



电子元器件系列

www.rf-china.com RF-Micom co.,Ltd

EMail:sales@rf-china.com

Sale Phone:86-592-5713956

Television ICs (for TV sets)

Video, Chroma and Deflection ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TA7698AP	P-DIP42-600-2.54	Video, chroma and deflection	PAL/NTSC systems	10.8 to 13.2
TA8759BN/8808BN	P-SDIP64-750-1.778		PAL/SECAM/NTSC multicolor systems (TA8808BN supports PAL/NTSC systems.)	10.8 to 13.2
TA8718N	P-SDIP30-400-1.778		PAL system	10.8 to 13.2
TA8745EN	P-SDIP54-600-1.778		NTSC system	10.8 to 13.2
TA8801AN	P-SDIP36-500-1.778		NTSC system	10.8 to 13.2
TA8845BN	P-SDIP64-750-1.778		NTSC system, $\dot{I}^2C$ bus supported	10.8 to 13.2
TA8867AN/BN	P-SDIP48-600-1.778		PAL/NTSC systems, automatic gain and phase adjustment glass delay line	8.1 to 9.9
TA8880CN	P-SDIP64-750-1.778		PAL/SECAM/NTSC multicolor systems (base band delay), $\dot{I}^2C$ bus supported	8.1 to 9.5
TA1247N	P-SDIP64-750-1.778		PAL/SECAM/NTSC multicolor systems (base band delay), $\dot{I}^2C$ bus supported	8.1 to 9.5
TA1252AN	P-SDIP56-600-1.778		NTSC system, built-in deflection distortion corrector, $\dot{I}^2C$ bus supported	8.1 to 9.9
TA1310N	P-SDIP56-600-1.778		NTSC system, built-in deflection distortion corrector, $\dot{I}^2C$ bus supported	8.7 to 9.3
TA1222BN	P-SDIP56-600-1.778		PAL/NTSC systems (base band delay), $\dot{I}^2C$ bus supported	8.7 to 9.3
TA1276AN	P-SDIP56-600-1.778		PAL/NTSC systems (base band delay), $\dot{I}^2C$ bus supported, normal or double scan	8.7 to 9.3
TA1276AF	P-QFP80-1420-0.80F		PAL/NTSC systems (base band delay), $\dot{I}^2C$ bus supported, normal or double scan	8.7 to 9.3
TA1298BN	P-SDIP56-600-1.778		PAL/NTSC systems (base band delay), $\dot{I}^2C$ bus supported, normal or double scan	8.7 to 9.3
TB1226DN	P-SDIP56-600-1.778		PAL/SECAM/NTSC multicolor systems (built-in IHDL), $\dot{I}^2C$ bus supported	8.75 to 9.25
TB1227CN	P-SDIP56-600-1.778		PAL/SECAM/NTSC multicolor systems (built-in IHDL), $\dot{I}^2C$ bus supported	8.75 to 9.25
TB1229DN	P-SDIP56-600-1.778		PAL/NTSC systems (built-in IHDL), $\dot{I}^2C$ bus supported	8.75 to 9.25
TB1230AN	P-SDIP56-600-1.778		PAL/NTSC systems (built-in IHDL), $\dot{I}^2C$ bus supported	8.75 to 9.25
TA1270BF	P-QFP48-P-1014-0.80		PAL/NTSC systems, 2-input 1-output YUV switch. $\dot{I}^2C$ bus supported	8.5 to 9.5 4.7 to 5.3
✧ TB1274AF	P-QFP48-1014-0.80	Color decoder	PAL/NTSC/SECAM multicolor systems, $\dot{I}^2C$ bus supported	4.75 to 5.25
✧ TA1340F	P-SSOP30-375-100		NTSC system, Multi-point scan sync deflection & generation, $\dot{I}^2C$ bus supported	8.5 to 9.5 4.7 to 5.3
TA1316AN	P-SDIP56-600-1.78	BEP	High-performance RGB processor, multi-point scan	8.7 to 9.3 1.8 to 2.2

✧: Dry-packed product

Single-Chip ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TA8690AN	P-SDIP54-600-1.778	Single-chip CTV	PAL/NTSC systems, RGB on-screen interface	8.5 to 9.5
TA8725AN	P-SDIP56-600-1.778		NTSC system, PLL split carrier IF / PLL intercarrier IF	8.1 to 9.5
TA8825BN	P-SDIP56-600-1.778		NTSC system, PLL intercarrier IF	8.5 to 9.5
TA1201CN	P-SDIP56-600-1.778		NTSC system, $\dot{I}^2C$ bus supported	8.5 to 9.5
TA1268N	P-SDIP56-600-1.778		NTSC system, $\dot{I}^2C$ bus supported, modified version of TA1201CU	8.5 to 9.5
TB1238N/AN/BN	P-SDIP56-600-1.778		PAL/NTSC systems (base band delay), $\dot{I}^2C$ bus supported	8.5 to 9.5
TB1240AN	P-SDIP56-600-1.778		PAL/NTSC systems (base band delay), $\dot{I}^2C$ bus supported	8.5 to 9.5
TB1251CN	P-SDIP56-600-1.778		PAL/NTSC/SECAM multicolor system, $\dot{I}^2C$ bus supported	8.5 to 9.5, 4.75 to 5.25
TB1253AN	P-SDIP56-600-1.778		NTSC system, $\dot{I}^2C$ bus supported	8.5 to 9.5, 4.75 to 5.25
TB1261F/N	P-SDIP56-600-1.778 P-QFP80-1420-0.80C		PAL/NTSC/SECAM multicolor system, $\dot{I}^2C$ bus supported	8.5 to 9.5, 4.75 to 5.25

Micro Controller, PIF, SIF, Video, Chroma, Deflection ICs

Product No.	Product No. with OTP	Package	Functions/Features	Operating Supply Voltage Range (V)
TMPA8801CSBNG/CPBNG/CMBNG	TMPA8801PSBNG	P-SDIP64-750-1.78	PAL/NTSC/SECAM, ROM64k/48k/32k, CCD	8.55 to 9.45 4.75 to 5.25 3.1 to 3.5
TMPA8802CSBNG/CPBNG/CMBNG			NTSC, ROM64k/48k/32k, CCD	
TMPA8803CSBNG/CPBNG/CMBNG			PAL/NTSC, ROM64k/48k/32k, CCD	
TMPA8801CSCNG/CPCNG/CMCNG	TMPA8801PSCNG		PAL/NTSC/SECAM, ROM64k/48k/32k, CCD	
TMPA8807CSBNG/CPBNG/CMBNG			PAL/NTSC/SECAM, ROM64k/48k/32k, CCD, EW	
TMPA8808CSBNG/CPBNG/CMBNG	TMPA8807PSBNG		NTSC, ROM64k/48k/32k, CCD, EW	
TMPA8809CSBNG/CPBNG/CMBNG			PAL/NTSC, ROM64k/48k/32k, CCD, EW	
TMPA8813CSNG/CPNG/CMNG	TMPA8813PSNG		PAL/NTSC, ROM64k/48k/32k, CCD	
TMPA8821CSNG/CPNG/CMNG			PAL/NTSC/SECAM, ROM64k/48k/32k, CCD	
TMPA8823CSNG/CPNG/CMNG	TMPA8821PSNG		PAL/NTSC, ROM64k/48k/32k, CCD	
TMPA8827CSNG/CPNG/CMNG			PAL/NTSC/SECAM, ROM64k/48k/32k, CCD, EW	
TMPA8829CSNG/CPNG/CMNG	TMPA8827PSNG		PAL/NTSC, ROM64k/48k/32k, CCD, EW	
TMPA8812CSDNG/CPDNG/CMDNG		P-SDIP56-600-1.78	NTSC, ROM64k/48k/32k, CCD, EW, IF not include	

Vertical Output ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TA8403K/8427K	P-HSIP7-2.54B	Deflection block	CTV vertical output, output current 1.8 App / 2.2 App max	21 to 27
TA8432K/8445K	P-HSIP12-2.54A		CTV vertical output, with ramp circuit, positive/negative input trigger, output current 2.2 App max	21 to 29
TA8859CP	P-DIP16-300-2.54A		Correction of deflection distortion, i ² C bus supported	10.8 to 13.2
TA1241AN	P-SDIP24-300-1.778		Correction of deflection distortion in wide-screen TVs, i ² C bus supported	8.1 to 9.9
TA1300AN	P-SDID4-300-1.778		Multi-point scan, sync & deflection, frequency counter	8.7 to 9.3
TA1317AN	P-SDID4-300-1.778		Correction of deflection distortion for wide TV, i ² C bus supported	8.5 to 9.5
TA1318N	P-SDID4-300-1.778		Multi-point scan sync detection & generation	8.5 to 9.5
TA1318AF	P-SSOP30-375-1.00		Multi-point scan sync detection & generation	8.5 to 9.5

Audio Controller ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TA8776N	P-SDIP30-400-1.78B	Sound processor	Pseudo-surround, i ² C bus control (TA8776N)	10.8 to 13.2
TA1216AN	P-SDIP30-400-1.78B		i ² C bus-compatible, 3-ch I/O, sound multiplex IC control interface	8.1 to 9.9
TA1217AN/AF	P-SDIP36-500-1.78B		i ² C bus-compatible, 4-ch I/O, sound multiplex IC control interface	8.1 to 9.9
TA1304N/F	P-SDIP24-300-1.78		i ² C bus-compatible, 2-ch input / 3-ch output, sound multiplex IC control interface	8.1 to 9.9
* TA1343N	P-SDIP24-300-1.78		i ² C bus-compatible, 2-ch input / 3-ch output, Pseudo-surround	8.1 to 9.9

*: New product

Audio Output ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TA8200AH	P-HZIP12-1.78B	Sound output	Sound output power: 13 W × 2, built-in audio mute	10 to 37
TA8211AH	P-HZIP12-1.78B		Sound output power: 6 W × 2	10 to 30
TA8213K	P-HSIP7-2.54B		Sound output power: 6 W × 1	10 to 30
TA8216H	P-HZIP12-1.78B		Sound output power: 13 W × 2, built-in audio mute	10 to 37
TA8218AH	P-HZIP17-2.00		Sound output power: 6 W × 3, built-in audio mute	10 to 30
TA8246AH	P-HZIP12-1.78B		Sound output power: 6 W × 2, built-in audio mute, fixed gain (GV = 34dB)	10 to 30
TA8256BH	P-HZIP12-1.78B		Sound output power: 6 W × 3, built-in audio mute, fixed gain (GV = 34dB)	10 to 30
* TA8258H	P-HZIP12-1.78B		Sound output power: 20 W × 2, built-in audio mute	15 to 42
* TA8265K	P-HSIP10-2.54C		Sound output power: 6 W × 2	10 to 30

*: New product

Audio Video Switches

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TA8775AN	P-SDIP30-400-1.778	System switch	RGB interface switch, i ² C bus supported	8.1 to 9.9
TA8621P	P-DIP30-600-2.54	A/V switch	4-input A/V switch	10.8 to 13.2
TA8628N	P-SDIP24-300-1.778		2-input switch volume control	8.1 to 9.9
TA8720AN	P-SDIP30-400-1.778		4-input A/V switch (useful for S-VHS)	8.1 to 9.9
TA8742N	P-SDIP24-300-1.778		3-input switch volume control	8.1 to 9.9
TA8747N	P-SDIP36-400		5-input A/V switch (useful for S-VHS)	8.1 to 9.9
TA8777BN	P-SDIP36-500-1.778		5-input A/V switch (useful for S-VHS), i ² C bus supported	10.8 to 13.2
TA8851BN	P-SDIP54-600-1.778		7-input, 2-output A/V switch (useful for S-VHS), i ² C bus supported	8.1 to 9.9
TA8851CN	P-SDIP54-600-1.778		7-input, 2-output A/V switch (useful for S-VHS), i ² C bus supported	8.1 to 9.9
TA1218F	P-QFP48-1410-0.80		5-input, 2-output A/V switch (useful for S-VHS), i ² C bus supported	8.1 to 9.9
TA1218AN	P-SDIP42-600-1.778		5-input, 2-output A/V switch (useful for S-VHS), i ² C bus supported	8.1 to 9.9
TA1219AN	P-SDIP36-400		5-input, 1-output A/V switch (useful for S-VHS), i ² C bus supported	8.1 to 9.9
TA1287P/F	P-DIP16-300-2.54A	YUV, RGB SW	2-input and 1-output, RGB→YUV/I/Q	8.1 to 12.9

Optional ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TA8710S	P-SIP7-2.54A	SIF converter	5.5, 6.0, 6.5 MHz to 6.0 MHz conversion	8.1 to 9.9
TA8750AN	P-SDIP36-500-1.778	Chroma circuit	SECAM chroma processing	8.1 to 9.9
TA8772AN	P-SDIP30-400-1.778	Special function	Base band 1H delay line	8.1 to 9.9
TA8615N	P-SDIP30-400-1.778	System switch	Multicolor system switch, SIF converter	8.1 to 9.9
TA8763Z	P-SZIP21-0.889		Multicolor system switch	10.8 to 13.2
TA1275AZ	P-SZIP21-0.889	Chroma circuit	SECAM Demodulator	4.5 to 5.5

