



3,2x5mm SMT CRYSTAL-OSCILLATORS GMPA / GMHA / GMLA / GMTA

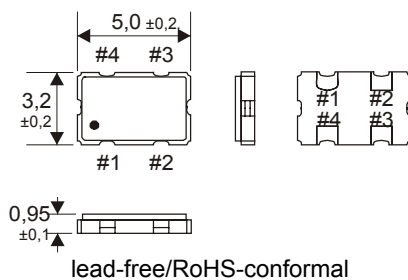


FREQUENZSTABILITÄT FREQUENCY STABILITY		BETRIEBSBEDINGUNGEN OPERATING CONDITIONS		
Modell <i>Model</i>				
GM1PA/GM1LA/GM1HA/GM1TA	±100ppm/-10~+70°C	Betriebstemperatur <i>operating temp.</i>	-10~+70°C, -40~+85°C	
GM2PA/GM2LA/GM2HA/GM2TA	±50ppm/-10~+70°C	Lagertemperatur <i>storage temperature</i>	-55~+125°C	
GM3PA/GM3LA/GM3HA/GM3TA	±25ppm/-10~+70°C	Betriebsspannung V_{DD} <i>supply voltage</i>	GMPA	+3,3V ±0,3V
GM1PAR/GM1LAR/GM1HAR/GM1TAR	±100ppm/-40~+85°C		GMLA, GMHA, GMTA	+5,0V ±0,5V
GM2PAR/GM2LAR/GM2HAR/GM2TAR	±50ppm/-40~+85°C			

Elektrische Daten <i>electrical characteristics</i>							
T _a = 25°C, V _{DD} = 3,3 V or 5,0 V, C _L = 15 pF (GMPA, GMLA), C _L =50 pF (GMHA), R _L =400 Ω (GMTA)							
Parameter <i>parameter</i>	Bedingungen <i>conditions</i>	Frequenzbereich <i>frequ. range (MHz)</i>	GMPA	GMLA	GMHA	GMTA	
max. Stromaufnahme <i>max. input current</i>	I _{DD}	1,800 ~ 50,000	20 mA	35 mA	45 mA	26 mA	
Frequenzstabilität <i>frequency stability</i>	über alles *) all conditions *)		±25 ppm ~ ±100 ppm				
Tastverhältnis <i>symmetry</i>	@50% V _{DD} @1,4 V		40/60 %				
Ausgangsspannung <i>output voltage</i>	"0" level "1" level		10% V _{DD} max. 90% V _{DD} min.	0,5 V max. 4,5 V min.		0,4 V max. 2,4 V min.	
Anstiegszeit max. <i>rise time max.</i>	T _R 10% - 90% V _{DD} 0,5 - 4,5 V 0,4 - 2,4 V		7 ns - -	- 10 ns -	- 7 ns -	- - 5,0 ns	
Abfallzeit max. <i>fall time max.</i>	T _F 90% - 10% V _{DD} 4,5 - 0,5 V 2,4 - 0,4 V		7 ns - -	- 10 ns -	- 7 ns -	- - 5,0 ns	
Ausgangsstrom min. <i>output current min.</i>	I _{OL} I _{OH} "0" level "1" level		2 mA 2 mA	4 mA 4 mA	16 mA 16 mA	16 mA 4 mA	
Standbystrom max. <i>standby current max.</i>	V _{IL} ≤ 30% V _{DD}		10 µA				
max. Belastbarkeit <i>max. driving ability</i>	TTL HCMOS		10 LS-TTL		10 N-TTL		
Startzeit max. <i>start-up time max.</i>	0,0 ~ V _{DD}		15 pF				
		15 pF		50 pF	-		
		10 ms					

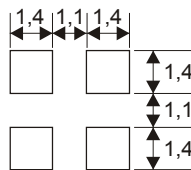
*) Anmerkung: inkl. Abgleichtoleranz, Temperaturgang, Spannungs- und Laständerung, Alterung, Schock und Vibration
note: incl. frequency and temperature tolerance, supply voltage and load change, aging, shock and vibration

Abmessungen in mm
dimensions in mm



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

GMLA/HA/TA	GMPA	
control (pin #1)	control (pin #1)	output (pin #3)
open	open	active
"1" (V _{IH} ≥ 2,2V)	"1" (V _{IH} ≥ 70% V _{DD})	active
"1" (V _{IL} ≤ 0,8V)	"0" (V _{IL} ≤ 30% V _{DD})	high Z