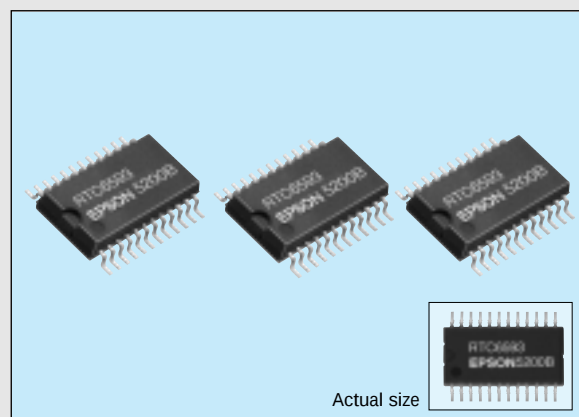


REAL TIME CLOCK MODULE FOR PC/AT *1

RTC-6593

- Built-in crystal unit allows adjustment-free efficient operation.
- Provides 114-bytes of backed-up RAM.
- Extended alarm function.
- Low current consumption.
- A built-in power supply switching circuit makes it possible to provide automatic power supply backup to both the RTC and extended RAM.

*1 PC/AT is a trademark of International Business Machines Corporation.



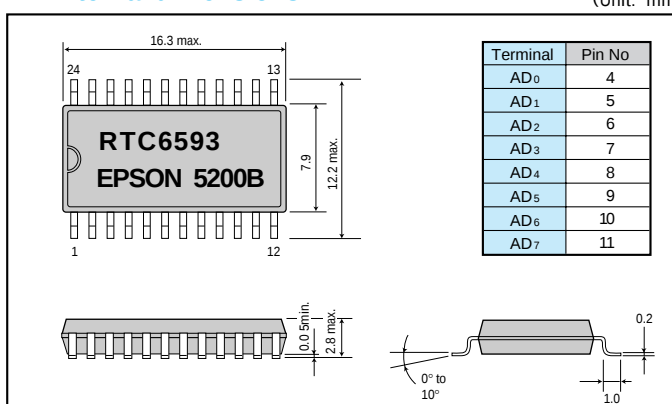
Specifications (characteristics)

Absolute Max. rating

Item	Symbol	Condition	Rating	Unit
Supply voltage	V_{DD}	$V_{DD}-GND$	- 0.3 to + 7.0	V
Input voltage	V_{IN}	Input pin	- 0.3 to $V_{DD} + 0.3$	
Storage temperature	T_{STG}	—	- 55 to +125	°C
Soldering conditions	T_{SOL}	Twice under 260°C within 10 seconds or under 230°C within 3 minutes		

External dimensions

(Unit: mm)



Operating range, frequency and DC characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Supply voltage	V_{DD}	$V_{DD}-GND$	4.5	5.0	5.5	V
Operating temperature	T_{OPR}	—	-10		+70	°C
Frequency tolerance	$\Delta f/f_0$	$T_a=25^\circ\text{C}$, $V_{DD}=5\text{V}$			5±20	ppm
Temperature characteristics	T_{OP}	$T_a=-10$ to 70°C 25°C standard			+10 -120	
Voltage characteristics	f_v	$T_a=\text{stable}$			±6	ppm/V
Aging	f_a	$T_a=25^\circ\text{C}$, $V_{DD}=5\text{V}$ First year			±5	ppm/Y
Input voltage	High level	V_{IH}	2.2		$V_{DD}+0.3$	V
	Low level	V_{IL}	-0.3		0.8	
Output voltage	High level	V_{OH}	2.4			
	Low level	V_{OL}			0.4	
Power supply current	I_{DD}	Output unloaded		3	10	mA
Battery supply current	I_{BAT}	$V_{BAT}=3\text{V}$ $V_{DD}=0\text{V}$		0.5	1.0	μA

Terminal functions

Terminal	Function	Pin No.
MOT	Model select (input)	1
AD ₀ to 7	Multiplexed bi-direction address/data buses	4 to 11
GND	Power supply (grand)	12
RTC	Real time clock select (input)	13
AS	Address strobe (input)	14
R/W	Read/Write (input)	15
DS	Data strobe (input)	17
RESET	Reset (input)	18
IRQ	Interrupt request (output)	19
V_{BAT}	Back-up power supply	20
XIRQ	Extended alarm interrupt request (output)	21
XALM	Extended alarm select (input)	22
SQW	Square wave output	23
V_{DD}	Power supply (+5V)	24
NC	Not connected internally	2,3,16