High Speed Data Converters

→ **Selection Tree**

High Speed Data Converters

Non-Interpolating DACs

1-channel
8-bits
100MSPS THS5641A
165MSPS DAC908
10-bits
125MSPS THS5651A
165MSPS DAC900
12-bits
125MSPS THS5661A
165MSPS DAC902
14-bits
125MSPS THS5671A
165MSPS DAC904
400MSPS DAC5675A
16-bits
1GSPS DAC5681

2-channel
10-bits
275MSPS DAC5652A
500MSPS DAC3152
12-bits
40MSPS DAC2932
275MSPS DAC5662A
500MSPS DAC3162
14-bits
275MSPS DAC5672A

3-channel
10-bits
180MSPS THS8136
240MSPS THS8135

Interpolating DACs

1-channel
14-bits
400MSPS DAC5674
16-bits
1GSPS DAC5681Z

2-channel
16-bits
500MSPS DAC5686
500MSPS DAC5687
625MSPS DAC3282
800MSPS DAC3283
800MSPS DAC5688
1.25GSPS DAC3482

3-channel
11-bits
205MSPS THS8200

4-channel
16-bits
1.25GSPS DAC3484
1.25GSPS DAC34H84

ADC 40-250MSPS

1-channel
9-bits
250MSPS ADS58B19
11-bits
200MSPS ADS58B18
12-bits
65MSPS ADS4122
80MSPS ADS6123
105MSPS ADS6124
125MSPS ADS4125
160MSPS ADS4126
210MSPS ADS6128
250MSPS, ADS4129, ADS41B29
14-bits
65MSPS ADS4142
80MSPS ADS6143
105MSPS ADS6144
125MSPS ADS4145
160MSPS ADS4146
210MSPS ADS6148
250MSPS ADS4149, ADS41B49
16-bits
40MSPS ADS5560
80MSPS ADS5562
80MSPS ADS5481
105MSPS ADS5482
130MSPS ADS5493
135MSPS ADS5483
170MSPS ADS5484
200MSPS ADS5485

2-channel
10-bits
65MSPS ADS5237
11-bits
125MSPS ADS62P15
200MSPS ADS58C28
12-bits
40MSPS ADS5231
65MSPS ADS6222, ADS4222
80MSPS ADS6223, ADS62P23
105MSPS ADS6224, ADS62P24
125MSPS ADS6225, ADS4225
160MSPS ADS4226
210MSPS ADS62P28
250MSPS ADS62P29, ADS4229
14-bits
65MSPS ADS6242, ADS4242
80MSPS ADS6243, ADS62P43
105MSPS ADS6244, ADS62P44
125MSPS ADS6245, ADS4245
160MSPS ADS4246
210MSPS ADS62P48
250MSPS ADS62P49, ADS4249

3-channel
8-bits
165MSPS TVP7002

4-channel
11-bits
200MSPS ADS58C48
12-bits
40MSPS ADS5240
65MSPS ADS5242
65MSPS ADS6422
80MSPS ADS6423
105MSPS ADS6424
125MSPS ADS6425
14-bits
65MSPS ADS6442
80MSPS ADS6443
105MSPS ADS6444
125MSPS ADS6445
16-bits
100MSPS ADS5263

8-channel
10-bits
65MSPS ADS5287
12-bits
50MSPS ADS5281
65MSPS ADS5282

ADC 400M-1GSPS

1-channel
ADS5474
400MSPS, 14-bits
ADS5463
500MSPS, 12-bits
ADS54RF63
550MSPS, 12-bits
ADS5400
1GSPS, 12-bits

Analog Front Ends

CCD/CMOS Imaging
12-bits
36MSPS VSP2582
14-bits
50MSPS VSP8133
16-bits
50MSPS VSP7500, VSP7502

