Crystal Clock Oscillator

NDK Crystal Bridge to the Future

2765E Series   EMI Noise-reducing Type

■ Model name

2765E Overall frequency tolerance of ±100 x 10⁻⁶.

■ Application

● For compact mobile information equipment, such as PDA and notebook PC

■ Features

● With a spread spectrum function installed, this crystal oscillator effectively reduces EMI noise.
● Down-spreading and center-spreading.
● With a standby function installed, power consumption is reduced.

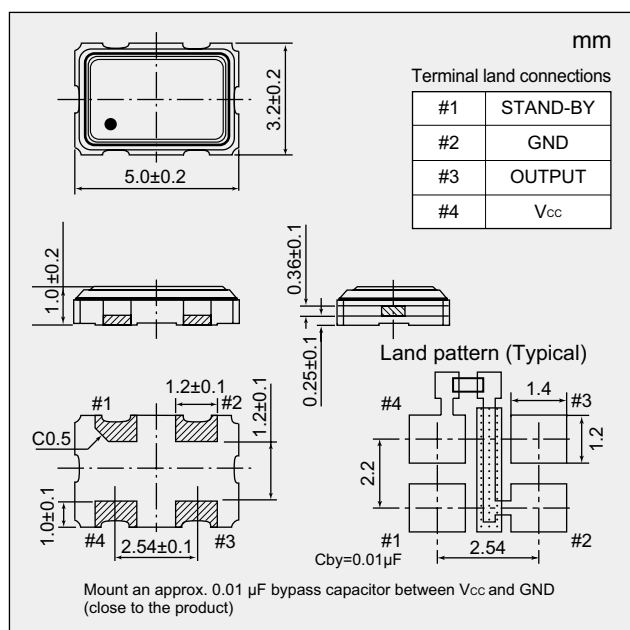Pb Free

RoHS Compliant
Directive 2011/65/EU

Absolute maximum rating
Supply voltage (V_{CC}) -0.5 to +7.0 V
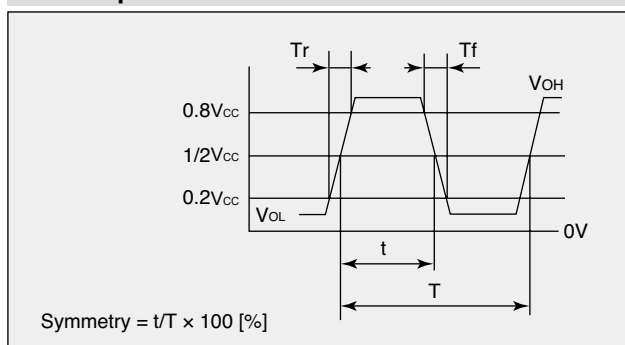Storage temperature range -55 to +125 °C

■ Specifications

Item	Model		2765E
Output level			CMOS
Nominal frequency range [*1]		(MHz)	$20 \leq F \leq 80$
Operating temperature range [*2]		(°C)	−20 to +70
Overall frequency tolerance		(×10⁻⁶)	±100
Supply voltage [V_{CC}]		(V)	+3.3±0.3
Current consumption (+3.3 V, 25 °C) max	During operation	(mA)	30
	During standby	(μA)	30
V_{OL} max/V_{OH} min		(V)	0.2 V_{CC}/0.8 V_{CC}
Tr max/Tf max		(ns)	5/5 (0.2 V_{CC} to 0.8 V_{CC})
Symmetry min. to max.		(%)	40 to 60 (at 1/2 V_{CC})
Load (C_L) max		(pF)	15
Start-up time max		(ms)	10
Standby function			Available (Three-state)
Number for specifying an order			NSA3393A

*1: If you require a product with a frequency not given above, please contact us.   *2: If you require a product with an operating temperature range not given above, please contact us.

■ Dimensions

mm

Terminal land connections

#1	STAND-BY
#2	GND
#3	OUTPUT
#4	V_{CC}

5.0±0.2
3.2±0.2
1.0±0.2
0.36±0.1
0.25±0.1

Land pattern (Typical)

C0.5
1.2±0.1
1.2±0.1
#1 #2
1.0±0.1
#4 2.54±0.1 #3

#4 1.4 #3
2.2 1.2
#1 2.54 #2
Cby=0.01μF

Mount an approx. 0.01 μF bypass capacitor between V_{CC} and GND (close to the product)

■ Output Waveform <CMOS>

Tr   Tf
V_{OH}
0.8V_{CC}
1/2V_{CC}
0.2V_{CC}
V_{OL}
0V
t
T

Symmetry = t/T × 100 [%]

■ Spread Spectrum Characteristics

Spreading Type	Spreading Ratio
Center spreading	±1.0 %

■ Standby Function

#1 Input	#3 Output
Level H (0.7 $V_{CC} \leq V_{IH} \leq V_{CC}$) or OPEN is selected.	Oscillation output ON
Level L ($V_{IL} \leq 0.3 V_{CC}$) is selected.	High impedance

■ How to Specify an Order

When ordering our products, specify them with an "Ordering Code" that consists of the following:

Model name – Frequency (up to 9 digits) M – Number for specifying an order

Example : When ordering a product with model name: 2765E, frequency: 20 MHz, overall frequency tolerance: ±100 x 10⁻⁶, and supply voltage: 3.3 V
Ordering Code: 2765E – 20.000000M – NSA3393A

If you have any queries concerning our standard frequencies and numbers for specifying orders, please contact our sales representatives or visit our homepage (http://www.ndk.com/).

NIHON DEMPA KOGYO CO., LTD.

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