

Speech Synthesis LSI with Automotive grade (LAPIS Technology products)

Internal Memory Type																	
Part No.	Operating Voltage (V)	Operating Frequency (MHz)	Oscillator	Operating Temperature (°C)	ROM Capacity (bit)	Number of Phrases	Maximum Playback Time	CPU I/F	SP Amplifier Output (W)/ Class	Number of Mixing (Internal) (ch)	Others	Package	Automotive Grade	AEC-Q100 Support			
ML22Q532	2.7 to 3.6 or 3.3 to 5.5	4.096 or 4.000	Built-in External	-40 to +105	Flash 2M	4096	98sec*1	I ² C/ Clock synchronization Serial	1.0/ AB-class	4	Rewrite Flash from MCU*6/ Serial Audio Interface/ Failure detection	P-TQFP48-0707-0.50	YES	✓			
ML22Q533					Flash 4M		201sec*1					P-TQFP48-0707-0.50	YES	✓			
ML22Q535					Flash 16M		14min*1					P-TQFP48-0707-0.50	YES	✓			
ML22572	2.7 to 5.5	4.096	External		Mask 2M	1024	98sec*1	Clock synchronization Serial			1.0/ D-class	1	Disconnection and short circuit detection function	P-TSSOP20-0225-0.65	YES	✓	
ML22573					Mask 4M		202sec*1							P-TSSOP20-0225-0.65	YES	✓	
ML22Q573					Flash 4M									202sec*1	P-TSSOP20-0225-0.65	YES	✓
ML22Q553							Speaker terminal and short circuit detection function								P-TSSOP20-0225-0.65	YES	✓
New ML22Q274	2.0 to 5.5	4.096	Built-in		-40 to +105	Flash 692K	30	28sec*2			Clock synchronization Serial	1.0/ D-class	1	Disconnection and short circuit detection function	P-TSSOP20-0225-0.65	YES	✓
New ML22Q284											Stand-alone				P-TSSOP20-0225-0.65	YES	✓
New ML22Q294											I ² C				P-TSSOP20-0225-0.65	YES	✓
New ML22Q374P				Clock synchronization Serial					P-TSSOP20-0225-0.65	YES	✓						
New ML22Q394P				I ² C					P-TSSOP20-0225-0.65	YES	✓						
External Memory Type																	
ML22530	2.7 to 3.6 or 3.3 to 5.5	4.096 or 4.000	Built-in External	-40 to +105	External maximum 128M	4096	109min*1	I ² C/Clock synchronization serial	1.0/ AB-class	4	Rewrite Flash from MCU*6/Serial Audio Interface/Failure detection	P-TQFP48-0707-0.50	YES	✓			
ML22594	4.5 to 5.5	4.096	External		Mask 6M*4 External maximum 128M	1024*5 (Built-in 512/ External 512)	Built-in 304sec*1 External 109min*3	Clock synchronization Serial			Speaker terminal and short circuit detection function	P-TSSOP20-0225-0.65	YES	✓			

*1 Maximum playback time when the sampling frequency is 6.4kHz in HQ-ADPCM. *2 Maximum playback time when the sampling frequency is 6.4kHz in ADPCM2.
 *3 With an external memory module (Max. 128Mbit). Maximum playback time when the sampling frequency is 6.4kHz in HQ-ADPCM.
 *4 Mask's built-in ROM is 6Mbit and an external memory module (Max. 128Mbit) can be connected.
 *5 Total of mask's internal 512 phrases and external memory's 512 phrases.
 *6 While using it clock synchronization serial.

Speech Synthesis LSI with Long-time Playback (LAPIS Technology products)