Power Supply Control ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TA1294N	P-SDIP24-300-1.78	AC-DC converter control	For high power supply with power factor correction	7.0 to 14.0
TA1307P	P-DIP8-300-2.54A		Burst mode operation only to reduce standby power	7.5 to 11.5
TA1319AP/AF	P-DIP8-300-2.54A		For power supply less than 50W, Universal mains supply operation	9.5 to 24.0
	P-SOP8-225-1.27		Automatic frequency reduction at standby mode	
** TA1361P/F	P-DIP8-300-2.54A P-SOP8-225-1.27		For power supply less than 140W, Universal mains supply operation Automatic frequency reduction at standby mode	9.0 to 23.0
TC90A75P/F	DIP8-C-300A		For AC transformer control	8.5 to 14.0
	DIP8-F-225C		Burst mode operation at standby mode	

** : Under development

Comb Filters

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
✧ TC90A65F	P-QFP100-1420-0.65A	Motion-adaptive 3D Y/C separation (NTSC)	Motion-adaptive 3D YCS Embedded 4M DRAM Built-in ADC (2-ch), DAC (2-ch) I ² C bus data preset mode Noise level detection, ID-1 data slicer	2.3 to 2.7 3.0 to 3.6
✧ TC90A30AF	P-QFP100-1420-0.65A	Motion-adaptive 3D Y/C separation (NTSC)	Motion-adaptive 3D YCS Letterbox detection YNR & CNR Built-in ADC (2-ch), DAC (2-ch) and PLL 2-Mbit FIFO memory is used I ² C bus control	3.0 to 3.6
✧ TC90A83N TC90A83F	P-SDIP28-400-1.78 P-SOP28-450-1.27	NTSC version 3-line Y/C separation	10 bit, 4-fsc ADC (1-ch) and 10 bit, 8-fsc DA (2-ch) H-dot interference reducer 1-line color dot interference reducer Vertical edge enhance & Y peaking gain control fsc to 8-fsc PLL circuit I ² C bus control and pin control	4.75 to 5.25
✧ TC90A53N TC90A53F	P-SDIP28-400-1.78 P-SOP28-450-1.27	NTSC version 3-line Y/C separation	8 bit, 4-fsc ADC (1-ch) and 8 bit, 4-fsc DAC (2-ch) Vertical edge enhancer (by pin control) 1-line color dot interference reducer 4-fsc PLL circuit	4.75 to 5.25
✧ TC90A69N TC90A69F	P-SDIP28-400-1.78 P-SOP28-450-1.27	Multicolor version 3-line Y/C separation	PAL/NTSC multicolor format Chrominance Noise Reduction (NTSC) or Chrominance Noise Canceller (PAL) 8 bit, 4-fsc ADC (1-ch) and 8 bit, 8-fsc DAC (2-ch) Vertical edge enhance & Y peaking gain control 8-fsc PLL circuit I ² C bus control	4.75 to 5.25
✧ TC90A49P TC90A49F	P-DIP20-300-2.54A P-SOP24-450-1.27B	Multicolor version 3-line Y/C separation	PAL/NTSC multicolor format 8 bit, 4-fsc ADC (1-ch) and 8 bit 8-fsc DAC (2-ch) Vertical edge enhancer 8-fsc PLL circuit I ² C bus control	4.75 to 5.25
✧ TC9090AN TC9090AF	P-SDIP28-400-1.78 P-SOP28-450-1.27	Multicolor version 3-line Y/C separation	PAL/NTSC multicolor format 8 bit, 4-fsc ADC (1-ch) and 8 bit 4-fsc DAC (2-ch) Vertical edge enhancer 1-line color dot interference reducer (NTSC) 4-fsc PLL circuit I ² C bus control and pin control	4.75 to 5.25
TC90A44P TC90A45F/P	P-DIP16-300-2.54A P-SOP16-300-1.27	NTSC version 2-line Y/C separation	8 bit 4-fsc ADC (1-ch) and 8 bit, 4-fsc DAC (2-ch) 4-fsc PLL Circuit	4.75 to 5.25

✧: Dry-packed product

Liquid Crystal TV ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TA8819F	P-SSOP30-375-1.00	Video, chroma, sync. regeneration	NTSC video, chroma, sync. regeneration	3.5 to 7.5
✧ TA8795BF	P-QFP60-1414-0.80F		PAL/SECAM/NTSC multicolor systems, also useful for M/N-PAL	4.0 to 5.5
TA8696F	P-SSOP30-375-1.00	Gamma correction	LCD gamma correction driver	3.5 to 7.5
TA1204AF	P-QFP44-1414-0.80F		LCD gamma driver, 2 linear inputs	4.5 to 5.5 12.5 to 13.5

✧: Dry-packed product

PIP ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
✧ TC90A67N/F	P-SDIP64-750-1.78 P-QFP80-1420-0.80B	Single-chip PIP controller (NTSC/PAL/M-PAL/N-PAL)	Built-in NTSC/PAL/M-PAL/N-PAL decoder for sub-picture Built-in field-memory (181 kbit) Input signal CVBS Output signal YUV or RGB Screen mode 1/9, 1/16, up to 6 sub-pictures Built-in CCD slicer I ² C bus control	3.0 to 3.6
✧ TC90A17F	P-QFP100-1420-0.65A	PAP/PIP/POP controller for NTSC/PAL WIDE TV	PAP/PIP/POP display and multi-search (9 or 12 sub-pictures) Built-in 2-ch ADC and 3-ch DAC Built-in horizontal and vertical filter 4-Mbit or 2-Mbit FIFO memory OSD function I ² C bus control	3.1 to 3.5
✧ TC90A66F	P-QFP144-2626B	PAP/PIP/POP controller for NTSC/PAL WIDE TV	PAP/PIP/POP display and multi-search (9 or 12 sub-pictures) Main picture and sub-picture functionality combined or a single chip Built-in 2-ch ADC and 3-ch DAC Built-in horizontal and vertical filters 4-Mbit FIFO memory I ² C bus control	3.1 to 3.5

✧: Dry-packed product

Other Systems

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TA8889AP	P-DIP16-300-2.54A	Special function	RGB cut-off drive adjust, I ² C bus supported	10.8 to 13.2
✧ TC90A18AF	P-QFP100-1420-0.65A	Time compression for wide-screen TV	Time-compression and time-extension ($\times 1/2$ to $\times 3/2$) of the luminance and chroma Digital Super Live Mode (adaptive aspect conversion) EDTV2 detection and letterbox detection Built-in ADC (2-ch) and DAC (3-ch) Built-in 1368fH VCO I ² C bus control	3.1 to 3.5
TA1227AP	P-DIP16-300-2.54A	EDTV-2 Ident detection	EDTV-2 Ident signal (B1 to B27) detection, I ² C bus supported	8.1 to 9.9
✧ TC90A36F	P-QFP100-1420-0.80A	Field-doubling converter	Scan frequency converter (50 Hz / 60 Hz $\rightarrow$ 100 Hz / 120 Hz) Horizontal time compression and expansion Picture Freeze Mode Built-in ADC (2-ch) and DAC (3-ch) I ² C bus control	4.75 to 5.25
✧ TC90A46F	P-QFP80-1420-0.80A	Noise reduction	Noise reduction function with field-doubling converter (TC90A36F) Built-in EDO memory controller, I ² C bus control	4.75 to 5.25
✧ TC90A58F	P-LQFP80-1212-0.50A	A/D converter	3-ch A/D converter for video signal Built-in Clamp circuit Built-in Digital Filter Built-in Horizontal PLL Built-in Formatter for ITU-R BT.601, 656, I ² C bus control	3.0 to 3.6
✧ TC90A90FG	P-QFP100-1420-0.65Q	Noise reduction	Motion adaptive base band noise reduction Built-in ADC (2-ch) and DAC (3-ch) Built-in HPLL (858fH and 864fH) Built-in noise level detection 4 Mbit EDO memory is used I ² C bus control	3.0 to 3.6 4.75 to 5.25

✧: Dry-packed product

Television ICs (for tuners)

Tuning System ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
◇ TA1281FN	P-SSOP16-225-0.65B	Mixer + OSC for tuners	UHF/VHF 2-band mixer, oscillator, IF amp	4.5 to 5.5
◇ TA1284FN	P-SSOP16-225-0.65B		UHF/VHF 2-band mixer, low phase noise oscillator, IF amp	4.5 to 5.5
TA1302FN	P-SSOP30-300-0.65	Down converter with PLL for CATV Double Conversion system	Direct two modules-type PLL Low phase noise oscillator Low noise figure, Low distortion mixer (3-wire/I ² C bus), built-in drive transistor	4.5 to 5.5
◇ TA1303AFN/BFN	P-SSOP30-300-0.65	Built-in PLL	1.3-GHz PLL (I ² C bus / 3-wire), built-in drive transistor	4.5 to 5.5
TA1333FN	P-SSOP24-225-0.65B	Mixer + OSC for tuners	UHF/VHF 2-band mixer, oscillator, IF amp 1.3-GHz PLL (I ² C bus), built-in drive transistor UHF/VHF 2-band mixer, oscillator, IF amp	4.5 to 5.5
◇ TA1334FN	P-SSOP30-300-0.65	Built-in PLL Mixer + OSC for CATV modem tuners	1.3-GHz PLL (I ² C bus / 3-wire), built-in drive transistor UHF/VHF 2-band mixer, low phase noise oscillator, IF amp	4.5 to 5.5
TD6358P/N	P-DIP20-300-2.54A/ P-SDIP20-300-1.778	PLL + prescaler for frequency synthesizers	1.2-GHz prescaler + PLL (50-kHz step) with band switch	4.5 to 5.5
TD6359P/N	P-SDIP20-300-1.778		1.0-GHz prescaler + PLL (62.5-kHz step) with band switch	4.5 to 5.5
TD6380Z	P-DIP20-300-2.54A/ P-SDIP20-300-1.778/		1.0-GHz prescaler + PLL (62.5-kHz step) with band switch	4.5 to 5.5
TD6381N/Z	P-SDIP20-300-1.778/		1.2-GHz prescaler + PLL (50-kHz step) with band switch	4.5 to 5.5
TD6382P/N	P-SZIP21-0.889		1.0-GHz prescaler + PLL (31.25-kHz step) with band switch	4.5 to 5.5
TD6383Z	P-SZIP21-0.889		1.2-GHz prescaler + PLL (Toshiba bus control) with band switch	4.5 to 5.5
TD7603Z/F	P-SZIP21-0.889/ P-SOP20-300-1.27		1.3-GHz prescaler + PLL (I ² C bus control) with band switch	4.5 to 5.5
TD7626F/FN	P-SOP16-225-1.27/ P-SSOP16-225-0.65B		2.7-GHz prescaler + PLL (I ² C bus control) with band switch Built-in AD converter	4.5 to 5.5
TD6116P/18P/20P/ 22P/24P/26P	P-SIP7-2.54A/ P-DIP8-300-2.54A	Prescaler	1.2-GHz prescaler 1/64, 1/128, 1/256, ELC or TTL output	4.5 to 5.5
TD7624AFN	P-SSOP16-225-0.65B	Direct two modulus-type PLL for frequency synthesizers	1.3-GHz PLL (3-wire / I ² C bus), built-in drive transistor	PLL: 4.5 to 5.5 Band: 4.5 to 9.9 Vr: 4.5 to 35
TD7623AFN		Built-in peripheral type	2.3-GHz PLL (3-wire / I ² C bus), built-in drive transistor	
TD7627FN		Built-in peripheral type	2.7-GHz PLL (3-wire / I ² C bus), built-in drive transistor	

◇: Dry-packed product

PIF ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TA7607AP	P-DIP16-300-2.54A	PIF	Reverse RF AGC, peak AGC	10.8 to 13.2
◇ TA1290FN	P-SSOP16-225-0.65B		Reverse RF AGC, peak AGC	8.1 to 9.9

◇: Dry-packed product

SIF ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TA7337P	P-SIP9-2.54A	SIF	SIF detection, with sound multiplexing-compatible regulator	8 to 15
TA8721ASN	P-SSIP12-1.778		SIF detection × 2	8.1 to 9.9
TA7243P	P-HDIP14-500A	SIF + sound output	SIF detection, volume, 3-W sound output amp	30 (typ.)
TA8703S	P-SSIP12-1.778	QSIF	Reverse RF AGC, peak AGC	8.1 to 9.9

PIF and SIF ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TA7680AP/81AP	P-DIP24-600-2.54	PIF + SIF	Reverse/Forward RF AGC, peak AGC, sound volume, preamp	10.8 to 13.2
TA8700AN	P-SDIP20-300-1.778		Reverse RF AGC, peak AGC, intercarrier, diversity supported	8.1 to 9.9
TA8701AN	P-SDIP24-300-1.778		Reverse RF AGC, peak AGC, intercarrier, sound volume, diversity supported	8.1 to 9.9
TA8800N	P-SDIP24-300-1.778	PLL PIF/SIF	PLL split-carrier type PIF + SIF	8.1 to 9.9
TA8600N	P-SDIP30-400-1.778	PIF + QIF + SIF	PIF + QSIF + SIF reverse RF AGC, peak AGC, quasi-parallel detection method	8.1 to 9.9 (Note)
TA8712N/8796N	P-SDIP20-300-1.778	PIF + QIF	PIF + SIF reverse RF AGC, peak AGC, quasi-parallel detection method	8.1 to 9.9
TA1267AF/74F	P-SSOP24-300-1.00B	PIF + SIF	PLL split-carrier type PIF + multi-system SIF (TA1267AF) / single system SIF (74F)	8.1 to 9.9
TA8865BN	P-SDIP36-500-1.778	PLL/PIF + SIF	L-SECAM system (video, audio) PLL, split-carrier type PIF + SIF	8.1 to 9.9

Note: AFT is 12 V (typ.)