Video Decoders
27MSPS TVP5158
30MSPS TVP5151
30MSPS TVP5147M1
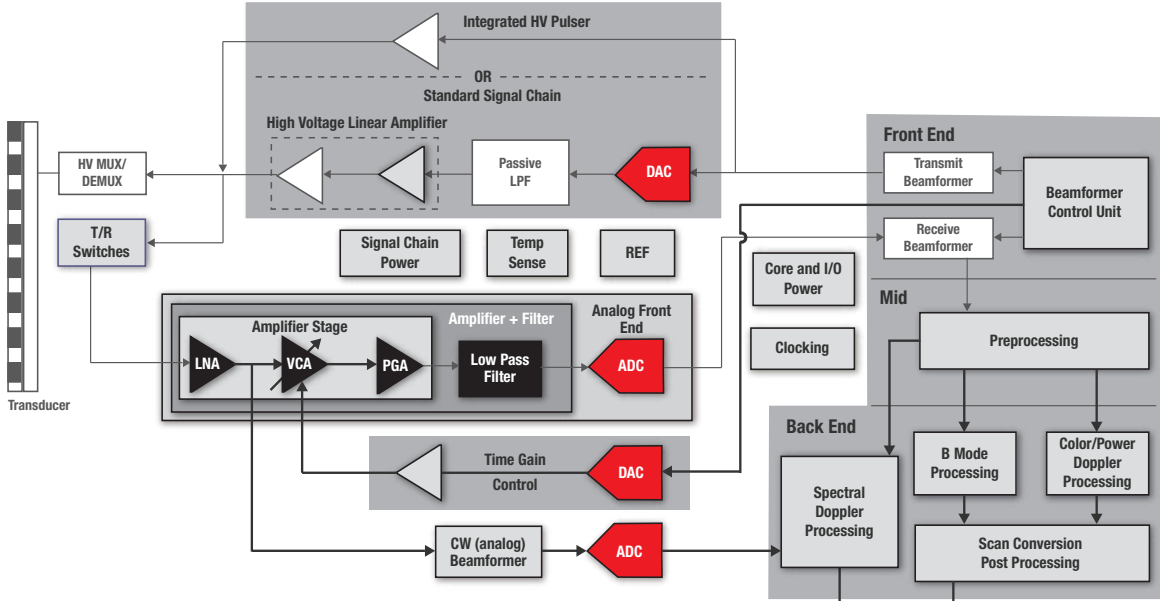54MSPS TVP5160

Medical Imaging
8-channel, 12-bit
50MSPS AFE5804/05
65MSPS AFE5807/01
8-channel, 14-bit
65MSPS AFE5808
16-channel, 12-bit
65MSPS AFE5851

High Speed Data Converters

→ **Medical - Ultrasound Imaging**

Ultrasound Analog Front Ends

Part Number	Sample Rate (MSPS)	Bits	Input Channels	Power/Ch (mW)	Input Voltage Noise (nV/√Hz)	Input Range (mVpp)	Gain Control Range (dB)	HD2 (dB)	Comments
AFE5801	65	12	8	58	5.5	2000	36	−75	8-channel VGA, LPF, ADC
AFE5804	50	12	8	101	1.23	280	46	−70	8-channel LNA, VCA, PGA, LPF, ADC
AFE5805	50	12	8	122	0.85	250	46	−70	8-channel LNA, VCA, PGA, LPF, ADC
AFE5807	65	12	8	88	1.1	1000	40	−60	8-channel LNA, VCA, PGA, LPF, ADC, CW mixer
AFE5808	65	14	8	153	0.75	1000	40	−60	8-channel LNA, VCA, PGA, LPF, ADC, CW mixer
AFE5851	32.5	12	16	39	5.5	1000	36	−65	16-channel VGA, LPF, ADC

MRI ADCs

Part Number	Sample Rate (MSPS)	Bits	Ch.	SFDR (dBc)	SNR (dBFS)	IMD3 (dBFS)	Input Buffer	Power/Ch (mW)	Comments
ADS5263	100	14/16	4	80	85	92	No	195-338	9x9mm package, 14- and 16-bit modes, serial LVDS outputs
ADS5562	80	16	1	85	84	100	No	865	7x7mm package, pin-compatible to 14-bit 210MSPS
ADS5483	135	16	1	97	79	100	Yes	2200	9x9mm package
ADS5485	200	16	1	93	75.8	95	Yes	2100	9x9mm package

