



Function & Option

1. Memory

ROM

Project	TYPE	Total (word)	Instruction ROM Min./Max. (word)	Table ROM Min./Max. (byte)	Option Size Unit (word)	IAP
TM8959/TM89P59M	MASK/OTP	32768	16384 / 32768	0 / 32768	512	
TM8957/TM89P57M	MASK/OTP	24576	8192 / 24576	0 / 32768	512	
TM8955/TM89P55M	MASK/OTP	16384	4192 / 16384	0 / 24576	512	
TM8952/TM89P52M	MASK/OTP	16384	4096 / 16384	0 / 24576	512	
TM8951/TM89P51M	MASK/OTP	8192	4096 / 8192	0 / 8192	256	
TM8793	OTP	16384	128 / 16384	0 / 32512	128	
TM87ML28	MTP	8192	4096 / 8192	0 / 8192	256	●
TM87PL37	OTP <TTP>	15872 <7680>	7680 / 15872 <3584 / 7680>	0 / 16384 <0 / 8192>	256 <256>	
TM8727	MASK	12288	10240 / 12288	0 / 4096	256	
TM87PL36	OTP <TTP>	7680 <3584>	3584 / 7680 <1536 / 3584>	0 / 8192 <0 / 4096>	128 <128>	●
TM8726/ML26	MASK/MTP	4096	2048 / 4096	0 / 4096	128	
TM87PL35/P32	OTP <TTP>	3840 <1792>	1792 / 3840 <128 / 1792>	0 / 4096 <0 / 3328>	128 <128>	●
TM8725/ML25	MASK/MTP	3072	1024 / 3072	0 / 4096	128	
TM8722/62/ML22	MASK/MTP	2048	128 / 2048	0 / 3840	128	
TM8723/63/M23	MASK/MTP	1536	128 / 1536	0 / 2816	128	
TM8724	MASK	1152	128 / 1152	0 / 2048	128	
TM8721/61	MASK	1024	128 / 1024	0 / 1792	128	
TM8720	MASK	1024	1024	-	-	
TM87P18M	OTP	4096	2048 / 4096	0 / 4096	128	
TM87R04	MASK	4096	4096	-	-	
TM8530	MASK	3072	2048 / 3072	0 / 2048	128	

Note:

- TM87ML28 support Table ROM IAP by PTR & MRI instruction.
- TM87P32 & TM87PL35/36/37 support Table ROM IAP by PTR & MRI & SIAP instruction.
- TM87PL37 support total 7.5K word code option for twice-time programmable code(TTP).

RAM

Project	Total Data RAM Size(nibble)/ Max. Address/ Max. data bits	LCD RAM Share Data RAM (0100h~01FFh) / R/W	STACK Share Data RAM 0200h~023Fh / Level	MHL/RHL/ MZR/RZR Share Data RAM (0080h~00FFh)
TM8959/TM89P59M	6144 / 17FFh / 16	Yes / R/W	Yes / 16	●
TM8957/TM89P57M	6144 / 17FFh / 16	Yes / R/W	Yes / 16	●
TM8955/TM89P55M	4096 / 0FFFh / 16	Yes / R/W	Yes / 16	●
TM8952/TM89P52M	1280 / 04FFh / 16	Yes / R/W	Yes / 16	●
TM8951/TM89P51M	960 / 03FFh / 16	Yes / R/W	Yes / 16	●
TM8793	4096 / 0FFFh / 16	No(PLA) / W	No / 16	●
TM87PL37	2048 / 07FFh / 4	No(PLA) / W	No / 8	
TM8727/ML28/PL36	1024 / 03FFh / 4	No(PLA) / W	No / 8	
TM8726/ML26/PL35	512 / 01FFh / 4	No(PLA) / W	No / 8	
TM8725/ML25	384 / 017Fh / 4	No(PLA) / W	No / 8	
TM87P32	256 / 00FFh / 4	No(PLA) / W	No / 8	
TM8722/62/ML22	128 / 007Fh / 4	No(PLA) / W	No / 8	
TM8723/63/M23	96 / 007Fh / 4	No(PLA) / W	No / 8	
TM8724	80 / 007Fh / 4	No(PLA) / W	No / 8	
TM8721/61	64 / 007Fh / 4	No(PLA) / W	No / 8	



TM8720	64 / 007Fh / 4	No(Fix PLA) / W	No / 4	
TM87P18M	512 / 01FFh / 4	No(Fix PLA) / W	No / 8	
TM87R04	128 / 007Fh / 4	No(Fix PLA) / W	No / 8	
TM8530	128 / 007Fh / 4	No(Fix PLA) / W	No / 8	

Note:

- (1) TM8951/TM89P51M RAM address 01C0h~01FFh no use.
- (2) TM87(M)23 RAM address 0050h~006Fh no use.
- (3) TM8724 RAM address 0040h~006Fh no use.
- (4) TM8721 & TM8720 RAM address 0000h~003Fh no use.

BANK for Instruction ROM & Page for RAM & Lz

Project	CALL,JMP Jump range & BANK size	BANK jump instruction by compiler insert	Rx/Ry/Lz Page Number	Single Page Lz Range	Single Page Ry range for LCT/B/P Lz,Ry instructions
TM8959/TM89P59M	2K	SPBK	48/384/4	00~1Fh	00~1Fh
TM8957/TM89P57M	2K	SPBK	48/384/4	00~1Fh	00~1Fh
TM8955/TM89P55M	2K	SPBK	32/256/4	00~1Fh	00~1Fh
TM8952/TM89P52M	2K	SPBK	10/80/4	00~1Fh	00~1Fh
TM8951/TM89P51M	2K	SPBK	8/60/3	00~1Fh	00~1Fh
TM8793	2K	SPBK	32/256/2	00~1F	00~1Fh
	4K	SF2(X6=1)	1/1/1	00~1F/3Fh	00~1F/3Fh
TM87ML28	2K	SPBK	8/64/2	00~1Fh	00~1Fh
TM8727/PL37/36	4K	SF2(X6=1)	1/1/1	00~3Fh	70~77h
TM8726/ML26	4K	-	1/1/1	00~3Fh	70~77h
TM8725/ML25/PL35/P32	4K	-	1/1/1	00~1Fh	70~7Fh
TM8722/62/ML22	-	-	1/1/1	00~1Fh	70~7Fh
TM8723/63/M23	-	-	1/1/1	00~1Fh	70~7Fh
TM8724	-	-	1/1/1	00~1Fh	70~7Fh
TM8721/61	-	-	1/1/1	00~0Fh	70~7Fh
TM8720	-	-	1/1/1	00~0Fh	70~7Fh
TM87P18M	4K	-	1/1/1	00~3Fh	70~77h
TM87R04	4K	-	1/1/1	00~0Fh	70~7Fh
TM8530	4K	-	1/1/1	00~1Fh	70~7Fh

Note: TM8793 follow structure of Mask Type.

