VCSP50L1 1.7 × 1.7			
BD5467GUL	2.5 to 5.5	0.69	3.0 (V _{DD} =3.6V)	13	1.5 (V _{DD} =5V, R _L =4Ω, THD+N≤1%)	0.5 (V _{DD} =3.6V, R _L =8Ω, THD+N≤1%)	0.3 (V _{DD} =3.6V)	40	✓	VCSP50L1 1.7 × 1.7			
BD5468GUL	2.5 to 5.5	0.69	3.0 (V _{DD} =3.6V)	13	1.5 (V _{DD} =5V, R _L =4Ω, THD+N≤1%)	0.5 (V _{DD} =3.6V, R _L =8Ω, THD+N≤1%)	0.3 (V _{DD} =3.6V)	40	✓	VCSP50L1 1.7 × 1.7			
BD5469GUL	2.5 to 5.5	0.69	3.0 (V _{DD} =3.6V)	13	0.88 (V _{DD} =4.2V, R _L =8Ω, THD+N≤1%)	0.64 (V _{DD} =3.6V, R _L =8Ω, THD+N≤1%)	0.3 (V _{DD} =3.6V)	40	✓	VCSP50L1 1.7 × 1.7			
Portable Amplifier Analog Input Stereo Class-D Speaker Amplifier													
Part No.	Supply Voltage (V)	Power Dissipation (W)	Quiescent Current (mA)	Voltage Gain (dB)	Output Power (W)		Distortion (%)	Output Noise Voltage (μVrms)	Max. LDO Current (mA)	Package			
BD28412MUV	4.5 to 13.0	3.20	16 (V _{CC} =11V)	20/26/ 32/36	18 (V _{CC} =12V, R _L =4Ω, THD+N=10%, PBTl)	9 (V _{CC} =12V, R _L =8Ω, THD+N=10%)	0.03 (V _{CC} =11V)	100	—	VQFN032V5050			
Mid./High-Power Amplifier Class-D Speaker Amplifiers for Digital Input with Built-in DSP													
Part No.	Supply Voltage (V)	Power Dissipation (W)	Quiescent Current (mA)	Output Power (W)		Distortion (%)	Output Noise Voltage (μVrms)	DSP					Package
				(V _{CC} =13V, R _L =8Ω)	(V _{CC} =18V, R _L =8Ω)			Volume	DC Cut HPF	Hard Clipper	Parametric EQ	DRC	
BM28723AMUV	10 to 24	4.56 (4-Layer Board)	45 (V _{CC} =18V)	10 (V _{CC} =13V, R _L =8Ω)	17 (V _{CC} =18V, R _L =8Ω)	0.08	150	✓	✓	✓	✓ (12 Band)	✓ (3 Band)	VQFN032V5050

Mid./High-Power Amplifier Class-D Speaker Amplifier for Digital Input									
Part No.	Supply Voltage (V)	Power Dissipation (W)	Quiescent Current (mA)	Output Power (W)		Distortion (%)	Output Noise Voltage (μ Vrms)	Power Limiter Function	Package
BD28623MUV	8.5 to 24.0	3.56 (4-Layer Board) 2.21 (2-Layer Board)	40 (Vcc=18V)	—	15 (Vcc=16V, RL=8 Ω)	0.08	150	✓ (GAIN)	VQFN024V4040

Mid./High-Power Amplifiers Analog Input/BTL Output Class-D Speaker Amplifiers										
Part No.	Supply Voltage (V)	Power Dissipation (W)	Quiescent Current (mA)	Voltage Gain (dB)	Output Power (W)		Distortion (%)	Output Noise Voltage (μ Vrms)	Power Limiter Function	Package
BD5424EFS	10.0 to 18.0	4.5 (4-Layer Board) 2.0 (2-Layer Board)	30 (Vcc=12V)	28	10 (Vcc=12V, RL=8 Ω)	20 (Vcc=17V, RL=8 Ω)	0.1	80	✓ (Power Limiter)	HTSSOP-A44
BD5423AEFS	10.0 to 16.5	4.5 (4-Layer Board) 2.0 (2-Layer Board)	25 (Vcc=12V)	28	10 (Vcc=12V, RL=8 Ω)	17 (Vcc=12V, RL=4 Ω)	0.1	80	✓ (Power Limiter)	HTSSOP-A44
BD5426EFS	10.0 to 16.5	4.5 (4-Layer Board) 2.0 (2-Layer Board)	25 (Vcc=12V)	28	9 (Vcc=12V, RL=8 Ω)	10 (Vcc=13V, RL=8 Ω)	0.1	80	✓ (Power Limiter)	HTSSOP-A44
BD5413EFV	6.0 to 10.5	2.8 (4-Layer Board) 1.1 (2-Layer Board)	12 (Vcc=9V)	30	4 (Vcc=9V, RL=8 Ω)	5 (Vcc=9V, RL=6 Ω)	0.2	90	—	HTSSOP-B24

Headphone Amplifiers

Ultra-Compact Coupling Capacitorless Headphone Amplifiers									
Part No.	Supply Voltage (V)	Quiescent Current (mA)	Gain (V/V)	Maximum Output Power (mW)	Distortion (%)	Output Noise Voltage (μ Vrms)	Ripple Rejection (dB)	Note	Package (mm)
BD88200GUL	2.4 to 5.5	2	Variable Gain with external resistor	80 (VDD=3.3V, RL=16 Ω)	0.006 (VDD=3.3V, RL=16 Ω)	10	-80 (f=217Hz)	Virtual ground based	VCSP50L2 2.1 × 2.1
BD88210GUL	2.4 to 5.5	2	-1.0	80 (VDD=3.3V, RL=16 Ω)	0.006 (VDD=3.3V, RL=16 Ω)	10	-80 (f=217Hz)	Virtual ground based	VCSP50L2 2.1 × 2.1
BD88215GUL	2.4 to 5.5	2	-1.5	80 (VDD=3.3V, RL=16 Ω)	0.006 (VDD=3.3V, RL=16 Ω)	10	-80 (f=217Hz)	Virtual ground based	VCSP50L2 2.1 × 2.1
BD88220GUL	2.4 to 5.5	2	-2.0	80 (VDD=3.3V, RL=16 Ω)	0.006 (VDD=3.3V, RL=16 Ω)	10	-80 (f=217Hz)	Virtual ground based	VCSP50L2 2.1 × 2.1
BD88400GUL	2.4 to 5.5	2	Variable Gain with external resistor	80 (VDD=3.3V, RL=16 Ω)	0.006 (VDD=3.3V, RL=16 Ω)	10	-80 (f=217Hz)	Ground based	VCSP50L2 2.1 × 2.1
BD88400FJ	2.4 to 5.5	2	Variable Gain with external resistor	80 (VDD=3.3V, RL=16 Ω)	0.006 (VDD=3.3V, RL=16 Ω)	10	-80 (f=217Hz)	Ground based	SOP-J14
BD88410GUL	2.4 to 5.5	2	-1.0	80 (VDD=3.3V, RL=16 Ω)	0.006 (VDD=3.3V, RL=16 Ω)	10	-80 (f=217Hz)	Ground based	VCSP50L2 2.1 × 2.1
BD88415GUL	2.4 to 5.5	2	-1.5	80 (VDD=3.3V, RL=16 Ω)	0.006 (VDD=3.3V, RL=16 Ω)	10	-80 (f=217Hz)	Ground based	VCSP50L2 2.1 × 2.1
BD88420GUL	2.4 to 5.5	2	-2.0	80 (VDD=3.3V, RL=16 Ω)	0.006 (VDD=3.3V, RL=16 Ω)	10	-80 (f=217Hz)	Ground based	VCSP50L2 2.1 × 2.1