*Preview products are listed in **bold blue** – production 2011*

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High Speed Data Converters

Communications

Defense

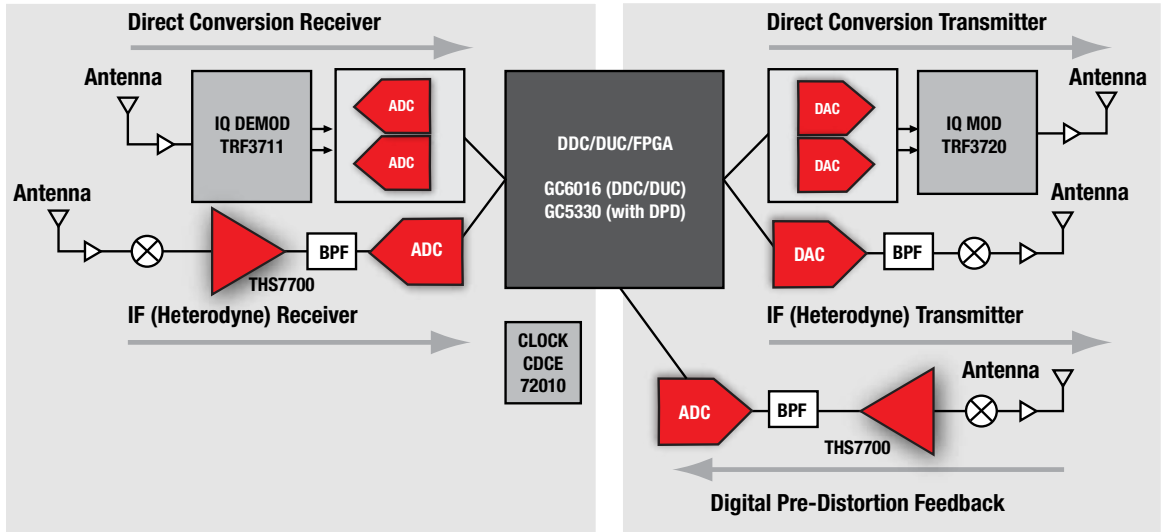www.ti.com/dataconverters

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High Speed Data Converters

→ Wireless Communications

Common Rx/Tx Types

Receive ADCs

Part Number	Sample Rate (MSPS)	Bits	Ch.	SFDR (dBc)	SNR (dBFS)	IMD3 (dBFS)	Input Buffer	Power/Ch (mW)	Comments
ADS58C28, ADS58C48	200	11	2, 4	80-84	66-77	80-84	No	235-355	65MHz signal bandwidth with SNRBoost
ADS62P22-ADS62P49	65-250	12-14	2	89-94	72-73	84-92	No	275-625	—
ADS4222-ADS4249	65-250	12-14	2	86-92	71-73	84-98	No	105-250	60% lower power than ADS62PXX family
ADS6222-ADS6245	65-125	12-14	2	78-93	71-74.5	82-100	No	315-500	Serial LVDS outputs
ADS6422-ADS6445	65-125	12-14	4	81-93	71-74.5	88-100	No	250-400	Serial LVDS outputs
ADS5493	130	16	1	90-100	75-76	97-110	Yes	1750	Multi-carrier GSM, 4-lane LVDS outputs

Digital Pre-Distortion Feedback ADCs

Part Number	Sample Rate (MSPS)	Bits	Ch.	SFDR (dBc)	SNR (dBFS)	IMD3 (dBFS)	Input Buffer	Power/Ch (mW)	Comments
ADS5400	1000	12	1	66-75	57.5-58.5	70-80	Yes	2150	2.1GHz 3dB bandwidth
ADS54RF63	550	12	1	75-85	63-65	84-90	Yes	2250	2.3GHz 3dB bandwidth
ADS5474	400	14	1	71-88	67-70	83-95	Yes	2500	1.4GHz 3dB bandwidth
ADS4249	250	14	2	82-87	71-73	84-96	No	250	Dual for IQ feedback, lower power replacement for ADS62P49
ADS62P49	250	14	2	75-89	72-73	84-92	No	625	Dual for IQ feedback
ADS41B49	250	14	1	82-89	69-70	86	Yes	388	Lower power replacement for ADS61B49
ADS41B25	125	12	1	81-86	69-71	87.5	Yes	225	—
ADS61B23	80	12	1	71-82	69.5-70	85	Yes	350	—

