2024 Edition

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ICs

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Audio Amplifiers

Automotive Speaker amplifiers

1.2W Monaural Class-AB Speaker Amplifiers

Part No.	Supply Voltage (V)	Quiescent Current (mA)	Standby Current (μA)	Voltage Gain (dB)	Output Power (W)	Input Inpedance Z_{IN} (kΩ)	Built-in Amplifier Resistance Ri (kΩ)	Built-in Amplifier Resistance Rf (kΩ)	Distortion (%)	Output Noise Voltage (μVrms)	Package	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
BD78306EFJ-M	4.0 to 5.5	2.5	0.1	6.0 (P_O=0.5W)	1.2 (THD+N=1%)	45	90	90	0.05 (P_O=1W)	15	HTSOP-J8	FSs	YES
BD78310EFJ-M				10.0 (P_O=0.5W)		35	70	110	0.06 (P_O=1W)	17	HTSOP-J8	FSs	YES
BD78326EFJ-M				26.0 (P_O=0.5W)		8	16	164	0.20 (P_O=1W)	50	HTSOP-J8	FSs	YES

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*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

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%) V_{CC}=3.6V	Output Power (R_L=8Ω, THD=10%) V_{CC}=5.0V	Distortion (%)	Output Noise Voltage (dBV)	Package
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)
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, H=0.55Max
BD5461GUL		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%)		40	–	VCSP50L1 1.6×1.6, H=0.55Max
BD27400GUL		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%)		40	–	VCSP50L1 1.5×1.5, H=0.55Max
BD5632NUX		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%)		40	–	VSON008X2030
BD5634NUX		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%)		40	–	VSON008X2030
BD5638NUX		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%)		40	–	VSON008X2030
BD5465GUL		0.69	3.3 (V_{DD}=3.6V)	12	0.6 (V_{DD}=3.4 to 5.5V, R_L=8Ω, THD+N≤1%)			40	✓	VCSP50L1 1.8×1.8, H=0.55Max
BD5466GUL		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%)		40	✓	VCSP50L1 1.7×1.7, H=0.55Max
BD5467GUL		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%)		40	✓	VCSP50L1 1.7×1.7, H=0.55Max
BD5468GUL		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%)		40	✓	VCSP50L1 1.7×1.7, H=0.55Max
BD5469GUL		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%)		40	✓	VCSP50L1 1.7×1.7, H=0.55Max

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 Amplifier 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
								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 (μVrms)	Power Limiter Function	Package
BD28623MUV	8.5 to 24.0	3.56 (4-Layer Board) 2.21 (2-Layer Board)	40 (V_{CC}=18V)	–	15 (V_{CC}=16V, R_L=8Ω)	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 (μVrms)	Power Limiter Function	Package
BD5424EFS	10.0 to 18.0	4.5 (4-Layer Board) 2.0 (2-Layer Board)	30 (V_{CC}=12V)	28	10 (V_{CC}=12V, R_L=8Ω)	20 (V_{CC}=17V, R_L=8Ω)	0.1	80	✓ (Power Limitter)	HTSSOP-A44
BD5423AEFS	10.0 to 16.5	4.5 (4-Layer Board) 2.0 (2-Layer Board)	25 (V_{CC}=12V)	28	10 (V_{CC}=12V, R_L=8Ω)	17 (V_{CC}=12V, R_L=4Ω)	0.1	80	✓ (Power Limitter)	HTSSOP-A44
BD5426EFS	10.0 to 16.5	4.5 (4-Layer Board) 2.0 (2-Layer Board)	25 (V_{CC}=12V)	28	9 (V_{CC}=12V, R_L=8Ω)	10 (V_{CC}=13V, R_L=8Ω)	0.1	80	✓ (Power Limitter)	HTSSOP-A44
BD5413EFV	6.0 to 10.5	2.8 (4-Layer Board) 1.1 (2-Layer Board)	12 (V_{CC}=9V)	30	4 (V_{CC}=9V, R_L=8Ω)	5 (V_{CC}=9V, R_L=6Ω)	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 (μVrms)	Ripple Rejection (dB)	Note	Package (mm)
BD88200GUL	2.4 to 5.5	2	Variable Gain with external resistor	80 (V_{DD}=3.3V, R_L=16Ω)	0.006 (V_{DD}=3.3V, R_L=16Ω)	10	–80 (f=217Hz)	Virtual ground based	VCSP50L2 2.1×2.1
BD88210GUL			–1.0					Virtual ground based	VCSP50L2 2.1×2.1
BD88215GUL			–1.5					Virtual ground based	VCSP50L2 2.1×2.1
BD88220GUL			–2.0					Virtual ground based	VCSP50L2 2.1×2.1
BD88400GUL			Variable Gain with external resistor					Ground based	VCSP50L2 2.1×2.1
BD88400FJ			Variable Gain with external resistor					Ground based	SOP-J14
BD88410GUL			–1,0					Ground based	VCSP50L2 2.1×2.1
BD88415GUL			–1.5					Ground based	VCSP50L2 2.1×2.1
BD88420GUL			–2.0					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 (μVrms)	Package
			Single-ended (16Ω)	BTL (8Ω)	Single-ended (16Ω)	BTL (8Ω)		
BU7150NUV	0.93 to 3.50 (T_a=0°C or more)	1	14 (V_{DD}=1.5V)	85 (V_{DD}=1.5V)	0.1 (P_O=5mW)	0.2 (P_O=25mW)	10	VSON010V3030