INDEX REGISTER (HL and ZR)

Project	HL Bits	ZR Bits	Instruction for set IDBF8~11	HL/ZR Read
TM8959/TM89P59M	15	13	MVU	●
TM8957/TM89P57M	15	13	MVU	●
TM8955/TM89P55M	15	12	MVU	●
TM8952/TM89P52M	15	11	MVU	●
TM8951/TM89P51M	13	10	MVU	●
TM8793	15	12	MVU / MVH(AC)	●
TM87ML28	13	-	MVU	●
TM87PL37	15<14>	-	MVU	
TM8727	12	-	MVU	
TM87PL36	14<13>	-	MVU	
TM8726/ML26	12	-	MVU	
TM8725/ML25/PL35/P32	12	-	MVU	
TM8722/62/ML22	12	-	MVH(AC)	
TM8723/63/M23	12	-	MVH(AC)	
TM8724	11	-	MVH(AC)	
TM8721/61	11	-	MVH(AC)	
TM8720	-	-	-	



TM87P18M	12	-	MVU
TM87R04	-	-	-
TM8530	11	-	MVU

Note:
“<>” : HL Bits For TTP.

2. Power
Power Pins

Project	VBAT	BAK	VL1	VL2	VL3	VL4	VL5
TM8959/TM89P59M	●	●	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●	●	
TM8793	●	●	●	●	●	●	
TM87ML22/25/26/28	●	●	●	●	●		
TM87M23	●	●	●	●	●		
TM87PL37	●	●	●	●	●		
TM87PL35/36	●	●	●< VBAT>	●< VBAT>	●< VBAT>		
TM87P32	●	●	●< VBAT>	●< VBAT>	●< VBAT>		
TM8727		●	●(VBAT)	●(VBAT)	●	●	
TM8726		●	●(VBAT)	●(VBAT)	●	●	
TM8725		●	●(VBAT)	●(VBAT)	●	●	
TM8722/62		●	●(VBAT)	●(VBAT)	●		
TM8723/63		●	●(VBAT)	●(VBAT)	●		
TM8724			●(VBAT)	●(VBAT)	●		
TM8721/61	●	●VLI		●			
TM8720	●VLI			●			
TM87P18M		●	●	●VBAT	●		
TM87R04			●	●(VBAT)	●(VBAT)		
TM8530			●	●	●VBAT		

Note:
(VBAT) : Connect to Power Source follow mask option.
<VBAT> : Support VBAT driver output by Power Mode.

Power Mode

Project	EXT-V	3V Battery or higher (BCF=0:BAK<VBAT)	3V Battery or higher (BCF=0:BAK=VBAT)	1.5V Battery
TM8959/TM89P59M		●(VBAT<= 3.6V)	●(VBAT<= 3.6V)	●*1
TM8957/TM89P57M		●(VBAT<= 3.6V)	●(VBAT<= 3.6V)	●*1
TM8955/TM89P55M		●(VBAT<= 3.6V)	●(VBAT<= 3.6V)	●*1
TM8952/TM89P52M		●(VBAT<= 3.6V)	●(VBAT<= 3.6V)	●*1
TM8951/TM89P51M		●(VBAT<= 3.6V)	●(VBAT<= 3.6V)	●*1



TM8793	●	●	●	●*1
TM87ML22/25/26/28		●(VBAT<= 3.6V)	●(VBAT<= 3.6V)	●
TM87PL35/36/37		●(VBAT<= 3.6V)	●(VBAT<= 3.6V)	●
TM87P32		●(VBAT<= 3.6V)	●(VBAT<= 3.6V)	●
TM8727	●	●		●
TM8726	●	●		●
TM8725	●	●		●
TM8722/62	●	●		●
TM87M23		●(VBAT<= 3.6V)	●(VBAT<= 3.6V)	●
TM8723/63	●	●		●
TM8724	●		●	●
TM8721/61				●
TM8720				●
TM87P18M		●		
TM87R04			●(VBAT<= 3.6V)	
TM8530			●(VBAT<= 3.6V)	

Note:

“BCF=0 : BAK<=VBAT” Mode :

- (1) BAK=VREG : support by see “Regulator”(BAK=VREG)
- (2) BAK=1/2 x VBAT : support by see “VL voltage generated structure”(Halver & Pump)
- (3) BAK=VDL : support by see “Regulator”(VDL)
- (4) BAK=2/3 x VBAT : support by see “VL voltage generated structure”(Capacitive Voltage Divider)

*1 : OTP Type no support “No Bias” for “1.5V Battery”(Because OTP need connect VL2(=2 x VL1) to VPP pin for 1.5V Power Mode.)

Regulator

Project	BAK=VREG	VDL		LBD	LVR2/AUTO-LBD /AUTO-SWPWR
		2/3 x VL3	1/3 x VL3		
TM8959/TM89P59M					
TM8957/TM89P57M					
TM8955/TM89P55M					
TM8952/TM89P52M					
TM8951/TM89P51M					
TM8793					
TM87ML28	● (2.75~ 1.20V)	● (2.55~ 1.80 V)	● (1.70~ 0.95 V)	● (2.75~ 2.00/2.10~ 1. 35V)	
TM87ML22/25	● (1.95~ 1.20V)	● (2.55~ 1.80 V)	● (1.70~ 0.95 V)	● (2.75~ 2.00/2.10~ 1. 35V)	
TM87ML26	●*1 (1.95~ 1.20V)	● (2.55~ 1.80 V)	● (1.70~ 0.95 V)	● (2.90~ 1.35V)	● (2.90~ 1.35V)
TM87PL35/36/37	●*1 (1.95~ 1.20V)	● (2.55~ 1.80 V)	● (1.70~ 0.95 V)	● (2.90~ 1.35V)	● (2.90~ 1.35V)
TM8727					



TM8726					
TM8725					
TM87P32				●*2	
TM8722/62					
TM8723/63/M23					
TM8724					
TM8721/61					
TM8720					
TM87P18M					
TM87R04					
TM8530					

Note:

*1 : (1) Support code option for STOP Mode :

a. Hold BCF=0 for BAK=VREG.

b. Enable VL1/2=VDL

(2) Support code option to set initial BCF=0 for BAK=VREG.

(3) Support code option to set initial VREG/VDL option.

*2 : 3.0~2.3/1.5~1.2V(step : 0.1V) for 3/1.5V Power Mode.

VL voltage generated structure

Project	Halver & Pump	Capacitive Voltage Divider	Resistive Voltage Divider
TM8959/TM89P59M	●		
TM8957/TM89P57M	●		
TM8955/TM89P55M	●		
TM8952/TM89P52M	●		
TM8951/TM89P51M	●		
TM8793	●		
TM87ML22/25//25/28	●	●	
TM87M23	●	●	
TM87PL35/36/37	●	●	
TM87P32	●	●	
TM8727	●		
TM8726	●		
TM8725	●		
TM8722/62	●		
TM8723/63	●		
TM8724	●		
TM8721/61	●		
TM8720	●		
TM87P18M	●		
TM87R04	●	●	
TM8530			●

“Halver & Charge Pump” or “Capacitive Voltage Divider” cycle

Project	Change by “MWM”	PH1	PH2	PH3	PH4	PH5	PH6
TM8959/TM89P59M				●	●	●	



TM8957/TM89P57M				●	●	●	
TM8955/TM89P55M				●	●	●	
TM8952/TM89P52M				●	●	●	
TM8951/TM89P51M				●	●	●	
TM8793				●	●	●	●
TM87ML22/25/26/28				●	●	●	●
TM87M23				●	●	●	●
TM87PL37				●	●	●	●
TM8727					●	●	
TM87PL35/36		●	●	●	●	●	●
TM8726					●	●	
TM8725						●	
TM87P32	●	●	●	●	●	●	●
TM8722/62						●	
TM8723/63						●	
TM8724						●	
TM8721/61						●	
TM8720						●	
TM87P18M						●	
TM87R04						●	
TM8530	-	-	-	-	-	-	-