Headphone Amplifier Designed for 0.93V Low Voltage Operation									
Part No.	Supply Voltage (V)	Quiescent Current (mA)	Maximum Output Power (mW)		Distortion (%)		Output Noise Voltage (μ Vrms)	Package	
			Single-ended(16 Ω)	BTL(8 Ω)	Single-ended(16 Ω)	BTL(8 Ω)			
BU7150NUV	0.93 to 3.50 (Ta=0°C or more)	1	14 (VDD=1.5V)	85 (VDD=1.5V)	0.1(Po=5mW)	0.2(Po=25mW)	10	VSON010V3030	

Standard Headphone Amplifiers							
Part No.	Supply Voltage (V)	Quiescent Current (mA)	Voltage Gain (dB)	Maximum Output Power (mW)RL=16 Ω	Distortion (%)	Ripple Rejection (dB)	Package
BH3544F	2.8 to 6.5	7.0	6	62	0.02	57	SOP8
BH3547F	4.5 to 6.5	3.7	6	77	0.05	57	SOP8
BH3548F	4.0 to 5.5	6.5	6	62 (120@RL=8 Ω)	0.02	57	SOP8

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Others

Audio Subsystems															
Part No.	Supply Voltage (V)	Power Dissipation (mW)	Quiescent Current (mA)	Standby Current (μA)	SP Amplifier			HP Amplifier			Package				
					Voltage Gain (dB)	Distortion (%)	Output Power(W) V _{CC} =5V	Voltage Gain (dB)	Distortion (%)	HP AMP/Maximum Output Voltage(dBV) V _{CC} =3.3V					
BH7881EFV	3.3 to 5.5	1,100	18	0	11(SE)/ 17(BTL)	0.04	2	5.5	0.02	1.4	HTSSOP-B24				
BH7884EFV	3.0 to 5.5	1,100	9	0.2	12(SE)/ 18.2(BTL)	0.1	1	5.6	0.03	1.0	HTSSOP-B24				
Line Amplifier(OP Amp)															
Part No.	Supply Voltage (V)	Circuit Current (mA)	Open Loop Gain (dB)	Input	CMRR (dB)	Supply Voltage Rejection Ratio (dB)	Common-mode Input Voltage Range (V)V _{CC} =8V	Offset Voltage (mV)	Offset Current (nA)	Input Bias Current (nA)	Distortion (%)	ch Separation (dB)	Gain Bandwidth Product (MHz)	Slew Rate (V/μs)	Package
BA3131FS	6.0 to 16.0	4.9	110	3	72	90	6	0.5	5	50	0.0025	115	2.6	1.2	SSOP-A20
Line Amplifiers(Output Coupling Capacitor-less Line Amplifiers)															
Part No.	Supply Voltage (V)	Circuit Current (mA)	ch	Voltage Gain (dB)	Maximum Output Voltage (Vrms)	Distortion (%)	Output Noise Voltage (μVrms)	Channel Separation (dB)	Ripple Rejection (dB)	Charge Pump	Package				
BD8876FV	3.0 to 5.5	3.2	2	6 or 9	3.5	0.003	8	80	65	✓	SSOP-B14				
BD8878FV	3.0 to 5.5	3.2	2	6.7	3.0	0.003	10	65	65	✓	SSOP-B14				
Line Amplifiers(Preamps with Built-in ALC)															
Part No.	Supply Voltage (V)	Circuit Current (mA)	Open Loop Gain (dB)	Distortion (%)	Input Resistance (Ω)	Maximum Output Voltage (Vrms)	Equivalent Input Noise Voltage (μVrms)	ALC Range (dB)	Channel Separation (dB)	Channel Separation (dB)	Package				
BA3308F	4.5 to 14.0	3.5	80	0.1	25	1.2	1.0	45	0	75	SOP14				
BA3308FV	4.5 to 14.0	3.5	80	0.1	25	1.2	1.0	45	0	75	SSOP-B14				
Isolation Amplifiers															
Part No.	Supply Voltage (V)	Operating Temperature (°C)	Circuit	Circuit Current (mA)	Voltage Gain (dB)	CMRR (dB)	Common-mode Input Voltage Range (V)V _{CC} =8V	THD (%)	Output Noise Voltage (μVrms)	Channel Separation (dB)	Slew Rate (V/μs)	Input Resistance (kΩ)	Package		
BA3121F	4.0 to 18.0	-30 to +85	2	9.0	-0.04	57	3.75	0.002	3.5	82	2.0	55	SOP8		
BA3123F	4.0 to 18.0	-40 to +85	2	9.0	-0.04	57	3.75	0.002	3.5	82	2.0	55	SOP8		

Power Supply ICs for Audio

Power Supply ICs for High Fidelity Audio

* The following products are belonging to ICs. (Refer PA45) Please ensure that minimum Input Voltage always exceeds the sum of Output Voltage and drop out voltage for the device.

Power Supply ICs for High Fidelity Audio											
Part No.	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Reference Voltage Accuracy (%)	Dropout Voltage (mV)	Noise Level (μVrms)	PSRR (dB)	Over Current Protection	Thermal Protection	Package	
BD37201NUX	0.5	2.7 to 5.5	Variable 1.0 to 4.5	±1	200	4.72	90(f=1kHz) 55(f=1MHz)	✓	✓	VSON008X2030	
☆BD37210AMUV	1.0	3.0 to 16.0	Variable 1.0 to 15.0	±1	300	4.6	78(f=1kHz) 53(f=1MHz)	✓	✓	VQFN020V4040	
☆BD37215AMUV	1.0	-16.0 to -3.0	Variable -15.0 to -1.0	±1	300	5.1	90(f=1kHz) 55(f=1MHz)	✓	✓	VQFN020V4040	

☆ : Under Development

Audio Processors

Analog Audio Processors

6ch/8ch Sound Processors with Built-in Micro-step Volume												
Part No.	Supply Voltage (V)	Circuit Current (mA)	Output Noise Voltage (μVrms)	Distortion (%)	Selector	Main Volume (dB)		Zone Volume (dB)		Tone Control	Serial Control	Package
						ch	ch					
BD34704KS2	±6.5 to ±7.5	±32	1.2	0.0004	18	+32 to -95 0.5/Step	8	+7.5 to -91.5 0.5/Step	2	—	2Wire	SQFP-T80C
BD34705KS2	±6.5 to ±7.5	±32	1.2	0.0004	12	+32 to -95 0.5/Step	8	+6 to -16 1/Step, -16 to -56 2/Step	2	—	2Wire	SQFP-T64
BD34701KS2	±6.5 to ±7.5	±22	1.5	0.0004	8	+32 to -95 0.5/Step	8	—	—	—	2Wire	SQFP-T52
BD3471KS2	±6.5 to ±7.5	±30	1.5	0.0004	12	+24 to -95 0.5/Step	8	—	—	—	2Wire	SQFP-T80C
BD3473KS2	±6.5 to ±7.5	±30	1.5	0.0004	12	+24 to -95 0.5/Step	8	—	—	Bass, Treble	2Wire	SQFP-T80C
BD3474KS2	±6.5 to ±7.5	±30	1.5	0.0004	12	+32 to -95 0.5/Step	8	—	—	Bass, Treble	2Wire	SQFP-T80C
2ch/4ch/6ch Sound Processors												
BD34700FV	±6.5 to ±7.5	±22	1.5	0.0004	—	+32 to -95 0.5/Step	4	—	—	—	2Wire	SSOP-B40
☆BD34710FV	±6.5 to ±7.5	±22	1.5	0.0004	3	+32 to -95 0.5/Step	6	—	—	—	2Wire	SSOP-B40
BD3812F	±5.0 to ±7.3	±2	1.2	0.0050	—	0.6 to 18 2/Step, 0 to -103 1/Step	2	—	—	—	2Wire	SOP14
BD3814FV	±5.0 to ±7.3	±7	1.0	0.001	—	0 to -95 1/Step	6	—	—	Bass, Treble	2Wire	SSOP-B40