Transmit DACs

Part Number	Sample Rate (MSPS)	Bits	Ch.	Interface	Input Rate per DAC (MSPS)	Interp. (max)	IQ Corr.	Mixer	Comments
DAC3484	1250	16	4	16 LVDS	312.5	16x	Yes	NCO, Coarse	250mW, drive two IQ modulators
DAC34H84	1250	16	4	32 LVDS	625	16x	Yes	NCO, Coarse	High input rate, 275mW, BGA
DAC3482	1250	16	2	16 LVDS	625	16x	Yes	NCO, Coarse	High input rate, low power, QFN
DAC5681Z	1000	16	1	16 LVDS	1000	4x	Yes	High/Low Pass	Up to 1GSPS input rate
DAC3283	800	16	2	8 LVDS	312.5	4x	Yes	Coarse	81dB ACLR WCDMA 153MHz, 7x7mm
DAC5688	800	16	2	32 CMOS	250	8x	Yes	NCO	—
DAC3282	625	16	2	8 LVDS	312.5	2x	Yes	Coarse	7x7mm
DAC3162	500	12	2	12 LVDS	500	None	None	None	135mW, 7x7mm, 1.5 cycles latency
DAC5672A	275	14	2	14-28 CMOS	275	None	None	None	165mW
DAC904	165	14	1	14 CMOS	165	None	None	None	170mW

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High Speed Data Converters

→ Defense and Software Defined Radio, Common Rx/Tx Types
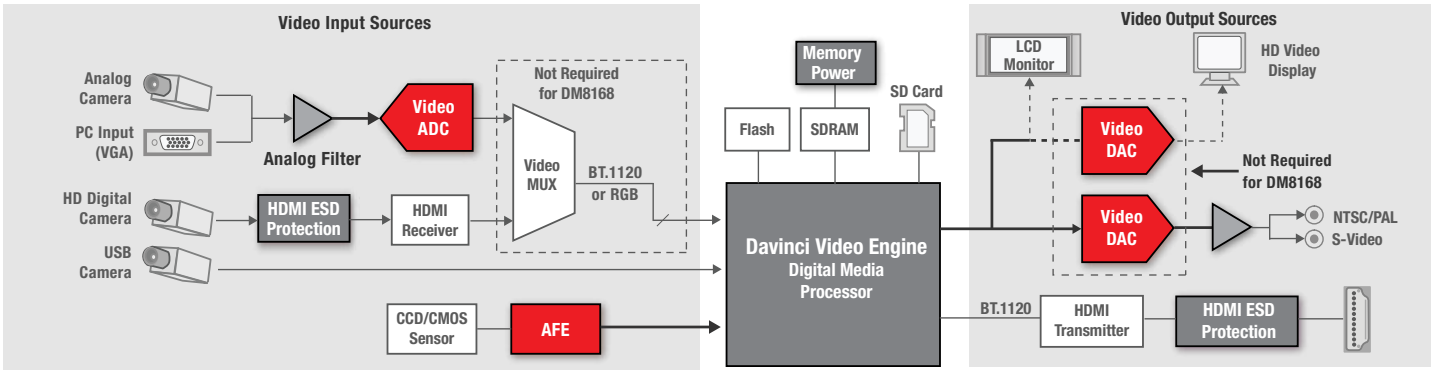
Common Rx/Tx Types
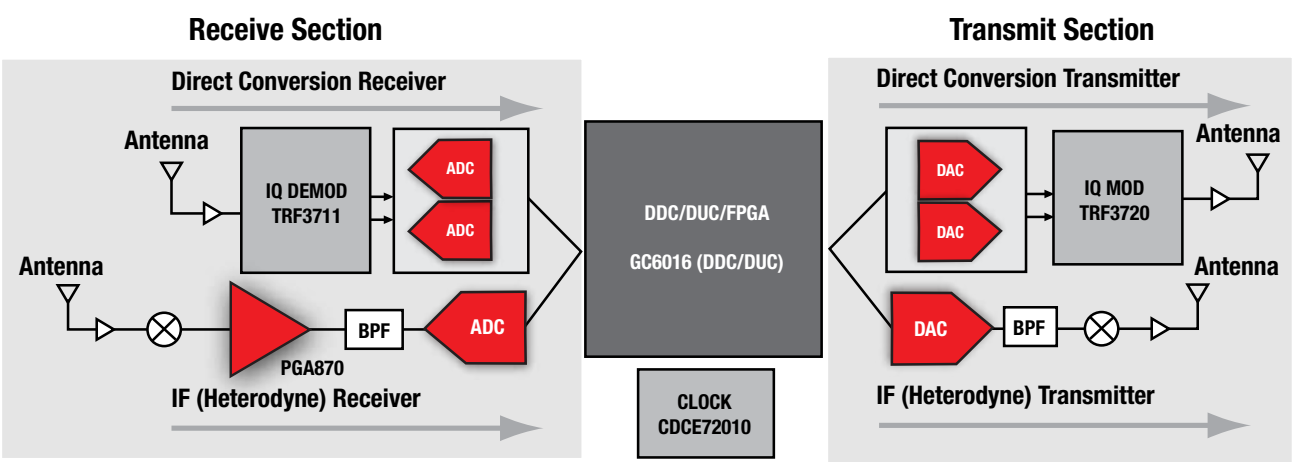
Portable, Low-Power Receivers