Note: TM8727/26 force PH4 cycle for 1/4Bias & force PH5 for 1/2 and 1/3 Bias

Charge Pump Pins & Driver/Sink

Project	CUPN	CUP0	CUP1	CUP2	Driver/Sink
TM8959/TM89P59M	●	●	●	●	Notrml
TM8957/TM89P57M	●	●	●	●	Notrml
TM8955/TM89P55M	●	●	●	●	Notrml
TM8952/TM89P52M	●	●	●	●	Notrml
TM8951/TM89P51M	●	●	●	●	Notrml
TM8793	●	●	●	●	Notrml
TM8727		●	●	●	Notrml
TM8726		●	●	●	Notrml
TM87PL37			●	●	Notrml
TM87PL35/36			●	●	Notrml / Big
TM87P32			●	●	Notrml / Big
TM87ML26			●	●	Notrml
TM8725/ML25			●	●	Notrml
TM8722/62/ML22			●	●	Notrml
TM8723/63/M23			●	●	Notrml
TM8724			●	●	Notrml
TM8721/61			●	●	Notrml



TM8720			●	●	Notrmal
TM87P18M			●	●	Notrmal
TM87R04			●	●	Notrmal
TM8530	-	-	-	-	-

Note: TM87P32 can change Driver/Sink by execute MWM instruction.

VL Bias

Project	No Bias	1/2Bias 1C2P	1/3Bias 1C2P	1/3Bias 2C4P	1/4Bias 2C3P	1/4Bias 2C4P	1/5Bias 2C4P	Force 1/2Bias
TM8959/TM89P59M			●	●	●	●	●	
TM8957			●	●	●	●	●	
TM89P57M			●	●	●	●	●	●
TM8955/TM89P55M			●	●	●	●	●	
TM8952			●	●	●	●	●	
TM89P52M		●	●	●	●	●	●	●
TM8951/TM89P51M			●	●	●	●	●	
TM8793	●	●	●	●	●	●		●
TM87ML22/25/26/28	●	●	●					●
TM87PL35/36/37	●	●	●					●
TM87P32	●	●	●					●
TM8726/27	●	●	●		●			
TM8724/23/22/25	●	●	●					
TM8763/62/M23	●	●	●					●
TM8721/61	●	●						
TM8720		●						
TM87P18M	●	●	●					●
TM87R04		●	●					
TM8530		1/2Bias	1/3Bias					

Note:

- (1) 1C2P : connect one Capacitor between CUP1 and CUP2.
- (2) 2C3P : connect one Capacitor between CUP1 and CUP2 & connect one Capacitor between CUP0 and CUP2.
- (3) 2C4P : connect one Capacitor between CUP1 and CUP2 & connect one Capacitor between CUPN and CUP0.
- (4) "Force 1/2Bias" : force COM & SEG 1/2Bias waveform for 1/1DUTY(STATIC) Mode , when CUPN,0,1,2 active with 1/3~1/5Bias.
- (5) TM8530 is "Resistive Voltage Divider" structure, so no need CUP1,2 pins.

3. LCD/LED
COM,SEG Pins

Project	COM x SEG by Max. COM / SEG pins	Total COM & SEG pins name	COM / SEG share pins	COM / SEG share to DC & Open- Drain pins
TM8959/TM89P59M	16x64 / 16x64	COM1~16 , SEG1~64	- / -	5~16 / -
TM8957/TM89P57M	16x64 / 16x64	COM1~16 , SEG1~64	- / -	5~16 / -
TM8955/TM89P55M	16x60 / 12x64	COM1~16 , SEG1~60	13~16 / 64~61	5~16 / -
TM8952/TM89P52M	16x52 / 12x56	COM1~16 , SEG1~32,41~60	13~16 / 64~61	5~16 / -
TM8951/TM89P51M	9x48 / 9x48	COM1~9 , SEG1~28,41~60	- / -	5~9 / -



TM8793	12x48 / 12x48	COM1~12 , SEG1~48	5~12 / H~A	1~12 / 1~48
TM87ML28	9x47 / 4x52	COM1~9 , SEG1~47	5~9 / 52~48	1~9 / 1~47
TM87PL37	9x51 / 9x51	COM1~9 , SEG1~51	1~9(9~1) / 31~39	1~9 / 1~51
TM8727	9x41 / 9x41	COM1~9 , SEG1~41	- / -	5~9 / 1~41
TM87PL36	9x43 / 9x43	COM1~9 , SEG1~43	1~9(9~1) / 31~39	1~9 / 1~43
TM87ML26	9x41 / 9x41	COM1~9 , SEG1~41	1~9(9~1) / 31~39	1~9 / 1~41
TM8726	9x41 / 9x41	COM1~9 , SEG1~41	- / -	5~9 / 1~41
TM87PL35	6x40 / 6x40	COM1~6 , SEG1~40	1~6(6~1) / 31~36	1~6 / 1~40
TM87ML25	6x40 / 6x40	COM1~6 , SEG1~40	- / -	1~6 / 1~40
TM8725	6x40 / 6x40	COM1~6 , SEG1~40	- / -	5~6 / 1~40
TM87ML22	5x35 / 5x35	COM1~5 , SEG1~35	- / -	1~5 / 1~35
TM87P32	5x35 / 5x35	COM1~5 , SEG1~35	1~5(5~1) / 31~35	1~5 / 1~35
TM8722/62	5x35 / 5x35	COM1~5 , SEG1~35	- / -	- / 1~35
TM87M23	5x27 / 5x27	COM1~5 , SEG1~12,21~35	- / -	1~5 / 1~12,21~35
TM8723/63	5x27 / 5x27	COM1~5 , SEG1~12,21~35	- / -	- / 1~12,21~35
TM8724	5x24 / 5x24	COM1~5 , SEG1~12,24~35	- / -	- / 1~12,24~35
TM8721/61	4x9 / 4x9	COM1~4 , SEG1~9	- / -	- / 1~9
TM8720	4x12 / 4x12	COM1~4 , SEG1~12	- / -	- / -
TM87P18M	8x32 / 4x32	COM1~8 , SEG1~30,40,41	- / -	5~8 / 17~23,31,40,41
TM87R04	4x32 / 4x32	COM1~4 , SEG1~30,40,41	- / -	- / -
TM8530	4x36 / 4x36	COM1~4 , SEG1~30,36~41	- / -	- / -

Note:

(1) TM8793 COM5~9 pins share with SEGH~A by code option follow table :

Option	SEGH	SEGG	SEGF	SEGE	SEGD	SEGC	SEGB	SEGA
1	SEG48	SEG47	SEG46	SEG45	SEG44	SEG43	SEG42	SEG41
2	SEG42	SEG41	SEG48	SEG47	SEG46	SEG45	SEG44	SEG43
3	SEG44	SEG43	SEG42	SEG41	SEG48	SEG47	SEG46	SEG45
4	SEG46	SEG45	SEG44	SEG43	SEG42	SEG41	SEG48	SEG47

(2) TM87ML26, TM87PL37 support COM1~9 mirror pins.

(3) TM87P18M : COM9 & SEG31 force to DC & Open-Drain.

(4) TM87PL37/TM87ML26/TM87ML22/TM87M23 : force same PSTB & DBUS with SEG24/24/35/35 for COM1 set to DC/Open-Drain output.