☆ : Under Development

6ch Sound Processors																
Part No.	Supply Voltage (V)	Circuit Current (mA)	Output Noise Voltage (μ Vrms)	Distortion (%)	Selector	Input Gain (dB)	Output Gain (dB)	Volume (dB)	Volume	Tone Control	Bass Boost	Serial Control	Package			
BD3811K1	± 5.0 to ± 7.3	± 15	2.0	0.005	8	0, 6	0, 6 to 18, 2/Step	0 to -103, 1/Step	6	Bass, Treble	23mm	2Wire	QFP80			
BD3818KS	± 5.0 to ± 7.4	± 28	1.0	0.002	5	0, 3, 6, 9	—	0 to -95, 1/Step	6	Bass, Treble	(Dynamic)	2Wire	SQFP80			
7ch Sound Processors																
Part No.	Supply Voltage (V)	Current Consumption (mA)	Output Noise Voltage (μ Vrms)	Distortion (%)	Selector	Input Gain (dB)	Output Gain (dB)	Volume (dB)	Volume	Tone Control	Serial Control	Package				
BD3816K1	± 5.0 to ± 7.3	± 24	1.2	0.001	7	0 to 7, 1/Step	0 to 17, 1/Step	0 to -95, 1/Step	7	Bass, Treble	2Wire	QFP80				
BD3817KS	± 5.0 to ± 7.3	± 24	1.2	0.001	10	0 to 7, 1/Step	0 to 17, 1/Step	0 to -95, 1/Step	7	Bass, Treble	2Wire	SQFP100				
6ch/9ch Stereo Input Selector ICs Maximum Input Voltage : 4.2V																
Part No.	Supply Voltage (V)	Current Consumption (mA)	Output Noise Voltage (μ Vrms)	Distortion (%)	Selector	Serial Control	Package									
BD3843FS	± 4.0 to ± 7.3	± 3	1.0	0.004	6	2Wire	SSOP-A24									
BD3841FS	± 5.0 to ± 7.3	± 3	1.0	0.004	9	2Wire	SSOP-A32									
Sound Processors with Built-in 2-band Equalizer																
Part No.	Supply Voltage (V)	Current Consumption (mA)	Selector		Input Gain (dB)	Volume (dB)	Fader		Parametric EQ	Loudness	LPF for Sub Woofer	Option	Serial Control	Output Noise Voltage (μ Vrms)	Distortion (%)	Package
			Single	Diff.			(dB)	Output								
BD37503FV	7.0 to 9.5	20	3	1	0 to +20	0 to -36, - ∞	0 to -63, - ∞	4	—	✓*	—	Anti-aliasing Filter*	I ² C BUS	5.8	0.001	SSOP-B20
BD37511FS	7.0 to 9.5	15	3	0	0 to +20	0 to -40	0 to -62, - ∞	4	—	—	—	—	I ² C BUS	6.0	0.005	SSOP-A20
BD37512FS	7.0 to 9.5	15	3	1	0 to +20	0 to -40	0 to -62, - ∞	4	—	—	—	—	I ² C BUS	6.0	0.005	SSOP-A20
BD37513FS	7.0 to 9.5	38	3	1	0 to +20	+15 to -79, - ∞	0 to -79, - ∞	4	—	✓	—	—	I ² C BUS	3.8	0.001	SSOP-A20
BD37514FS	7.0 to 9.5	38	3	1	0 to +20	+15 to -79, - ∞	0 to -79, - ∞	5	✓	✓	—	—	I ² C BUS	3.8	0.001	SSOP-A20
BD37515FS	7.0 to 9.5	38	3	1	0 to +20	+15 to -79, - ∞	+15 to -79, - ∞	5	✓	✓	✓	—	I ² C BUS	3.8	0.001	SSOP-A20
BD37521FS	7.0 to 9.5	38	3	1	0 to +20	+15 to -79, - ∞	0 to -79, - ∞	4	—	EXT	—	—	I ² C BUS	3.8	0.001	SSOP-A24
BD37522FS	7.0 to 9.5	38	4	1	0 to +20	+15 to -79, - ∞	0 to -79, - ∞	4	✓	✓	—	—	I ² C BUS	3.8	0.001	SSOP-A24
BD37523FS	7.0 to 9.5	38	4	1	0 to +20	+15 to -79, - ∞	+15 to -79, - ∞	5	✓	✓	✓	—	I ² C BUS	3.8	0.001	SSOP-A24
BD3870FS	4.5 to 9.5	8	3	—	0/6/12/18	0 to -87, - ∞	—	2	EXT	—	—	Surround	2Wire	4.5	0.01	SSOP-A24
BD3871FS	4.5 to 9.5	8	3	—	24/26/28	0 to -87, - ∞	—	2	EXT	—	—	Surround	2Wire	40 (G _v =24dB)	0.01	SSOP-A24
BD3872FS	4.5 to 9.5	8	5	—	0/5/10/19/23/26/28	0 to -87, - ∞	—	2	EXT	—	—	Surround	2Wire	4.5	0.01	SSOP-A32
BD3873FS	4.5 to 9.5	8	3	—	18/21/24/27	0 to -87, - ∞	—	2	EXT	—	—	Surround	2Wire	40 (G _v =24dB)	0.01	SSOP-A24
BD3490FV	4.75 to 9.50	7	4	—	0/2/4/6/8/12/16/20	0 to -87 (2ch Independent control), - ∞	—	2	EXT	—	—	Bass Boost, Surround	I ² C BUS	5.0	0.002	SSOP-B28
BD3491FS	4.75 to 9.50	7	6	—	0/2/4/6/8/12/16/20	0 to -87 (2ch Independent control), - ∞	—	2	EXT	—	—	Bass Boost, Surround	I ² C BUS	5.0	0.002	SSOP-A32

Sound Processors with Built-in 2-band Equalizer : Built-in Bass and Treble control *Loudness and Anti-aliasing Filter can be used exclusively. EXT : Set by external components
 BD37511FS and BD37512FS are all function-compatible. BD37513FS, BD37514FS and BD37515FS are all function-compatible. BD37522FS and BD37523FS are all function-compatible.