Standard Headphone Amplifiers

Part No.	Supply Voltage (V)	Quiescent Current (mA)	Voltage Gain (dB)	Maximum Output Power (mW) R_L=16Ω	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@R_L=8Ω)	0.02	57	SOP8

Others

Line Amplifiers (Output Coupling Capacitor-less)

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

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 P.42) 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
MUS-IC BD37201NUX	0.5	2.7 to 5.5	Variable 1.0 to 4.5	±1	200	3.3	90 (f=1kHz) 55 (f=1MHz)	✓	✓	VSON008X2030

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It is the masterpiece of ROHM audio IC which pursues both the numerical values and sound quality performance required in an audio device.

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)	ch	Zone Volume (dB)	ch	Tone Control	Serial Control	Package
MUS-IC 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
MUS-IC 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
BD3474KS2	±6.5 to ±7.5	±30	1.5	0.0004	12	+32 to −95 0.5/Step	6	—	—	Bass, Treble	2Wire	SQFP-T80C

2ch/4ch/6ch Sound Processors

Part No.	Supply Voltage (V)	Circuit Current (mA)	Output Noise Voltage (μVrms)	Distortion (%)	Selector	Main Volume (dB)	ch	Zone Volume (dB)	ch	Tone Control	Serial Control	Package
BD3814FV	±5.0 to ±7.3	±7	1.0	0.001	—	0 to −95 1/Step	6	—	—	Bass, Treble	2Wire	SSOP-B40
BD34700FV	±6.5 to ±7.5	±22	1.5	0.0004	—	+32 to −95 0.5/Step	4	—	—	—	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

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6ch/9ch Stereo Input Selector ICs Maximum Input Voltage: 4.2V

Part No.	Supply Voltage (V)	Current Consumption (mA)	Output Noise Voltage (μVrms)	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 (μVrms)	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*	I²C BUS	5.8	0.001	SSOP-B20
BD37511FS	7.0 to 9.5	15	3	–	0 to +20	0 to –40	0 to –62, –∞	4	–	–	–	–	I²C 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	–	–	–	–	I²C 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	–	✓	–	–	I²C 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	✓	✓	–	–	I²C 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	✓	✓	✓	–	I²C 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	–	–	I²C 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	✓	✓	–	–	I²C 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	✓	✓	✓	–	I²C 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 (Gv=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	I²C 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	I²C 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 pin-compatible. BD37513FS, BD37514FS and BD37515FS are pin-compatible. BD37522FS and BD37523FS are pin-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	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
			Single	Diff.			(dB)	Outputs					ATT								
BD37524FS	7.0 to 9.5	38	4	1	0 to +20	+15 to −79, −∞	+15 to −79, −∞	6	✓	✓	LPF	–	–	✓	–	I²C 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	✓	✓	–	–	–	–	–	I²C 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	–	–	–	–	I²C 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	✓	✓	–	–	I²C 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	✓	✓	✓	–	I²C 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	–	✓	–	–	–	I²C 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	✓	✓	–	–	I²C 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	✓	✓	✓	–	I²C 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	I²C 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	✓	✓	✓	–	I²C BUS	5.5	0.002	SSOP-B28	FSs	YES
BD37034FV-M	7.0 to 9.5 V_{CC}L to 13	36	3/5	2/1	0 to +16	+15 to −79, −∞	+15 to −79, −∞	6	✓	✓	LPF+ HPF	✓	✓	✓	High Voltage Output	I²C BUS	6.0	0.002	SSOP-B28	FSs	YES
BD3883FS	6.5 to 9.5	8	5	–	0/6/12/16/ 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	ComfySIL™ Functional Safety*1	Automotive Grade AEC-Q100
			Single	Diff.				ch	ATT (dB)								
BD3464FV	7.0 to 9.5	25	–	–	–	+23 to −79, −∞ (1/Step)	4	–	–	–	–	I²C 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)	–	–	I²C BUS	1.9	0.0004	SSOP-B20	–	–
BD3460FS	7.0 to 9.5	25	–	–	–	+23 to −79, −∞ (1/Step)	6	–	–	–	–	I²C 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)	–	–	I²C BUS	1.9	0.0004	SSOP-A24	–	–
MUS-IC BD34602FS-M	7.0 to 9.5	35	–	–	–	+23 to −79, −∞ (1/Step)	6	3	+0 to −79, −∞ (1/Step)	–	–	I²C BUS	1.3	0.0004	SSOP-A24	FSs	YES
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	–	✓	–	I²C BUS	8	0.003	SSOP-B40	FSs	YES
BD37068FV-M	7.0 to 9.5 V_{CC}L 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	I²C BUS	23 (High-Voltage Mode)	0.003	SSOP-B40	FSs	YES
BD37069FV-M	7.0 to 9.5 V_{CC}L 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	I²C BUS	23 (High-Voltage Mode)	0.003	SSOP-B40	FSs	YES