Liquid Crystal TV PIF and SIF ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TA8805F	P-SSOP24-300-1.00	PIF/SIF + ATT	PIF/SIF, built-in electronic volume and black NI, reverse RF AGC, sync. separation	3.5 to 7.5
TA1207F	P-SSOP24-300-1.00		PIF/SIF, built-in electronic volume, no black NI, reverse RF AGC, sync. separation	3.5 to 7.5
TA8876FA	P-SSOP30-375-1.00	PIF/QSIF + SIF	PIF/QIF + SIF, black NI ON output, black NI OFF output (diversity supported), forward/reverse switchable RF AGC, sync. separation, quasi-parallel detection method	3.5 to 7.5
◇ TA1209F	P-QFP48-1014-0.80	Converter method PIF/SIF + ACC	PIF/SIF + ACC (accessory), built-in 10.7-MHz converter, black NI ON output, black NI OFF output (diversity supported), forward/reverse switchable RF AGC, sync. separation, built-in audio accessories	4.5 to 5.5 8.0 to 9.0
TA1272AF	P-SSOP24-300-1.00	PIF/SIF	PIF/SIF, black NI ON output, black NI OFF output (diversity supported), reverse RF AGC, sync. separation	3.5 to 5.5

◇: Dry-packed product

Multiplexed Sound Demodulator ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TA7762N	P-SDIP30-400-1.778	Multiplexed sound demodulation	EIAJ multiplexed sound demodulation, built-in filter, sound processor function	8.1 to 9.9
TA8874Z	P-SZIP21-0.889		EIAJ multiplexed sound demodulation, adjustment-free, facsimile-capable, I ² C bus control	8.1 to 9.9
TA1230Z	P-SZIP21-0.889		EIAJ multiplexed sound demodulation, built-in filter, facsimile-capable	8.1 to 9.9
✧ TC90A74F	P-QFP80-1420-0.80A P-SDIP64-750-1.78	NICAM decoder	Digital NICAM, FM decoder Digital PLL, digital OSC Built-in ADC (1 ch) and DAC (2 ch) Single-crystal system I ² C bus control	4.75 to 5.25

✧: Dry-packed product

Broadcast Satellite ICs (1)

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
✧ TA1296FN	P-SSOP30-300-0.65	Built-in PLL Down-converter for satellite tuners	2.7-GHz PLL (I ² C bus), built-in drive transistor, input comparator, built-in AD converter, 4-MHz buffer output terminal, wide-band local oscillator, mixer, IF amp	4.5 to 5.5
✧ TA1322FN	P-SSOP30-300-0.65	Built-in PLL Down-converter for satellite tuners	2.7-GHz PLL (I ² C bus), built-in drive transistor, input comparator 4-MHz buffer output terminal, wide-band local oscillator, mixer, IF terminal which can be chosen	4.5 to 5.5
✧ TC90A26F	P-LQFP64-1010-0.50	QPSK demodulation PCM decoder DA converter	QPSK demodulation by digital PLL PCM decoder ×8 oversampling digital filter 1-bit $\Sigma\Delta$ modulation DA converter Analog LPF General-purpose port	4.5 to 5.5
TA8899AF	P-SSOP30-375-1.00	FM demodulation	400-MHz band video FM demodulation, AFT adjustment-free	4.75 to 5.25
✧ TA1260BF	P-QFP52-1010-0.65	FM demodulation Video processing (for Japan)	400-MHz band video FM demodulation, AFT adjustment-free Built-in audio BPF, video LPF, CN detection LPF, CN-compatible NR	4.75 to 5.25
TA1248F	P-HQFP30-1010	I/Q demodulator for digital satellite tuners	Second IF AGC amp, dB-linear signal-level amp, sync. quasi-sync. detect PLL, 90° phase shifter, baseband output amp	4.5 to 5.5

✧: Dry-packed product

Broadcast Satellite ICs (2)

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
✧ TC81221F	QFP208	CS satellite broadcasting	Built-in DVB descrambler Built-in transport processor Video/Audio decoder Built-in RISC CPU	3.0 to 3.6
✧ TC90A55ATB	TBGA480	HD digital TVs	TS decoder, MP@HL MPEG video decoder, audio decoder, NTSC down converter, NTSC encoder	1.6/2.5/3.3
✧ TC90A56ATB	TBGA480	HD digital TVs	Format conversion, graphics, video DAC	1.6/2.5/3.3
✧ TC8124TB	TBGA648	HD digital TVs	TS decoder, MP@HL MPEG video decoder, Audio decoder, Format converter, Graphics, Video DAC, Built-in RISC CPU	
✧ TC90A43AF	QFP64	MULTI2 descrambling	Japanese standard descrambler	3.0 to 3.6

✧: Dry-packed product

Video Cassette Recorder ICs

Video Signal Processing ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TA8898AN	P-SDIP20-300-1.78	NTSC CNR IC Built-in CCD	Improved S/N ratio for NTSC playback color signal due to feedback-type comb filter	4.8 to 5.2
TA1225N	P-SDIP20-300-1.78	PAL CNR IC Built-in CCD	PAL version of TA8898AN	4.8 to 5.2
TA1232AN	P-SDIP54-600-1.78	Single-chip Y/C signal processor for multi-systems	Incorporates all filters necessary for Y/C signal processing, for entirely adjustment-free operation. I ² C bus control	4.8 to 5.2
TA1238N/F	P-SDIP24-300-1.78 P-SSOP24-300-1.00	L-SECAM chroma signal processing IC	Used for SECAM chroma signal processing during VHS VCR recording/playback Various filters and SECAM Ident are built-in.	4.8 to 5.2
✧ TA1251CF	P-QFP80-1420-0.8C	AV signal processing for NTSC	Incorporates all filters necessary for Y/C signal processing. Completely adjustment-free, built-in normal audio processing function, built-in CCD delay line and comb filter	4.8 to 5.2
TA1258AN	P-SDIP42-300-1.78	AV signal processing for NTSC/PAL/MESECAM	Incorporates all filters necessary for Y/C signal processing, for entirely adjustment-free operation I ² C bus control	4.8 to 5.2
✧ TA1277F	P-QFP80-1420-0.8C	AV signal processing for NTSC/PAL/MESECAM	Incorporates all filters necessary for Y/C signal processing Completely adjustment-free, built-in normal audio processing function, built-in CCD delay line and comb filter I ² C bus control	4.75 to 5.25
✧ TA1278AF	P-QFP80-1420-0.8C	AV signal processing for PAL/MESECAM	Incorporates all filters necessary for Y/C signal processing. Completely adjustment-free, built-in normal audio processing function, built-in CCD delay line and comb filter I ² C bus control	4.75 to 5.25

✧: Dry-packed product

Rec amp / Pre-amp ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
✧ TA8676F	P-SSOP30-375-1.00	2-ch rec amp / 4-ch pre-amp	Rec amp / Pre-amp for S-VHS VCRs Short switch, FM AGC	4.75 to 5.25 (PB) 8.5 to 9.5 (rec)
TA1249F	P-SSOP16-225-1.00A	2-ch rec amp / pre-amp	Differential drive-type rec amp and differential input-type pre-amp channels Board can be shared between 2, 4 or 6 channels.	4.5 to 5.5
✧ TA1250F	P-SSOP24-300-1.00A	4-ch rec amp / pre-amp		4.5 to 5.5
✧ TA1273F	P-SSOP36-375-1.00	6-ch rec amp / pre-amp		4.5 to 5.5

✧: Dry-packed product

Audio Signal Processing ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
✧ TA8863CF	P-QFP80-1420-0.8C	VHS, S-VHS Hi-Fi + normal (NTSC/PAL)	Bus line control (I ² C bus) Entirely adjustment-free Built-in normal sound	4.75 to 5.25 8 to 12
✧ TA1246AF	P-QFP48-1014-0.8	Hi-Fi (NTSC/PAL)	Bus line control (I ² C bus) Entirely adjustment-free	4.75 to 5.25 8 to 10

✧: Dry-packed product

OSD ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TC90A24F	P-SOP16-300-1.27A	OSD	User custom 128 characters, 4 × 4 character sizes, 3-line serial interface, NTSC/PAL system-compatible, video clamp, video buffer, video switch, PLL, H/V separator, system clock: fsc	4.75 to 5.25
TC90A25F	P-SOP16-300-1.27A	OSD	User custom 254 characters, 4 × 4 character sizes, 3-line serial interface, NTSC/PAL system-compatible, video clamp, video buffer, video switch, PLL, H/V separator, system clock: fsc	4.75 to 5.25
TC90A62F	P-SOP20-300-1.27	OSD	User custom 508 characters, suitable for S-VHS system (normal VHS also), characters colored by pixel, half-tone video mixer, 4 × 4 character sizes, 3-line serial interface, NTSC/PAL system-compatible, video clamp, H/V separator, system clock: fsc, dot clock: LC less	4.75 to 5.25

RF Modulators

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TA8637BP/BF	P-DIP16-300-2.54A P-SSOP16-225-1.27	VHF-band RF modulator	VHF-band RF modulator for VCRs Video modulator, FM sound modulator, RF oscillator	4.5 to 5.5
TA1297AFN	P-SSOP24-300-0.65	UHF-band RF modulator	UHF-band RF modulator for VCRs PAL-/SECAM-compatible, i ² C bus control	4.5 to 5.5

CMOS Area Image Sensor Camera Signal Processing IC

Product No.	Package	Outline	Functions/Features	Operating Supply Voltage Range (V)
◇ TC90A70F	P-LQFP80-1212-0.50A	CMOS image sensor camera signal processing IC	10bit sensor input Can be operated without microcontroller Built-in Various picture adjustment function, ALC, AES, AWB, AGC Output Image size of VGA, QVGA, QQVGA, CIF, QCIF Suitable for TCM5063T	2.3 to 2.7
◇ TC90A81F	P-LQFP64-1010-0.50A		9bit sensor input Digital output (YUV = 4:2:2-8, 4:2:2 - 16, RGB = 5:6:5 - 16, 6:6:6 - 18) Built-in power-on reset circuit (no need external circuit) Micon-less functioning Suitable for TCM5073T	2.6 to 2.9

◇: Dry-packed product

Other Peripheral ICs

Product No.	Package	Use	Functions/Features	Operating Supply Voltage Range (V)
TA7347P	P-SIP7-2.54A	2-input switch	2-input video switch	8 to 10
TA7348P	P-SIP9-2.54A	3-input switch	3-input video switch	8 to 10
TA7357P/AP	P-SIP9-2.54A	Sync. separation	Sync. separation circuit, HD pulse generator	8 to 10
TA8686S/F	P-SIP9-2.54A P-SSOP10-225-1.00	3-input switch	3-input video switch with mute	4.5 to 5.5
TA8687S	P-SIP7-2.54A	2-input switch	2-input video switch with mute	4.5 to 5.5

