

---- My designed IC/LSI products ----

"*" means more than 10 million pieces shipped to the world in life.

"+" means more than 1 million pieces shipped to the world in life.

“p” means including my patent(s). p- means patent filed.

	Macro/soft	1Gsps R-DAC	(CMOS, Mixed Signal) architecture, circuit, layout, auto-design software
	Macro	1Gsps C-DAC	(CMOS, Mixed Signal) architecture, circuit, layout, auto-design method
	Macro	6Gsps DAC	(CMOS, Mixed Signal) architecture, circuit
	Macro	1Gsps 6bit ADC	(BiCMOS, Mixed Signal) architecture, circuit
	Macro	low power ADC 1	(CMOS, Mixed Signal) architecture, circuit
	Macro	low power ADC 2	(CMOS, Mixed Signal) architecture
	Macro	low power DAC	(CMOS, Mixed Signal) architecture
p-	software	ADC,DAC measurement software (1/10 measurement time)	method, architecture, software
	software	$\Delta\Sigma$ ADC,DAC measurement software (1/10 measurement time)	method, architecture, software
	Board	800Msps arbitrary wave generator	(Board, Mixed Signal) architecture, circuit, layout
	Board	100Msps 16bit digitizer	(Board, Mixed Signal) architecture, circuit, layout
	Board	32Msps 14bit digitizer	(Board, Mixed Signal) architecture, circuit, layout, software
	Board	200ksps 24bit digitizer + 24bit arbitrary wave generator	(Board, Mixed Signal) architecture,
	Board	100ksps 24bit digitizer + 16bit arbitrary wave generator	(Board, Mixed Signal) architecture, circuit, layout, software
p-	Macro	6Gbps equalizer + DC compensation	(CMOS, Mixed Signal) architecture, circuit

	Macro Board	3GHz digital control oscillator 2GHz SG distributor	(CMOS, analog) architecture (Board, Mixed Signal) architecture, circuit, layout
p-	Macro	sub-nW band gap regulator	(CMOS, analog) architecture, circuit, layout
p-	Macro	sub-nW low frequency oscillator	(CMOS, analog) architecture, circuit, layout
	TEG	DC PDK extraction TEG	(CMOS, Mixed Signal) architecture, circuit, layout, auto-design method
	TEG architecture,	fF capacitors PDK extraction TEG	(CMOS, Mixed Signal) circuit, layout, auto-design method
	Board	Zigbee LSI Radio test system	(Board, Mixed Signal) architecture, circuit, layout
p	Macro	power on reset (1/10 power)	(CMOS, Mixed Signal) architecture, circuit
p	Macro	power on reset (1/10 size)	(CMOS, Mixed Signal) architecture, circuit
	Macro	high speed LDO regulator	(CMOS, Mixed Signal) architecture, circuit
	Macro	100mW Fold back regulator	(CMOS, Mixed Signal) architecture, circuit
	Macro	car sensor interface 1	(CMOS, Mixed Signal) architecture, circuit
	Macro	car sensor interface 2	(CMOS, Mixed Signal) architecture, circuit
	Macro	car sensor interface 3	(CMOS, Mixed Signal) architecture, circuit
	Macro	car serial interface 1	(CMOS, Mixed Signal) architecture, circuit
	Macro	car serial interface 2	(CMOS, Mixed Signal) architecture, circuit

Board	300V op-amp	(Board, Mixed Signal) architecture, circuit, layout
Board	Digital TV LSI package 1	BGA package internal analog layout
Board	Digital TV LSI package 2	BGA package internal analog layout
Board	Digital TV LSI package 3	BGA package internal analog layout
Board	Digital TV LSI package 4	BGA package internal analog layout
Board	Digital TV LSI package 5	BGA package internal analog layout
Board	Digital TV LSI package 6	BGA package internal analog layout
Board	Digital TV LSI package 7	BGA package internal analog layout
Board	Digital mixed signal LSI package	BGA package internal analog layout
MCxxxxx	Digital TV VTR SIP 1	(CMOS, Mixed Signal) (part)
MCxxxxx	Digital TV VTR SIP 2	(CMOS, Mixed Signal) (part)
MCxxxxx	Digital TV VTR SIP 3	(CMOS, Mixed Signal) (part)
MCxxxxx	DVD drive SIP	(BiCMOS, Mixed Signal) (part)