Analog Audio Processors

Sound Processors with Built-in 3-band Equalizer																			
Part No.	Supply Voltage (V)	Current Consumption (mA)	Selector		Input Gain (dB)	Volume (dB)	Fader		Parametric EQ	Loudness	LPF/HPF for Sub Woofer	Mixing		Level Meter	Option	Serial Control	Output Noise Voltage (μVrms)	Distortion (%)	Package
			Single	Diff.			(dB)	Outputs				ATT	ATT						
BD37524FS	7.0 to 9.5	38	4	1	0 to +20	+15 to -79, -∞	+15 to -79, -∞	6	✓	✓	LPF	—	—	✓	—	I ² C BUS	3.8	0.001	SSOP-A24
BD37531FV	7.0 to 9.5	38	2/3/5	3/2/1	0 to +20	+15 to -79, -∞	+15 to -79, -∞	6	✓	✓	—	—	—	—	—	I ² C BUS	3.8	0.001	SSOP-B28
BD37532FV	7.0 to 9.5	38	2/3/5	3/2/1	0 to +20	+15 to -79, -∞	+15 to -79, -∞	6	✓	✓	LPF	—	—	—	—	I ² C BUS	3.8	0.001	SSOP-B28
BD37533FV	7.0 to 9.5	38	2/3/5	3/2/1	0 to +20	+15 to -79, -∞	+15 to -79, -∞	6	✓	✓	LPF	✓	✓	—	—	I ² C BUS	3.8	0.001	SSOP-B28
BD37534FV	7.0 to 9.5	38	2/3/5	3/2/1	0 to +20	+15 to -79, -∞	+15 to -79, -∞	6	✓	✓	LPF	✓	✓	✓	—	I ² C BUS	3.8	0.001	SSOP-B28
BD37541FS	7.0 to 9.5	38	2/3/5	3/2/1	0 to +20	+15 to -79, -∞	0 to -79, -∞	6	✓	EXT	—	✓	—	—	—	I ² C BUS	3.8	0.001	SSOP-B28
BD37542FS	7.0 to 9.5	38	2/3/5	3/2/1	0 to +20	+15 to -79, -∞	+15 to -79, -∞	6	✓	EXT	LPF	✓	✓	—	—	I ² C BUS	3.8	0.001	SSOP-A32
BD37543FS	7.0 to 9.5	38	2/3/5	3/2/1	0 to +20	+15 to -79, -∞	+15 to -79, -∞	6	✓	EXT	LPF+HPF	✓	✓	✓	—	I ² C BUS	3.8	0.001	SSOP-A32
BD37544FS	7.0 to 9.5	38	1/3/4	3/2/1	0 to +20	+15 to -79, -∞	+15 to -79, -∞	6	✓	—	LPF+HPF	✓	✓	—	Super Bass	I ² C BUS	3.8	0.001	SSOP-A32
BD37545FS	7.0 to 9.5	38	2/3/5	3/2/1	0 to +20	+15 to -79, -∞	+15 to -79, -∞	6	✓	—	LPF+HPF	✓	✓	✓	External I/O	I ² C BUS	3.8	0.001	SSOP-A32
BD37033FV-M	7.0 to 9.5	31	3/5	2/1	0 to +16	+15 to -79, -∞	+15 to -79, -∞	6	✓	✓	LPF	✓	✓	✓	—	I ² C BUS	5.5	0.002	SSOP-B28
BD37034FV-M	7.0 to 9.5 VccL to 13	36	3/5	2/1	0 to +16	+15 to -79, -∞	+15 to -79, -∞	6	✓	✓	LPF+HPF	✓	✓	✓	High Voltage Output	I ² C BUS	6.0	0.002	SSOP-B28
BD3883FS	6.5 to 9.5	8	5	—	0 to +12/16/20/23/26/29	0 to -87, -∞	0/-10	2	EXT	—	—	—	—	—	Surround	2Wire	4.0	0.01	SSOP-A32
BD3403FV	6.5 to 9.5	16	5	—	0 to +26 (2/Step)	0 to -30 (2/Step)	0 to -59, -∞	2	EXT	—	—	—	—	—	Surround	2Wire	8.0	0.02	SSOP-B40

General-Purpose Electronic Volume with Built-in Advanced Switch																		
Part No.	Supply Voltage (V)	Current Consumption (mA)	Selector		Input Gain (dB)	Fader Volume (dB)	Outputs	Mixing		Post Filter	High-Voltage Output (dB)	Serial Control	Output Noise Voltage (μVrms)	Distortion (%)	Package			
			Single	Diff.				ch	ATT (dB)									
BD3464FV	7.0 to 9.5	25	—	—	—	+23 to -79, -∞ (1/Step)	4	—	—	—	—	I ² C BUS	1.9	0.0004	SSOP-B20			
BD3465FV	7.0 to 9.5	25	—	—	—	+23 to -79, -∞ (1/Step)	4	3	+0 to -64, -∞(8/Step)	—	—	I ² C BUS	1.9	0.0004	SSOP-B20			
BD3460FS	7.0 to 9.5	25	—	—	—	+23 to -79, -∞ (1/Step)	6	—	—	—	—	I ² C BUS	1.9	0.0004	SSOP-A24			
BD3461FS	7.0 to 9.5	25	—	—	—	+23 to -79, -∞ (1/Step)	6	3	+0 to -64, -∞(8/Step)	—	—	I ² C BUS	1.9	0.0004	SSOP-A24			
BD34602FS-M	7.0 to 9.5	35	—	—	—	+23 to -79, -∞ (1/Step)	6	3	+0 to -79, -∞(1/Step)	—	—	I ² C BUS	1.3	0.0004	SSOP-A24			
BD37067FV-M	7.0 to 9.5	37	2/3/4/5	4/3/2/1	+23 to -15 (1/Step)	+23 to -79, -∞ (1/Step)	6	1	—	✓	—	I ² C BUS	8	0.003	SSOP-B40			
BD37068FV-M	7.0 to 9.5 VccL to 17.8	30/7	1/2/3/4/5	5/4/3/2/1	+23 to -15 (1/Step)	+23 to -79, -∞ (1/Step)	6	1	—	✓	0/8.3	I ² C BUS	23 (High-Voltage Mode)	0.003	SSOP-B40			
BD37069FV-M	7.0 to 9.5 VccL to 17.8	30/7	2/3/4/5	4/3/2/1	+23 to -15 (1/Step)	+23 to -79, -∞ (1/Step)	6	1	—	✓	2/4.6/8.3	I ² C BUS	23 (High-Voltage Mode)	0.003	SSOP-B40			

6ch Electronic Volume for 5.1ch Car Theater System																		
Part No.	Supply Voltage (V)	Current Consumption (mA)	Input Selector		Input Gain (dB)	5.1ch Volume (dB)	Monaural Volume (dB)	Output Gain (dB)	Mix Car Navi. Cell Phones	Output for Spectrum Analyzer	Serial Control	Output Noise Voltage (μVrms)	Distortion (%)	Package				
			Single Input	Monaural Differential Amplifier Input														
BD3433K	±7.0 to ±9.5	12	5.1ch × 2	1	0, 6, 12 (Each F, R)	+23 to -79, -∞(1/Step)	+15 to -63, -∞(1/step)	0, +2.5(A)/0, -4.5(B)	✓	✓	3Wire	3	0.001	QFP44				

