



Elan 8-bit MCU Selection Guide

MCU Line

Flash GPIO Type with EEPROM (Industrial Grade)

Part No.	Memory Type	Operating Voltage (V)	Oscillation Mode	PROM (Bit)	SRAM (Byte)	I/O (Pins)	Interrupt (Ex/In)	Timer Modules	PWM (Bit*Ch)	Compar. (OP amp)	IRC	EEPROM	Oper. Temp. (°C)	Package Type	Remark			
EM78F651N	Flash	2.2-5.5 (2.4-5.5)	IRC, ERC, HXT: XT: LXT1: LXT2:	1K	80	7/11	4(2/2)	8*1	-	-	Yes	128	0-70 (-40-85)	10 SSOP	LVD/LVR			
						13								14 DIP/SOP				
						15								16 DIP/SOP				
						17								18 DIP/SOP				
EM78F641N*				2K	80	8/14	5(3/2)	8*2	8*1(TC3)	1 (0)	Yes	128		10 MSOP	LVR			
EM78F642N				2K	80	16/18	7(3/4)	8*3, 16*1	8*1(TC3)	1 (0)	Yes	128		16 DIP/SOP	TC3 has PWM function			
EM78F644N				4K	144	21/25	13(3/10)	8*3, 10*2, 16*1	8*1(TC3) 10*2	1 (0)	Yes	256		18 DIP/SOP	LVR, TC1 has Capture function			
				4K	144	21/25	13(3/10)	8*3, 10*2, 16*1	8*1(TC3) 10*2	1 (0)	Yes	256		20 DIP/SOP/SSOP	TC3 has PWM function			
EM78F648N*				8K	304	37/40	18(4/14)	8*3, 10*2, 16*1	8*1(TC3) 10*2	2 (0)	Yes	256		24/28 SKDIP/SOP	LVR, SPI/UART TC1 has capture function TC3 has PWM function			
EM78F648N*				40/44 DIP/QFP														LVR/LVD, I2C/SPI/UART TBRD, TC1 Capture, TC3 PWM

Flash ADC Type with EEPROM (Industrial Grade)

Part No.	Memory Type	Operating Voltage (V)	Oscillation Mode	PROM (Bit)	SRAM (Byte)	I/O (Pins)	Interrupt (Ex/In)	Timer Modules	PWM (Bit*Ch)	Compar. (OP amp)	ADC (Bit*Ch)	EEPROM	Oper. Temp. (°C)	Package Type	Remark	
EM78F652N	Flash	2.2-5.5 (2.4-5.5)	IRC, ERC, HXT: XT: LXT1: LXT2:	2K	144	13	8(4/4)	8*2, 16*1	8*1(TC3)	1 (2 order)	-	12*3	256	0-70 (-40-85)	16 DIP/SOP	2 Order OPamp PGA , LVD/LVR SPI ,
						15						18 DIP/SOP				
						17						20 DIP/SOP				
EM78F661N*		1K		80	8/14	6(3/3)	8*2	8*1(TC3)	1 (0)	10*6	128	10 MSOP	LVR			
EM78F662N		2K		144	14/16/18	9(5/4)	8*2, 16*1	8*1	2 (2)	10*8	128	16 DIP/SOP	TC3 has PWM function			
EM78F664N		4K		144	21/25	14(3/11)	8*3, 10*2, 16*1	8*1(TC3), 10*2	1 (0)	10*8	256	16/18/20 DIP/SOP	LVR			
		4K		144	21/25	14(3/11)	8*3, 10*2, 16*1	8*1(TC3), 10*2	1 (0)	10*8	256	24/28 SKDIP/SOP 32 QFN	LVR, SPI/UART TC1 has Capture function TC3 has PWM function			
EM78F668N*		8K		304	37/40	19(4/15)	8*3, 10*2, 16*1	8*1(TC3) 10*2	2 (0)	12*8	256	40/44 DIP/QFP	LVR/LVD, I2C/SPI/UART TBRD, TC1 Capture, TC3 PWM			

