

Speech Synthesis LSI

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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 standard			
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	99sec*1	I ² C/ Clock synchronous serial	1.0/ AB-class	4	Rewrite Flash from MCU*/Serial Audio Interface/Failure detection	P-TQFP48 -0707-0.50-Z6K6-MC	YES	✓			
ML22Q533					Flash 4M		202sec*1					P-TQFP48 -0707-0.50-Z6K6-MC	YES	✓			
ML22Q535					Flash 16M		14min*1					P-TQFP48 -0707-0.50-Z6K6-MC	YES	-			
ML22572	2.7 to 5.5	4.096	External		Mask 2M	1024	99sec*1	Clock synchronous serial			Fail safe	P-SSOP30 -56-0.65-Z6K6-MC	YES	-			
ML22573					Mask 4M		202sec*1					P-SSOP30 -56-0.65-Z6K6-MC	YES	-			
ML22Q573					Flash 4M		202sec*1					P-SSOP30 -56-0.65-Z6K6-MC	YES	-			
ML22Q553													Speaker terminal Short circuit detection function	P-SSOP30 -56-0.65-Z6K6	YES	-	
New ML22Q274							30/62				Clock synchronous serial	1.0/ D-class	1	Disconnection and short circuit detection function	P-TSSOP20 -0225-0.65-TK6	YES	✓
New ML22Q284						30		Stand-alone			P-TSSOP20 -0225-0.65-TK6				YES	✓	
New ML22Q294	2.0 to 5.5	4.096	Built-in			Flash 692K*7	30/62	28sec*2			I ² C				P-TSSOP20 -0225-0.65-TK6	YES	✓
ML22Q374P						30		Clock synchronous serial	P-TSSOP20 -0225-0.65-TK6	YES	✓						
ML22Q394P								I ² C	P-TSSOP20 -0225-0.65-TK6	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 synchronous serial	1.0/ AB-class	4	Rewrite Flash from MCU*/Serial Audio Interface/Failure detection	P-TQFP48 -0707-0.50-Z6K6	YES	✓
ML22594	4.5 to 5.5	4.096	External		Mask 6M** External maximum 128M	1024*5 (Built-in 512/ External 512)	Built-in 304sec*1 External 109min*5	Clock synchronous serial			Speaker terminal and short circuit detection function	P-SSOP30 -56-0.65-Z6K6	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.
 *7 When 30 phrases are selected. When 62 phrases are selected, 688 Kbit.

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	Industrial 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	202sec*3	Clock synchronous serial	1.0/ AB-class, D-class	4	Rewrite Flash from MCU/ Failure detection	P-TQFP32 -0707-0.80-Z6K6-MC	-	✓
ML22Q624					Flash 8M		406sec*3					P-TQFP32 -0707-0.80-Z6K6-MC	-	✓
ML22Q625					Flash 16M		14min*3					P-TQFP32 -0707-0.80-Z6K6-MC	-	✓
ML22Q626					Flash 32M		27min*3					P-TQFP32 -0707-0.80-Z6K6-MC	-	✓
ML22Q663					Flash 4M		202sec*3	I ² C			Failure detection	P-TQFP32 -0707-0.80-Z6K6-MC	-	✓
ML22Q664					Flash 8M		406sec*3					P-TQFP32 -0707-0.80-Z6K6-MC	-	✓
ML22Q665					Flash 16M		14min*3					P-TQFP32 -0707-0.80-Z6K6-MC	-	✓
ML22Q666					Flash 32M		27min*3					P-TQFP32 -0707-0.80-Z6K6-MC	-	✓

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-ZK6-MC	-	✓
ML22724					P2ROM™ 8M		325sec*1					P-SSOP30 -56-0.65-ZK6-MC	-	✓
ML22725					P2ROM™ 16M		11min*1					P-SSOP30 -56-0.65-ZK6-MC	-	✓
ML22763					P2ROM™ 4M		161sec*1	I ² C				P-SSOP30 -56-0.65-ZK6-MC	-	✓
ML22764					P2ROM™ 8M		325sec*1					P-SSOP30 -56-0.65-ZK6-MC	-	✓
ML22765					P2ROM™ 16M		11min*1					P-SSOP30 -56-0.65-ZK6-MC	-	✓

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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	Industrial Grade
New ML22Q234	2.0 to 5.5	8.192	Built-in	-40 to +85	676K*2	30/62	34sec*1	Clock synchronous serial	1.0/ D-class	1	Disconnection and short circuit detection function	P-TSSOP20 -0225-0.65-TK6	-	✓
New ML22Q244								Stand-alone						
New 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	Clock synchronous serial	1.0/ AB-class	4	Fail safe	P-SSOP30 -56-0.65-Z6K8-MC	-	✓
ML22563					Mask 4M		202sec*1							
ML22Q563					Flash 4M									

*1 Maximum playback time when the sampling frequency is 6.4kHz in HQ-ADPCM.
 *2 When 30 phrases are selected. When 62 phrases are selected, 676 Kbit

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 Phrase	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 synchronous serial	1.0/ AB-class, D-class	4	Rewrite Flash from MCU/Failure detection	P-TQFP32 -0707-0.80-Z6K6	-	✓
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 synchronous serial	0.7/ AB-class	4	-	P-SSOP30 -56-0.65-ZK6	-	✓
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.