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.

*1 For more information about "ComfySIL™ Functional Safety", please refer to the reverse side of the cover.

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	–	I²C 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	I²S SPDIF	VQFP80

AAC/WMA/MP3/WAV+SD Memory Card+CD-ROM+MP3 Record

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	
BU94702AKV	3.0 to 3.6	USB2.0 Full Speed	MMC SD, miniSD, microSD, SDHC	–	I²C 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	I²S SPDIF	VQFP80

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

Audio DAC

PCM 768kHz/32bit, DSD 22.4MHz Stereo Audio D/A Converters

Part No.	Supply Voltage			Output Channels	Peak Output Current (mApp)	Resolution (Bit)	SNR (dB)	THD+N (dB)	Dynamic Range (dB)	Sampling Frequency (kHz)	DSD Clock (MHz)	Package
	AVCC (V)	DVDD (V)	DVDDIO (V)									
MUS-IC BD34301EKV	4.5 to 5.5	1.4 to 1.6	3.0 to 3.6	2	9.8	32	130	–115	130	32 to 768	2.8, 5.6, 11.2, 22.4	HTQFP64BV
BD34352EKV	4.5 to 5.5	1.4 to 1.6	3.0 to 3.6	2	6.25	32	126	–112	126	32 to 768	2.8, 5.6, 11.2, 22.4	HTQFP64BV

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 (V_{P-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=1.0 Max
BH76912GU		15	12	−0.2 (4.5MHz)	−26 (18MHz)	Bias (150kΩ)	8th order 4.5MHz	0	✓	5.2	–	VCSP85H 1.6×1.6, H=1.0 Max
BH76916GU		15	16.5	−0.2 (4.5MHz)	−26 (18MHz)	Bias (150kΩ)	8th order 4.5MHz	0	✓	5.2	–	VCSP85H 1.6×1.6, H=1.0 Max

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 (V_{P-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		16	9	−0.45 (4.5MHz)	−51 (23.5MHz)	Bias (150kΩ)	8th order 4.5MHz	0	✓	5.2	MSOP8
BH76812FVM		15	12	−0.45 (4.5MHz)	−51 (23.5MHz)	Bias (150kΩ)	8th order 4.5MHz	0	✓	5.2	MSOP8
BH76816FVM		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 (V_{P-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		7	9	0.1 (4.5MHz)	−45 (19MHz)	Clamp	8th order 4.5MHz	0	✓	2.6	–	HVSOF6
BH76112HFV		7	12	0.1 (4.5MHz)	−45 (19MHz)	Clamp	8th order 4.5MHz	0	✓	2.6	–	HVSOF6
BH76206HFV		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 (V_{P-P})		Package
										V_{CC}=3V	V_{CC}=5V	
BH76330FVM	2.8 to 5.5	10	6	0 (10MHz)	3 input-1 output	Clamp	✓	✓ (Standby)	✓	2.7	4.6	MSOP8
BH76331FVM		10	6	0 (10MHz)	3 input-1 output	Bias	✓	✓ (Standby)	–	2.8	4.6	MSOP8
BH76360FV		12	6	0 (10MHz)	6 input-1 output	Clamp	✓	✓ (Standby)	✓	2.7	4.6	SSOP-B16
BH76361FV		12	6	0 (10MHz)	6 input-1 output	Bias	✓	✓ (Standby)	–	2.8	4.6	SSOP-B16

Video Switches

1ch Video Switches (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 (V_{P-P})		Package
										V_{CC}=3V	V_{CC}=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		8	0	0 (30MHz)	3 input-1 output	Bias	–	✓ (Standby)	−65 (4.43MHz)	1.9	3.4	MSOP8
BH76362FV		11	0	0 (30MHz)	6 input-1 output	Clamp	–	✓ (Standby)	−65 (4.43MHz)	1.8	3.8	SSOP-B16
BH76363FV		11	0	0 (30MHz)	6 input-1 output	Bias	–	✓ (Standby)	−65 (4.43MHz)	1.9	3.4	SSOP-B16