40 MIPS Flash/OTP/Mask MCU Family

Part No.	Memory Type	Operating Voltage (V)	Oscillation Mode	PROM (Bit)	SRAM (Byte)	I/O (Pins)	Interrupt (Ex/In)	Timer Modules	PWM (Bit*Ch)	Compar. (OP amp)	ADC (Bit*Ch)	USB1.1	Oper. Temp. (°C)	Package Type	Remark
EM77F900	Flash	2.2-3.6	40MIPS	16K	1.3K	42	20(2/18)	8*1, 16*1	16*2	-	10*16	Yes	0-70	100 QFP	USB1.1 HUB, BB POR,Pin wakeup, SPI
EM77910	Mask		48 MIPS	8K	384	37	10(2/8)	8*1	16*2	-	8*12	Yes		64 LQFP	USB1.1 HUB POR,Pin wakeup
EM77930	Mask		48 MIPS	12K	1216	30	17(2/15)	8*1, 16*1	16*1	-	-	Yes		48 LQFP	USB1.1 , BB POR, Pin wakeup
EM77950	Mask		48 MIPS	12K	896	40	15(2/13)	8*1, 16*1	16*2	-	8*16	-		52 QFP/44 QFP	POR,SPI, Pin wakeup, BB
EM77P950	OTP		24 MIPS	12K	896	40	9(2/7)	8*1, 16*1	16*2	-	8*16	-		44 LQFP / 64 LQFP	POR,SPI, Pin wakeup, UART, I2C Slave



Elan 8-bit MCU Selection Guide

GPIO Type MCU Family (High EFT/ESD Level)																
Part No.	Memory Type	Operating Voltage (V)	Oscillation Mode	PROM (Bit)	SRAM (Byte)	I/O (Pins)	Interrupt (Ex/In)	Timer Modules	PWM (Bit*Ch)	Compar. (OP amp)	High Sink	IRC	Oper. Temp. (°C)	Package Type	Remark	
EM78P159N	OTP	2.1-5.5 (2.3-5.5)	IRC, ERC, HXT, LXT	1K	48	7	3(2/1)	8*1	-	-	-	Yes	0-70 (-40-85)	10 SSOP	IRC	
						11	3(2/1)	8*1	-	-	-	Yes		14 DIP/SOP		
						13	3(2/1)	8*1	-	-	-	Yes		16 SOP		
						15	3(2/1)	8*1	-	-	-	Yes		18 DIP/SOP 20 SSOP(2 kinds)		
EM78P163N	OTP	2.0-5.5 (2.2-5.5)	IRC, ERC, HXT1,HXT2, XT LXT1,LXT2	1K	48	12/14	5(3/2)	8*1	10*1	4ch	Yes	Yes		14/16 DIP/SOP	LVR 4-Ch Comparator TBRD	
EM78P164N	OTP			1K	48	12/14	5(3/2)	8*1	10*1	4ch	Yes	Yes		14/16 DIP/SOP	LVR 4-Ch Comparator TBRD 4-I/O pin with high voltage (12V) open-drain	
