

CUBLOCTM

CHIP SET CB280CS

COMFILE

TECHNOLOGY

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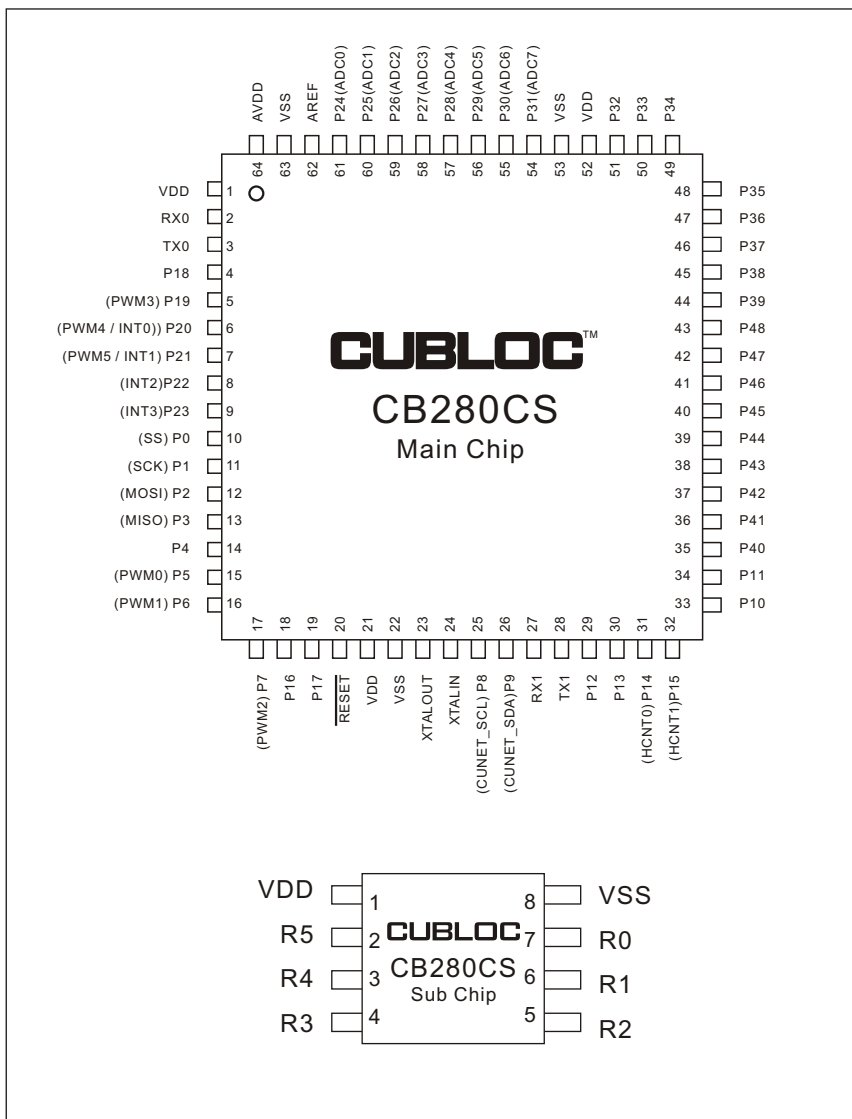
The CB280CS has exactly the same features as a regular CB280 chip except it's in a chipset format.

By using the CB280CS, the user is able to solder the chipset directly on to their PCB.

This will lower your overall production cost while integrating CB280 into your product seamlessly.

Since this chipset has same features as a regular CB280, we recommend you develop your applications on the CB280 before going into production with the chipset version.

- CB280 Chipset version for mass-production and OEMs
- All features as a regular CB280
- 80KB Flash Program Memory
- Basic Data Memory : 2KB
- LADDER Data Memory : 1KB
- EEPROM : 4KB- I/O Ports : 49
- RS232 Channels : 2 (Including Download)
- Package: 64PIN QFP, 8PIN SOIC



Note

The CUBLOC Chipset comes with a MAIN CHIP and SUB CHIP.