Video and Audio Signal Switch

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 (V_{P-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)	I²C BUS	24bit RGB 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	I²C BUS Serial EEPROM Interface	8bit YUV=4 : 2 : 2 ITU-R BT.656	✓	✓	VQFP48C	YES

Video LSIs

Video Decoders

(LAPIS Technology products)

CVBS/S-video Input type

Part No.	Supply Voltage (V)	Input (Analog)		Output (Digital)	Feature	Operating Temperature (°C)	Package	Automotive Grade*1
		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	Simple, small	–40 to +85	P-TQFP48 -0707-0.50-ZK6	YES
ML86112	3.3/1.2	CVBS×4 or differential×2	NTSC PAL	MIPI CSI-2 (YUV422-8bit) ITU-R BT.656	Simple, small MIPI output I/P conversion	–40 to +105	P-WQFN32 -0505-0.50-W66	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	RGB output	–40 to +85	P-TQFP100 -1414-0.50-ZK6	YES
☆ML86160	3.3/1.2	CVBS×4 or differential×2	NTSC PAL High Definition Analog	ITU-R BT.656 MIPI CSI-2 (RGB888, YUV422-8bit) (T.B.D)	High Definition Analog Decoder HD-ACT*2	–40 to +105 (T.B.D)	P-WQFN36 -0606-0.50-xxx (T.B.D)	YES

CVBS/S-video/Component/RGB Input type

Part No.	Supply Voltage (V)	Input (Analog)		Output (Digital)	Feature	Operating Temperature (°C)	Package	Automotive Grade*1
		Terminal	Type					
ML86V7675	3.3/1.5	CVBS×4 +(Comp or S-video)×1 +Comp×1	NTSC PAL SECAM	ITU-R BT.656 YUV 8bit	WVGA, EGA analog RGB supported	–40 to +85	P-TQFP64 -1010-0.50-ZK6	YES

*1 Please inquire to the sales for AEC-Q100.
*2 HD-ACT (High Definition-Analog Composite Transport) Analog video is displayed clearly by original high definition technology.

☆: Under Development

Video Encoders

(LAPIS Technology products)

CVBS Output type

Part No.	Supply Voltage (V)	Input (Digital)	Output (Analog)		Feature	Operating Temperature (°C)	Package	Automotive Grade*1
			Terminal	Type				
ML86V76580	3.3/1.8	ITU-R BT.656 YUV 8bit	CVBS	NTSC PAL	75Ω drive	–40 to +85	P-TQFP48 -0707-0.50-ZK6	YES
ML86640	3.3	ITU-R BT.656 YUV 8/16/24bit RGB 24bit	CVBS	NTSC PAL	75Ω drive P/I conversion	–40 to +105	P-TQFP48 -0707-0.50-ZK6	YES
☆ML86660	3.3 (1.8)/1.2	ITU-R BT.656 YUV 8bit MIPI CSI-2 (RGB565/888, YUV422-8bit) (T.B.D)	CVBS	NTSC PAL High Definition Analog	High Definition Analog Encoder HD-ACT*2	–40 to +105 (T.B.D)	WQFN40 -0606-0.50-xxx (T.B.D)	YES

*1 Please inquire to the sales for AEC-Q100.
*2 HD-ACT (High Definition-Analog Composite Transport) Analog video is displayed clearly by original high definition technology.

☆: Under Development

Video Interface

(LAPIS Technology products)

LVDS/MIPI/eDP Input/Output type

Part No.	Supply Voltage (V)	Input	Output	Feature	Operating Temperature (°C)	Package	Automotive Grade*1
☆ML86797	3.3/1.2	Single LVDS (RGB666/888) MIPI CSI-2 (RGB565/888 YUV422-8bit) MIPI DSI (RGB888)	Single/Dual LVDS (RGB666/888)	MIPI CSI-2/DSI to LVDS	–40 to +105 (T.B.D)	P-WQFN64 -0909-0.50-63 (T.B.D)	YES
☆ML86798	3.3/1.2	MIPI CSI-2 (RGB565/666/888 YUV422-8bit) MIPI DSI (RGB565/666/888 YUV422-8bit)	MIPI CSI-2 (RGB565/666/888 YUV422-8bit) eDP (RGB565/666/888)	MIPI CSI-2/DSI to eDP MIPI DSI to MIPI CSI-2	–40 to +105 (T.B.D)	P-WQFN64 -0909-0.50-63 (T.B.D)	YES
☆ML86799	3.3/1.2	Single/Dual LVDS (RGB666/888)	eDP (RGB565/666/888)	LVDS to eDP	–40 to +105 (T.B.D)	P-WQFN64 -0909-0.50-63 (T.B.D)	YES

*1 Please inquire to the sales for AEC-Q100.

☆: Under Development