LCD/LED Active Type

Project	LCD	LED-H	LED-L	O/P	LED(DIRECT DRIVER)
TM8959/TM89P59M	●				
TM8957/TM89P57M	●				
TM8955/TM89P55M	●				
TM8952/TM89P52M	●				
TM8951/TM89P51M	●				
TM8793	●	●	●	●	
TM87ML22/25/26/28	●			●	●
TM87M23/P32	●			●	●
TM87PL35/36/37	●			●	●
TM8727	●			●	
TM8726	●			●	
TM8725	●			●	
TM8722/62	●	●	●	●	
TM8723/63	●	●	●	●	
TM8724	●			●	
TM8721/61	●			●	
TM8720	●				



TM87P18M	●	●	●	●	
TM87R04	●				
TM8530	●				

LCD/LED duty

Project	O / P	1 / 1 D U T Y	2 / 2 D U T Y	3 / 3 D U T Y	4 / 4 D U T Y	5 / 5 D U T Y	6 / 6 D U T Y	7 / 7 D U T Y	8 / 8 D U T Y	9 / 9 D U T Y	10 / 10 D U T Y	11 / 11 D U T Y	12 / 12 D U T Y	13 / 13 D U T Y	14 / 14 D U T Y	15 / 15 D U T Y	16 / 16 D U T Y
TM8959/TM89P59M				●	●	●	●	●	●	●	●	●	●	●	●	●	●
TM8957				●	●	●	●	●	●	●	●	●	●	●	●	●	●
TM89P57M		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
TM8955				●	●	●	●	●	●	●	●	●	●	●	●	●	●
TM89P55M		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
TM8952				●	●	●	●	●	●	●	●	●	●	●	●	●	●
TM89P52M		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
TM8951/TM89P51M				●	●	●	●	●	●								
TM8793	●	●	●	●	●	●	●	●	●	●	●	●					
TM87PL36/37	●	●	●	●	●	●	●	●	●								
TM8727	●		●	●	●	●	●	●	●								
TM87ML26	●	●	●	●	●	●	●	●	●								
TM8726	●		●	●	●	●	●	●	●								
TM8725/ML25/PL35	●	●	●	●	●	●											
TM8722	●		●	●	●	●											
TM8762/ML22/P32	●	●	●	●	●	●											
TM8723	●		●	●	●	●											
TM8763/M23	●	●	●	●	●	●											
TM8724	●	●	●	●	●	●											
TM8721/61	●			●													
TM8720				●													
TM87P18M	●	●	●	●	●	●	●	●									
TM87R04				●													
TM8530				●													

Clock Source of LCD/LED Alternating Frequency

Project	Select Mode	PH1	PH2	PH3	PH4	PH5	PH6	PH7	PH8	PH9	PH10	O/P
TM8959/TM89P59M	D			●	●	●	●	●	●	●	●	
TM8957/TM89P57M	D			●	●	●	●	●	●	●	●	
TM8955/TM89P55M	D			●	●	●	●	●	●	●	●	
TM8952/ TM89P52M	D			●	●	●	●	●	●	●	●	



TM8951/TM89P51M	D			●	●	●	●	●	●	●	●	
TM8793	I			●	●	●	●	●	●	●	●	●
TM87ML28	D			●	●	●	●	●	●	●	●	●
TM8727/PL37	I					●	●	●	●	●	●	●
TM8726/ML26/PL36	I					●	●	●	●	●	●	●
TM8725/ML25/PL35	I						●	●	●	●	●	●
TM8722/62/ML22/P32	I						●	●	●	●	●	●
TM8723/63/M23	I						●	●	●	●	●	●
TM8724	I						●	●	●	●	●	●
TM8721/61	I							●	●	●		●
TM8720	I							●	●	●		
TM87P18M	I				●	●	●	●	●	●	●	●
TM87R04	I							●	●	●		
TM8530	I							●	●	●		

Note:

(1) TM89 series & TM87ML28 set clock source directly

(2) 'D' : select clock source directly.

'I' : select clock source is combined with code option "LCD FRAME FREQUENCY" & "LCD DUTY CYCLE" & "LCD ALTERNATING FREQUENCY FROM CLOCK SOURCE" indirectly:

LCD DUTY CYCLE	LCD FRAME FREQUENCY	FAST	TYPICAL	SLOW
1/1 DUTY(STATIC)		PH9	PH10	PH10
1/2 DUTY(DUPLEX)		PH8	PH9	PH10
1/3 , 1/4 DUTY		PH7	PH8	PH9
1/5 , 1/6 , 1/7 DUTY		PH6	PH7	PH8
1/8 , 1/9 DUTY		PH5	PH6	PH7

LCD/LED Alternating Frequency from Clock Source

Project	x 1/1	x 1/3	x 2/3	x 4/3
TM8959/TM89P59M	●			
TM8957/TM89P57M	●			
TM8955/TM89P55M	●			
TM8952/TM89P52M	●			
TM8951/TM89P51M	●			
TM8793	●		●	●
TM87ML28	●	●		
TM87ML22/25/26	●		●	●
TM87M23/P32	●		●	●
TM87PL35/36/37	●		●	●
TM8727	●			
TM8726	●			
TM8725	●			



TM8722/62	●			
TM8723/63	●			
TM8724	●			
TM8721/61	●			
TM8720	●			
TM87P18M	●			
TM87R04	●			
TM8530	●			

LCD/LED OFF Waveform in RESET & OFF Mode by execute SF2 X2=1

Project	RESET Mode		SF2 X2=1		LCD Display in Reset Mode
	Normal OFF waveform	COM & SEG STOP	Normal OFF waveform	COM & SEG STOP	
TM8959/TM89P59M		●		●	OFF only
TM8957/TM89P57M		●		●	OFF only
TM8955/TM89P55M		●		●	OFF only
TM8952/TM89P52M		●		●	OFF only
TM8951/TM89P51M		●		●	OFF only
TM8793	●	●	●	●	On/Off
TM87ML22/25/26/28		●		●	On/Off
TM87M23/P32		●		●	On/Off
TM87PL35/36/37		●		●	On/Off
TM8727	●		●		On/Off
TM8726	●		●		On/Off
TM8725		●		●	On/Off
TM8722	●		●		On/Off
TM8762		●		●	On/Off
TM8723	●		●		On/Off
TM8763		●		●	On/Off
TM8724		●		●	On/Off
TM8721/61	●		●		On/Off
TM8720	●			●	OFF only
TM87P18M		●	●	●	OFF only
TM87R04		●		●	On/Off
TM8530		●		●	On/Off

Note:

- (1) If have option : "LCD DISPLAY IN RESET CYCLE" need select "OFF"
- (2) LED Mode force "OFF" in RESET Mode.

4. I/O I/O Port

Project	R/W with Rx & set by directly value	Execute set & R/W all with Ry & Rm
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	IOA1~4	IOB1~4	IOC1~4	IOD1~4	IOE1~4	IOF1~4	IOG1~4	IOH1~4	IOI1~4
TM8959/TM89P59M	●	●	●	●	●				
TM8957/TM89P57M	●	●	●	●	●				
TM8955/TM89P55M	●	●	●	●	●				
TM8952/TM89P52M	●	●	●	●					
TM8951/TM89P51M	●	●	●	●					
TM8793	●	●	●	●	●				
TM87ML28	●	●	●	●	●	●			
TM87PL37	●	●	●	●	●	●	●		
TM8727	●	●	●	●					
TM87PL36	●	●	●	●	●				
TM87ML26	●	●	●	●	● (IOE1,2)				
TM8726	●	●	●	●					
TM8725/ML25/PL35	●	●	●	●					
TM8722/62/ML22/P32	●	●	●						
TM8723/63/M23	●	●	●						
TM8724	●	●	●						
TM8721/61	IOA4	IOB3,4	●						
TM8720	●	IOB2~4							
TM87P18M	●	●	●	●					
TM87R04	●	IOB3,4	●	●					
TM8530	●	IOB3,4	●	●					

Note:

- (1) TM8793/TM87ML28 IOA&IOE can select share pins with SEG24~27,40~43 or CX,RFC0~5,CX2 by code option.
- (2) Only TM87ML28 support SIO(SPI/ UART/I2C) pins : SDA,SCL,SIOX(MISO/TXD/SDA),SIOY(MOSI/RXD/SCL),SCK/SSB.