The CB220 is currently not available as a chipset but you may use the CB280CS for applications developed in CB220.

The CB290 is only provided as a module.

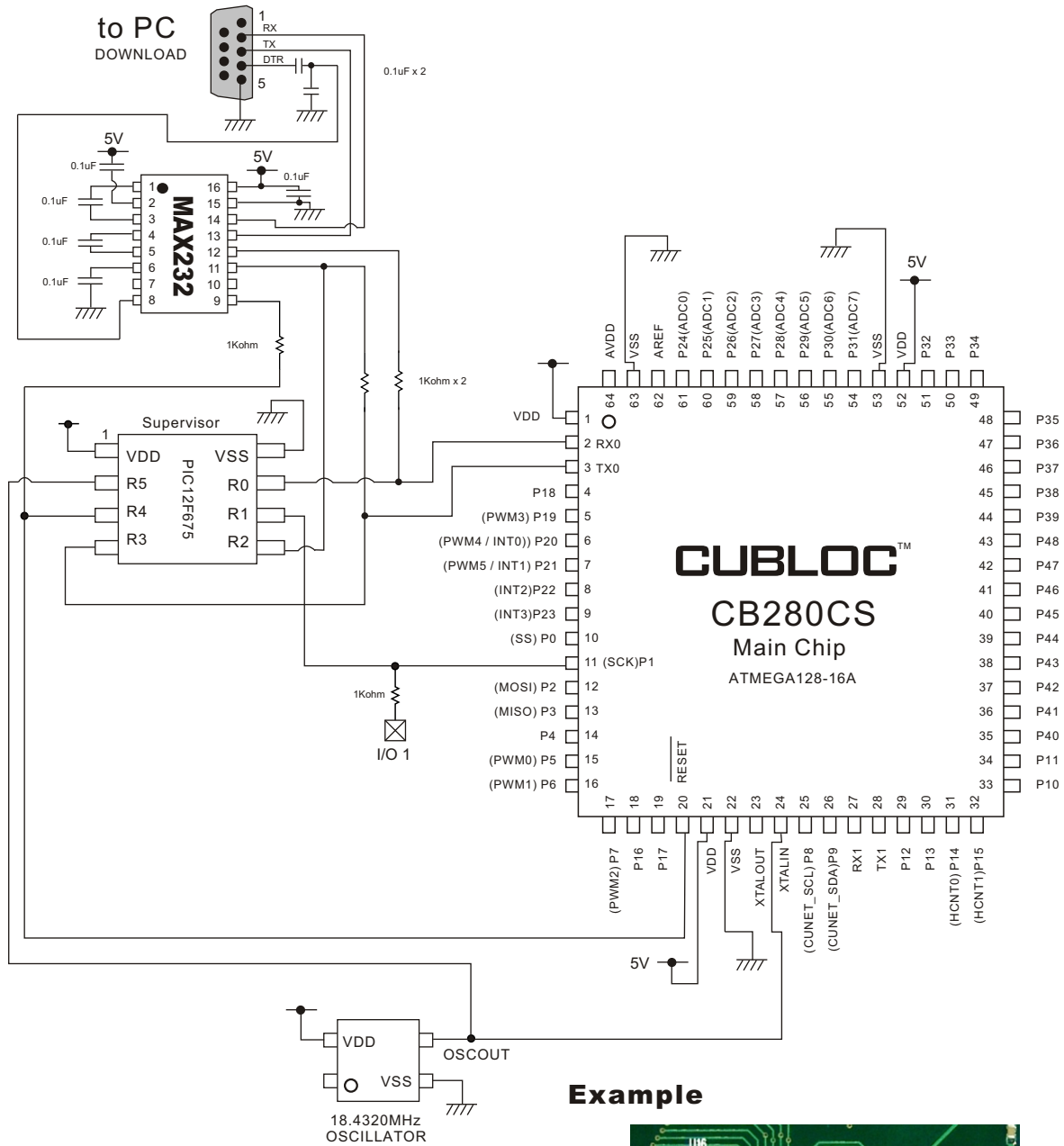


Sub Chip - Pin out

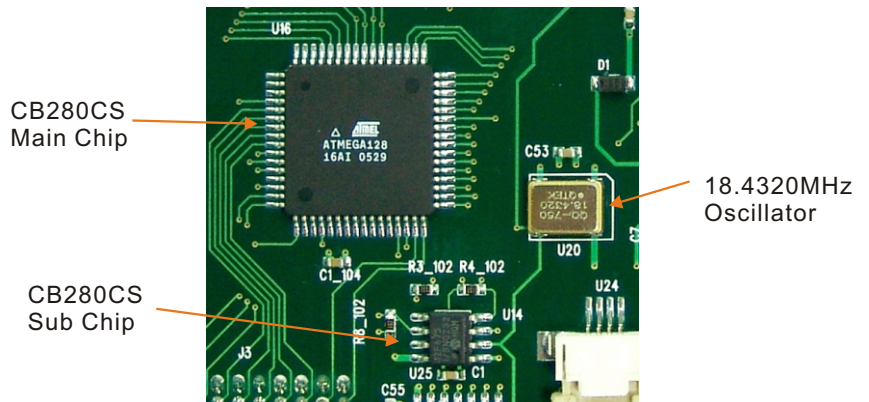
PIN No.	Name	Function
1	VDD	Power Supply
2	R5	OSC INPUT
3	R4	Reset
4	R3	RS232 tx 2
5	R2	RS232 tx 1
6	R1	I/O PORT 1
7	R0	RS232 rx
8	VSS	Ground

Main chip - Pin out

PIN No.	Name	Function	Desc.	PIN No.	Name	Function	Desc.
1	VDD		Power Supply	41	P46		I/O Port
2	RX0		RS232–RX for Download	42	P47		I/O Port
3	TX0		RS232–TX for Download	43	P48		I/O Port
4	P18		I/O Port	44	P39		I/O Port
5	P19	PWM3	I/O Port	45	P38		I/O Port
6	P20	PWM4 / INT0	I/O Port	46	P37		I/O Port
7	P21	PWM5 / INT 1	I/O Port	47	P36		I/O Port
8	P22	INT2	I/O Port	48	P35		I/O Port
9	P23	INT3	I/O Port	49	P34		I/O Port
10	P0	SS	I/O Port	50	P33		I/O Port
11	P1	SCK	I/O Port	51	P32		I/O Port
12	P2	MOSI	I/O Port	52	VDD		I/O Port
13	P3	MISO	I/O Port	53	VSS		I/O Port
14	P4		I/O Port	54	P31	ADC7	I/O Port
15	P5	PWM0	I/O Port	55	P30	ADC6	I/O Port