Single Power Supply Sound Processors with Built-in Pre Amplifier for Tape Recording and Playback																		
Part No.	Supply Voltage (V)	Current Consumption (mA)	Selector	Input Gain (dB)	Volume (dB)	Tone Control	Dynamic Bass	Surround	REC/PB Amplifier	Vocal Cut	Output for Spectrum Analyzer	Serial Control	Output Noise Voltage (μVrms)	Max. Output (Vrms)	Distortion (%)	Package		
																	Input	
BD3401KS2	8.0 to 9.5	35	5	-5/0/3.5	0 to -76/-∞ (2/4/Step)	Bass, Middle, Treble	✓	✓	✓	✓	✓	2Wire	3.0	2.5	0.005	SQFP-T64		
BD3402KS2	8.0 to 9.5	28	5	-5/0/3.5	0 to -76/-∞ (2/4/Step)	Bass, Treble	—	—	✓	—	—	2Wire	2.5	2.5	0.005	SQFP-T64		

Bandpass Filter ICs for Spectrum Analyzer Display																		
Part No.	Supply Voltage (V)	Current Consumption (mA)	Band	Input Mix Amplifier	REC Level Display	Standard Output (V)	Maximum Output (V)	BPF Center Frequency (Hz)			Package							
BA3835F	4.5 to 6.5	8.5	5	✓	—	1.35	4.8	105, 340, 1k, 3.4k, 10.5k			SOP18							
BA3834F	4.5 to 6.5	10.0	7	✓	—	1.35	4.8	68, 170, 420, 1k, 2.4k, 5.9k, 14.4k			SOP18							

Sound Processors with Built-in 3-band Equalize : EXT : Set by external components
 BD37531FV, BD37532FV, BD37533FV and BD37534FV are pin-compatible.
 BD37541FS, BD37542FS and BD37543FS are pin-compatible. BD37033FV-M and BD37034FV-M are pin-compatible.
 General-Purpose Electronic Volume with Built-in Advanced Switch : BD3464FS and BD3465FS are pin-compatible. BD3461FS and BD34602FS-M are pin-compatible. BD37067FV-M and BD37068FV-M are pin-compatible.

AUDIO SoC

Audio 1Chip System ICs													
Part No.	Supply Voltage (V)	USB I/F	SD I/F	CD DSP	SDRAM	Quad SPI I/F (ch)	SPI I/F	I ² C I/F	UART I/F	Digital Audio I/F	GPIO (Dedicated pins)	Operating Temperature (C)	Package
BM94715EKU	HVcc 3.0 to 3.6 LVcc 1.45 to 1.65	USB2.0 Dual Role Full Speed (Host/Device)(1ch)	SDIO	3Beam Method	16Mbit Stack	1	Master 1ch Slave 1ch	Master Slave 2ch	HS UART 2ch	I ² S IN 2ch 2series, I ² S OUT 2ch 1series	77 (16)	-40 to +85	HTQFP128UA
BM94803AEKU	HVcc 3.0 to 3.6 LVcc 1.45 to 1.65	USB2.0 Dual Role High Speed (Host/Device)(1ch)	SDIO	3Beam Method	16Mbit Stack	1	Master 1ch Slave 1ch	Master Slave 2ch	HS UART 2ch	I ² S IN 2ch 2series, I ² S OUT 2ch 1series	77 (13)	-40 to +85	HTQFP128UA

Media Decoders

AAC/WMA/MP3/WAV+SD Memory Card+CD-ROM																
Part No.	Supply Voltage (V)	USB	SD	iPod	Serial I/F	Display Information	MP3	WMA	AAC	CD-ROM Mode	CD-ROM File System	MP3 Recording Format	File Search	Audio Output		Package
														Analog	Digital	
BU94605AKV	3.0 to 3.6	USB2.0 Full Speed	MMC SD, miniSD, microSD, SDHC	—	I ² C BUS	Folder number, File number, Play time, Folder name, File name, TAG(Artist, Album, Title)	MPEG1,2,2.5 LAYER1,2,3	WMA9 Standard	MPEG4 AAC-LC	Mode1, Mode2, form1/2, Romeo, Joliet	ISO 9660 Level1,2	—	Search during the playback	Line	I ² S SPDIF	VQFP80
BU94607AKV	3.0 to 3.6	USB2.0 Full Speed	MMC SD, miniSD, microSD, SDHC	iPod touch, iPhone, iPad	I ² C BUS	Folder number, File number, Play time, Folder name, File name, TAG(Artist, Album, Title)	MPEG1,2,2.5 LAYER1,2,3	WMA9 Standard	MPEG4 AAC-LC	Mode1, Mode2, form1/2, Romeo, Joliet	ISO 9660 Level1,2	—	Search during the playback	Line	I ² S SPDIF	VQFP80
BU94702AKV	3.0 to 3.6	USB2.0 Full Speed	MMC SD, miniSD, microSD, SDHC	—	I ² C BUS	Folder number, File number, Play time, Folder name, File name, TAG(Artist, Album, Title)	MPEG1,2,2.5 LAYER1,2,3	WMA9 Standard	MPEG4 AAC-LC	Mode1, Mode2, form1/2, Romeo, Joliet	ISO 9660 Level1,2	MPEG1 Layer3 Sample Rate : 32,44,1,48kHz Bit Rate : 32,64,128, 192,256,320kHz	Search during the playback	Line	I ² S SPDIF	VQFP80
BU94705AKV	3.0 to 3.6	USB2.0 Full Speed	MMC SD, miniSD, microSD, SDHC	iPod touch, iPhone, iPad	I ² C BUS	Folder number, File number, Play time, Folder name, File name, TAG(Artist, Album, Title)	MPEG1,2,2.5 LAYER1,2,3	WMA9 Standard	MPEG4 AAC-LC	Mode1, Mode2, form1/2, Romeo, Joliet	ISO 9660 Level1,2	MPEG1 Layer3 Sample Rate : 32,44,1,48kHz Bit Rate : 32,64,128, 192,256,320kHz	Search during the playback	Line	I ² S SPDIF	VQFP80

Media Decoders : iPod, iPad and iPhone are registered trademarks of Apple Inc. in the U.S. and other countries.
 It is necessary to get 'Made for iPod/iPhone/iPad license' for introducing BU94607AKV, BU94705AKV.

Audio Converters

Audio Codec

Audio Codec											
Part No.	Supply Voltage (V)	ADC	DAC	Microphone Input	Speaker Output		Headphone Output	Filter		ALC	Package
		ch/bit	ch/bit		Type	Monaural/ Stereo		EQ	Notch		
BU26154MUV	HV _{DD} 2.7 to 5.5 LV _{DD} 2.7 to 3.6	1ch/24bit	2ch/24bit	1	AB/D	Monaural	Stereo	✓	✓	✓	VQFN040V6060
BU26156RFS	HV _{DD} 2.7 to 5.5 LV _{DD} 2.7 to 3.6	2ch/24bit	2ch/24bit	2	AB/D	Stereo	Stereo	✓	✓	✓	HTSSOP-A44R