Audio ICs

AM/FM Receiver ICs

Product No.	Package	Recommended Use			Function				Features / Built-in Functions	Operating Voltage (V)
		Car audio	General audio	Other	AM	FM				
						F/E	IF	Stereo demodulation		
TA2003P/F	P-DIP16-300-2.54A P-SSOP16-225-1.00A		○		■	■	■		IFT-less AM/FM, non-adjustable FM DET	1.8 to 7
TA2005SN	P-SSIP12-1.778	○							FM noise canceller, built-in LPF and HPF	7 to 9
TA2008AN	P-SDIP24-300-1.778		○		■	■	■	■	Single-chip AM/FM stereo tuner system, DTS-compatible, IF count output, FM DET, non-adjustable VCO FM stereo demodulator	3.5 to 14
TA2017FN	P-SSOP24-300-0.65A	○							Double front-end type FM IF diversity	7 to 9
◇ TA2022AFN	P-SSOP24-300-0.65A		○		■			■	DTS-compatible IF + FM stereo demodulator, IF counter output, adjustment-free FM DET, AM stereo supported, MPX with independent main signal and pilot signal input pins	0.95 to 2.2
◇ TA2029FN TA2029N	P-SSOP30-300-0.65 P-SDIP30-400-1.778		○		■	■	■		Single-chip AM/FM radio system, built-in audio power amp, DTS-compatible, IF counter output, adjustment-free FM DET	1.8 to 8
TA2030FN	P-SSOP16-225-0.65B		○			■			TV/FM 2-channel RF amp, mixer, local oscillator, IF amp	0.95 to 4
TA2039FN	P-SSOP16-225-0.65B	○							Antenna switchover type FM diversity	7 to 10
TA2051FN	P-SSOP24-300-0.65A	○							AM pulse noise reduction AM stereo reception	7 to 9
TA2057N	P-SDIP24-300-1.778		○		■		■	■	FM DET, DTS-compatible IF + FM stereo demodulator, IF counter output, non-adjustable VCO FM stereo demodulator	3.5 to 14
TA2074F	P-QFP48-1014-0.80	○			■	■			Single-chip RF processor (FM front end + AM tuner) Up-conversion system AM tuner, Motorola system AM stereo reception Upgrade version of TA2054AF with the following added: Improved AM transient response for rapid changes in field strength Improved error-free AM seek About 20% fewer external parts	7 to 9
TA2075F	P-QFP48-1014-0.80	○					■	■	FM processor, adjacent interference muting, IF amp, quadrature detector, noise canceler, FM stereo demodulator	7 to 9
TA2082F	P-QFP48-1014-0.80	○			■	■			Single-chip RF processor (FM front end + AM tuner) Up-conversion system AM tuner, Motorola system AM stereo reception Upgrade version of TA2034F with the following added: Improved AM transient response for rapid changes in field strength Improved error-free AM seek Improved FM interference rejection	7 to 9
* TA2083AFN	P-SSOP16-225-0.65B	○							Antenna switchover type FM diversity	7 to 10
TA2093F	P-QFP44-1010-0.80H	○					■	■	FM processor, IF amp, quadrature detector, noise canceller, FM stereo demodulator	7 to 9
TA2094F	P-QFP44-1010-0.80H	○			■	■			Single-chip RF processor (FM front end + AM tuner) Up-conversion system AM tuner, Motorola system AM stereo reception, FM NLA	7 to 9
TA2095F	P-QFP44-1010-0.80H	○					■	■	Single-chip FM processor (IF amp, quadrature detector, noise canceller, FM stereo demodulator) Multipass-blend-control Multipass-hicup-control	7 to 9
TA2099N TA2099F	P-SDIP24-300-1.778 P-SSOP24-300-1.00		○		■		■	■	IF count method for DTS, external connection of VCO circuit not required, FM auto-stop sensitivity and LED sensitivity adjustment, blender control	4 to 9
* TA2101AF	P-QFP48-1014-0.8	○			■	■			Single-chip RF processor FM front-end, FM 4th NLA Down-conversion system AM tuner, AM pluse noise reduction	7.5 to 8.9
* TA2102AF	P-QFP64-1212-0.65						■	■	Single-chip FM processor FM IF amp, quadrature detector, FM pulse noise reduction, FM stereo demodulator, FM antenna diversity, Keyless entry system	7.5 to 8.9
◇ TA2111N TA2111F TA2111FN	P-SDIP24-300-1.778 P-SSOP24-300-1.00 P-SSOP24-300-0.65A		○		■	■	■	■	1-chip tuner compatible with new FCC standards, FM soft muting, AFC diode, external connection of VCO circuit not required	1.8 to 7
TA2126F	P-QFP48-1014-0.80	○					■	■	FM processor, IF band select switch, IF amp, quadrature detector, noise canceller, FM stereo demodulator	7 to 9
* TA2127AF	P-QFP84-1014-0.5	○			■	■	■		Intelligent RF processor FM front-end,FM IF amp, IF band select switch, quadrature detector, Up-conversion system AM tuner, high-speed lock-up PLL, DAC output for RF amp and FSD automatic adjustment	7.5 to 9.0 4.5 to 5.5
* TA2132BP * TA2132BF	P-DIP16-300-2.54A P-SSOP16-225-1.00A		○		■	■	■		1-chip monaural radio tuner compatible with new FCC standards, AFC diode, non-adjustable FM DET	1.8 to 7
* TA2135F	P-QFP84-1014-0.5	○			■	■	■		Intelligent RF processor FM front-end,FM IF amp, IF band select switch, quadrature detector, Up-conversion system AM tuner, high-speed lock-up PLL, DAC output for FSD automatic adjustment	7.5 to 8.5 4.5 to 5.5
◇*** TA2154AFN	P-SSOP30-300-0.65		○		■	■	■	■	1-chip tuner compatible with new FCC standards, DTS compatible, external connection of VCO circuit not required	1.0 to 2.2
* TA2149BN ◇* TA2149BFN	P-SDIP24-300-1.778 P-SSOP24-300-0.65A		○		■	■	■	■	1-chip tuner compatible with new FCC standards, DTS compatible, external connection of VCO circuit not required	1.8 to 7

◇: Dry-packed product

Note1: Please ask for the nearest Toshiba distributor about the production works of bold product numbers which are listed the above.

*: New product

** : Under development

Product No.	Package	Recommended Use			Function			Features / Built-in Functions	Operating Voltage (V)
		Car audio	General audio	Other	AM	F/E	IF	Stereo demodulation	
TA7060AP	P-SIP5-2.54			○			■	Differential 1-stage amp	2 to 15
TA7343AP	P-SIP9-2.54A		○					Positive gain	3.5 to 12
TA7358P/AP	P-SIP9-2.54A		○			■		RF amp, mixer, local oscillator	1.6 to 6
TA7371AF	P-SOP8-225-1.27		○			■		RF amp, mixer, local oscillator, AFC varactor diode	0.95 to 5
TA7765AF	P-SSOP16-225-1.00A		○		■		■	Built-in LED driver for tuning indicator, 1-terminal type output circuit (common to AM and FM), low current consumption, built-in FM/AM select switch	0.95 to 5
TA7792P TA7792F	P-DIP16-300-2.54A P-SSOP16-225-1.00A		○		■	■	■	FM F/E + AM/FM IF + DET, AM detection / FM mixer coil unnecessary	0.95 to 5
TA8116F	P-SSOP16-225-1.00A	○				■		Balanced mixer, local oscillator, IF amp, AGC, delayed AGC	6 to 9
TA8122AN/AF TA8123AN/AF	P-SDIP24-300-1.778 P-SSOP24-300-1.00		○		■	■	■	Single-chip AM/FM stereo tuner system, FM DET, non-adjustable VCO FM stereo demodulator	1.8 to 7
TA8127N TA8127F	P-SDIP24-300-1.778 P-SSOP24-300-1.00		○		■	■	■	Single-chip AM/FM stereo tuner system	1.8 to 7
TA8129Z	P-ZIP16-1.27	○					■	Differential 6-stage amp, signal meter, station detection, soft muting, differential peak detector	7 to 16
TA8130Z/F	P-ZIP16-1.27 P-SSOP24-300-1.00	○					■	Non-adjustable VCO, auto blender, auto high cut, auto high blend, auto pilot canceller	7 to 16
TA8132AN TA8132AF	P-SDIP24-300-1.778 P-SSOP24-300-1.00		○		■		■	DTS compatible IF + FM stereo demodulator, IF count output, FM DET, non-adjustable VCO FM stereo demodulator	1.8 to 7
TA8158F	P-SSOP10-225-1.00		○			■		RF amp, mixer, local oscillator	1.6 to 8
TA8164P	P-DIP16-300-2.54A		○		■	■	■	FM F/E + AM/FM IF + DET	1.8 to 7
TA8167N (Note2)	P-SDIP24-300-1.778		○		■	■	■	Single-chip AM/FM stereo tuner system	1.8 to 7
TA8168SN	P-SSIP12-1.778		○			■		RF amp, mixer, local oscillator, IF amp, AFC diode	3.5 to 14
TA8176SN TA8176F	P-SSIP12-1.778 P-SSOP16-225-1.00A		○			■		RF amp, mixer, local oscillator, buffer output, IF amp	4 to 8 (F) 4 to 14 (SN)
TA8182FN	P-SSOP16-225-0.65B		○			■		TV/IF 2-channel RF amp, mixer, local oscillator, IF amp	0.95 to 4
TA8186P	P-DIP16-300-2.54A		○		■		■	AM IFT used in FM stereo demodulation VCO resonance circuit Soft muting	3.5 to 9
TA8187AFN	P-SSOP16-225-0.65B		○				■	Dual FM IF Built-in buffer amp (2-ch) and soft mute function	0.95 to 2.2
* TB2122F	P-QFP84-1014-0.5	○			■	■	■	Intelligent RF processor FM front-end, FM IF amp, IF band select switch, quadrature detector, Up-conversion system AM tuner, high-speed lock-up PLL, DAC output for RF amp and FSD automatic adjustment I2C BUS control	7.9 to 8.9 4.5 to 5.5
* TB2123AF	P-QFP64-1212-0.65	○						Intelligent Audio processor FM/AM pluse noise reduction, FM stereo demodulation, electric volume system I2C BUS control	7.9 to 8.9

Note1: Please ask for the nearest Toshiba distributor about the production works of bold product numbers which are listed the above.

*: New product

Note2: This product is manufactured in Toshiba's factory in Malaysia. It is not currently available in Japan.

PLL ICs for Car Audio

Product No.	Function	Package
TB2114F/FN	V _{CC} = 8.5 V, V _{DD} = 5 V, high-speed lock-up PLL (lock-up time • 500 μsec)	P-SSOP24-300-0.65A P-SSOP24-300-1.00A
TB2118F	V _{CC} = 10 V, V _{DD} = 5 V, high-speed lock-up PLL (lock-up time • 500 μsec)	P-SSOP24-300-1.00A

Note: Please ask for the nearest Toshiba distributor about the production works of bold product numbers which are listed the above.

Preamp and Line Amp ICs

Product No.	Package	Characteristics/Built-in Functions	Recommended Use				Operating Voltage (V)
			Car stereo	Cassette tape recorder	Home stereo	General amp	
TA7330P TA7330F	P-SIP7-2.54A P-SSOP16-225-1.00A	Low-voltage preamp for compact tape recorders, built-in ALC circuit		■			2 to 5
TA7705P TA7705F	P-DIP16-300-2.54A P-SSOP16-225-1.00A	2-channel, auto-reverse head select switch Tape equalizer (metal/normal) select switch	■				6 to 16
TA7668BP	P-DIP16-300-2.54A	2-channel recording amp with ALC		■			6 to 15
TA7784P	P-DIP16-300-2.54A	Built-in input select switch, 2-channel amp, built-in tape equalizer select switch		■			3.5 to 15
TA7795F TA7795FN	P-SSOP16-225-1.00A P-SSOP16-225-0.65B	Auto-reverse compatible input, 2-channel amp, built-in tape equalizer select switch		■			0.9 to 4.5
TA8142AP	P-DIP16-300-2.54A	Double cassette preamp 2-channel play amp, 2-channel rec amp, built-in ALC		■			4.0 to 13.5
TA8155F ◇ TA8155FN	P-SSOP24-300-1.00 P-SSOP24-300-0.65A	Play and rec amps, ALC-compatible microphone amp Power ON/OFF switch, Rec/Play select switch, buffer amp		■			0.9 to 4
TA8162SN	P-SSIP12-1.778	2-channel tape equalizer switch	■				6 to 16
TA8189N	P-SDIP24-300-1.778	Double cassette preamp, 2-channel play amp, 2-channel rec amp, built-in ALC, input selector, EQ selector		■			4.0 to 13.5
TA2011S	P-SIP7-2.54A	Single microphone amp, built-in ALC		■			4.0 to 13.5
TA2025F TA2025P	P-SSOP16-225-1.00A P-DIP16-300-2.54A	Low-noise, auto-reverse head select switch Tape equalizer (metal/normal) select switch	■				6 to 16
TA2042F	P-SSOP24-300-1.00	Preamp + music selection + mute IC	■				6 to 16
TA2068N	P-SDIP24-300-1.778	System preamp, built-in rec, play, monitor and microphone amps, built-in ALC, microphone mixing amp		■			4.0 to 9.0

◇: Dry-packed product

Note: Please ask for the nearest Toshiba distributor about the production works of bold product numbers which are listed the above.

