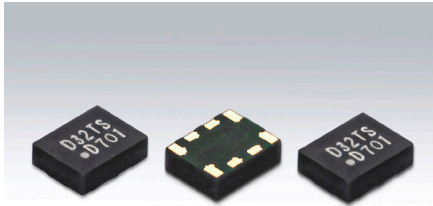



# SMD Real Time Clock Module (For Automotive)

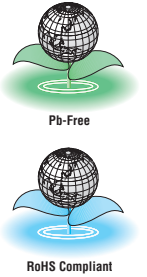
## DD3225TS



Actual size 

### Features

- Digital temperature compensated type
- High precision :  $\pm 5.0 \times 10^{-6}$  (-40 to +85°C),  $\pm 7.0 \times 10^{-6}$  (-40 to +105°C)
- Low current consumption
- Low voltage operation : +1.5 to +5.5V (Temperature Compensated Operating), +1.3 to +5.5V (Clock Timing Operating)
- I<sup>2</sup>C-BUS serial interface:400kHz fast-mode compatible
- Clock function:hour-minute-second, Calendar function with auto leap year adjustment:year-month-day-day of week
- Alarm interrupt function:day-day of week-hour-minute
- Fixed-cycle timer interrupt function:244μs to 255min
- Time update interrupt function:minute-second
- Clock output function:32.768kHz, 1024Hz, 32Hz, 1Hz
- Supply voltage detection function:  
+1.5V temperature compensation operating voltage detection  
+1.3V supply voltage under voltage detection
- CMOS Level Output
- AEC-Q100/AEC-Q200 compliant
- \* "I<sup>2</sup>C-BUS" is a trademark of NXP semiconductors.



### Applications

- High precision clock source
- Car navigation, Smart meter, Data logger

### Standard Specification

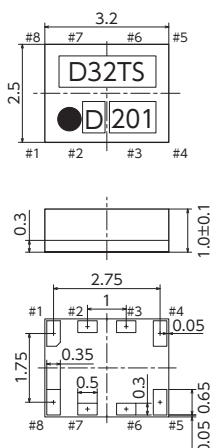
Item	Legend	Spec.				Condition
		min.	typ.	max.	unit	
Output Frequency	f <sub>o</sub>	-	32.768	-	kHz	
Supply Voltage Range	V <sub>cc</sub>	+1.3	-	+5.5	V	(Clock Timing Operating)
	V <sub>tem</sub>	+1.5	-	+5.5		(Temperature Compensated Operating)
	V <sub>int</sub>	+1.5	-	+5.5		(Interface Operation) I <sup>2</sup> C-BUS
Frequency Tolerance	f <sub>tol</sub>	-5	-	+5	× 10 <sup>-6</sup>	-40 to +85°C
		-7	-	+7		-40 to +105°C
Current Consumption	I <sub>cc1</sub>	-	0.30	2.10	μA	V <sub>cc</sub> = +3.0V
		-	0.42	2.90		V <sub>cc</sub> = +5.0V
	I <sub>cc2</sub>	-	0.90	2.80		V <sub>cc</sub> = +3.0V
		-	1.30	4.00		V <sub>cc</sub> = +5.0V
Load Condition	L <sub>CMOS</sub>	-	-	15	pF	Temperature Compensation Interval:30s, SCL = SDA = INTN = V <sub>cc</sub> ,OE = GND (Output Off)
Symmetry	SYM	40	-	60	%	50%V <sub>cc</sub>
1 level Output Voltage	V <sub>OH</sub>	0.8xV <sub>cc</sub>	-	-	V	I <sub>OH</sub> =-1mA
0 level Output Voltage	V <sub>OL</sub>	-	-	0.2xV <sub>cc</sub>	V	I <sub>OL</sub> =1mA
Rise / Fall Time	Tr/Tf	-	-	100	ns	20 to 80%V <sub>cc</sub>
OE Pin 1 level Input Voltage	V <sub>IH</sub>	0.8xV <sub>cc</sub>	-	V <sub>cc</sub>	V	
OE Pin 0 level Input Voltage	V <sub>IL</sub>	0	-	0.2xV <sub>cc</sub>	V	
Start Up Time	T <sub>start</sub>	-	-	1	s	T <sub>a</sub> = +25°C, V <sub>cc</sub> = +1.3V
Packing Unit (1)						2000pcs./reel (φ 180)

(1) Moisture prevention packing  
Moisture sensitivity level : Level 2 (IPC/JEDEC J-STD-033)

Consult our sales representative for other specifications.

[mm]

### Dimensions



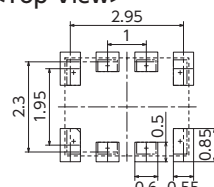
Function	
#1 Input	#5 Output Condition
H	Oscillation out
L	High Z

Marking	
(1) Type	D3225TS
(2) Logo	D
(3) Date code	Year(1 digit) + Week(2 digits) e.g.2022/1/1 → 201

### Recommended Land Pattern

<Top View>



### Pin Function

No.	Name	I/O	Description
#1	OE	I	Output control enable input (L:High impedance, H:Clock output)
#2	INTN	0	1Hz signal, alarm interrupt signal, fixed-cycle timer interrupt signal, and time update interrupt signal, Nch open-drain output.
#3	N.C.	-	Do not connect
#4	GND	-	Ground connection.
#5	Output	0	Clock output connection.
#6	SCL	I	I <sup>2</sup> C-BUS serial interface clock input connection.
#7	SDA	I/O	I <sup>2</sup> C-BUS serial interface data input/output connection.
#8	V <sub>cc</sub>	-	Supply Voltage