16	P6	PWM1	I/O Port	56	P29	ADC5	I/O Port
17	P7	PWM2	I/O Port	57	P28	ADC4	I/O Port
18	P16		I/O Port	58	P27	ADC3	I/O Port
19	P17		I/O Port	59	P26	ADC2	I/O Port
20	RESET		Reset (LOW active)	60	P25	ADC1	I/O Port
21	VDD		Power Supply	61	P24	ADC0	I/O Ports
22	VSS		Ground	62	AREF		Ref. for ADC
23	XTALOUT		Xtal Input	63	VSS		Ground
24	XTALIN		Xtal Output	64	AVDD		Power supply for ADC
25	P8	CUNET_SCL	I/O Port				
26	P9	CUNET_SDA	I/O Port				
27	RX1		I/O Port				
28	TX1		I/O Port				
29	P12		I/O Port				
30	P13		I/O Port				
31	P14	HCOUNT0	I/O Port				
32	P15	HCOUNT1	I/O Port				
33	P10		I/O Port				
34	P11		I/O Port				
35	P40		I/O Port				
36	P41		I/O Port				
37	P42		I/O Port				
38	P43		I/O Port				
39	P44		I/O Port				
40	P45		I/O Port				



Example



Electrical Characteristics

Note: Typical values contained in this data sheet are based on simulations and characterization of other AVR microcontrollers manufactured on the same process technology. Min and Max values will be available after the device is characterized.