EM78P210N	OTP			2K	80	18	5(4/1)	8*1	-	1	12	Yes		20 DIP/SOP/SSOP	IRC	
EM78P220N	OTP	2K	80			22	5(4/1)	8*1	-	1	16	Yes		24 SKDIP/SOP/SSOP	12/16 high sink I/O	
				4K	144	22	5(4/1)	8*1	-	1	16	Yes		24 SKDIP/SOP/SSOP	IRC	
				4K	144	26	5(4/1)	8*1	-	1	16	Yes		28 SKDIP/SOP/SSOP	16 high sink I/O	
ADC Type MCU Family (High EFT/ESD Level)																
Part No.	Memory Type	Operating Voltage (V)	Oscillation Mode	PROM (Bit)	SRAM (Byte)	I/O (Pins)	Interrupt (Ex/In)	Timer Modules	PWM (Bit*Ch)	Compar. (OP amp)	ADC (Bit*Ch)	IRC	Oper. Temp. (°C)	Package Type	Remark	
EM78P342N	OTP	2.1-5.5 (2.3-5.5)	IRC,ERC, HXT1/HXT2 LXT1/LXT2	2K	80	12	10(3/7)	8*3, 16*1	9*1(TCCC)	-	12*7	Yes	0-70 (-40-85)	14 DIP/SOP	2/4 high sink I/O LVD/LVR TCCC has IR/PWM function	
				2K	80	14	11(4/7)	8*3, 16*1	9*1(TCCC)	1 (1)	12*7	Yes		16 SOP		
				2K	80	16	11(4/7)	8*3, 16*1	9*1(TCCC)	1 (1)	12*7	Yes		18 DIP/SOP		
				2K	80	18	11(4/7)	8*3, 16*1	9*1(TCCC)	1 (1)	12*8	Yes		20 DIP/SOP/SSOP		
EM78P346N	OTP			4K	144	16	8(4/4)	8*4	10*3	-	12*8	Yes		18 DIP/SOP	4 high sink I/O LVD/LVR	
				4K	144	18	9(5/4)	8*4	10*3	1(1)	12*8	Yes		20 DIP/SOP/SSOP		
				4K	144	22	9(5/4)	8*4	10*3	1(1)	12*8	Yes		24 SDIP/SOP/SSOP		
EM78P330N	OTP	2.1-5.5 (2.3-5.5)	IRC,ERC Crystal	8K	144	25	11(4/7)	8*1, 10*3	10*3	1(1)	12*8	Yes		0-70 (-40-85)	28 SDIP/DIP/SOP	LVD/LVR
				29	11(4/7)	32 SDIP/SOP/LQFP	SPI									
EM78P507N*	Mask/OTP	1.9-3.6 (2.1-3.6)	Crystal, IRC,ERC	6K	272	46	23(10/13)	8*4,16*1	8*2 or 16*1	-	12*24	NO		0-70 (-40-85)	48 LQFP	I2C,UART,SPI, LVD,DAC(10 Bits/current type),capture
						42								44 LQFP/QFP		
EM77P950	OTP	2.2-3.6	24MIPS	12K	896	40	8(5/3)	8*1, 16*1	16*2	Yes	8*16	-	0-70	52 QFP/44 QFP	POR,SPI, Pin wakeup	