I/O Release

Project	IOA	IOC	IOD	Chattering Prevention	
				USE	NO USE
TM8959/TM89P59M	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●
TM8793/ TM87ML28	●	●	●	●	●
TM87ML25/26		●	●	●	●
TM87PL35/36/37		●	●	●	●
TM8727		●	●	●	
TM8726		●	●	●	
TM8725		●	●	●	
TM87P32	●	●		●	●
TM87ML22/M23		●		●	●



TM8722/62		●		●	
TM8723/63		●		●	
TM8724		●		●	
TM8721/61	●			●	
TM8720	●			●	
TM87P18M		●	●	●	
TM87R04		●	●	●	
TM8530		●	●	●	

IOC port Input Resistor

Project	No Use	Pull-Low	LLH	Pull-High
TM8959/TM89P59M	●	●	●	
TM8957/TM89P57M	●	●	●	
TM8955/TM89P55M	●	●	●	
TM8952/TM89P52M	●	●	●	
TM8951/TM89P51M	●	●	●	
TM8793	●	●	●	●
TM87ML28	●	●	●	
TM8727/PL37	●	●	●	
TM8726/ML26/P36	●	●	●	
TM8725/ML25/PL35	●	●	●	
TM8722/62/ML22/P32	●	●	●	
TM8723/63/M23	●	●	●	
TM8724	●	●		
TM8721/61		●	●	
TM8720	-	-	-	-
TM87P18M	●	●	●	
TM87R04		●	●	
TM8530		●		

Other I/O ports Pull-Low Resistor

Project	IOA	IOB	IOD	IOE	IOF	IOG	IOH	IOI
TM8959/TM89P59M	OPT	OPT	OPT	OPT	-	-	-	-
TM8957/TM89P57M	OPT	OPT	OPT	OPT	-	-	-	-
TM8955/TM89P55M	OPT	OPT	OPT	OPT	-	-	-	-
TM8952/TM89P52M	OPT	OPT	OPT	OPT	-	-	-	-
TM8951/TM89P51M	OPT	OPT	OPT	OPT	-	-	-	-
TM8793/ML26/PL36	OPT	OPT	OPT	OPT				
TM87ML28	OPT	OPT	OPT	OPT	OPT			
TM87PL37	OPT	OPT	OPT	OPT	OPT	OPT		
TM8727	OPT	OPT	OPT	-	-	-	-	
TM8726	OPT	OPT	OPT	-	-	-	-	
TM8725/ML25/PL35	OPT	OPT	OPT	-	-	-	-	



TM8722/62/ML22/P32	OPT	OPT	-	-	-	-	-	-
TM8723/63/M23	OPT	OPT	-	-	-	-	-	-
TM8724	No Use	OPT	-	-	-	-	-	-
TM8721/61	Use	Use	-	-	-	-	-	-
TM8720	Use	Use	-	-	-	-	-	-
TM87P18M	OPT	OPT	OPT	-	-	-	-	-
TM87R04	No Use	Use	Use	-	-	-	-	-
TM8530	Use	Use	Use	-	-	-	-	-

Note:

- (1) OPT : “Use” or “No Use” by Code Option.
- (2) TM87ML28 support “Pull-High Resistor” for IOA,IOE share pins with SIO.

INT

Project	INT PIN INTERNAL RESISTOR			INT PIN TRIGGER MODE	
	PULL HIGH	PULL LOW	OPEN	RISING EDGE	FALLING EDGE
TM8959/TM89P59M	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●
TM8793/ML28	●	●	●	●	●
TM8727/PL37	●	●	●	●	●
TM8726/ML26/PL36	●	●	●	●	●
TM8725/ML25/PL35	●	●	●	●	●
TM8722/62/ML22/P32	●	●	●	●	●
TM8723/63/M23	●	●	●	●	●
TM8724	●	●	●	●	●
TM8721/61	-	-	-	-	-
TM8720	-	-	-	-	-
TM87P18M	●	●	●	●	●
TM87R04	●	●	●	●	●
TM8530	●	●	●	●	●

5. CLOCK

CLOCK SOURCE & O.S.C Pins

Project	CLOCK SOURCE			O.S.C. Pins	
	FAST ONLY	SLOW ONLY	DUAL	XIN/XOUT	CFIN/CFOUT
TM8959/TM89P59M	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●



TM8793	●	●	●	●	●
TM87ML28	●	●	●*1	●	●
TM8727/PL37	●	●	●	●	●
TM87PL35/36	●	●	●*2	●	●
TM8726/ML26	●	●	●	●	●
TM8725/ML25	●	●	●	●	●
TM87P32	●	●	●*2	●	
TM8722/62/ML22	●	●	●	●	
TM8723/63/M23	●	●	●	●	
TM8724	●	●	●	●	
TM8721/61	●	●		●	
TM8720	●	●		●	
TM87P18M	●	●	●	●	●
TM87R04	●	●	●	●	● (FTIN/FTOUT)
TM8530	●	●	●	●	

Note:

- (1) if O.S.C. Pins only support XIN&XOUT, force Internal-RC for Dual Mode
- (2) *1 : Dual Mode add. hold FAST Mode after enter HALT Mode code option & hold enable CFOSC after enter HALT Mode code option.
- (3) *2 : Dual Mode add. hold FAST Mode after enter HALT Mode code option

SLOW CLOCK TYPE FOR SLOW ONLY OR DUAL

Project	32K X'tal	RC
TM8959/TM89P59M	●	●
TM8957/TM89P57M	●	●
TM8955/TM89P55M	●	●
TM8952/TM89P52M	●	●
TM8951/TM89P51M	●	●
TM8793/TM87ML28	●	●
TM8727/PL37	●	●
TM8726/ML26/PL36	●	●
TM8725/ML25/PL35	●	●
TM8722/62/ML22/P32	●	●
TM8723/63/M23	●	●
TM8724	●	●
TM8721/61	●	
TM8720	●	
TM87P18M	●	
TM87R04	●	
TM8530	●	

FAST CLOCK TYPE FOR FAST ONLY OR DUAL



Project	INTERNAL RESISTOR	INTERNAL RESISTOR (TEMPERATURE COMPENSATION)	EXTERNAL RESETOR	3.58MHz CERAMIC RESONATOR
TM8959/TM89P59M	500/250KHz		●	●
TM8957/TM89P57M	500/250KHz		●	●
TM8955/TM89P55M	500/250KHz		●	●
TM8952/TM89P52M	500/250KHz		●	●
TM8951/TM89P51M	500/250KHz		●	●
TM8793	500/250KHz		●	●
TM87ML28	2000/1000/500/250/125K Hz	4000/2000/1000/500/250K Hz	●	●
TM87ML25/26	2000/1000/500/250/125K Hz		●	●
TM87M23ML22/P32	2000/1000/500/250/125K Hz		●*1	
TM87PL35/36/37	2000/1000/500/250/125K Hz		●	●
TM8727	500/250KHz		●	●
TM8726	500/250KHz		●	●
TM8725	500/250KHz		●	●
TM8722/62	500/250KHz		●*1	
TM8723/63	500/250KHz		●*1	
TM8724	500/250KHz		●*1	
TM8721/61	500/250KHz		●*1	
TM8720	500KHz		●*1	
TM87P18M	500/250KHz		●	●
TM87R04			●	●
TM8530	500KHz		●*1	

Note:

- (1) Frequency value of internal resistor is based on VBAT=3.0V
- (2) Frequency value of internal resistor(TEMPERATURE COMPENSATION) is based on VBAT=1.8V
- (3) *1 : support for "FAST ONLY" only.