Video Amplifiers

Composite Video Amplifiers

Ultra-compact(WL-CSP) Output Capacitor-less 1ch Video Drivers												
Part No.	Supply Voltage (V)	Circuit Current (mA)	Amplifier Gain (dB)	Freq. Chara.1 (dB)	Freq. Chara.2 (dB)	Input type	LPF	Mute (Standby) (μA)	Output Capa-less	Max. Output Level (Vp-P)	Video Out→In Change Mode	Package (mm)
BH76906GU	2.5 to 3.45	15	6	-0.2 (4.5MHz)	-26 (18MHz)	Bias(150kΩ)	8th order 4.5MHz	0	✓	5.2	—	VCSP85H 1.6 × 1.6, H=1.0Max.
BH76909GU	2.5 to 3.45	15	9	-0.2 (4.5MHz)	-26 (18MHz)	Bias(150kΩ)	8th order 4.5MHz	0	✓	5.2	—	VCSP85H 1.6 × 1.6, H=1.0Max.
BH76912GU	2.5 to 3.45	15	12	-0.2 (4.5MHz)	-26 (18MHz)	Bias(150kΩ)	8th order 4.5MHz	0	✓	5.2	—	VCSP85H 1.6 × 1.6, H=1.0Max.
BH76916GU	2.5 to 3.45	15	16.5	-0.2 (4.5MHz)	-26 (18MHz)	Bias(150kΩ)	8th order 4.5MHz	0	✓	5.2	—	VCSP85H 1.6 × 1.6, H=1.0Max.
BH76706GU	2.5 to 3.45	15	6	-0.2 (4.5MHz)	-28 (18MHz)	Bias(150kΩ)	8th order 4.5MHz	0	✓	5.2	✓	VCSP85H 1.6 × 1.6, H=1.0Max.

Output Capacitor-less 1ch Video Drivers											
Part No.	Supply Voltage (V)	Circuit Current (mA)	Amplifier Gain (dB)	Freq. Chara.1 (dB)	Freq. Chara.2 (dB)	Input type	LPF	Mute (Standby) (μA)	Output Capa-less	Max. Output Level (Vp-P)	Package
BH76806FVM	2.5 to 3.45	16	6	-0.45 (4.5MHz)	-51 (23.5MHz)	Bias(150kΩ)	8th order 4.5MHz	0	✓	5.2	MSOP8
BH76809FVM	2.5 to 3.45	16	9	-0.45 (4.5MHz)	-51 (23.5MHz)	Bias(150kΩ)	8th order 4.5MHz	0	✓	5.2	MSOP8
BH76812FVM	2.5 to 3.45	15	12	-0.45 (4.5MHz)	-51 (23.5MHz)	Bias(150kΩ)	8th order 4.5MHz	0	✓	5.2	MSOP8
BH76816FVM	2.5 to 3.45	15	16.5	-0.45 (4.5MHz)	-51 (23.5MHz)	Bias(150kΩ)	8th order 4.5MHz	0	✓	5.2	MSOP8

Compact Low Current 1ch Video Drivers												
Part No.	Supply Voltage (V)	Circuit Current (mA)	Amplifier Gain (dB)	Freq. Chara.1 (dB)	Freq. Chara.2 (dB)	Input type	LPF	Mute (Standby) (μA)	Output Capa-less	Max. Output Level (Vp-P)	Video Out→In Change Mode	Package
BH76106HFV	2.6 to 5.5	7	6	0.1 (4.5MHz)	-45 (19MHz)	Clamp	8th order 4.5MHz	0	✓	2.6	—	HVSOF6
BH76109HFV	2.6 to 5.5	7	9	0.1 (4.5MHz)	-45 (19MHz)	Clamp	8th order 4.5MHz	0	✓	2.6	—	HVSOF6
BH76112HFV	2.6 to 5.5	7	12	0.1 (4.5MHz)	-45 (19MHz)	Clamp	8th order 4.5MHz	0	✓	2.6	—	HVSOF6
BH76206HFV	2.6 to 5.5	8	6	-0.3 (6MHz)	-40 (27MHz)	Clamp	8th order 6MHz	0	✓	2.6	—	HVSOF6

1ch Video Drivers Built-in Video Switch												
Part No.	Supply Voltage (V)	Circuit Current (mA)	Amplifier Gain (dB)	Freq. Chara. (dB)	Switchers	Input type	Video Driver	Mute	Output Capa-less	Max. Output Level(Vp-P)		Package
										Vcc=3V	Vcc=5V	
BH76330FVM	2.8 to 5.5	10	6	0 (10MHz)	3 input-1 output	Clamp	✓	✓ (Standby)	✓	2.7	4.6	MSOP8
BH76331FVM	2.8 to 5.5	10	6	0 (10MHz)	3 input-1 output	Bias	✓	✓ (Standby)	—	2.8	4.6	MSOP8
BH76360FV	2.8 to 5.5	12	6	0 (10MHz)	6 input-1 output	Clamp	✓	✓ (Standby)	✓	2.7	4.6	SSOP-B16
BH76361FV	2.8 to 5.5	12	6	0 (10MHz)	6 input-1 output	Bias	✓	✓ (Standby)	—	2.8	4.6	SSOP-B16

Video Switches

1ch Video Switch(Wide Band-width)												
Part No.	Supply Voltage (V)	Circuit Current (mA)	Amplifier Gain (dB)	Freq. Chara. (dB)	Switchers	Input type	Video Driver	Mute	Crosstalk (dB)	Max. Output Level(Vp-P)		Package
										Vcc=3V	Vcc=5V	
BH76332FVM	2.8 to 5.5	9	0	0 (30MHz)	3 input-1 output	Clamp	—	✓ (Standby)	-65 (4.43MHz)	1.8	3.8	MSOP8
BH76333FVM	2.8 to 5.5	8	0	0 (30MHz)	3 input-1 output	Bias	—	✓ (Standby)	-65 (4.43MHz)	1.9	3.4	MSOP8
BH76362FV	2.8 to 5.5	11	0	0 (30MHz)	6 input-1 output	Clamp	—	✓ (Standby)	-65 (4.43MHz)	1.8	3.8	SSOP-B16
BH76363FV	2.8 to 5.5	11	0	0 (30MHz)	6 input-1 output	Bias	—	✓ (Standby)	-65 (4.43MHz)	1.9	3.4	SSOP-B16

Video and Audio Signal Switcher											
Part No.	Supply Voltage (V)	Video Circuit Current (mA)	Audio Circuit Current (mA)	Video Freq. Chara.1 (dB)	Video Freq. Chara.2 (dB)	Video Amplifier Gain (dB)	Audio Freq. Chara.1 (dB)	Audio Freq. Chara.2 (dB)	Audio Amplifier Gain (dB)	Residual Noise (μVrms)	Package
BH7649KS2	7.5 to 9.5	34	23	0 (6.75MHz)	-30 (27MHz)	-3/-6/0/+3/+6	-0.5 (24kHz)	-26 (96kHz)	-6/0	20	SQFP-T52

Others

Isolation Amplifier											
Part No.	Supply Voltage (V)	Circuit Current (mA)	Amplifier Gain (dB)	Freq. Chara. (dB)	ch	Input type	Video Driver	Input Impedance (kΩ)	CMRR (dB)	Max. Output Level (Vp-P)	Package
BH7673G	4.5 to 5.5	4.8	0	0 (10MHz)	1	Bias	—	150	60	3.8	SSOP5