Power ICs

Product No.	Package	Output Power (P _{out})			Features/Built-in Functions	Recommended Use			Operating Voltage (V)
		Recom- mended V _{CC} (V)	RL = 4 Ω	RL = 8 Ω		Car stereo	Cassette tape recorder	TV/Home stereo	
TA2120FN	P-SSOP24-300-0.65A	3		40 mW × 2 @16 Ω	Low current dissipation, built-in OCL/C cup, low-frequency boost amp, volume limiter and 2-ch headphone power amp		Portable CD/MD		1.8 to 4.5
TA2131FL/FN	P-QON24-0505-0.50 P-SSOP24-300-0.65A	1.5	—	8 mW × 2 @16 Ω	Low current dissipation (I _{ccq} = 0.75mA), Gv = 12 dB, bass boost with AGC, beep, muting, power standby		Portable CD/MD		0.9 to 4.5 (V _{CC2}) 1.8 to 4.5 (V _{CC1})
TA2152FL/FN	P-QON24-0505-0.50 P-SSOP24-300-0.65A	1.5	—	8 mW × 2 @16 Ω	Low current dissipation (C-Cup: 0.7mA, OCL: 1.4mA) L-Cup/OCL compatible, Gv = 11.5 dB, beep, muting, power standby Phase compensation partsless, Low pass compensation		Portable CD/MD		0.9 to 4.5 (V _{CC2}) 1.8 to 4.5 (V _{CC1})
TA7252AP	P-HSIP7-2.54A	13.2	5.9 W	—	Compact package, various protective circuits	■			9 to 18
TA7280P TA7281P	P-HZIP12-1.778B	13.2	5.8 W × 2 19 W × 1	—	2 channels, low distortion, low noise, various protective circuits (TA7281P is of reverse pin type)	■		■	9 to 18
TA7331P TA7331F	P-SIP9-2.54A P-SSOP16-225-1.00	3	0.2 W	—	Low voltage operation, low current consumption (suitable for compact tape recorders)		■		2 to 5 2 to 4
TA7368P TA7368F	P-SSIP9-2.54A P-SSOP10-225-1.00	6	0.72 W —	0.45 W 0.45 W	Few external parts (2 parts min) Low quiescent current		■		2 to 10
TA7376P	P-SIP9-2.54A	6	—	0.4 W × 2	2 channels, low current consumption		■		1.8 to 6
TA7688F	P-SSOP16-225-1.00A	3	38 mW × 2 @16 Ω	27 mW × 2 @32 Ω	2 channels, headphone power amp, ripple filter, power-off circuit, muting		■		1.8 to 5
TA7769P	P-DIP16-300-2.54A	6	1 W × 2	—	2 channels, few external parts, thermal shutdown protection circuit		■		4.5 to 9
TA8145FN	P-SSOP16-225-0.65B	1.5	—	8 mW × 2 @16 Ω	2-channel OCL system headphone power amp, muting, power ON/OFF switch, Gv = 22 dB, ripple filter		■		0.9 to 2.2
TA8157AFN	P-SSOP24-300-0.65A	1.5	—	11 mW × 2 @16 Ω	2-channel OCL system headphone power amp, Gv = 24 dB, muting, low-frequency boost amp, ripple filter		■		0.9 to 2.2
TA8200AH	P-HZIP12-1.778B	28	—	13 W × 2	2 channels, muting function, output shorting (AC) / thermal shutdown protection circuit		■	■	10 to 37
TA8201AK	P-HSIP7-2.54B	13.2	14 W	—	Compact package, various protective circuits	■			9 to 18
TA8205AH TA8205AL	P-HZIP17-2.00 P-HSIP17-2.00	13.2	15 W × 2	—	2 BTL channels, low heat resistance, various protective circuits, standby switch	■			9 to 18
TA8208H	P-HZIP12-1.778B	13.2	5.8 W × 2	—	2 channels, various protective circuits	■			9 to 18
TA8210AH TA8210AL	P-HZIP17-2.00 P-HSIP17-2.00	13.2	19 W × 2	—	2 BTL channels, low heat resistance, various protective circuits, standby switch	■			9 to 18
TA8211AH	P-HZIP12-1.778B	20	—	6 W × 2	2 channels, output shorting (AC) / thermal shutdown protection circuit		■	■	10 to 30
TA8213K	P-HSIP7-2.54B	20	—	6 W × 1	Compact package, output shorting (AC) / thermal shutdown protection circuit			■	10 to 30
TA8215H TA8215L	P-HZIP17-2.00 P-HSIP17-2.00	13.2	15 W × 2	—	2 BTL channels, low heat resistance, various protective circuits, standby switch	■			9 to 18
TA8216H	P-HZIP12-1.778B	24 28	13 W × 2 —	— 13 W × 2	2 channels, muting function, output shorting (AC) / thermal shutdown protection circuit		■	■	10 to 24 10 to 37
TA8217P (Note1)	P-HDIP12-300-2.54	9	2.5 W × 2	—	2 channels, heat shut-off protection circuit		■		4.5 to 12
TA8220H	P-HZIP17-2.00	13.2	19 W × 2	—	2 BTL channels, standby switch RL = 2 Ω guaranteed (30-W output), with clipping/shorting detector	■			9 to 18
TA8221AH TA8221AL	P-HZIP17-2.00 P-HSIP17-2.00	13.2	19 W × 2	—	2 BTL channels, standby switch RL = 2 Ω guaranteed (30-W output)	■			9 to 18
TA8223K	P-HSIP15-2.00A	15	6.5 W × 2	—	2 channels, standby switch thermal shutdown protection circuit		■		6 to 18
TA8225H TA8225L	P-HZIP17-2.00 P-HSIP17-2.00	13.2	23 W × 1	—	40-W output power when using RL = 2 Ω Standby switch	■			9 to 18
TA8227P (Note1)	P-HDIP12-300-2.54	9	2.5 W × 2	—	2 channels, thermal shutdown protection circuit, standby switch		■		5 to 12
TA8229K	P-HSIP15-2.00A	9	2.5 W × 2	—	2 channels, standby switch, thermal shutdown protection circuit		■		6 to 15
TA8231L	P-HSIP17-2.00	13.2	22 W × 2	—	2 BTL channels, standby switch NF capacitor not needed, RL = 2 Ω guaranteed (37-W output)	■			9 to 18
TA8233BH	P-HZIP17-2.00	13.2	19 W × 2	—	2 BTL channels, standby switch RL = 2 Ω guaranteed (30-W output), with clipping/shorting detector	■			9 to 18
TA8238K	P-HSIP15-2.00A	13.2	5.3 W × 2	—	2 channels, standby switch	■			6 to 18
TA8246AH	P-HZIP12-1.778B	20	—	6 W × 2	2 channels, muting function, thermal shutdown and overvoltage protection to prevent output shorting			■	10 to 30
TA8248K (Note1)	P-HSIP15-2.00A	9	2.5 W × 2	—	2 channels, standby switch, thermal shutdown protection circuit		■	■	6 to 15
TA8251AH	P-HZIP25-1.27C	13.2	18 W × 4	—	4 BTL channels, standby switch, mute, built-in AUX amp	■			9 to 18
TA8252H	P-HZIP25-1.27E	13.2	21 W × 4	—	4 BTL channels, standby switch, mute, AUX amp, output CR filter not needed	■			9 to 18
TA8254BH	P-HZIP15-1.27E	13.2	21 W × 2	—	2 BTL channels, standby switch, mute, output CR filter not needed, self diagnosis, 2 Ω guaranteed	■			9 to 18

Note1: This product is manufactured in Toshiba's factory in Malaysia.

It is not currently available in Japan.

Note2: Please ask for the nearest Toshiba distributor about the production works of bold product numbers which are listed the above.

Power ICs (continued)

Product No.	Package	Output Power (Pout)			Features/Built-in Functions	Recommended Use			Operating Voltage (V)
		Recom- mended Vcc (V)	RL = 4 Ω	RL = 8 Ω		Car stereo	Cassette tape recorder	TV/Home stereo	
TA8255AH	P-HZIP25-1.27C	13.2	14 W × 4	—	4 BTL channels, standby switch, mute, built-in AUX amp	■			9 to 18
TA8256BH	P-HZIP12-1.778B	20	—	6 W × 3	3 channels, muting function, output shorting (AC) / thermal shutdown and overvoltage protection			■	10 to 30
TA8258H	P-HZIP12-1.778B	37	—	20 W × 2	2 channels, muting function, output shorting (AC) / thermal shutdown protection circuit			■	15 to 42
TA8259H	P-HZIP25-1.27E	13.2	21 W × 4	—	4 BTL channels, standby switch, mute, AUX amp, output CR filter not needed	■			9 to 18
TA8260AH	P-HZIP25-1.27E	13.2	24 W × 4	—	4 BTL channels, standby switch, mute, AUX amp, output CR filter not needed	■			9 to 18
TA8261AH	P-HZIP25-1.27E	13.2	22 W × 4	—	4 BTL channels, standby switch, mute, AUX amp, output CR filter not needed	■			9 to 18
TA8262H	P-HZIP25-1.27E	13.2	24 W × 4	—	4 BTL channels, standby switch, mute, AUX amp, output CR filter not needed	■			9 to 18
TA8263BH	P-HZIP25-1.00F	13.2	24 W × 4	—	4 BTL channels, standby switch, mute, AUX amp, CR filter not needed, Self diagnosis	■			9 to 18
TA8264AH	P-HZIP25-1.00F	13.2	21 W × 4	—	4 BTL channels, standby switch, mute, AUX amp, CR filter not needed, Self diagnosis	■			9 to 18
TA8265K	P-HSIP10-2.54C	20	—	6 W × 2	2 channels, output shorting (AC) / thermal shutdown protection circuit		■		10 to 30
TA8266H	P-HZIP25-1.00F	13.2	20 W × 4	—	4 BTL channels, standby switch, mute, AUX amp, CR filter not needed, Self diagnosis	■			9 to 18
TA8270H	P-HZIP25-1.00F	13.2	24 W × 4	—	4 BTL channels, standby switch, mute, AUX amp, CR filter not needed, High efficiency type, self diagnosis	■			9 to 16
TA8271H	P-HZIP25-1.00F	13.2	21 W × 4		4 BTL channels, standby switch, mute, AUX amp, CR filter not needed	■			9 to 18
TA8272H	P-HZIP25-1.00F	13.2	24 W × 4		4 BTL channels, standby switch, mute, AUX amp, CR filter not needed	■			9 to 18
TA8273H	P-HZIP25-1.00F	13.2	25 W × 4	—	4 BTL channels, standby switch, mute, AUX amp, CR filter not needed, Self diagnosis	■			9 to 16
TA8275H	P-HZIP25-1.00F	13.2	21 W × 4		4 BTL channels, standby switch, mute, AUX amp, CR filter not needed, Self diagnosis	■			9 to 18
TA8276H	P-HZIP25-1.00F	13.2	20 W × 4	—	4 BTL channels, standby switch, mute, AUX amp, CR filter not needed, Self diagnosis	■			9 to 18
TA8277H	P-HZIP25-1.00F	13.2	24 W × 4	—	4 BTL channels, standby switch, mute, AUX amp, CR filter not needed, Self diagnosis	■			9 to 18

Pre + Power Amp ICs

Product No.	Package	Output Power (Pout)	Features/Built-in Functions	Recommended Use			Operating Voltage (V)
				Headphone stereo	Radio cassette recorder	Other	
◇ TA8159FN	P-SSOP30-300-0.65	6 mW (1.5 V, 16 Ω)	2 built-in channels, auto reverse, ripple filter Pre-off switch, OCL system, GV = 28 dB (power stage)	■			0.9 to 2.2
◇ TA2002FN TA2002F	P-SSOP24-300-1.00A P-SSOP24-300-1.00	50 mW (3 V, 16 Ω)	2 built-in channels, auto reverse, ripple filter Pre-off switch, OCL system, GV = 27 dB (power stage)	■			1.8 to 4.5
TA2069AF	P-SSOP24-300-1.00A	20 mW (3 V, 32 Ω) 28 mW (3 V, 16 Ω)	2 built-in channels, motor governor, DC volume control, GV = 31 dB (power stage)	■			1.5 to 3.6
TA2123AF	P-LQFP48-0707-0.50	6 mW (1.5 V, 32 Ω)	2 built-in channels, bass boost with AGC, AMS, beep, metal driver	■			0.95 to 2.2
TA2145AF	P-SSOP24-300-1.00A	20 mW (3 V, 32 Ω) 28 mW (3 V, 16 Ω)	2 built-in channels, motor governor, DC volume control, Pre switch, GV = 31 dB (power stage)	■			1.8 to 3.6

◇: Dry-packed product

Note: Please ask for the nearest Toshiba distributor about the production works of bold product numbers which are listed the above.

Accessories and Others

Product No.	Package	Uses	Features/Built-in Functions	Operating Voltage (V)
TA7317P	P-SIP9-2.54A	OCL power amp Speaker protection	Overcurrent / DC voltage detector, power ON/OFF mute, reel driver	±24 to ±60
TA7630P	P-DIP16-300-2.54A	Electronic tone, volume and balance controls	2 channels, DC control	Single power supply: 8 to 14 Dual power supply: ±4 to ±7
TA7796P TA7796Z	P-DIP16-300-2.54A P-ZIP16-1.27	5-band graphic equalizer	Low distortion, few external parts	4 to 16
TA8126S TA8126F	P-SIP9-2.54C P-SSOP10-225-1.00	DC-DC converter for electronic tuning (3-V)	VHF/UHF tuner using variable capacitance diode bias, output voltage (V _o = 15 V / 30 V), switchable stabilized power supply, sine wave oscillator	1.8 (2.0) to 10
TA8161F	P-SSOP10-225-1.00	DC-DC converter	Blocking oscillator, output voltage (2.5 V / 5 V), built-in back-up function	0.9 to 4
TA8173AP	P-DIP16-300-2.54A	Sound field reproduction processor	4-phase shift filter stage, built-in normal/delay switch	4 to 12
TA8184P TA8184F	P-DIP20-300-2.54A P-SSOP24-300-1.00	2 channels, volume, tone, balance and loudness controls	Low noise, DC control, variable loudness, variable volume	7.5 to 15 (TA8184P) 7.5 to 12.5 (TA8184F)
TA8198F	P-SSOP10-225-1.00	DC-DC converter for electronic tuning (3-V)	VHF tuner using variable capacitance diode bias, output voltage (V _o = 15.5 V), constant-current output for LPF, power switch, sine wave oscillator	1.8 to 10
TA8214K	P-HSIP7-2.54B	Multi-output type voltage- regulated power supply	8.3-V output × 4, 1 fixed output, 3 switchable outputs	9.3 to 18
TA8244H	P-HZIP12-1.778B	Multi-output type voltage- regulated power supply	8.4-V output × 4, built-in standby switch, muted output when power is down	9.4 to 18
TA8269AH	P-HZIP15-1.27E	Multi-output type voltage- regulated power supply	For μ-con 5 V output × 1, 8.5 V output × 1, High SideSW × 3 Stand-by, Mute, Reset, each voltage detector included.	9.6 to 18
TA2015FN	P-SSOP10-0.65	1.5-V ripple filter	Built-in power ON/OFF function and constant-current power supply circuit Adjustable output voltage	0.9 to 2.2
TA2016FN	P-SSOP10-0.65	1.5-V 2-channel buffer amp	Output impedance switchable in 3 steps, EQ switching	0.95 to 2.2
TA2018FN	P-SSOP10-0.65	DC-DC converter for electronic tuning (1.5-V)	VHF tuner using variable capacitance diode bias, output voltage (V _o = 14.3 V), built-in constant- current output circuit, sine wave oscillator	0.9 to 4
TA2026SN TA2026F	P-SSIP12-1.778 P-SSOP16-225-1.00	Balanced signal output amp	Low noise, 2 channels, low distortion	5 to 12
TA2041F	P-SSOP24-300-1.00	Sound field reproduction processor	4 selectable sound field phase shift modes, filter, external input pin (mono)	4 to 13.5
TA2050S TA2050F	P-SIP9-2.54A P-SSOP16-225-1.00	Ground isolator	2 channels, low noise, high common-mode rejection ratio	5 to 10
TA2078P	P-DIP16-300-2.54A	Preset equalizer	2 channels, 3-mode preset equalizer, flat mode	7.5 to 14
TA2062F	P-SSOP16-225-1.00A	Sound field correcting 5-band equalizer	Low distortion, low noise	4 to 16

