



3,2x5mm SMT CRYSTAL-OSCILLATORS GMQA / GMSA / GMWA

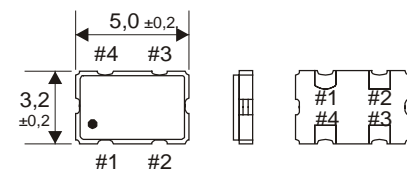


FREQUENZSTABILITÄT FREQUENCY STABILITY		BETRIEBSBEDINGUNGEN OPERATING CONDITIONS		
Modell <i>Model</i>				
GM1QA/GM1SA/GM1WA	±100ppm/-10~+70°C	Betriebstemperatur <i>operating temp.</i>		-10~+70°C, -40~+85°C
GM2QA/GM2SA/GM2WA	±50ppm/-10~+70°C	Lagertemperatur <i>storage temperature</i>		-55~+125°C
GM3QA/GM3SA/GM3WA	±25ppm/-10~+70°C			
GM1QRA/GM1SRA/GM1WRA	±100ppm/-40~+85°C			
GM2QRA/GM2SRA/GM2WRA	±50ppm/-40~+85°C			
		Betriebsspannung V_{DD} <i>supply voltage</i>	GMQA GMSA GMWA	+2,8V ±5% +2,5V ±5% +1,8V ±5%

Elektrische Daten <i>electrical characteristics</i>					
$T_a = 25^\circ\text{C}$, $V_{DD} = 2,8\text{ V or } 2,5\text{ V or } 1,8\text{ V}$, $C_L = 15\text{ pF}$					
Parameter <i>parameter</i>	Bedingungen <i>conditions</i>	Frequenzbereich <i>freq. range (MHz)</i>	GMQA	GMSA	GMWA
max. Stromaufnahme <i>max. input current</i>	I_{DD}	1,800 ~ 32,000 32,000 ⁺ ~ 32,100 32,100 ⁺ ~ 50,000	12 mA 20 mA 20 mA	10 mA 12 mA 12 mA	7 mA 7 mA 15 mA
Frequenzstabilität <i>frequency stability</i>	über alles *) all conditions *)	1,800 ~ 50,000	±25 ppm ~ ±100 ppm		
Tastverhältnis <i>symmetry</i>	@50% V_{DD} @1,4 V	1,800 ~ 50,000	45/55 %		40/60 %
Ausgangsspannung <i>output voltage</i>	V_{OL} V_{OH}	"0" level "1" level	1,800 ~ 50,000	0,28 V max. 2,52 V min.	0,25 V max. 2,25 V min. 0,36 V max. 1,44 V min.
Anstiegszeit max. <i>rise time max.</i>	T_R	0,5 - 4,5 V 0,4 - 2,4 V	1,800 ~ 50,000 1,800. ~ 32,100 32,100 ⁺ ~ 50,000	5 ns - -	- 5,0 ns 3,5 ns
Abfallzeit max. <i>fall time max.</i>	T_F	4,5 - 0,5 V 2,4 - 0,4 V	1,800 ~ 50,000 1,800. ~ 32,100 32,100 ⁺ ~ 50,000	5 ns - -	- 5,0 ns 3,5 ns
Ausgangsstrom min. <i>output current min.</i>	I_{OL} I_{OH}	"0" level "1" level	1,800 ~ 50,000	4 mA 4 mA	2 mA 2 mA
standby current max.	$V_{IL} \leq 30\% V_{DD}$	1,800. ~ 32,100 32,100 ⁺ ~ 50,000	10 µA 10 µA	10 µA -	
max. Belastbarkeit <i>max. driving ability</i>	CMOS	1,800 ~ 50,000	15 pF		
Startzeit max. <i>start-up time max.</i>	0,0 ~ V_{DD}	1,800 ~ 50,000	10 ms		

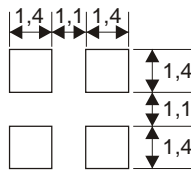
*) Anmerkung: inkl. Abgleichtoleranz, Temperaturgang, Spannungs- und Laständerung, Alterung, Schock und Vibration
note: incl. frequency and temperature tolerance, supply voltage and load change, aging, shock and vibration

Abmessungen in mm
dimensions in mm



0,95
±0,1
lead-free/RoHS-conformal

empfohlenes Layout
recommended solder pad layout



Anschlußbelegung
pin connections

#1	E/D
#2	GND
#3	OUT
#4	V_{DD}

Funktionstabelle
enable/disable function

INH (pin #1)	output (pin #3)
open	active
"1" ($V_{IH} \geq 70\% V_{DD}$)	active
"0" ($V_{IL} \leq 30\% V_{DD}$)	high Z