Part Number	Sample Rate (MSPS)	Bits	Ch.	SFDR (dBc)	SNR (dBFS)	IMD3 (dBFS)	Input Buffer	Power/Ch (mW)	Comments
ADS62P22-ADS62P49	65-250	12-14	2	89-94	72-73	84-92	No	275-625	—
ADS4222-ADS4249	65-250	12-14	2	86-92	71-73	84-98	No	105-265	Lower power replacement for ADS62Pxx
ADS4122-ADS4149	65-250	12-14	1	80-87	69-73.7	86-88	No	105-265	Lower power replacement for ADS61xx
ADS6222-ADS6245	65-125	12-14	2	78-93	71-74.5	82-100	No	315-500	Serial LVDS outputs
ADS6422-ADS6445	65-125	12-14	4	81-93	71-74.5	88-100	No	250-400	Serial LVDS outputs
ADS5237, ADS5232/31	40-65	10-12	2	83-86	61-70.7	91	No	185	—

Portable, Low-Power Transmitters

Part Number	Sample Rate (MSPS)	Bits	Ch.	Interface	SNR (dBc)	Power/Ch (mW)	Comments
DAC3152/3162	500	10-12	2	12 LVDS	76-78	135	7x7mm, 1.5 cycles latency
DAC5652A/62A/72A	275	10-14	2	14-28 CMOS	80-84	165	Optional interleaved input on 1 bus
DAC908/900/902/904	165	8-14	1	14 CMOS	70-79	170	—
DAC2932	40	12	2	12 CMOS	75	15	Plus 4 auxiliary voltage-out DACs

High Performance Receivers

Part Number	Sample Rate (MSPS)	Bits	Ch.	SFDR (dBc)	SNR (dBFS)	IMD3 (dBFS)	Input Buffer	Power/Ch (mW)	Comments
ADS5400	1000	12	1	66-75	57.5-58.5	70-80	Yes	2150	2.1GHz 3dB bandwidth
ADS54RF63	550	12	1	75-85	63-65	84-90	Yes	2250	2.3GHz 3dB bandwidth
ADS5474	400	14	1	71-88	67-70	83-95	Yes	2500	1.4GHz 3dB bandwidth
ADS41B49	250	14	1	82-89	69-70	86	Yes	388	Lower power replacement for ADS61B49
ADS4249	250	14	2	82-87	71-73	84-96	No	250	Lower power replacement for ADS62P49
ADS62P49	250	14	2	75-89	72-73	84-92	No	625	—
ADS5493	130	16	1	90-100	75-76	97-110	Yes	1750	Multi-carrier GSM, 4-lane LVDS outputs

Transmit and Signal Generation DACs

Part Number	Sample Rate (MSPS)	Bits	Ch.	Interface	Input Rate per DAC (MSPS)	Interp. (max)	IQ Corr.	Mixer	Comments
DAC3484	1250	16	4	16 LVDS	312.5	16x	Yes	NCO, Coarse	250mW, drive two IQ modulators
DAC34H84	1250	16	4	32 LVDS	625	16x	Yes	NCO, Coarse	High input rate, 275mW, BGA
DAC3482	1250	16	2	16 LVDS	625	16x	Yes	NCO, Coarse	High input rate, low power, QFN
DAC5681Z	1000	16	1	16 LVDS	1000	4x	—	High/Low Pass	Up to 1GSPS input rate
DAC3283	800	16	2	8 LVDS	312.5	4x	Yes	Coarse	81dB ACLR WCDMA 153MHz, 7x7mm
DAC5688	800	16	2	32 CMOS	250	8x	Yes	NCO	—
DAC3282	625	16	2	8 LVDS	312.5	2x	Yes	Coarse	7x7mm