Infrared Receiver ICs (f = 2.3 MHz / 2.8 MHz)

Product No.	Package	Function	Features/Built-in Functions	Operating Voltage (V)
✧ TA2056FN	P-SSOP24- 300-0.65A	Receiver IC	Built-in 2-ch tuner matched to frequency modulation, built-in mute function, low current consumption	0.95 to 2.2

✧: Dry-packed product

Digital Tuning Systems (DTS) (1)

System No.	Controller	Prescaler	Package	Operating Voltage (V)	Crystal Oscillator	ROM Size	RAM Size	Display Format	I/O Ports	Remarks	
DTS-10	TC9304F	—	P-QFP60-1414-0.80A	4.5 to 5.5	7.2 MHz	16 bits × 1K	4 bits × 128	LCD 1/2 duty 1/2 bias	IN: 11 lines OUT: 38 lines I/O: 6 lines	Single chip Suitable for car stereos	
	◇ TC9309AF	—	P-QFP80-1420-0.80A	4.5 to 5.5	7.2 MHz	16 bits × 4K	4 bits × 256	LCD 1/2 duty 1/2 bias	IN: 12 lines OUT: 49 lines I/O: 15 lines		
	◇ TC9319F	—	P-QFP60-1414-0.80D	4.5 to 5.5	3.6 MHz/ 7.2 MHz/ 10.8 MHz	16 bits × 2K	4 bits × 192	LCD 1/2 duty 1/2 bias	IN: 10 lines OUT: 37 lines I/O: 12 lines		
	TC9320F	—	P-QFP60-1414-0.80A	4.5 to 5.5	3.6 MHz/ 7.2 MHz/ 10.8 MHz	16 bits × 2K	4 bits × 192	LCD 1/2 duty 1/2 bias	IN: 10 lines OUT: 37 lines I/O: 151 lines		
	◇ TC9321F	—	P-QFP1414-0.80D	4.5 to 5.5	7.2 MHz	16 bits × 4K	4 bits × 256	—	IN: 12 lines OUT: 17 lines I/O: 29 lines	Single chip with external display driver Suitable for car stereos	
DTS-11	TC9308AF	TD6134AF TD7101F TD7103F	P-QFP60-1414-0.80A	1.8 to 3.6	75 KHz	16 bits × 2K	4 bits × 128	LCD 1/2 duty 1/2 bias	IN: 15 lines OUT: 34 lines I/O: 4 lines	Low-voltage operation Suitable for portables	
	TC9316F		LCD 1/3 duty 1/2 bias					IN: 11 lines OUT: 34 lines I/O: 8 lines			
	◇ TC9316FA										
	◇ TC9316FB										
DTS-12	TC9307AF	—	P-QFP44-1414-0.80A	4.5 to 5.5	75 KHz	16 bits × 2K	4 bits × 128	LCD 1/4 duty 1/3 bias	IN: 10 lines OUT: 23 lines I/O: 7 lines	Single chip Suitable for portables	
DTS-20	◇ TC9323F	—	P-QFP80-1420-0.80A	4.5 to 5.5	4.5 MHz	16 bits × 12K	4 bits × 1024	LCD 1/3 duty 1/2 bias	IN: 11 lines OUT: 45 lines I/O: 16 lines	Single chip Suitable for car audio	
	◇* TC9324F	—	P-QFP100-1420-0.65A	4.5 to 5.5	4.5 MHz 175 KHz	16 bits × 16K	4 bits × 4096	LCD 1/4, 1/3, 1/2 duty 1/2, 1/3 bias	IN: 35 lines OUT: 13 lines I/O: 40 lines	Single chip Suitable for car stereo	
	◇* TC9325F	—	P-QFP100-1420-0.65A	3.0 to 3.6			4 bits × 1024			Single chip Suitable for portable	
DTS-21	◇ TC9317F	TD6134AF TD7101F TD7103F	P-QFP80-1212-0.50A	1.8 to 3.6	75 KHz	16 bits × 4K	4 bits × 256	LCD 1/3 duty 1/2 bias	IN: 6 lines OUT: 40 lines I/O: 24 lines	Low-voltage operation Suitable for portables	
	◇ TC9318FA		P-QFP64-1010-0.50A						IN: 11 lines OUT: 33 lines I/O: 10 lines		
	◇ TC9318FB	—	P-QFP64-1212-0.65A								
	◇ TC9327AF	—	P-QFP80-1212-0.50A	1.8 to 3.6	75 KHz	16 bits × 7K	4 bits × 256	LCD 1/4 duty 1/2 bias	IN: 9 lines OUT: 33 lines I/O: 24 lines	Low-voltage operation Single chip Suitable for portables	
	◇* TC9328AF	—	P-QFP80-1212-0.50A	0.9 to 1.8	75 KHz	16 bits × 8K	4 bits × 512	LCD 1/4 duty 1/2 bias	IN: 8 lines OUT: 21 lines I/O: 36 lines		
	◇* TC9329FA		P-QFP64-1010-0.50A			16 bits × 4K	4 bits × 256		IN: 4 lines OUT: 16 lines I/O: 28 lines		
	◇* TC9329FB		P-QFP64-1212-0.65A								
DTS-22	◇ TC9314F	—	P-QFP80-1420-0.80A	2.7 to 5.5	75 KHz	16 bits × 6K	4 bits × 384	LCD 1/3 duty 1/2 bias	IN: 14 lines OUT: 48 lines I/O: 16 lines	Single chip Suitable for portables	

◇: Dry-packed product

*: New product

Digital Tuning Systems (DTS) (2) Standard Software Products

System	Function Product No.	Reception Band					Preset Memory	Station Selection Mode		Clock Function			Display	Remote Control	Function Switch	Other Functions
		FM	MW	LW	SW	TV		Auto search	Memory scan	Clock	Timer	Sleep timer				
DTS-10	TC9304F-002	○	○	○	—	—	FM: max 18 MW: max 12 LW: 6	Seek Scan	○	12H or NA	—	—	LCD	—	4 (tape)	- Tape deck function - SDK function - Automobile use
	TC9304F-011	○	○	○	—	—	FM: max 12 MW: 6 LW: 6	Seek Scan	—	12H or 24H or NA	—	—	LCD	—	—	- SDK function - IF count auto stop - Automobile use
	TC9304F-015	○	○	○	—	—	FM: max 18 MW: 12 LW: 6	Seek	○	12H	—	—	LCD	—	4 (tape)	- Tape deck function - SDK function - Automobile use
	TC9304F-016	○	○	○	—	—	FM: max 16 MW: 6 LW: 6	Seek	○	12H or 24H	—	—	LCD	—	4 (tape)	- Tape deck function - SDK function - Automobile use
	TC9304F-027	○	○	○	—	—	FM: max 16 MW: 8 LW: 8	Seek	○	—	—	—	LCD	—	—	- IF count auto stop - Stereo/Mono select switch - Mini-component use
	TC9304F-047/ TC9304F-051	○	○	○	—	—	FM: 12 MW: 6 LW: 6	Seek Scan	○ (auto memory)	12H or NA	—	—	LCD	—	1 + 4 (tape)	- Tape function - MW (U.S.A.) reception frequency range TC9304F-047/-051: 530 kHz to 1710 kHz - TC9304F-051 allows selection between steps of 9N KHz and 9N + 2 kHz in LW band.
	TC9309F-011	○	○	○	—	—	FM: max 18 MW: max 12 LW: 6 SDK: 6	Seek Scan	○	12H / 24H	—	—	LCD	○	1 + (3)	- Tape deck function - Electronic volume control - Automobile use - Single chip
	TC9309AF-119	○	○	○	—	—	FM: 10 MW: 10 LW: 5	○	—	12H / 24H	—	—	LCD	○	4	- CD player control - Tape deck function - External remote control input - CD-G supported
	** TC9309AF-125	○	○	○	—	—	FM: 10 MW: max 10 LW: 5	Seek	○	12H / 24H	—	—	LCD	○	3	3-disc CD changer control
	TC9321F-006	○	○	○	—	—	FM: 12 MW: 12 LW: 6	Seek	○	12H / 24H	—	—	LCD	—	3	- Designed for detachable systems - For use with TC9297F LCD driver - Electronic volume control - CD control function - Auto memory function
	TC9321F-008	○	○	○	—	—	FM: max 18 MW: max 12 LW: 6	Seek Scan	○ (auto memory)	12H / 24H	—	—	LCD	—	3	- Designed for detachable systems - For use with TC9297F LCD driver - Electronic volume control - Display for dancing level
	TC9321F-009	○	○	○	—	—	FM: max 18 MW: max 12 LW: 6 VHF: 6	Seek Scan	○ (auto memory)	12H / 24H	—	—	LCD	—	3 + (4)	- Designed for detachable systems - For use with TC9297F LCD driver - Electronic volume control - Tape deck function
DDTS-1	TC9320F-001	○	○	○	—	—	—	—	—	12H / 24H	—	—	LCD	—	4	- Frequency counter system - Tape deck function - Audio band selection
	TC9320F-002	○	○	○	—	—	—	—	—	—	—	—	LCD	—	2	- Frequency counter system - Tape deck function - Audio band selection

** : Under development

Digital Tuning Systems (DTS) (2) Standard Software Products (continued)

System	Function Product No.	Reception Band					Preset Memory	Station Selection Mode		Clock Function			Display	Remote Control	Function Switch	Other Functions
		FM	MW	LW	SW	TV		Auto search	Memory scan	Clock	Timer	Sleep timer				
DTS-11	TC9308AF-022	○	○	—	—	VHF	FM: 5 MW: 5 LW: 5 Random: 10	Seek Scan (up only)	—	12H / 24H	—	○ (Japan only)	LCD	—	—	- For use in portable systems - IF count auto stop - TD6134AF used
	TC9308AF-028	○	○	—	—	VHF	FM: 5 MW: 5 LW: 5 Random: 10	Seek Scan (up only)	—	12H / 24H	—	○ (Japan only)	LCD	—	—	- For use in portable systems - IF count auto stop - TD6134AF used
	TC9308AF-055	○	○	—	—	—	FM: 10 MW: 10	Seek Scan (up only)	—	—	—	—	LCD	—	—	- For use in portable systems - IF count auto stop - TD6134AF used
	TC9316F-001	○	○	○	○	VHF	FM: max 10 MW: max 10 SW: 5 LW: 5 Random: 15	Seek	—	12H / 24H	○	○	LCD	—	—	- IF count auto stop - Built-in U.S.A. TV band - Key lock function - Battery indicator
	TC9316F-026	○	○	○	○	VHF	FM: 6 MW: 6 LW: 6 TV: 6 SW: 6 Random: 15	Seek	—	12H / 24H	—	○	LCD	—	—	- For use in portable systems - IF count auto stop - SW band scanned in meter bands - Direct frequency key-in
	TC9316F-027	○	○	○	○	VHF	FM AM LW TV SW	Seek	—	12H / 24H	○	○	LCD	—	—	- For use in portable systems - SW band scanned in meter bands - Dual clock
DTS-12	TC9307AF-008 TC9307AF-018 TC9307AF-019	○	○	○	○	VHF UHF	FM: max 10 MW: max 10 SW: 5 LW: 5 TV: 7	Seek Scan (up only)	○	12H / 24H / —	○	○	LCD	—	—	- IF count auto stop - Band selection using Push or Lock switch - Suitable for radio cassette recorders - No-Clock Mode available on TC9307AF-019 only
	TC9307AF-009	○	○	○	○	—	FM: max 10 MW: max 10 SW: 5 LW: 5	Seek Scan (up only)	○	12H / 24H	○	○	LCD	—	—	- IF count auto stop - Suitable for radio cassette recorders
	TC9307AF-010 TC9307AF-014	○	○	○	○	—	FM: max 10 MW: max 10 SW: 5 LW: 5	Seek	○	12H / 24H	○	○	LCD	—	—	- IF count auto stop - Snooze function - Suitable for clock radios and radio cassette recorders
DTS-20	** TC9324F-002	○	○	○	—	—	FM: 20 MW: 10 LW: 10 Random: max 40	Seek	—	12H / 24H	○	○	LCD	○	4	- RDS function 3CD changer/CDR control - Remote control external Input
	** TC9325F-002	○	○	○	○	—	FM: 20 MW: 10 LW: 10 SW: 10 Random: max 50	Seek	—	12H / 24H	○	○	LCD	○	4	- CDR-W play control - Remote control external Input - Dual clock
DTS-21	TC9318FB-001	○	○	○	○	VHF	FM: 10 MW: 10 LW: 10 SW: 10 TV: 10 Random: 18	Seek	—	12H / 24H	○	○	LCD	—	—	- For use in portable systems - Dual clock - Dial tuning function - Direct frequency key-in
DTS-22	TC9314F-018 TC9314F-026 TC9314F-043	○	○	○	○	VHF	FM: 20 MW: 20 LW: 10 SW: max 10 TV: max 10 Random: 30	Seek	—	12H / 24H	○	○	LCD	○	4	- Volume up/down control - Input selector control - CD control function - Music calendar

** : Under development

Plunger Driver ICs

Product No.	Output Current	Output Pulse Duty Cycle	Package
TD6304AP	$I_O = 400 \text{ mA (max)}$	4:1	P-SIP7-2.54A
TD6308AP	$I_O = 400 \text{ mA (max)}$	8:1	P-SIP7-2.54A