Elan 8-bit MCU Selection Guide

LCD+ADC Type MCU Family																
Part No.	Memory Type	Operating Voltage (V)	Oscillation Mode	PROM (Bit)	SRAM (Byte)	I/O (Pins)	Interrupt (Ex/In)	Timer Modules	PWM (Bit*Ch)	Compar. (OP amp)	ADC (Bit*Ch)	LCD (C*S)	Oper. Temp. (°C)	Package Type	Remark	
EM78P468N	Mask/OTP	2.2-5.5	ERIC, Crystal, PLL	4K	272	28	8(3/5)	8*5	9*1	-	-	4*32	-40-85	44 QFP/LQFP 64 QFP/LQFP	IR	
EM78P469N	OTP	2.3-5.5	ERIC, Crystal, PLL	8K	656	33	8(3/5)	8*5/ 8*3,16*1	8*1	-	-	4*40	-40-85	44 QFP/LQFP 64 QFP/LQFP	IR	
EM78P510N	OTP	2.3-5.5	Dual Clock, ERIC, PLL, Crystal	8K	272	27	18(10/8)	8*3 or 8*1/16*1	8*2 or 16*1	-	-	12*7	4*12	-40-85	32 SDIP/SOP	SPI/UART
						39						12*12	8*19		44 QFP/LQFP	Buzzer
						43						12*12	8*23		48 LQFP	LVD/LVR
Low Pin-Count MCU Family																
Part No.	Memory Type	Operating Voltage (V)	Oscillation Mode	PROM (Bit)	SRAM (Byte)	I/O (Pins)	Interrupt (Ex/In)	Timer Modules	PWM (Bit*Ch)	Compar. (OP amp)	ADC (Bit*Ch)	IRC	Oper. Temp. (°C)	Package Type	Remark	
EM78P131A	OTP	2.3-5.5	IRC/ERC HXT/LXT	1K	32	7 I/O & 1 I	3(2/1)	8*1	-	-	-	Yes	0-70	10 MSOP	IRC	
EM78P134N	OTP	2.0-5.5 (2.2-5.5)	IRC, ERC, HXT1, HXT2, XT LXT1, LXT2	1K	48	8	5(3/2)	8*1	10*1	3ch	-	Yes	0-70 (-40-85)		LVR 3-Ch Comp TBRD	
EM78P141	OTP	2.1-5.5	IRC, ERC, HXT1/HXT2 LXT1/LXT2 XT	1K	48	8	8(4/4)	8*3 (PWM Timer x 2)	8*2	1(0)	10*7	Yes	0-70		LVR, LVD IRC, Comp TBRD	
EM78P143	OTP	2.1-5.5		2K	80	8	8(4/4)	8*3 (PWM Timer x 2)	8*2	1(0)	10*7	Yes	LVR, LVD IRC, Comp TBRD			
ADC Type MCU Family																
Part No.	Memory Type	Operating Voltage (V)	Oscillation Mode	PROM (Bit)	SRAM (Byte)	I/O (Pins)	Interrupt (Ex/In)	Timer Modules	PWM (Bit*Ch)	Compar. (OP amp)	ADC (Bit*Ch)	IRC	Oper. Temp. (°C)	Package Type	Remark	
EM78P259N	OTP	2.3-5.5 (2.5-5.5)	IRC, ERC, HXT, LXT	2K	80	11	9(2/7)	8*3, 16*1	9*1 (TCCC)	-	12*4	Yes	0-70 (-40-85)	14 DIP/SOP	IR, IRC TCCC has IR/PWM function	
					80	13	10(3/7)	8*3, 16*1	9*1 (TCCC)	1 (1)	12*4	Yes		16 SOP		
					80	15	10(3/7)	8*3, 16*1	9*1 (TCCC)	1 (1)	12*4	Yes		18 DIP/SOP		
					80	17	10(3/7)	8*3, 16*1	9*1 (TCCC)	1 (1)	12*4	Yes		20 DIP/SOP/SSOP		
EM78P349N	OTP	2.3-5.5	IRC, ERC, HXT, LXT	2K	176	21/25	9(4/5)	8*1, 10*3	10*3	-	12*11 12*15	Yes	24 SDIP/SOP 28 SDIP/SOP	LVD/LVR		
EM78P418N	OTP	2.1-5.5 (2.3-5.5)	IRC, ERC, HXT, LXT	4K	144	15	7(2/5)	8*4	10*3	-	12*8	Yes	0-70 (-40-85)	18 DIP/SOP	IRC	
				4K	144	17	8(3/5)	8*4	10*3	1(1)	12*8	Yes		20 DIP/SOP/SSOP		
				4K	144	21	8(3/5)	8*4	10*3	1(1)	12*8	Yes		24 SDIP/SOP		
EM78P5840N	OTP	2.2-5.5 (2.4-5.5)	ERIC, IRC X'tal PLL	4K	144	16	6(3/3)	8*2	NA	-	8*8 10*8	Yes	0-70 (-40-85)	18 DIP/SOP	IRC High noise immunity	
				4K	144	18	8(3/5)	8*2, 10*2	10*2	-	8*8 10*8	Yes		20 DIP/SOP		
				4K	144	22	8(3/5)	8*2, 10*2	10*2	-	8*8 10*8	Yes		24 DIP/SDIP/SOP		
EM78P809N	OTP	2.1-5.5 (2.3-5.5)	X'tal, ERC	8K	144	22	15(4/11)	8*3, 16*1	8*1	-	10*8	-	28 DIP/SOP/SSOP	UART Capture PDO		
EM78P458 EM78P459	Mask/OTP	2.3-5.5	ERIC, ERC, HXT, LXT	4K	84	16	6(3/3)	8*3	10*2	1(1)	8*8	Yes	0-70	20 DIP/SOP 24 DIP/SOP	PWM, OP, comparator	