MCxxxxx	Digital TV VTR SIP	(CMOS, Mixed Signal) (part)
MCxxxxx	DVD drive SIP	(CMOS, Mixed Signal) (part)
MCxxxxx	HDD drive test chip	(BiCMOS, Mixed Signal) (part)
MCxxxxx	HDD drive SIP	(BiCMOS, Mixed Signal) (part)
uPDxxxxx	HDD SOC test chip	(BiCMOS, Mixed Signal) (part)
xxxxxxxx	6Gbps SerDes	(CMOS, Mixed Signal) (part)
p xxxxxxxx	10GBase-T test chip	(CMOS, Mixed Signal) (part)
xxxxxxxx	10/100Base-T macro	(CMOS, Mixed Signal) (part)
xxxxxxxx	3GHz SerDes macro	(CMOS, Mixed Signal) (part)
p xxxxxxxx	3GHz Serial ATA macro	(CMOS, Mixed Signal) (part)
xxxxxxxx	1.5GHz Serial ATA macro	(CMOS, Mixed Signal)
uPDxxxx	TV signal processor	(CMOS, Mixed Signal) (part)
uPDxxxxx	FDD VFO	(CMOS, Mixed Signal)
+ uPDxxxxx	FDD VFO	(CMOS, Mixed Signal)
* uPDxxxxx	FDD VFO	(CMOS, Mixed Signal)
uPDxxxx	PPC sensor amp	(CMOS, Mixed Signal)
uPDxxxx	FAX sensor amp	(CMOS, Mixed Signal)
uPDxxxx	20MHz 8bit ADC	(CMOS, Mixed Signal)

uPDxxxx	20MHz 8bit ADC	(CMOS. Mixed Signal)
uPDxxxx	50MHz 8bit DAC	(CMOS. Mixed Signal)
uPDxxxx	20MHz 6bit DAC	(CMOS. Mixed Signal)
uPDxxxx	20MHz 8bit DAC	(CMOS. Mixed Signal)
uPDxxxx	HDD spindle motor	(CMOS. Mixed Signal)
uPDxxxx	dbx real 18bit ADC	(CMOS. Mixed Signal)
p* uPDxxxx	low cost 16bit DAC	(CMOS. Mixed Signal)
p* uPDxxxx	low cost 16bit DAC	(CMOS. Mixed Signal)
uPDxxxx	Viter Bi detector	(CMOS, Digital)
p+ uPDxxxx	low cost 16bit DAC	(CMOS. Mixed Signal)
p uPDxxxx	real 16bit DAC	(CMOS. Mixed Signal)
+ uPDxxxx	LCD driver	(CMOS. Mixed Signal) (part)
uPDxxxx	FAX piccell	(CMOS. Mixed Signal)
uPDxxxx	VCR digital servo	(BiCMOS. Mixed Signal)
p uPDxxxx	IC Card	(CMOS. Mixed Signal)
uPDxxxx	LCD TV sync	(CMOS. Mixed Signal)
p+ uPDxxxx	44V MPX	(CMOS, Analog)
uPBxxx	1GHz pre scaler	(Bipolar. Mixed Signal)
uPxxxxx	TV Tuner	(BiCMOS. Analog)
p uPxxxxx	HDD SOC	(BiCMOS, . Mixed Signal) (part)
p uPxxxxx	HDD Read Channel	(BiCMOS. Mixed Signal) (part)
p uPCxxxx	HDD Read Channel	(BiCMOS. Mixed Signal) (part)
p uPCxxxx	HDD Read Channel	(BiCMOS. Mixed Signal) (part)
p* uPCxxxx	HDD Read Channel	(BiCMOS. Mixed Signal) (part)
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p* uPCxxxx	HDD Read Channel	(BiCMOS. Mixed Signal) (part)
p+ uPCxxxx	HDD Read Channel	(BiCMOS. Mixed Signal) (part)
p* uPCxxxx	HDD Read Channel	(BiCMOS. Mixed Signal) (part)
uPCxxxx	HDD VFO	(BiCMOS. Mixed Signal)
uPCxxxx	HDD MR pre amp	(BiCMOS, Analog)