Analog Switches

Classification	Product No.	Functions	Package
Analog switch	TC9162AN/AF	High-breakdown-voltage analog function switch array	P-SDIP28-400-1.78 P-SOP28-450-1.27 ◇
	TC9163AN/AF		
	TC9164AN/AF		
	TC9208N	Circuit with 6 stereo high-breakdown-voltage analog switches	P-SDIP28-400-1.78
	TC9209N	Circuit with 4 analog switches, + tape monitor stereo high-breakdown-voltage analog switch	
	TC9214AP/AF	High-breakdown-voltage, low-distortion analog switch 1-contact analog switches $\times 3$, 2-contact analog switch $\times 1$	P-DIP16-300-2.54A P-SOP16-300-1.27 ◇
	TC9215AP/AF	High-breakdown-voltage circuit with 2 low-distortion analog switches, 1-contact analog switch $\times 1$, 2-contact analog switch circuit $\times 1$	P-DIP16-300-2.54A P-SOP16-300-1.27 ◇
	TC9273N/F	High-breakdown-voltage analog switch array Available for semi-customized production	P-SDIP28-400-1.78 P-SOP28-450-1.27 ◇
	TC9274N/F		P-SDIP42-600-1.78 P-QFP44-1414-0.80D ◇

◇: Dry-packed product

Electronic Volume Control ICs

Classification	Product No.	Functions	Package
Volume control	TC9235P/F	Up/Down-type electronic volume control	P-DIP16-300-2.54A
	TC9260P/F	Serial data-controlled electronic volume control	P-SOP16-300-1.27 ◇
	TC9498N/F	Serial data-controlled electronic volume control (Dual power-supply)	P-SDIP28-400-1.78
	* TC9499N/F	Serial data-controlled electronic volume control (Single power-supply)	P-SOP28-450-1.27 ◇
Tone control	TC9184AP	Serial data-controlled electronic tone control	P-DIP16-300-2.54A
	* TC9481P/F	Serial data-controlled electronic tone control	P-SDIP20-300-2.54A P-SOP24-450-1.27A ◇
Graphic equalizer	** TC9448F	7-band graphic equalizer	P-QFP60-1414-0.80D ◇
High-breakdown-voltage volume control	TC9210P	High-breakdown-voltage serial-data-controlled electronic volume control	P-DIP16-300-2.54A
	TC9211P	High-breakdown-voltage serial-data-controlled electronic volume control + loudness control	P-DIP20-300-2.54A
	TC9299P	High-breakdown-voltage serial-data-controlled electronic volume control	P-DIP16-300-2.54A
	TC9412AP/AF	High-breakdown-voltage serial-data-controlled electronic volume control + loudness control	P-DIP20-300-2.54A P-SOP24-450-1.27A ◇
	TC9413AP	High-breakdown-voltage serial-data-controlled electronic volume control	P-DIP16-300-2.54A
	TC9459N/F	High-breakdown-voltage serial-data-controlled electronic volume control + loudness control	P-SDIP28-400-1.78 P-SOP24-450-1.27A ◇
	TC9482N/F	High-breakdown-voltage serial-data-controlled 6-channel electronic volume control	P-SDIP28-400-1.78 P-SOP28-450-1.27 ◇
	* TC94A07P/F	High-breakdown-voltage serial-data-controlled electronic volume control with trim volume	P-DIP200-300-2.54A P-SOP24-450-1.27A ◇
	* TC94A17F	High-breakdown-voltage serial-data-controlled electronic volume control with trim volume	P-SOP24-450-1.27A ◇
Single-chip volume control	** TC94A18N/F	High-breakdown-voltage serial-data-controlled electronic volume control with zero-cross detected circuit	P-SDIP28-400-1.78 P-SOP28-450-1.27 ◇
	TC9421F	Volume control, 2-band tone control, 4-input selector and fader	P-QFP44-1414-0.80D ◇
	TC9422N TC9422F	Volume, 2-band tone control, 4-input selector	P-SDIP28-400-1.78 P-SOP28-450-1.27 ◇

◇: Dry-packed product

*: New product

** : Under development

Receiver ICs

Classification	Product No.	Functions	Package
PLL	TC5081BP	Phase comparator	P-SIP9-A
	TC9181P/F	PLL for personal radio and MCA	P-DIP18-300-2.54A P-SOP24-450A
	TC9198P/F	High-speed programmable counter for binary and BCD	P-DIP24-300-2.54 P-SOP24-450-1.27A
	TC9223P/F	PLL for communications equipment	P-DIP16-300-2.54A P-SOP16-300-1.27
	TC9216P	PLL for 140-MHz audio	P-DIP16-300-2.54A
	TC9217P/F		P-DIP20-300-2.54A P-SOP20-300-1.27
	TC9256P/F	High-speed PLL incorporating DTS prescaler	P-DIP16-300-2.54A P-SOP16-300-1.27
	TC9257P/F		P-DIP20-300-2.54A P-SOP20-300-1.27
	TC9172AP	High-speed PLL incorporating DTS prescaler	P-DIP16-300-2.54A
	TC9227P		P-DIP22-400-2.54
	TC9228P		
	TC9418FN	High-speed PLL incorporating 3-V DTS prescaler	P-SSOP24-300-0.65A
	TB2110FN	High-speed PLL incorporating 1.5-V DTS prescaler	P-SSOP24-300-0.65A
Prescaler	TD6127BP	1 GHz, 1/64, 1/65 1/128, 1/129	P-DIP8-300-2.54
	TD6134AF	3 V, 250 MHz, 1/4 × (1/15, 1/16), 1/8 × (1/15, 1/16)	P-SOP8-225-1.27
	TD7101F	3 V, 150 MHz, 1/4 + (1/15, 1/16), 1/15, 1/16	P-SOP8-225-1.27
	TD7103F	1.5 V, 150 MHz, 1/4 + (1/15, 1/16), 1/8 + (1/15, 1/16)	P-SOP10-225
	TD7104P/F	1 GHz, 1/1, 1/2, 1/4, 1/8	P-DIP8-300-2.54 P-SOP8-225-1.27

Display Driver ICs

Classification	Product No.	Functions	Package
Display driver	◇ TC9240F	1/2-duty, 124-segment, 1/3-duty, 186-segment LCD driver	P-QFP80-1420-0.80A
	◇ TC9297F	LCD driver with key scan, 1/2-duty, 80-segment; 1/3-duty, 117-segment	P-QFP60-1414-0.80D
	◇ TC9298F	LCD driver with key scan, 1/4-duty, 176-segment; 1/8-duty, 320-segment	P-QFP64-1414-0.80A
	TB2104F	20-bit VFD driver	P-SSOP30-375-1.00

◇: Dry-packed product

Compact Disc Player ICs

Classification	Product No.	Functions		Package
Single-chip processor	◇ TC9462F	Sync. separation, EFM demodulation, error detection/correction, error-corrected output, microcomputer interface, search control, digital equalizer, capable of decoding text data, variable speed playback ×8 oversampling digital filter, 1-bit DA converter	×4 speed operation	CD-LX2 system (VDD = 5.0 V)
	◇ TC94A14F		Normal speed operation	CD-AX system (VDD = 3.3 V & 5.0 V)
	◇ TC94A14FA			P-LQFP64-1010-0.50
Firmware built in Single-chip processor	◇ TC9457F		Normal speed operation	CD-MX system (VDD = 5.0 V)
	◇ TC94A09F			CD-HX system (VDD = 5.0 V)
	◇ TC94A23F			CD-BX system (VDD = 5.0 V)
	◇** TC94A29F/FA		Double Speed operation	CD-CX system (VDD = 3.3 V)
	◇** TC94A39F/FA			CD-DX system (VDD = 3.3 V)
Head amp	TA2109F	RF amp, focus-tracking error amp, auto laser power amp	Support for CD-R/CD-RW	CD-LX2, LX3, MX, HX and BX systems
	TA2151FN			
	TA2153FN			CD-AX, CX and DX systems
	TA2157F			
	TA2157FN			
4-ch BTL driver	TA2058F	BTL driver		P-HSOP20-450-1.00
	TA2092N			P-SDIP24-300-1.78
5-ch driver	* TA2125F	4-ch BTL power driver, single H switch, 5 V regulator		P-HSOP36-375-0.80
DAC	TC9250F/P	16-bit twin DAC (Up to × 8 speed supported, resistor string type)		P-SOP16-300-1.27 P-DIP16-300-2.54A
1-bit DAC incorporating digital filter	TC9237BF/BN	×8 oversampling digital filter, twin DAC (sigma delta modulation type), digital de-emphasis		P-SOP28-450-1.27 P-SDIP28-400-1.78
	TC9270F/N	×8 oversampling digital filter, twin DAC (sigma delta modulation type), digital attenuator, digital de-emphasis, L-ch data input when LRCK signal is High		P-SOP28-450-1.27 P-SDIP28-400-1.78
	TC9268F/P	×8 oversampling digital filter, twin DAC (sigma delta modulation type), digital de-emphasis, low-voltage operation, L-ch data input when LRCK signal is High, double-speed operation supported		P-SOP20-300-1.27 P-DIP20-300
	TC9278F/P	×8 oversampling digital filter, twin DAC (sigma delta modulation type), digital de-emphasis, low-voltage operation, L-ch data input when LRCK signal is Low, double-speed operation supported		P-SOP20-300-1.27 P-DIP20-300
	TC9276F/P	×8 oversampling digital filter, twin DAC (sigma delta modulation type), digital de-emphasis, low-voltage operation, L-ch data input when LRCK signal is High, with soft mute		P-SOP20-300-1.27 P-DIP20-300
	◇ TC9293F/FN/N	×8 oversampling digital filter, twin DAC (sigma delta modulation type), digital attenuator (128 steps), digital de-emphasis, built-in analog filter, low voltage supported	2nd order LPF	P-SSOP24-300-1.00 P-SSOP24-300-0.65A
	◇ TC9293AF/AFN/AN		3rd order LPF	P-SDIP24-300-1.78
	◇ TC9404FN	×8 oversampling digital filter, twin DAC (sigma delta modulation type), digital zero detection digital attenuator (128 steps), digital de-emphasis, built-in analog filter (3rd order LPF), low voltage supported		P-SSOP24-300-1.00 P-SSOP24-300-0.65A
	◇ TC9438FN	×8 oversampling digital filter, twin DAC (sigma delta modulation type), digital zero detection, dynamic bass boost, digital attenuator (128 steps), digital de-emphasis, built-in analog filter (3rd order LPF), low voltage supported		P-SSOP24-300-0.65A
	◇ TC9470FN	×8 oversampling digital filter, twin DAC (sigma delta modulation type), digital zero detection, dynamic bass boost, digital attenuator (4096 steps), digital de-emphasis, built-in analog filter (3rd order LPF), low voltage supported		P-SSOP24-300-0.65A
Filter IC for 1-bit DAC	TA2009F/P	LPF, amp (used for TC9237BF/BN)	Used with single 5-V power supply	P-SSOP16- 225-1.00A
	TA2055F/P	LPF, amp (used for TC9270F/N)		P-DIP16- 300-2.54A
	TA2063F	LPF, amp (used for TC9268F/P, TC9278F/P, TC9276F/P)		P-SSOP16- 225-1.00A
Clock generator IC	TC9246F/P	PLL, microcomputer interface, programmable counter		P-SOP16-300-1.27 P-DIP16-300-2.54A
1-bit AD/DAC	TC9287AF	1-bit AD/DAC on a single chip		P-QFP44-1010-0.8
CD-G decoder	TC9411F	NTSC/PAL-compatible		P-QFP60-1414-0.80D
Digital signal out	TC9271F/N/FS	Modulating transmission for digital audio interface		P-SOP28-450-1.27 P-DIP28-400-1.78 P-SSOP30-300-0.65A

◇: Dry-packed product

Note: Please ask for the nearest Toshiba distributor about the production works of bold product numbers which are listed the above.