Elan 8-bit MCU Selection Guide

GPIO Type MCU Family (Commercial grade)															
Part No.	Memory Type	Operating Voltage (V)	Oscillation Mode	PROM (Bit)	SRAM (Byte)	I/O (Pins)	Interrupt (Ex/In)	Timer Modules	PWM (Bit*Ch)	Compar. (OP amp)	ADC (Bit*Ch)	IRC	Oper. Temp. (°C)	Package Type	Remark
EM78P153A	OTP	2.3-5.5	IRC,ERC, HXT,LXT	1K	32	11 I/O & 1 I	3(2/1)	8*1	-	-	-	Yes	0-70	14 DIP 14 SOP	IRC
EM78P447N	OTP	2.3-5.5 (2.5-5.5)	ERC, HXT, LXT	4K	148	17	2(1/1)	8*1	-	-	-	-	0-70 (-40-85)	24 SDIP/SOP	High Noise Immunity
						20								28 DIP	
						20								28 SOP/SSOP	
						24								32 DIP/SOP/SDIP	
EM78P451S	OTP	2.3-5.5	ERIC, ERC, HXT, LXT	4K	140	35	4(1/3)	8*2	-	-	-	0-70	40 DIP/SOP 44 QFP	High I/O pin count	
EM78452	Mask	2.3-5.5	ERIC, ERC, HXT, LXT	4K	140	35	4(1/3)	8*2	-	-	-	0-70	40 DIP/SOP/QFP	Timer 1 isolation, 3.3V/ 16MHz	
LCD Type MCU Family (Commercial Grade)															
Part No.	Memory Type	Operating Voltage (V)	Oscillation Mode	PROM (Bit)	SRAM (Byte)	I/O (Pins)	Interrupt (Ex/In)	Timer Modules	LCD Max. (C x S)	Current DAC	Serial I/O		Oper. Temp. (°C)	Package Type	Remark
EM78801/P803	Mask/OTP	2.2-3.6/ 2.2-5.5	ERIC, PLL, Crystal, Ext. CLK(80T)	8K x 13	0.6K	24/28	7(4/3)	3x8-bit (1x16-bit)	8/4*24/ 8/4*28	-	-		0-70	64 ,100 QFP Chip	RtoF
EM78568/P568	Mask/OTP	2.2-5.5	Crystal, PLL	16K x 13	0.6K/1.1k	36/51	8(4/4)	3x8-bit	4/2*20/ 4/2*32	-	-		0-70	100 QFP Chip	CTCSS Tone Gen.
EM78860/P860	Mask/OTP	2.5-5.5	Crystal, PLL	16K x 13	2.8K	32	7(4/3)	3x8-bit	16/8*60	-	-		0-70	100 QFP Chip	-
EM78870/P870	Mask/OTP	2.5-5.5	Crystal, PLL	32K	2.8K/4K	51	12(8/4)	3x8-bit	24*72, 16*80	-	SPI		0-70	128 QFP Chip	Tone Gen.
EM78880/P880	Mask/OTP	2.0-5.5/ 2.2-5.5	Crystal, PLL	32K	2.8K	44	9(6/3)	3x8-bit	16/8*60	10-bit x 2 ch	SPI		0-70	128 QFP Chip	DED Tone Gen.
EM78886	Mask	2.0-5.5	Crystal, PLL	32K	2.8K	44	7(4/3)	3x8-bit	16/8*60	10-bit x 2 ch	SPI		0-70	128 QFP Chip	DED

1. *:Under Development.

2. Abbreviation

ADC=Analog to Digital Converter
 PWM=Pulse Width Modulation
 WDT=Watchdog Timer

OP=Operational Amplifier
 LVD=Low Voltage Detector
 LVR=Low Voltage Reset

TBT=Time Base Timer
 ERIC=External R Internal C
 DED=Differential Energy Detector

CDA=Current D/A
 DTMF=Dual Tone Multi Frequency
 PLL=Phase Locked Loop