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3,2x5mm CRYSTAL-OSCILLATORS very low power
GMPB / GMQB / GMSB

FREQUENZSTABILITÄT *FREQUENCY STABILITY*	
Modell *Model*	
GM1PB/GM1QB/GM1SB	±100ppm/-10~+70°C
GM2PB/GM2QB/GM2SB	±50ppm/-10~+70°C
GM3PB/GM3QB/GM3SB	±25ppm/-10~+70°C
GM1PBR/GM1QBR/GM1SBR	±100ppm/-40~+85°C
GM2PBR/GM2QBR/GM2SBR	±50ppm/-40~+85°C

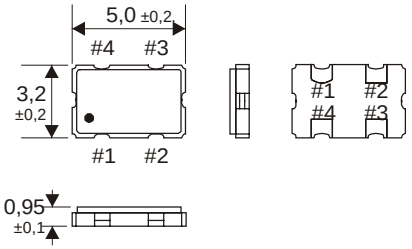
BETRIEBSBEDINGUNGEN *OPERATING CONDITIONS*		
Betriebstemperatur *operating temp.*	-10~+70°C, -40~+85°C	
Lagertemperatur *storage temperature*	-55~+125°C	
Betriebsspannung V_{DD} *supply voltage*	GMPB GMQB GMSB	+3,3V ±5% +2,8V ±5% +2,5V ±5%

Elektrische Daten *electrical characteristics*
T_a = 25°C, V_{DD} = 3,3 V or 2,8 V or 2,5 V, C_L = 15 pF

Parameter ***parameter***		**Bedingungen** ***conditions***	**Frequenzbereich** ***frequ. range (MHz)***	**GMSB**	**GMQB**	**GMPB**
max. Stromaufnahme *max. input current*	I_{DD}		1,800 ~ 32,000 32,000+ ~ 50,000	1,5 mA 2,5 mA	2,0 mA 3,0 mA	2,5 mA 3,5 mA
Frequenzstabilität *frequency stability*		über alles *) all conditions *)	1,800 ~ 50,000	±25 ppm ~ ±100 ppm		
Tastverhältnis *symmetry*		@50% V_{DD} @1,4 V		45/55 %		
Ausgangsspannung *output voltage*	V_{OL} V_{OH}	"0" level "1" level		10% V_{DD} max. 90% V_{DD} min.		
Anstiegszeit max. *rise time max.*	T_R	10% - 90% V_{DD}		12 ns		
Abfallzeit max. *fall time max.*	T_F	90% - 10% V_{DD}		12 ns		
Standbystrom max. *standby current max.*		$V_{IL} \leq$ 30% V_{DD}		1 µA		
max. Belastbarkeit *max. driving ability*		CMOS		15 pF		
Startzeit max. *start-up time max.*		0,0 V ~ V_{DD}		5 ms		

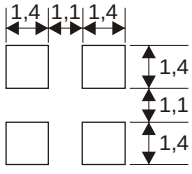
*) Anmerkung: inkl. Abgleichtoleranz, Temperaturgang, Spannungs- und Laständerung, Alterung, Schock und Vibration
note: incl. frequency and temperature tolerance, supply voltage and load change, aging, shock and vibration
±25ppm/-40/+85°C nur inkl. Abgleichtoleranz, Temperaturgang, Spannungs- und Laständerung
±25ppm/-40/+85°C only incl. frequency and temperature tolerance, supply voltage and load change

Abmessungen in mm
dimensions in mm



lead-free/RoHS-conformal

empfohlenes Layout
recommended solder pad layout



RoHS 2002/95/EC

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