Absolute Maximum Ratings*

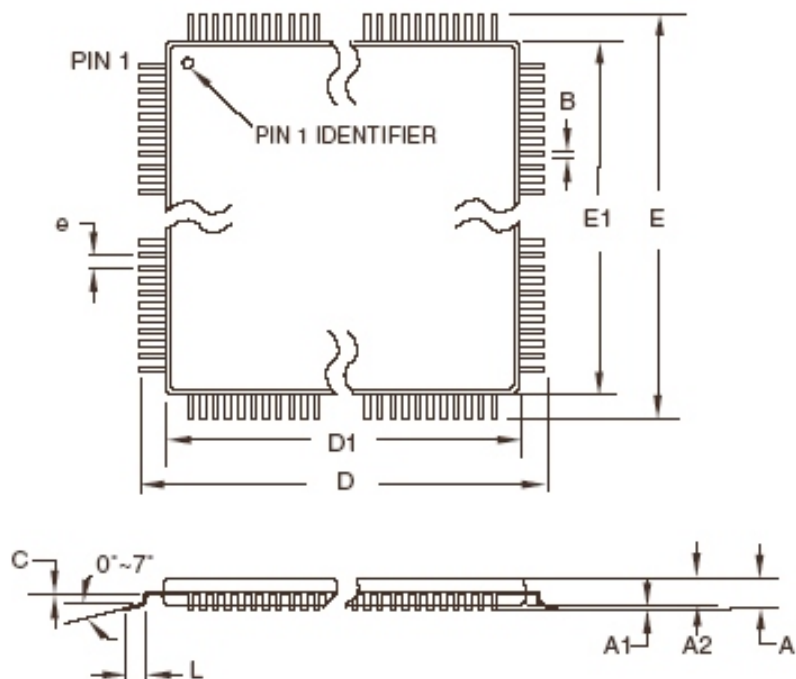
Operating Temperature	-55°C to +125°C
Storage Temperature	-65°C to +150°C
Voltage on any Pin except $\overline{\text{RESET}}$ with respect to Ground	-0.5V to $V_{CC}+0.5V$
Voltage on $\overline{\text{RESET}}$ with respect to Ground.....	-0.5V to +13.0V
Maximum Operating Voltage	6.0V
DC Current per I/O Pin	40.0 mA
DC Current V_{CC} and GND Pins.....	200.0 mA

*NOTICE: Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or other conditions beyond those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

DC Characteristics

$T_A = -40^\circ\text{C}$ to 85°C , $V_{CC} = 2.7V$ to $5.5V$ (unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Units
V_{IL}	Input Low Voltage	Except XTAL1 and $\overline{\text{RESET}}$ pins	-0.5		$0.2 V_{CC}^{(1)}$	V
V_{IL1}	Input Low Voltage	XTAL1 pin, External Clock Selected	-0.5		$0.1 V_{CC}^{(1)}$	V
V_{IL2}	Input Low Voltage	$\overline{\text{RESET}}$ pin	-0.5		$0.2 V_{CC}^{(1)}$	V
V_{IH}	Input High Voltage	Except XTAL1 and $\overline{\text{RESET}}$ pins	$0.6 V_{CC}^{(2)}$		$V_{CC} + 0.5$	V
V_{IH1}	Input High Voltage	XTAL1 pin, External Clock Selected	$0.7 V_{CC}^{(2)}$		$V_{CC} + 0.5$	V
V_{IH2}	Input High Voltage	$\overline{\text{RESET}}$ pin	$0.85 V_{CC}^{(2)}$		$V_{CC} + 0.5$	V
V_{OL}	Output Low Voltage ⁽³⁾ (Ports A,B,C,D, E, F, G)	$I_{OL} = 20 \text{ mA}$, $V_{CC} = 5V$ $I_{OL} = 10 \text{ mA}$, $V_{CC} = 3V$			0.7 0.5	V V
V_{OH}	Output High Voltage ⁽⁴⁾ (Ports A,B,C,D, E, F, G)	$I_{OH} = -20 \text{ mA}$, $V_{CC} = 5V$ $I_{OH} = -10 \text{ mA}$, $V_{CC} = 3V$	4.2 2.4			V V
I_{IL}	Input Leakage Current I/O Pin	$V_{CC} = 5.5V$, pin low (absolute value)			1.0	μA
I_{IH}	Input Leakage Current I/O Pin	$V_{CC} = 5.5V$, pin high (absolute value)			1.0	μA
R_{RST}	Reset Pull-up Resistor		30		60	k Ω
R_{PEN}	PEN Pull-up Resistor		30		60	k Ω
R_{PU}	I/O Pin Pull-up Resistor		20		50	k Ω