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High Speed Data Converters

→ Video

Video DACs

Part Number	Input Format	Output Format	Bits	Sample Rate (MSPS)	Number of DACs	Output Standards	Sync	Multiplexed Input Mode	Comments
THS8135	3x10-bit 4:4:4, 2x10-bit 4:2:2 or 1x10-bit 4:2:2 YCbCr/RGB	Analog RGB/ YPbPr, Generic DAC	10	240	3	YPbPr or RGB SDTV/HDTV (I/P), bi- or tri-level sync, VESA PC 1920x1440 at 60Hz	Bi/Tri-Level	Yes	Generic triple DAC mode for non-video applications
THS8136	3x10-bit 4:4:4	Analog RGB/ YPbPr, Generic DAC	10	180	3	YPbPr or RGB SDTV (I/P), bi-level sync, VESA PC 1600x1200 at 60Hz	Bi-Level	—	Generic triple DAC mode for non-video applications, automotive qualified
THS8200	1, 2x8-/10-bit 4:2:2, 3x8-/10-bit 4:4:4 YCbCr/RGB, 15-/16-bit RGB	Analog RGB/ YPbPr	11	205	3	YPbPr SDTV/HDTV (I/P), VESA, ITU-RBT.656		Yes	Triple 10-bit all format video DAC

Video ADC

Part Number	Bits	Sample Rate (MSPS)	Analog Inputs	Power (mW)	DNL (±LSB)	INL (±LSB)	Digital Clamp	PGA	PLL	Video Formatter	Comments
TVP7002	10, 8	110/165	3	1112	1	4	Yes	Yes	Yes	Yes	Triple 8-/10-bit, 165/110-MSPS video ADC

Video Decoders

Part Number	Input Format	Output Format	Analog Inputs	ADC	Input Standard	Output Standard	Comments
TVP5151	CVBS, S-Video	8-bit 4:2:2 ITU656	2	9-bit 30MSPS	NTSC/PAL/ SECAM	ITU656	Ultra-low power NTSC/PAL/SECAM video decoder w/robust sync detector
TVP5147M1	CVBS, S-Video, YPbPr	20-bit 4:2:2 YCbCr, 10-bit ITU-R BT.656	10	2x10-bit 30MSPS	NTSC/PAL/ SECAM	ITU 601, ITU656	10-bit high-quality single-chip digital video decoder that digitizes and decodes NTSC/PAL/SECAM
TVP5160	CVBS, S-Video, YPbPr, SCART	10-bit ITU-R BT.656 4:2:2 YCbCr	12	2x-10-bit 54MSPS	NTSC/PAL/ SECAM	—	NTSC/PAL/SECAM/component 10-bit digital video decoder with Macrovision detection, 3-D-YC/5-line com
TVP5158	CVBS	8-bit 4:2:2 or 16-bit 4:2:2 YCbCr with embedded syncs	4	10-bit, 27MSPS	NTSC/PAL	ITU656	4-channel NTSC/PAL video decoder with independent scalers, noise reduction, auto contrast

CCD/CMOS Imaging Analog Front Ends

Part Number	Sample Rate (MSPS)	Bits	Gain, dB (min)	Gain, dB (max)	Power (mW)	Output Data Format	Supply Voltages (V)	Pin, Package	Comments
HD Surveillance (Security Camera)									
VSP8133	50	14	−9	44	140	CMOS Parallel	2.7-3.3	64 QFN	High image quality. flexible CCd support
HD and SD Machine Vision									
VSP7500, VSP7502	50	16	0	47	120	Sub LVDS	1.8	159 NFBGA	High dynamic range, frame rate
Inspection									
VSP2582	36	12	−9	35	85	CMOS Parallel	2.7-3.3	36 VQFN	Cost effective

IMPORTANT NOTICE