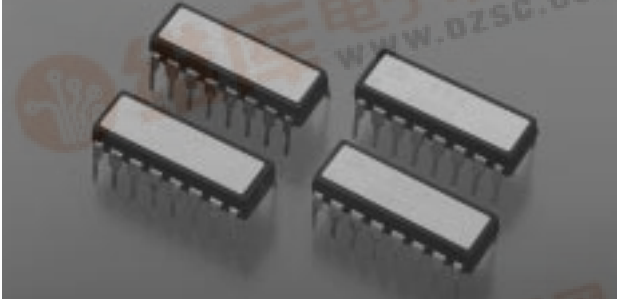


Crystal Oscillators - Programmable - Seiko Epson

SPG Series



Features

- Capable of selecting 57 varieties of frequency output
- Use of CMOS IC enables low current consumption
- Easy-to-mount DIP 16 pin type
- Most types held ex-stock

Specifications

Item	Symbol	Specifications	Remarks
Model name		8640AN 8640BN 8640CN 8650A 8650B 8650C 8650D 8650E 8651A 8651B 8651E	For output frequency, refer to the table on the next page
Oscillation source frequency	fo	600kHz 1MHz 769kHz 60kHz 100kHz 96kHz 153.6kHz 32.768kHz 60kHz 100kHz 32.768kHz	
Power source	Max. supply voltage	V _{DD} -GND	-0/3V ~ +7.0V
voltage	Operating voltage	V _{DD}	5.0V ± 0.5V
Temperature range	Storage temp.	T _{STG}	-55°C ~ +125°C
	Operating temp.	T _{OPR}	-10°C ~ +70°C
Soldering condition (lead part)	T _{SOL}		Under 260°C within 10 sec.
Frequency tolerance	Δf/f	±100ppm	±50ppm ±5ppm (1*)
Frequency/temp. characteristics			+10/-120ppm
Frequency Voltage characteristics		±20ppm ±10ppm ±20ppm	±10ppm ±5ppm
Aging	fa		±5ppm/year max. ±3ppm/year max
Current consumption	I _{OP}	1.0mA 2.0mA 1.5mA	0.5mA
			Max. No load condition

(*1) Frequency tolerance of 8651 system shows the value guaranteed at the time of shipment

Electrical Characteristics V_{DD}=5V±0.5V, T_a=-10 ~ 70°C CL≤15pF

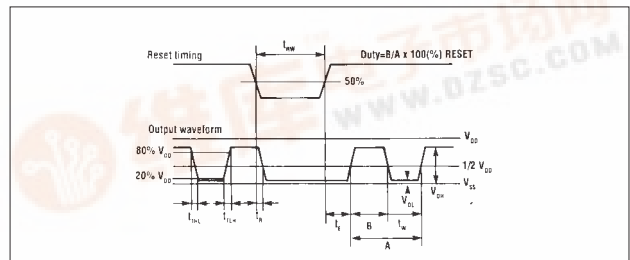
Item	Symbol	Min.	Typ.	Max.	Unit	Remarks
L input voltage	V _{IL}	0		0.8	V	
H input voltage	V _{IH}	V _{DD} -1.0		V _{DD}		
L input current (Reset)	I _{RL}	-30		-5	μA	Reset=V _{SS}
H input current (Reset)	I _{RH}			0.5	μA	Reset=V _{DD}
L input current (input terminal except for Reset)	I _{IL}	-0.5			μA	
H input current (input terminal except for Reset)	I _{IH}	5		30	μA	
L output voltage	V _{OL}			0.4	V	I _{OL} =1.6mA
H output voltage	V _{OH}	V _{DD} -1.0			V	I _{OH} =40μA
L output current	I _{OL}	1.6			mA	V _{OL} =0.4V
H output current	I _{OH}			-40	μA	V _{OH} =V _{DD} -1.0V
Output rise time	t _{TLH}		30	60	nS	
Output fall time	t _{THL}		25	50	nS	
Duty		40		60	%	Except in the case of 1/3 and 1/5
Min. reset pulse width	t _{RW}	1.0			μS	
Reset delay time	t _R			1.0	μS	
Reset release synchronous error	t _E	t _v -1/2 to (*1) t _v (*2)				
External signal input frequency	F _{IN}			1M	Hz	8640N only
External signal input plus width	t _{IN}	0.5			μS	8640N only
Oscillation startup time	t _{OSC}	0.2	1		sec.	(*3)

(*1) to-oscillation source cycle. (*2) tw=1/2 cycle of preset frequency
 (*3) for more than 1ms until V_{DD}=0.4.5V. Time at 4.5V is to be zero

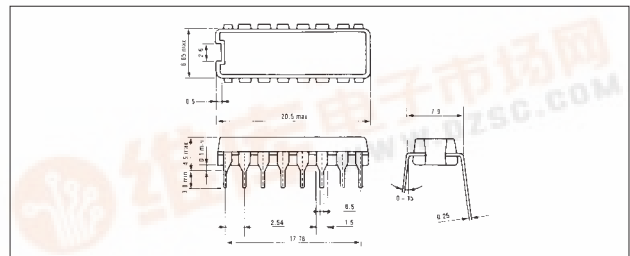
Divider IC (without quartz crystal)

Item	Symbol	Specifications	Remarks
Model name		8650 ?	
Input clock frequency		1MHz MAX	
Current consumption	I _{OP}	about 2mA	No load condition

Reset Timing



Dimensions (mm)



Block Diagram