PH0<->FTOSC FOR FAST ONLY

Project	FTOSC	FTOSC /4	FTOSC /8	FTOSC /16	FTOSC /32	FTOSC /64	FTOSC /128	FTOSC /256
TM8959/TM89P59M	●	●	●	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●	●	●	●
TM8793	●	●	●	●	●	●	●	●
TM87ML22/25/26/28	●	●	●	●	●	●	●	●
TM87M23/P32	●	●	●	●	●	●	●	●



TM87PL35/36/37	●	●	●	●	●	●	●	●
TM8727	●	●	●	●				
TM8726	●	●	●	●				
TM8725	●	●	●	●				
TM8722/62	●	●	●	●				
TM8723/63	●	●	●	●				
TM8724	●	●	●	●				
TM8721/61	●	●	●	●				
TM8720	●	●	●	●				
TM87P18M	●	●	●	●				
TM87R04	●	●	●	●				
TM8530	●	●	●	●				

BCLK<->FTOSC by FAST instruction for FAST ONLY or DUAL mode

Project	FTOSC	FTOSC /2	FTOSC /4	FTOSC /8	FTOSC /16	FTOSC /32	FTOSC /64	FTOSC /128
TM8959/TM89P59M	●							
TM8957/TM89P57M	●							
TM8955/TM89P55M	●							
TM8952/TM89P52M	●							
TM8951/TM89P51M	●							
TM8793	●	●	●	●	●	●	●	●
TM87ML22/25/26/28	●	●	●	●	●	●	●	●
TM87M23/P32	●	●	●	●	●	●	●	●
TM87PL35/36/37	●	●	●	●	●	●	●	●
TM8727	●							
TM8726	●							
TM8725	●							
TM8722/62	●							
TM8723/63	●							
TM8724	●							
TM8721/61	●							
TM8720	●							
TM87P18M	●							
TM87R04	●							
TM8530	●							

6. RESET

RESET Function

Project	REST Time		POWER ON	RESET PIN RESET			WATCH DOG	KEY RESET	LVR1	LVR2
	PH15/	PH12/		Reset	LEVEL	PULSE				



	2	2	RESET	Level	Type	Type	TIMER RESET			
TM8951/52/55/5759	●	●	*1,6	LOW	●*7	●*7	●	●*8		
TM89P51/52/55/57/59M	●	●	*4,6	LOW	●*7	●*7	●	●*8		
TM8793	●	●	*4,5,6	HIGH	●*7	●*7	●	●*8		
TM87ML22/25/28	●	●	*4,5,6	HIGH	●*7	●*7	●	●*8	●	
TM87M23	●	●	*4,5,6	HIGH	●*7	●*7	●	●*8	●	
TM87ML26	●	●	*5,6	HIGH	●*7	●*7	●	●*8	●	●
TM87PL35/36/37	●	●	*5,6	HIGH	●*7	●*7	●	●*8	●	●
TM87P32	●	●	*5,6	HIGH	●*7	●*7	●	●*8	●	
TM8727	●	●	*2	HIGH	●	●	●	●		
TM8726	●	●	*2	HIGH	●	●	●	●		
TM8725	●	●	*2	HIGH	●	●	●	●		
TM8722/62	●	●	*2	HIGH	●	●	●	●		
TM8723/63	●	●	*2	HIGH	●	●	●	●		
TM8724	●	●	*2	HIGH	●	●				
TM8721/61		●	*3	HIGH		●				
TM8720		●	*3	HIGH		●				
TM87P18M	●	●	*4,6	HIGH	●	●	●	●		
TM87R04	●		*4,6	HIGH		●	●			
TM8530	●		*4,6	HIGH	●		●			

Note:

- (1) *1 : no any power on reset if “NO USE” is selected to option of “POWER ON RESET”
 *2 : still have power on reset (need discharge completely) if “NO USE” is selected for option of “POWER ON RESET”
 *3 : power on reset need discharge completely.
 *4 : power on reset fix use.
 *5 : power on reset support 10ms Spec.
 *6 : powr on reset have higher power noise reject filter.
 *7 : RESET(B) pin have higher power & input noise reject filter.
 *8 : Key-Reset have higher input noise reject filter.
- (2) TM87ML25/28 : reset by WDT or Key-Reset can’t initial LCD/LED, CMOS, and P_open_drain output data! Suggest select “OFF” for option of “LCD DISPLAY IN RESET CYCLE” to avoid error display in reset cycle.

Watch Dog Timer Reset

Project	Type for W.D.T. use		No Use	Overflow Time Interval			Support restart by SF instruction directly
	Always Enable	Enable and Disable by Software		8 x PH10	64 x PH10	512 x PH10	
TM8959		●	●	●	●	●	
TM89P59M		●	●	●	●	●	●
TM8957		●	●	●	●	●	●
TM89P57M	●	●	●	●	●	●	●
TM8955		●	●	●	●	●	
TM89P55M		●	●	●	●	●	●
TM8952		●	●	●	●	●	
TM89P52M	●	●	●	●	●	●	●



TM8951/TM89P51M		●	●	●	●	●	●
TM8793	●	●	●	●	●	●	*1
TM87ML22/25/26/28	●	●	●	●	●	●	●
TM87M23/P32	●	●	●	●	●	●	●
TM87PL35/36/37	●	●	●	●	●	●	●
TM8727		●	●	●	●	●	
TM8726		●	●	●	●	●	
TM8725		●	●	●	●	●	
TM8722		●	●	●	●	●	
TM8762	●	●	●	●	●	●	●
TM8723		●	●	●	●	●	
TM8763	●	●	●	●	●	●	●
TM8724	-	-	-	-	-	-	-
TM8721/61	-	-	-	-	-	-	-
TM8720	-	-	-	-	-	-	-
TM87P18M	●	●	●	●	●	●	●
TM87R04		●	●	●	●	●	
TM8530		●	●	●	●	●	●

Note:

(1) *1 : follow Mask Type

7. Timer

Timer Function

Project	TMR1	TMR2	TMR3	Repeat load set value (SRP)	Timer Merge (STM)	Timer Extend (STE)	Stop Timer (DISTM)	Timer Counter Read	Timer Counter Latch (S/RF)	Used as RFC counter
TM8959/TM89P59M	●	●	●		●		●	●	●	●
TM8957/TM89P57M	●	●	●		●		●	●	●	●
TM8955/TM89P55M	●	●	●		●		●	●	●	●
TM8952/TM89P52M	●	●	●		●		●	●	●	
TM8951/TM89P51M	●	●	●		●		●	●	●	
TM8793	●	●	●		●		●	●	●	●
TM87ML28	●	●	●	●	●	●	●	●	●	
TM87ML25/26	●	●					●	●	●	
TM87ML22/M23	●	●						●	●	
TM87PL35/36/37	●	●		●			●	●	●	
TM87P32	●	●		●			●	●	●	
TM8727	●	●								
TM8726	●	●								
TM8725	●	●								
TM8722/62	●	●								



TM8723/63	●											
TM8724	●											
TM8721/61		●										
TM8720		●										
TM87P18M	●	●										
TM87R04	●	●										
TM8530	●	●										

Note:
TM87ML28 auto-set SRP X3/2 = 1 when TMR3/2 set Ctm3/2=XCLK.