COMMON DIMENSIONS
(Unit of Measure = mm)

SYMBOL	MIN	NOM	MAX	NOTE
A	-	-	1.20	
A1	0.05	-	0.15	
A2	0.95	1.00	1.05	
D	15.75	16.00	16.25	
D1	13.90	14.00	14.10	Note 2
E	15.75	16.00	16.25	
E1	13.90	14.00	14.10	Note 2
B	0.30	-	0.45	
C	0.09	-	0.20	
L	0.45	-	0.75	
e	0.80 TYP			

- Notes:
1. This package conforms to JEDEC reference MS-026, Variation AEB.
 2. Dimensions D1 and E1 do not include mold protrusion. Allowable protrusion is 0.25 mm per side. Dimensions D1 and E1 are maximum plastic body size dimensions including mold mismatch.
 3. Lead coplanarity is 0.10 mm maximum.

10/5/2001

12.0 ELECTRICAL SPECIFICATIONS

Absolute Maximum Ratings†

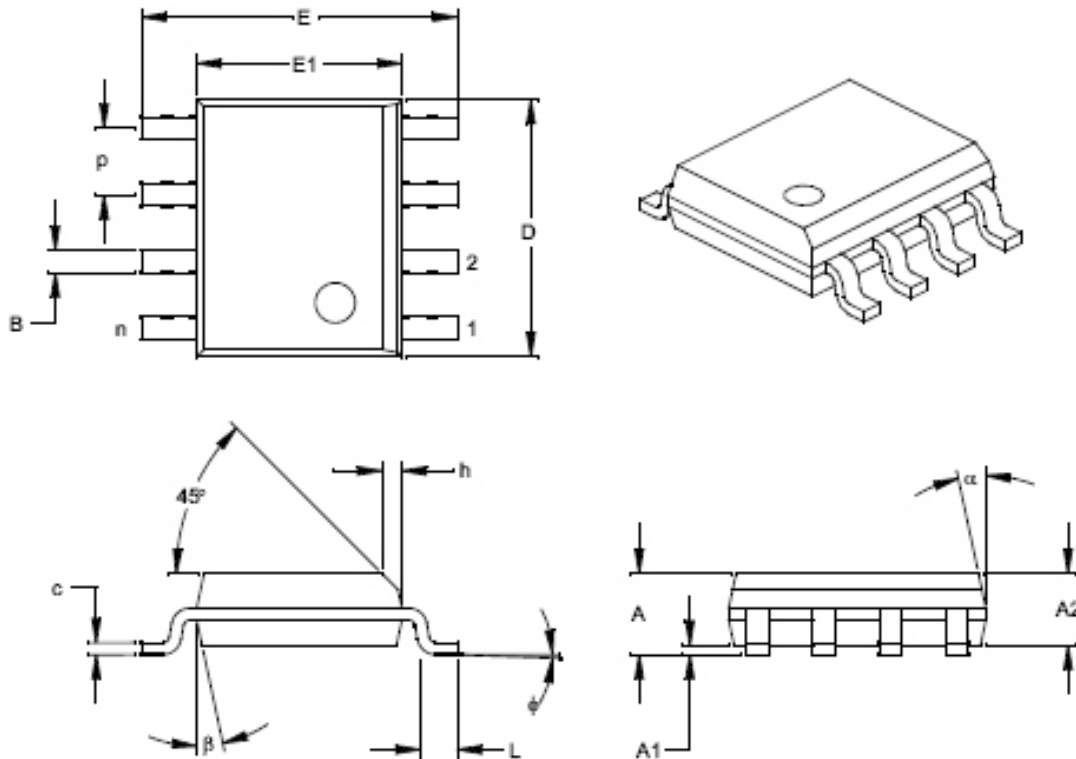
Ambient temperature under bias.....	-40 to +125°C
Storage temperature.....	-65°C to +150°C
Voltage on VDD with respect to VSS	-0.3 to +6.5V
Voltage on $\overline{\text{MCLR}}$ with respect to VSS	-0.3 to +13.5V
Voltage on all other pins with respect to VSS	-0.3V to (VDD + 0.3V)
Total power dissipation ⁽¹⁾	800 mW
Maximum current out of VSS pin	300 mA
Maximum current into VDD pin	250 mA
Input clamp current, I _{IK} (V _I < 0 or V _I > VDD).....	± 20 mA
Output clamp current, I _{OK} (V _O < 0 or V _O > VDD).....	± 20 mA
Maximum output current sunk by any I/O pin.....	25 mA
Maximum output current sourced by any I/O pin	25 mA
Maximum current sunk by all GPIO	125 mA
Maximum current sourced all GPIO.....	125 mA