Image Correction

Image Correction IC for Panel											
Part No.	Supply Voltage(V)			Image Data Size	Control I/F	Input/Output Digital I/F	Image Adjustment	PWM Output	LVDS Transmitter	Package	Automotive Grade AEC-Q100
	V _{DD} Core	V _{DD} I/O	V _{DD} LVDS								
BU1523KV	1.65 to 1.95	3.0 to 3.6	3.0 to 3.6	Supports up to WVGA+ (864 × 480)	I ² C BUS	24bitRGB Interface 8bit YUV = 4 : 2 : 2 ITU-R BT.656	✓	—	✓	VQFP100	Preparing

Video Encoders Built-in Image Correction										
Part No.	Supply Voltage(V)			Image Data Size	Control I/F	Input/Output Digital I/F	Fog Reduction	Video Encoder	Package	Automotive Grade AEC-Q100
	V _{DD} Core	V _{DD} I/O	AV _{DD}							
BU6521KV	1.4 to 1.6	2.7 to 3.6	2.7 to 3.6	ITU-R BT.656	I ² C BUS Serial EEPROM Interface	8bit YUV = 4 : 2 : 2 ITU-R BT.656	✓	✓	VQFP48C	YES

Video LSIs

Video Decoder

(LAPIS Semiconductor products)

CVBS/S-video											
Part No.	Supply Voltage (V)	Input(Analog)		Output(Digital)	Pixel Frequency	Crystal Oscillator supported	Feature	Operating Temperature (°C)	Package	Halogen Free Support ^{*1}	Automotive Grade ^{*2}
		Terminal	Type								
ML86101A	3.3/1.5	CVBS×4 or CVBS×2+S-video×1 or S-video×2	NTSC PAL SECAM	ITU-R BT.656 YUV 8bit	12.2727MHz, 13.5MHz, 14.3181MHz, 14.75MHz	✓	Simple, small	-40 to +85	P-TQFP48-0707-0.50	✓	YES
ML86V7668A	3.3/2.5	CVBS×4 or CVBS×1+S-video×3	NTSC PAL SECAM	ITU-R BT.656 YUV 8/16bit RGB 18bit	12.2727MHz, 13.5MHz	—	RGB output	-40 to +85	P-TQFP100-1414-0.50	✓	YES

CVBS/S-video/Component/RGB											
ML86V7675	3.3/1.5	CVBS×4 (+Comp or S-video)×1 +Comp×1	NTSC PAL SECAM	ITU-R BT.656 YUV 8bit	7.9930MHz to 33.333MHz	✓	WVGA, EGA analog RGB supported	-40 to +85	P-TQFP64-1010-0.50	✓	YES

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Video Encoder

(LAPIS Semiconductor products)

CVBS											
Part No.	Supply Voltage (V)	Input(Digital)	Output(Analog)		Pixel Frequency	Crystal Oscillator supported	Feature	Operating Temperature (°C)	Package	Halogen Free Support ^{*1}	Automotive Grade ^{*2}
			Terminal	Type							
ML86V76580	3.3/1.8	ITU-R BT.656 YUV 8bit	CVBS	NTSC PAL	12.2727MHz, 13.5MHz, 14.3181MHz, 14.75MHz	—	75Ω drive	-40 to +85	P-TQFP48-0707-0.50 S-VFBGA25-2.76X2.50-0.50	✓ ✓	YES —
ML86640	3.3	TU-R BT.656 YUV 8/16/24bit RGB 24bit	CVBS	NTSC PAL	13.5MHz, 27MHz	—	75Ω drive P/I conversion	-40 to +105	P-TQFP48-0707-0.50	✓	YES

CVBS/S-video/Component/RGB											
ML86V7655	3.3/2.5	ITU-R BT.656 YUV 8/16/24bit RGB 24bit	CVBS S-video Component	NTSC PAL	12.2727MHz, 13.5MHz, 14.3181MHz, 14.75MHz, 18MHz	—	I/P, P/I conversion	-40 to +85	P-TQFP100-1414-0.50	✓	YES

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Video Interface

(LAPIS Semiconductor products)

LVTTTL/LVDS/MIPI Video Interface										
Part No.	Supply Voltage (V)	Input	Output	Feature	Operating Temperature (°C)	Package	Halogen Free Support ^{*1}	Automotive Grade ^{*2}		
New ML86795	3.3(1.8)/1.5	ITU-R BT.656 YUV 8bit Single/Dual LVDS (RGB 18/24bit) MIPI-CSI2 2ch (RGB565/888, YUV422-8bit) 1Gbps/Lane Max.	ITU-R BT.656 YUV 16bit Single/Dual LVDS (RGB 18/24bit) MIPI-CSI2 (RGB565/888, YUV422-8bit) Two Virtual Channel Supported 1Gbps/Lane Max.	LVTTTL/LVDS/MIPI-CSI2 I/F, LVTTTL/LVDS/MIPI to LVTTTL/LVDS/MIPI translate, MIPI Virtual Channel	-40 to +105	P-WQFN64-0909-0.50	✓	YES		

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Display Controller Series for Small to Medium-Sized TFT LCD

(LAPIS Semiconductor products)