	uPCxxxx	HDD pre amp	(BiCMOS, Analog)
p	uPCxxxx	HDD pre amp	(Bipolar, Analog)
	uPCxxxx	HDD pre amp	(Bipolar, Analog)
p+	uPCxxxx	HDD pre amp	(Bipolar, Analog)
+	uPCxxxx	HDD pre amp	(Bipolar, Analog)
+	uPCxxxx	HDD pre amp	(Bipolar, Analog)
p	uPCxxxx	HDD pre amp	(Bipolar, Analog)
	uPCxxxx	HDD pre amp	(Bipolar, Analog)
	uPCxxxx	HDD pre amp	(Bipolar, Analog)
p	uPCxxxx	FDD one chip SOC	(BiCMOS, Mixed Signal)
p	uPCxxxx	FDD + motor SOC	(BiCMOS, Mixed Signal)
p	uPCxxxx	FDD one chip SOC	(BiCMOS, Mixed Signal)
p	uPCxxxx	FDD + motor SOC	(BiCMOS, Mixed Signal)
p	uPCxxxx	FDD one chip SOC	(BiCMOS, Mixed Signal)
p	uPCxxxx	FDD one chip SOC	(BiCMOS, Mixed Signal)
p	uPCxxxx	FDD one chip SOC	(BiCMOS, Mixed Signal)
p	uPCxxxx	FDD one chip SOC	(BiCMOS, Mixed Signal)
p*	uPCxxxx	FDD one chip SOC	(BiCMOS, Mixed Signal)
p+	uPCxxxx	FDD R/W amp	(BiCMOS, Analog)
p	uPCxxxx	FDD R/W amp	(BiCMOS, Analog)
*	uPCxxxx	FDD one chip	(BiCMOS, Mixed Signal)
p	uPCxxxx	VCR RF modulator	(Bipolar, Analog)
p	uPCxxxx	VCR servo	(Bipolar & IIL, Mixed Signal)
p	uPCxxxx	VCR servo	(Bipolar & IIL, Mixed Signal)
p*	uPCxxxx	VCR custom	(Bipolar, Analog)
p*	uPCxxxx	VCR servo	(Bipolar & IIL, Mixed Signal)
p*	uPCxxxx	VCR servo	(Bipolar, Analog)
p	uPCxxxx	Broadcast Satellite QPSK detector	(Bipolar, Analog)
	uPCxxxx	Broadcast Satellite SFM detector	(Bipolar, Analog)
	uPCxxxx	Broadcast Satellite 600MHz IF	(Bipolar, Analog)
	uPCxxxx	IR remote controller	(Bipolar, Analog)
*	uPCxxxx	IR remote controller	(Bipolar, Analog)
p	uPCxxxx	LCD TV Picture IF + Sound IF	(Bipolar, Analog)

p	uPCxxxx	TV Picture IF + Sound IF	(Bipolar, Analog)
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p	uPCxxxx	TV Picture IF + Sound IF	(Bipolar, Analog)
p	uPCxxxx	TV Picture IF + Sound IF	(Bipolar, Analog)
	uPCxxxx	TV VHF tuner	(Bipolar, Analog)
p	uPCxxxx	TV Sound IF	(Bipolar, Analog)
p+	uPCxxxx	TV Sound IF	(Bipolar, Analog)
p	uPCxxxx	TV SECAM detector	(Bipolar, Analog)
p+	uPCxxxx	TV Sound IF + Audio	(Bipolar, Analog)
p+	uPCxxxx	TV Sound IF + Audio	(Bipolar, Analog)
p*	uPCxxxx	TV Vertical + amp	(Bipolar, Analog)
p	uPCxxxx	TV Vertical	(Bipolar, Analog)
p	uPCxxxx	TV Horizontal	(Bipolar, Analog)
p*	uPCxxxx	TV one chip Picture IF	(Bipolar, Analog)
p	uPCxxxx	TV one chip Picture IF	(Bipolar, Analog)
	uPCxxxx	TV Picture IF	(Bipolar, Analog)
	uPCxxxx	TV Sound IF +Audio	(Bipolar, Analog)
p	uPCxxxx	PLL FM stereo decoder	(Bipolar, Analog)
p	uPCxxxx	dual volume controller	(Bipolar, Analog)
p*	uPCxxxx	Motor servo	(Bipolar, Analog)
p	uPCxxxx	Balanced Mixer	(Bipolar, Analog)
	uPCxxxx	Freq phase detector	(Bipolar. Mixed Signal) (part)
	uPCxxx	20MHz 8bit DAC	(Bipolar. Mixed Signal)
	uPCxxx	3ch 6bit DAC	(Bipolar. Mixed Signal)
	uPCxxx	20MHz 6bit ADC	(Bipolar. Mixed Signal)
	uPCxxx	20MHz 8bit ADC	(Bipolar. Mixed Signal) (part)
p	uPCxxx	16bit DAC	(Bipolar. Mixed Signal)
	uPCxxx	12bit ADC	(Bipolar & IIL. Mixed Signal)(part)
p*	uPCxxx	TV low level picture IF detector	(Bipolar, Analog)
+	uPCxxx	TV Picture IF	(Bipolar, Analog)
	uPCxxx	TV Picture IF	(Bipolar, Analog)
p	uPCxxx	2.5V FM stereo decoder	(Bipolar, Analog)
	uPCxxx	TV Sound IF + Audio	(Bipolar, Analog)