Note 1: Power dissipation is calculated as follows: $P_{DIS} = V_{DD} \times (I_{DD} - \sum I_{OH}) + \sum ((V_{DD} - V_{OH}) \times I_{OH}) + \sum (V_{OL} \times I_{OL})$.

† **NOTICE:** Stresses above those listed under 'Absolute Maximum Ratings' may cause permanent damage to the device. This is a stress rating only and functional operation of the device at those or any other conditions above those indicated in the operation listings of this specification is not implied. Exposure to maximum rating conditions for extended periods may affect device reliability.

Note: Voltage spikes below VSS at the $\overline{\text{MCLR}}$ pin, inducing currents greater than 80 mA, may cause latchup. Thus, a series resistor of 50-100Ω should be used when applying a "low" level to the $\overline{\text{MCLR}}$ pin, rather than pulling this pin directly to VSS.

8-Lead Plastic Small Outline (SN) – Narrow, 150 mil (SOIC)



Dimension Limits	Units	INCHES*			MILLIMETERS		
		MIN	NOM	MAX	MIN	NOM	MAX
Number of Pins	n		8			8	
Pitch	p		.050			1.27	
Overall Height	A	.053	.061	.069	1.35	1.55	1.75
Molded Package Thickness	A2	.052	.056	.061	1.32	1.42	1.55
Standoff §	A1	.004	.007	.010	0.10	0.18	0.25
Overall Width	E	.228	.237	.244	5.79	6.02	6.20
Molded Package Width	E1	.146	.154	.157	3.71	3.91	3.99
Overall Length	D	.189	.193	.197	4.80	4.90	5.00
Chamfer Distance	h	.010	.015	.020	0.25	0.38	0.51
Foot Length	L	.019	.025	.030	0.48	0.62	0.76
Foot Angle	φ	0	4	8	0	4	8
Lead Thickness	c	.008	.009	.010	0.20	0.23	0.25
Lead Width	B	.013	.017	.020	0.33	0.42	0.51
Mold Draft Angle Top	α	0	12	15	0	12	15
Mold Draft Angle Bottom	β	0	12	15	0	12	15

* Controlling Parameter

§ Significant Characteristic

Notes:

Dimensions D and E1 do not include mold flash or protrusions. Mold flash or protrusions shall not exceed .010" (0.254mm) per side.

JEDEC Equivalent: MS-012

Drawing No. C04-057

-The End-