T-CON, Video Decoder, Scaler Included													
Part No.	Supply Voltage (V)	Input(Analog)		Input(Digital)	Output	Resolution	OSD	MCU	Feature	Operating Temperature (°C)	Package	Halogen Free Support ^{*1}	Automotive Grade ^{*2}
		Terminal	Type										
ML86V8201	3.3/1.5	CVBS×2 or S-video×1	NTSC PAL SECAM	ITU-R BT.656 YUV 8/16/24bit RGB 18/24bit	ITU-R BT.656 YUV 8bit RGB 18/24bit	QVGA to WVGA	Line	—	Rear camera function Image quality adjustment	-40 to +85	P-TQFP100-1414-0.50	✓	YES
ML86203	3.3/1.5	CVBS×1	NTSC PAL	ITU-R BT.656 YUV 8/16/24bit RGB 18/24bit	ITU-R BT.656 YUV 8bit Single LVDS (RGB 18/24bit)	VGA to WXGA	—	—	Rear camera function WXGA panel support Image quality adjustment	-40 to +85	P-TQFP80-1010-0.40	✓	YES
ML86207	3.3/1.5	CVBS×2	NTSC PAL	ITU-R BT.656 YUV 8/16/24bit RGB 18/24bit + Single LVDS (RGB 18/24bit)	ITU-R BT.656 YUV 8bit RGB 18/24bit Single LVDS (RGB 18/24bit)	VGA to WXGA	Text Line	—	LVTTTL/LVDS I/F Digital video input ×2 WXGA panel support Rear camera function Image quality adjustment OSD function	-40 to +85	P-TQFP100-1414-0.50	✓	YES
ML86287	3.3/1.5	CVBS×2	NTSC PAL	ITU-R BT.656 YUV 8/16/24bit RGB 18/24bit + Single LVDS (RGB 18/24bit)	ITU-R BT.656 YUV 8bit RGB 18/24bit Single LVDS (RGB 18/24bit)	VGA to WXGA	Text Line	—	LVTTTL/LVDS I/F Digital video input ×2 WXGA panel support Rear camera function Picture in Picture Image quality adjustment OSD, ROM-OSD function	-40 to +85	P-TQFP128-1414-0.40	✓	YES
☆ML86209	3.3/1.5	CVBS single×2 or differential×1	NTSC PAL	ITU-R BT.656 ITU-R BT.1120 like YUV 8/16bit Single/Dual LVDS (RGB 18/24bit) MIPI-CS12 (RGB565/888, YUV422-8bit) 1Gbps/Lane Max	ITU-R BT.656 or MIPI-CS12 (RGB565/888, YUV422-8bit) + Single/Dual LVDS (RGB 18/24bit)	VGA to Full HD	Text Line	—	LVTTTL/LVDS/MIPI-CS12 I/F Digital video input ×4 Full HD panel support Rear camera function Image quality adjustment OSD, ROM-OSD function	-40 to +85	P-TQFP128-1414-0.40	✓	YES
☆ML86289	3.3/1.5	CVBS single×2 or differential×1	NTSC PAL	ITU-R BT.656 ITU-R BT.1120 like YUV 8/16bit Single/Dual LVDS (RGB 18/24bit) MIPI-CS12 (RGB565/888, YUV422-8bit) 1Gbps/Lane Max	ITU-R BT.656 or MIPI-CS12 (RGB565/888, YUV422-8bit) + Single/Dual LVDS (RGB 18/24bit)	VGA to Full HD	Text Line	—	LVTTTL/LVDS/MIPI-CS12 I/F Digital video input ×4 Full HD panel support Rear camera function Picture in Picture Image quality adjustment OSD, ROM-OSD function	-40 to +85	P-TQFP128-1414-0.40	✓	YES
ML86V8202C	3.3/1.8	CVBS×2 or S-video×1 + Comp×1	NTSC PAL SECAM	ITU-R BT.656 YUV 8/16/24bit RGB 18/24bit	ITU-R BT.656 style YUV 8/16/24bit RGB 18/24bit	QVGA to WVGA	—	—	Component video support Image quality adjustment	-40 to +85	P-TQFP100-1414-0.50	✓	YES
ML86240	3.3/1.5	CVBS×4 or CVBS×2 + (Comp or S-video)×1 + Comp×1	NTSC PAL SECAM	ITU-R BT.656 YUV 8/16/24bit RGB 18/24bit 2ch	ITU-R BT.656 YUV 8bit RGB 18/24bit	QVGA to WVGA	Text Line	—	Component video support Digital video input ×2 Rear camera function Image quality adjustment OSD function	-40 to +85	P-TFBGA144-1111-0.80	—	YES
ML86241	3.3(1.8)/1.5	CVBS×4 or CVBS×2 + (Comp or S-video)×1 + Comp×1	NTSC PAL SECAM	ITU-R BT.656 YUV 8/16/24bit RGB 18/24bit + Single LVDS (RGB 18/24bit)	ITU-R BT.656 YUV 8/16bit RGB 18/24bit YUV 16bit Single LVDS (RGB 18/24bit)	QVGA to WXGA	Text Line	—	Component video support LVTTTL/LVDS I/F Digital video input ×2 WXGA panel support Rear camera function Image quality adjustment OSD, ROM-OSD function	-40 to +85	P-TFBGA144-1111-0.80	—	YES
☆ML86243	3.3/1.5	CVBS single×2 or differential×1	NTSC PAL	^{*3} ITU-R BT.656 YUV 8/16bit ITU-R BT.1120 like YUV 8/16bit Single/Dual LVDS (YUV 8/16bit RGB 18/24bit)	^{*3} ITU-R BT.656 (YUV 8/16bit RGB 24bit) Single/Dual LVDS (RGB 18/24bit) MIPI-CS12 (RGB565/888 YUV422-16bit)	QVGA to WXGA	Text Line	—	Multi Input/Output support LVTTTL/LVDS/MIPI-CS12/CVBS I/F Rear camera function Picture in Picture Image quality adjustment OSD, ROM-OSD function State monitor function	-40 to +85	P-TQFP128-1414-0.40	—	YES
☆ML86245	3.3/1.5	—	—	^{*3} ITU-R BT.656 YUV 8/16bit ITU-R BT.1120 like YUV 8/16bit Single/Dual LVDS (YUV 8/16bit RGB 18/24bit)	^{*3} ITU-R BT.656 (YUV 8/16bit RGB 24bit) Single/Dual LVDS (RGB 18/24bit) MIPI-CS12 (RGB565/888 YUV422-16bit)	QVGA to WXGA	Text Line	—	Multi Input/Output support LVTTTL/LVDS/MIPI-CS12 I/F Rear camera function Picture in Picture Image quality adjustment OSD, ROM-OSD function State monitor function	-40 to +85	P-TQFP128-1414-0.40	—	YES
☆ML86321	3.3/1.5	CVBS single×2 or differential×1	NTSC PAL	ITU-R BT.656 ITU-R BT.1120 like YUV 8/16bit MIPI-CS12 (RGB565/888, YUV422-8bit) 1Gbps/Lane Max	Single LVDS (RGB 18/24bit) YUV 8/16bit	QVGA to WXGA	Text Line	—	Electronic rear-view mirror support 3-screen synthesis Image correction function (Angle/Aspherical/Keystone/Lens distortion correction) OSD, ROM-OSD function (15windows, 1layer) State monitor function	-40 to +85	P-TQFP128-1414-0.40	—	YES

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 *2 : Please inquire to the sales for AEC-Q100.
 *3 : Please inquire to the sales for input/output specification.

☆ : Under Development

T-CON, Image Adjustment Functions Included													
Part No.	Supply Voltage (V)	Input(Analog)		Input(Digital)	Output	Resolution	OSD	MCU	Feature	Operating Temperature (°C)	Package	Halogen Free Support ^{*1}	Automotive Grade ^{*2}
		Terminal	Type										
ML86V8101	3.3	—	—	RGB 18bit	RGB 18bit	QVGA to QHD	—	—	Image quality adjustment function	-40 to +85	P-TQFP64-1010-0.50	✓	YES
ML86V8102	3.3	—	—	RGB 18/24bit	RGB 18/24bit	QVGA to QHD	—	—	RGB 24 bits supported image quality adjustment function	-40 to +85	P-TQFP80-1010-0.40	✓	YES
☆ML86173	3.3/1.5	—	—	ITU-R BT.656 YCbCr 8/10bit RGB 18/24bit Single/Dual LVDS (RGB 18/24bit)	Single/Dual LVDS (RGB 18/24bit)	WVGA to H 2880(Max.) V 1080(Max.) (Pixel rate 160MHz Max.)	Text	—	Image quality adjustment OSD, ROM OSD function (30windows, 2layers) Frequency conversion function State monitor function	-40 to +85	P-TQFP100-1414-0.50	✓	YES
☆ML86175	3.3/1.5	—	—	ITU-R BT.656 YUV 8/16bit RGB 18/24bit Single/Dual LVDS 4ch (RGB 18/24bit)	Single/Dual LVDS (RGB 18/24bit)	H 2048(Max.) V 2048(Max.) (Pixel rate 160MHz Max.)	Text	—	Image quality adjustment 90 degree rotation function OSD, ROM OSD function (15windows, 1layer) Frequency conversion function State monitor function	-40 to +85	TQFP128-1414-0.40	✓	YES
Video decoder, 8051MCU Included													
ML86V8401	3.3/1.8	CVBS×3 or CVBS×2 +S-video×1	NTSC PAL SECAM	ITU-R BT.656 YUV 8/16/24bit RGB 18/24bit	ITU-R BT.656 RGB 18/24bit	QVGA to WVGA	Text	8051 (8bit)	System control MCU installed	-40 to +85	P-TQFP100-1414-0.50	—	Yes

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