

RENESAS TECHNICAL UPDATE

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Product Category	MPU/MCU		Document No.	TN-RA*-A0043A/E	Rev.	1.00
Title	RA6M1 Group, RA6M2 Group, RA6M3 Group, RA6T1 Group, enhancement of HOCO accuracy with FLL		Information Category	Technical Notification		
Applicable Product	RA6M1 Group RA6M2 Group RA6M3 Group RA6T1 Group	Lot No.	Reference Document	RA6M1 Group User's Manual Hardware Rev.1.00 RA6M2 Group User's Manual Hardware Rev.1.10 RA6M2 Group User's Manual Hardware Rev.1.10 RA6T1 Group User's Manual Hardware Rev.1.00		
		All				

HOCO accuracy with FLL in Electrical Characteristics is enhanced.

[before]

Electrical Characteristics

AC Characteristics

Clock Timing

Table Clock timing except for sub-clock oscillator

Parameter	Symbol	Min	Typ	Max	Unit	Test conditions	
HOCO clock oscillator oscillation frequency	Without FLL	f_{HOCO16}	15.78	16	16.22	MHz	$-20 \leq T_a \leq 105^\circ\text{C}$
		f_{HOCO18}	17.75	18	18.25		
		f_{HOCO20}	19.72	20	20.28		
		f_{HOCO16}	15.71	16	16.29		$-40 \leq T_a \leq -20^\circ\text{C}$
		f_{HOCO18}	17.68	18	18.32		
		f_{HOCO20}	19.64	20	20.36		
	With FLL	f_{HOCO16}	15.955	16	16.045	-	$-40 \leq T_a \leq 105^\circ\text{C}$ Sub-clock frequency accuracy is ± 50 ppm.
		f_{HOCO18}	17.949	18	18.051		
		f_{HOCO20}	19.944	20	20.056		

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Table Clock timing except for sub-clock oscillator

Parameter	Symbol	Min	Typ	Max	Unit	Test conditions	
HOCO clock oscillator oscillation frequency	Without FLL	f _{HOCO16}	15.78	16	16.22	MHz	-20 ≤ Ta ≤ 105°C
		f _{HOCO18}	17.75	18	18.25		
		f _{HOCO20}	19.72	20	20.28		
		f _{HOCO16}	15.71	16	16.29		-40 ≤ Ta ≤ -20°C
		f _{HOCO18}	17.68	18	18.32		
		f _{HOCO20}	19.64	20	20.36		
	With FLL	f _{HOCO16}	15.960	16	16.040	MHz	-40 ≤ Ta ≤ 105°C Sub-clock frequency accuracy is ±50 ppm.
		f _{HOCO18}	17.955	18	18.045		
		f _{HOCO20}	19.950	20	20.050		