Timer Clock Source

Project	PH9	PH3	PH15	FREQ	PH5	PH7	PH11	PH13	CX	CX2	INT	XCLK
TM8959/TM89P59M	●	●	●	●	●	●	●	●	●	●	●	
TM8957/TM89P57M	●	●	●	●	●	●	●	●	●	●	●	
TM8955/TM89P55M	●	●	●	●	●	●	●	●	●	●	●	
TM8952/ TM89P52M	●	●	●	●	●	●	●	●	●	●	●	
TM8951/TM89P51M	●	●	●	●	●	●	●	●	●	●	●	
TM8793	●	●	●	●	●	●	●	●	●	●	●	
TM87ML28	●	●	●	●	●	●	●	●	●	●	●	●
TM8727/PL37	●	●	●	●	●	●	●	●				
TM8726/ML26/PL36	●	●	●	●	●	●	●	●				
TM8725/ML25/PL35	●	●	●	●	●	●	●	●				
TM87P32	●	●	●	●	●	●	●	●				
TM8722/62/ML22	●	●	●	●	*1	*1	*1	*1				
TM87M23	●	●	●	●	*1	*1	*1	*1				
TM8723/63	●	●	●	●								
TM8724	●	●	●									
TM8721/61	●	●	●	●	●	●	●	●				
TM8720	●	●	●		●	●	●	●				
TM87P18M	●	●	●	●	●	●	●	●				
TM87R04	●	●	●	●	●	●	●	●				
TM8530	●	●	●	●	●	●	●	●				

- Note:
- (1) CX/CX2/INT only can be set by instructions : T1RH/T1XH/T1TH/T2RH/T2XH/T2TH/T3RH/T3XH/T3TH/T2M3X
 - (2) TMS/TM2/TM3 Rx & TMS/TM2/TM3(#) @HL only can set PH9,PH3,PH15,and FREQ
 - (3) TM87ML28 : TMR1 no support XCLK, TMR2&TMR3 support XCLK & control by SIO.
 - (4) *1 : support for Timer2 only

8. RFC

RFC structions structure & Pins Type

Project	RFC instructions STRUCTURE	RFC Overflow no disable Counter	CX/2 P-L for RFC not active	RFC0~5 output type	
				Resistance	Capacitance
TM8959/TM89P59M	B	●	●	●	●



TM8957/TM89P57M	B	●	●	●	●
TM8955/TM89P55M	B	●	●	●	●
TM8952/TM89P52M	B	●	●	●	●
TM8951/TM89P51M	B	●	●	●	●
TM8793/TM87ML28	A/B	●	●	●	●
TM87ML25/26	A	●	●	●	●
TM87ML22/M23	A	●	●	●	
TM87PL35/36/37	A	●	●	●	●
TM87P32	A	●	●	●	●
TM8727	A	●		●	
TM8726	A	●		●	
TM8725	A		●	●	
TM8722	A	●		●	
TM8762	A	●	●	●	
TM8723/63	-		-	-	-
TM8724	-		-	-	-
TM8721/61	A			●	
TM8720	-		-	-	-
TM87P18M	A			●	
TM87R04	-		-	-	-
TM8530	A			●	

Note:

(1) STRUCTURE:

A : set & enable RFC only by SRF instruction(support RFC0~2 only).

B : set & enable RFC is combined with SRF(only set RFC0~5 output), SCX,SCNT, SF2,RF2 instructions, read SCF11(CX),I2(CX2) by MAF instruction & read CX,CX2 input by MDX instruction.

(2) RFC0,1,2 = RR,RT,RH

RFC Mode

Project	SOFTWARE CONTROL	Timer2 Control	CX/2 - One Cycle	CX/2 - High LEVEL	CX/2 – Rising Edge	Counter clock source=FREQ for not CX/2 control mode
TM8959/TM89P59M	●	●	●	●		●
TM8957/TM89P57M	●	●	●	●		●
TM8955/TM89P55M	●	●	●	●		●
TM8952/TM89P52M	●	●	●	●		●
TM8951/TM89P51M	●	●	●	●		●
TM8793	●	●	●	●		●
TM87ML26	●	●	●	●	●	●
TM87PL35/36/37	●	●	●	●	●	●
TM87P32	●	●	●	●	●	●
TM87ML28	●	●	●	●		●(B Type)
TM87ML22/25	●	●	●	●		
TM87M23	●	●	●	●		



TM8727	●	●*1	●		
TM8726	●	●*1	●		
TM8725	●	●	●		
TM8722/62	●	●*1	●		
TM8723/63	-	-	-	-	-
TM8724	-	-	-	-	-
TM8721/61	●	●*1	●		
TM8720	-	-	-	-	-
TM87P18M	●	●*1	●		
TM87R04	-	-	-	-	-
TM8530	●	●*1	●		

Note:

*1 : still can't execute Timer2(count value=00h) before execute RFC by Timer2 control Mode

RFC Counter

Project	RFC(16bits)	Timer1	Timer2	Timer3
TM8959/TM89P59M	●	●	●	●
TM8957/TM89P57M	●	●	●	●
TM8955/TM89P55M	●	●	●	●
TM8952/TM89P52M	●			
TM8951/TM89P51M	●			
TM8793	●	●	●	●
TM87ML28/M23	●			
TM8727/PL37	●			
TM8726/ML26/PL36	●			
TM8725/ML25/PL35	●			
TM8722/62/ML22/P32	●			
TM8723/63	-	-	-	-
TM8724	-	-	-	-
TM8721/61	●			
TM8720	-	-	-	-
TM87P18M	●			
TM87R04	-	-	-	-
TM8530	●			

RFC Pins

Project	CX	RFC0 (RR)	RFC1 (RT)	RFC2 (RH)	RFC3	RFC4	RFC5	CX2
TM8959/TM89P59M	●	●	●	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●				
TM8951/TM89P51M	●	●	●	●				
TM8793/TM87ML28	●	●	●	●	●	●	●	●



TM8727/PL37	●	●	●	●				
TM8726/ML26/PL36	●	●	●	●				
TM8725/ML25/PL35	●	●	●	●				
TM8722/62/ML22/P32	●	●	●	●				
TM87M23	●	●	●	●				
TM8723/63	-	-	-	-	-	-	-	-
TM8724	-	-	-	-	-	-	-	-
TM8721/61	●	●	●	●				
TM8720	-	-	-	-	-	-	-	-
TM87P18M	●	●	●	●				
TM87R04	-	-	-	-	-	-	-	-
TM8530	●	●	●	●				