*: New product

** : Under development

DVD ICs

Classification	Product No.	Functions	Package
RF amp	◇ TA1254AF	2-laser, 2-detect, 1-beam (DPD) / 3-beam track error detection	P-LQFP64-1010-0.50A
	◇ TA1293F		P-QFP80-1414-0.65
	◇ TA1313F		P-LQFP64-1010-0.50A
	◇ TA1323F		P-LQFP80-1212-0.50A
	◇ TA1329F		P-LQFP80-1212-0.50A
	◇ TA1351F	2-laser, 2-detect, 1-beam (DPD) / 3-beam track error detection, × 16 DVD Playback, DVD-RAM Read.	P-LQFP80-1212-0.50A
	◇* TA1365AF	× 16 DVD Playback, CD-R × 24 write, APC laser control, 2-laser, 2-detect, 1-beam (DPD) / 3-beam track error detection, DVD-RAM Read.	P-LQFP80-1212-0.50A
Servo & data processor	◇ TC9489F	DVD/CD digital servo, RF demodulation, error correction	P-LQFP176-2424-0.50A
	◇ TC94A03F		
	◇ TC94A08F		
ATAPI I/F	◇ TC9469BF	Copy protection for DVD-ROM, built-in ATAPI interface circuit, built-in DVD/CD-ROM decoder	P-LQFP144-2020-0.50A
	◇ TC94A05F		
	◇ TC94A12F		
	◇ TC94A16F		
Servo & data processor + ATAPI I/F	◇* TC94A25AF	× 16 DVD Playback, DVD-RAM read, DVD/CD digital servo, RF demodulation, error correction, Copy protection for DVD-ROM, built-in ATAPI interface circuit, built-in DVD/CD-ROM decoder, Buffer memory 1.5M bit	P-LQFP216-2424-0.40A
	◇* TC94A36F	× 16 DVD Playback, DVD-RAM read. CD-R × 24, write, DVD/CD digital servo, RF demodulation, error correction, Copy protection for DVD-ROM, built-in ATAPI interface circuit, built-in DVD/CD-ROM decoder	
	◇* TC94A24F	× 16 DVD Playback, DVD-RAM read. DVD-R × 2 write, CD-R × 24 write DVD/CD digital servo, RF demodulation, error correction, Copy protection for DVD-ROM, built-in ATAPI interface circuit, built-in DVD/CD-ROM decoder	

◇: Dry-packed product

*: New product

CD-ROM ICs

Classification	Product No.	Functions	Package
Digital servo single-chip processor	◇ TC9405F/AF	Sync. separation, EFM demodulation, error detection/error correction/corrected output, microcontroller interface, search control, digital equalizer, 8-fs digital filter, 1-bit DA converter	Supports ×4 speed. Variable speed playback P-QFP1001420-0.65
	◇ TC9406F/AF		
	◇ TC9429AF		
	◇ TC9431AF	Sync. separation, EFM demodulation, error detection/error correction/corrected output, microcontroller interface, search control, digital equalizer 8-fs digital filter, 1-bit DA converter, variable-speed playback	Supports ×8 speed. P-QFP100-1420-0.65
	◇ TC9430F		Supports ×12 speed. P-LQFP100-1414-0.50C
	◇ TC9439F		Supports ×16 speed. P-QFP100-1420-0.65
	◇ TC9440F		Supports ×24 speed. P-LQFP100-1414-0.50C
	◇ TC9449F		Supports ×32 speed. P-LQFP100-1414-0.50C
	◇ TC9440AF		Supports ×40 speed. P-LQFP100-1414-0.50C
	◇ TC9449AF		Supports ×48 speed. P-LQFP100-1414-0.50C
	◇ TC9450F		Supports ×48 speed. P-LQFP100-144-0.50C
	◇ TC9450AF	Sync. separation, EFM demodulation, error detection/error correction/corrected output, microcontroller interface, search control, digital equalizer 8-fs digital filter, 1-bit DA converter, variable-speed playback CAV, CLV, partial playback support, CD-RW detection mode	P-LQFP100-1414-0.50C
	◇ TC9477F	Sync. separation, EFM demodulation, error detection/error correction/corrected output, microcontroller interface, search control, digital equalizer 8-fs digital filter, 1-bit DA converter, variable-speed playback CAV, CLV, partial playback support, CD-RW detection, low power dissipation	P-LQFP100-1414-0.50C
	◇ TC9450BF	Sync. separation, EFM demodulation, error detection/error correction/corrected output, microcontroller interface, search control, digital equalizer 8-fs digital filter, 1-bit DA converter, variable-speed playback CAV, CLV, partial playback support, CD-RW detection, low power dissipation, center servo	P-LQFP100-144-0.50C
	◇ TC9494F		
	◇ TC9494F		
Digital servo head amp	◇ TA2096F	RF amp, error amp, auto laser power control RF-AGC amp, supports ×12 speed.	P-SSOP30-375-1.00
	◇ TA2096FN		P-SSOP30-300-0.65
	◇ TA2106FN		P-SSOP30-300-0.65
	◇ TA2112FN	RF amp, error amp, auto laser power control RF-AGC amp, CD-RW mode, supports ×24 speed.	P-SSOP30-300-0.65
	◇ TA2119FN	RF amp, error amp, auto laser power control RF-AGC amp, CD-RW mode, supports ×32 speed.	P-SSOP30-300-0.65
	◇ TA2119AFN	RF amp, error amp, auto laser power control RF-AGC amp, CD-RW mode, supports ×32 speed.	P-SSOP30-300-0.65
	◇ TA2140FN	RF amp, error amp, auto laser power control RF-AGC amp, CD-RW mode, supports ×40 speed.	P-SSOP30-300-0.65
CD-ROM decoder	◇ TA2143AFN	RF amp, error amp, auto laser power control RF-AGC amp, CD-RW mode, supports ×48 speed.	P-SSOP30-300-0.65
	◇ TC9410BF	Built-in ATAPI-version interface circuit, supports ×12 speed.	P-QFP100-1420-0.65
	◇ TC9410BFA		P-LQFP100-1414-0.50C
	◇ TC9436FA	Built-in ATAPI-version interface circuit, built-in 1-Mb DRAM, supports ×20 speed.	P-LQFP100-1414-0.5C
	◇ TC9451F	Built-in ATAPI-version interface circuit, supports ×24 speed, supports PIO Mode 4, supports DMA Mode 2 transfer.	P-LQFP144-2020-0.50A
	◇ TC9466FA	Built-in ATAPI-version interface, supports PIO Mode 4 and DMA Mode 2 transfer, supports ×32 speed, built-in 1-Mb DRAM	P-LQFP100-1414-0.5C
	◇ TC9467F	Built-in ATAPI-version interface, supports PIO Mode 4 and DMA Mode 2 transfer, supports ×32 speed.	P-LQFP144-2020-0.50A
	◇ TC9474FA	Built-in ATAPI-version interface, supports PIO Mode 4 and DMA Mode 2 transfer, supports ×48 speed, built-in 1-Mb DRAM, supports U-DMA.	P-LQFP100-1414-0.5C
	◇ TC9475F	Built-in ATAPI-version interface, supports PIO Mode 4 and DMA Mode 2 transfer, supports ×48 speed, supports U-DMA.	P-LQFP144-2020-0.5A

◇: Dry-packed product

Digital Sound Processor & Digital Amp System ICs

Classification	Product No.	Functions	Package
Audio digital signal processor	◇ TC9331F	Various signal processing functions such as digital filtering (e.g. equalizers), dynamic range control (e.g. compressors) and sound field control (e.g. concert hall simulation) are accomplished in software.	P-QFP80-1420-0.80A
	◇ TC9332F	Sound field control and various other signal processing functions are accomplished in software. Built-in program ROM (1 K word), delay RAM (64 Kbit) and VCO oscillator circuit	P-QFP60-1414-0.80D
	◇ TC9337F	iC bus format	
	◇ TC9446F	Multi-channel decoder. Built-in DIR (Digital audio Interface Receiver) / DIT (Digital audio Interface Transmitter), program ROM (12K word), program RAM (128 word), VCO circuit. VDD = 3.3V low voltage operation. Supported I2C bus or original bus.	P-QFP100-1420-0.65A
	◇ TC9447F	Sound field control and various other signal processing functions are accomplished in software. Built-in program ROM (1 Kword), delay RAM (64 Kbit) and boot ROM (1 Kword), built-in 1-bit 2-ch ADC and 4-ch DAC	P-QFP100-1420-0.65A
	◇ TC9496AF	Sound field control and various other signal processing functions are accomplished in software. Built-in program ROM (2 Kword), delay RAM (64 Kbit) and boot ROM (1 Kword), built-in 1-bit 2ch ADC, 5ch DAC with 24dB trim volume, 16bit multi-bit type ADC for microphone input. Supported I2C bus or original bus.	P-QFP100-1420-0.65A
	◇* TC94A02F	Two channel decoder, Built-in DIT, VCO circuit, 2-ch DAC, Program ROM (10K word), Program RAM (256 word), standby function, VDD=2.5 V, I/O=3.3 V, low voltage operation	P-LQFP64-1010-0.50A
	◇* TC94A20F	Two channel decoder, Built-in DIT, VCO circuit, 2-ch DAC, Program ROM (12K word), Program RAM (256 word), standby function, VDD=2.5 V, I/O=3.3 V, low voltage operation, Built-in 1Mbit SRAM	P-LQFP64-1010-0.50A
	◇ TC94A04AF/AFD	Sound field control and various other signal processing functions are accomplished in software, Built-in program ROM (1K word), delay RAM (32K bit) and boot ROM (512 word), built-in 1-bit 2-ch ADC and 4-ch DAC, 4-ch DAC with trim volume, 4-series analog switches and line-out	P-QFP60-1414-0.80D P-QFP80-1420-0.80A
DAC	TC9250F/P	16-bit twin DAC (up to ×8 speeds supported, resistor string type)	P-SOP16-300-1.27 P-DIP16-300-2.54A
1-bit DAC incorporating digital filter	TC9237BF/BN	×8 oversampling digital filter, twin DAC (sigma delta modulation type), digital de-emphasis	P-SOP28-450-1.27 P-SDIP28-400-1.78
	TC9268F/P	×8 oversampling digital filter, twin DAC (sigma delta modulation type), digital de-emphasis, low-voltage operation, L-ch data input when LRCK signal is Low, double-speed operation supported	P-SOP20-300-1.27 P-DIP20-300
	TC9270F/N	×8 oversampling digital filter, twin DAC (sigma delta modulation type), digital attenuator, digital de-emphasis, L-ch data input when LRCK signal is High	P-SOP28-450-1.27 P-SDIP28-400-1.78
	TC9276F/P	×8 oversampling digital filter, twin DAC (sigma delta modulation type), digital de-emphasis, low-voltage operation, L-ch data input when LRCK signal is High, with soft mute	P-SOP20-300-1.27 P-DIP20-300
	TC9278F/P	×8 oversampling digital filter, twin DAC (sigma delta modulation type), digital de-emphasis, low-voltage operation, L-ch data input when LRCK signal is Low, double-speed operation supported	P-SOP20-300-1.27 P-DIP20-300
	◇ TC9293F/FN/N	×8 oversampling digital filter, twin DAC (sigma delta modulation type), digital attenuator (128 steps), digital de-emphasis, built-in analog filter, low voltage supported	P-SSOP24-300-1.00 P-SSOP24-300-0.65A
	◇ TC9293AF/AFN/AN		P-SDIP24-300-1.78
	◇ TC9404FN	×8 oversampling digital filter, twin DAC (sigma delta modulation type), digital attenuator (128 steps), digital de-emphasis, built-in analog filter, low voltage supported, digital zero detection	P-SSOP24-300-1.00 P-SSOP24-300-0.65A
	◇ TC9438FN	×8 oversampling digital filter, twin DAC (sigma delta modulation type), digital zero detection, dynamic bass boost, digital attenuator (128 steps), digital de-emphasis, built-in analog filter (3rd order LPF), low voltage supported	P-SSOP24-300-0.65A
	◇ TC9470FN	×8 oversampling digital filter, twin DAC (sigma delta modulation type), digital zero detection, dynamic bass boost, digital attenuator (4096 steps), digital de-emphasis, built-in analog filter (3rd order LPF), low voltage supported	P-SSOP24-300-0.65A
Filter IC for 1-bit DAC	TA2009F/P	LPF, amp (used for TC9237BF/BN)	Used with single 5-V power supply P-SSOP16-225-1.00A
	TA2028F/P		Used with single 9-V power supply P-DIP16-300-2.54A
	TA2055F/P	LPF, amp (used for TC9270F/N)	Used with single 5-V power supply P-SSOP16-225-1.00A P-DIP16-300-2.54A
	TA2063F	LPF, amp (used for TC9268F/P, TC9278F/P, TC9276F/P)	Used with single 5-V power supply P-SSOP16-225-1.00A
1-bit AD/DAC	TC9287AF	1-bit AD/DAC on a single chip	P-QFP44-1010-0.80
Digital signal in	TC9245F/N	Demodulating reception for digital audio interface, PLL, SCMS supported	P-SOP28-450-1.27 P-SDIP28-400-1.78
Digital signal out	TC9271FS/F/N	Modulating transmission for digital audio interface	P-SSOP30-300-0.65 P-SOP28-450-1.27 P-SDIP28-400-1.78
Clock generator IC	TC9246F/P	PLL, microcomputer interface, programmable counter	P-SOP16-300-1.27 P-DIP16-300-2.54A

◇: Dry-packed product

*: New product

Karaoke ICs and Surround ICs

Classification	Product No.	Functions	Package
Single-chip karaoke IC	✧ TC9409BF-001	Microphone echo, key control, vocal cancel, bass/treble functions, built-in 3-ch ADC and 2-ch DAC, built-in delay RAM (64 Kbits)	P-QFP44-1414-0.80D
	✧ TC9452F	Microphone echo, sound field control, dynamic bass boost, built-in 3-ch ADC and 2-ch DAC, built-in delay RAM (64 Kbits)	P-QFP44-1414-0.80D
	✧ TC9465F	Microphone echo, vocal cancel, bass/treble functions, built-in 3-ch ADC and 2-ch DAC, built-in delay RAM (64 Kbits)	P-QFP44-1414-0.80D
	✧ TC9444F-003	Microphone echo, key control, vocal key control, vocal cancel, bass/treble function, built-in 3-ch ADC and 2-ch DAC, built-in delay RAM (64 Kbits) and boot ROM	P-QFP60-1414-0.80D
Microphone echo IC	TC9488F/N	Built-in microphone amp with ALC, microphone echo (128-ms delay), built-in electronic volume control, 3-line bus control or DC control	P-SSOP30-300-1.00 P-SDIP24-300-1.78
Microphone amp	TA2011S	Single microphone amp, built-in ALC	P-SIP7-2.54A
Surround IC	✧ TC9456F (Note)	SRS 3D stereo, SRS 3D mono, sound field control, bass boost, 3-band EQ function, built-in 3-ch ADC and 2-ch DAC, built-in delay RAM (64 Kbits)	P-QFP44-1414-0.80D
	TA2136F/N (Note)	SRS 3D stereo, SRS 3D Mono (Analog)	P-SSOP24-300-1.00 P-SDIO24-300-1.78

✧: Dry-packed product

Note: SRS and the SRS symbol are trademarks of SRS Labs, INC.