Internal Flash Memory Type															
Part No.	Operating Voltage (V)	Operating Frequency (MHz)	Oscillator	Operating Temperature (°C)	ROM Capacity (bit)	Number of Phrases	Maximum*1 Playback Time	CPU I/F	SP Amplifier Output (W)/ Class	Number of Mixing (Internal) (ch)	Others	Package	Automotive Grade		
ML22Q623	2.7 to 3.6 or 3.3 to 5.5	4.096 or 4.000	Built-in External	-40 to +70	Flash 4M	4,096*2	192sec*3	Clock synchronization serial	1.0/ AB-class, D-class	4	Rewrite Flash from MCU/ Failure detection	P-TQFP32-0707-0.80	-		
ML22Q624					Flash 8M		397sec*3					P-TQFP32-0707-0.80	-		
ML22Q625					Flash 16M		13min*3					P-TQFP32-0707-0.80	-		
ML22Q626					Flash 32M		27min*3					P-TQFP32-0707-0.80	-		
ML22Q663					Flash 4M		192sec*3	I ² C			Failure detection	P-TQFP32-0707-0.80	-		
ML22Q664												Flash 8M	397sec*3	P-TQFP32-0707-0.80	-
ML22Q665												Flash 16M	13min*3	P-TQFP32-0707-0.80	-
ML22Q666												Flash 32M	27min*3	P-TQFP32-0707-0.80	-
Internal P2ROM™ Memory Type															
ML22723	2.7 to 3.6 or 4.5 to 5.5	4.096	External	-40 to +85	P2ROM™ 4M	4,096*2	161sec*1	Clock synchronous serial	0.7/ AB-class	1	Speech-speed and pitch conversion	P-SSOP30-56-0.65	-		
ML22724					P2ROM™ 8M		325sec*1					P-SSOP30-56-0.65	-		
ML22725					P2ROM™ 16M		11min*1					P-SSOP30-56-0.65	-		
ML22763					P2ROM™ 4M		161sec*1	I ² C				P-SSOP30-56-0.65	-		
ML22764					P2ROM™ 8M		325sec*1					P-SSOP30-56-0.65	-		
ML22765					P2ROM™ 16M		11min*1					P-SSOP30-56-0.65	-		

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 *1 Maximum playback time when the sampling frequency is 6.4kHz in ADPCM2. *2 1024 phrases (1 bank)×4 banks.
 *3 Maximum playback time when the sampling frequency is 6.4kHz in HQ-ADPCM.

Speech Synthesis LSI with Short-time Playback (LAPIS Technology products)

Internal D-class Speaker Amplifier Type														
Part No.	Operating Voltage (V)	Operating Frequency (MHz)	Oscillator	Operating Temperature (°C)	ROM Capacity (bit)	Number of Phrases	Maximum Playback Time	CPU I/F	SP Amplifier Output (W)/ Class	Number of Mixing (Internal) (ch)	Others	Package	Automotive Grade	AEC-Q100 support
☆ML22Q234	2.0 to 5.5	8.192	Built-in	-40 to +85	(TBD)	62	(TBD)	Clock synchronization Serial	1.0/ D-class	1	Disconnection and short circuit detection function	P-TSSOP20-0225-0.65	-	-
☆ML22Q244								Stand-alone						
☆ML22Q254								I ² C						
Internal AB-class Speaker Amplifier Type														
ML22562	2.7 to 5.5	4.096	External	-40 to +85	Mask 2M	1024	99sec*1	Clock synchronization Serial	1.0/ AB-class	4	Fail safe	P-SSOP30-56-0.65	-	-
ML22563					Mask 4M		202sec*1							
ML22Q563					Flash 4M									

*1 Maximum playback time when the sampling frequency is 6.4kHz in HQ-ADPCM.

☆: Under Development

Speech Synthesis LSI with External Memory (LAPIS Technology products)

Internal AB-class/D-class Speaker Amplifier Type														
Part No.	Operating Voltage (V)	Operating Frequency (MHz)	Oscillator	Operating Temperature (°C)	ROM Capacity (bit)	Number of Phrases	Maximum Playback Time	CPU I/F	SP Amplifier Output (W)/ Class	Number of Mixing (Internal) (ch)	Others	Package	Automotive Grade	Industrial Grade
ML22620	2.7 to 3.6 or 3.3 to 5.5	4.096 or 4.000	Built-in External	-40 to +85	External maximum 128M	4096	109min*2	Clock synchronization Serial	1.0/ AB-class, D-class	4	Rewrite Flash from MCU/Failure detection	P-TQFP32-0707-0.80	-	-
ML22660								I ² C			Failure detection			
Internal AB-class Speaker Amplifier Type														
ML22420	2.7 to 5.5	4.096	External	-40 to +85	External maximum 128M	1024	87min*1	Clock synchronization Serial	0.7/ AB-class	4	-	P-SSOP30-56-0.65	-	-
ML22460								I ² C						

*1 Maximum playback time when the sampling frequency is 6.4kHz in ADPCM2.

*2 With an external memory module (Max 128Mbit). Maximum playback time when the sampling frequency is 6.4kHz in HQ-ADPCM.