9. EL(Only ELP have difference)/FREQ/ALM

Project	ELP Clock Source			ELP DUTY			FRQ	ALM
	BCLK BCLK/2 BCLK/4 BCLK/8	PH0	FREQB	1/1,1/2	1/3,1/4	2/3,3/4		
TM8959/TM89P59M	●	●	●	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●	●	●	●
TM8793	●	●	●	●	●	●	●	●
TM87ML25/26/28	●	●	●	●	●	●	●	●
TM87PL35/36/37	●	●	●	●	●	●	●	●
TM87P32	●	●	●	●	●	●	●	●
TM8727	●	●		●	●	●	●	●
TM8726	●	●		●	●	●	●	●
TM8725	●	●		●	●	●	●	●
TM8722/62/ML22	●	●		●		●	●	●
TM8723/63/M23	●	●		●		●	●	●
TM8724	-	-	-	-	-	-		●
TM8721/61	-	-	-	-	-	-	●	●
TM8720	-	-	-	-	-	-		●
TM87P18M	-	-	-	-	-	-	●	●
TM87R04	-	-	-	-	-	-	●	●
TM8530	-	-	-	-	-	-	●	●



10. Key-Scan & Non-overlap
Key-Scan

Project	Key-Scan cycle	KI <-> IOC		
		Pad Share to IOC by Code Option	Instruction for Read Input Data	Need set SPC output for KI pins to avoid Affect CSR
TM8959/TM89P59M	Fix PH6 cycle		MKI	
TM8957/TM89P57M	Fix PH6 cycle		MKI	
TM8955/TM89P55M	Fix PH6 cycle		MKI	
TM8952/TM89P52M	Fix PH6 cycle		MKI	
TM8951/TM89P51M	Fix PH6 cycle		MKI	
TM8793	1/2 Alternating cycle / Fix PH6 cycle	●	IPC/ MKI	Follow Mask Type
TM87ML28	1/2 Alternating cycle	●	IPC , MKI	
TM87ML25/26	1/2 Alternating cycle	●	IPC	
TM87PL25/36/37	1/2 Alternating cycle	●	IPC	
TM87P32	1/2 Alternating cycle	●	IPC	
TM8727	1/2 Alternating cycle	●	IPC	●
TM8726	1/2 Alternating cycle	●	IPC	●
TM8725	1/2 Alternating cycle	●	IPC	●
TM8722/62/ML22	1/2 Alternating cycle	●	IPC	●
TM8723/63/M23	1/2 Alternating cycle	●	IPC	●
TM8724	-	-	-	-
TM8721/61	-	-	-	-
TM8720	-	-	-	-
TM87P18M	1/2 Alternating cycle	●	IPC	●
TM87R04	-	-	-	-
TM8530	-	-	-	-

Non-overlap

Project	NON-OVERLAP FOR COM&SEG OUTPUT				NON-OVERLAP WIDTH for key-scan use		
	ALL USE	ONLY COM, SEG1-16	ALL HI-Z	ALL NO USE	PH0	PH1	PH2



		USE					
TM8959/TM89P59M	●		●	●	●	●	
TM8957/TM89P57M	●		●	●	●	●	
TM8955/TM89P55M	●		●	●	●	●	
TM8952/TM89P52M	●		●	●	●	●	
TM8951/TM89P51M	●		●	●	●	●	
TM8793	●	●	●	●	●	●	TM8723
TM87ML22/25/26/28	●		●	●	●	●	
TM87M23/P32	●		●	●	●	●	
TM87PL35/36/37	●		●	●	●	●	
TM8727	●	●		●		●	
TM8726	●	●		●		●	
TM8725	●	●		●		●	
TM8722	●					●	
TM8762	●			●		●	
TM8723	●					●	●
TM8763	●			●		●	
TM8724				●		-	-
TM8721/61			●			-	-
TM8720			●			-	-
TM87P18M	●		●	●		●	
TM87R04			●			-	-
TM8530				●		-	-

Note:

(1) TM8723 : "NON-OVERLAP WIDTH"=PH2 for FAST-Only Mode

Instruction Table

1. Basic fix instructions :

NOP/HALT/STOP	
ADC/SBC/ADC/SUB/AND/AND/EOR/OR(*)	Rx
ADCI/SBCI/ADCI/SUBI/ANDI/ANDI/EORI/ORI(*)	Ry,D
INC*/DEC*	Rx
MAF/MSB/MSB	Rx
SR0/SR1/SL0/SL1	Rx
DAA/DAS	
DAA*/DAS*	Rx
LDS	Rx,D
STA/LDA	Rx
MRA	Rx
MRW	Ry,Rx



MWR	Rx,Ry
JB0/JB1/JB2/JB3/JNZ/JNC/JZ/JC/CALL/JMP	X
SHE/SIE*/SRE/PLC/SCC/SCA	X
FAST/SLOW	X
SF/RF/SF2/RF2	X

2. &,%,\$ for INDEX REGISTER (HL and ZR) & “@ZR,Ry”

Project	IDC&/%/\$ IDC8&/%/\$ IDCH&/%/\$	LID&/%/\$ LID8&/%/\$ LIDH&/%/\$	LID&/%/\$ LID8&/%/\$ LIDH&/%/\$	LCD(H)/&/%/\$ LCT/&/%/\$ LCB/&/%/\$ LCP/&/%/\$	LCT(#) LCB(#) LCP(#)
		@ZR,@HL	@HL,@ZR	@ZR,@HL	@ZR,Ry
TM8959/TM89P59M	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●
TM8793	●	●	●	●	●
TM87ML22/25/26	IDC&				
TM87M23/P32	IDC&				
TM87PL35/36/37	IDC&				
TM8727					
TM8726					
TM8725					
TM8722/62					
TM8723/63					
TM8724					
TM8721/61					
TM8720					
TM87P18M					
TM87R04					
TM8530					

3. Lz

Project	LCT/B/P	LCD/T/B/P(#)	LCDX/TX/BX/PX	LCE	LCE
	Lz,Ry	Lz,@HL	D	Lz,@HL	Lz,@ZR
TM8959/TM89P59M	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●
TM8793	●	●	●	●	●
TM87ML28	●	LCD/T/B/P	●		
TM8727/PL37	●	LCD/T/B/P	●		
TM8726/ML26/PL36	●	LCD/T/B/P	●		
TM87ML25/PL35	●	●	●		
TM8725	●	LCD/T/B/P	●		



TM87ML22/P32	●	●	●		
TM8722/62	●	LCD/T/B/P			
TM87M23	●	●	●		
TM8723/63	●	LCD/T/B/P			
TM8724	●	LCD/T/B/P			
TM8721/61	●	LCD/T/B/P			
TM8720	LCP Lz,Ry			-	-
TM87P18M	●	LCD/T/B/P			
TM87R04	●				
TM8530	●	LCD/T/B/P	●		

4. IOA~E

Project	IOA		IOB	IOC	IOD	IOE
	OPA Rx IPA Rx SPA X	OPAS Rx,D	OPB Rx IPB Rx SPB X	OPC Rx IPC Rx SPC X	OPD Rx IPD Rx SPD X	OPE Rx IPE Rx SPE X
TM8959/TM89P59M	●	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●	●
TM8793/ML28	●	●	●	●	●	●
TM87PL36/37	●	●	●	●	●	●
TM87ML26	●	●	●	●	●	IOE1,2
TM8727	●	●	●	●	●	
TM8726/ML25/PL35	●	●	●	●	●	
TM8725	●	●	●	●	●	
TM8722/62/ML22/P32	●	●	●	●		
TM8723/63/M23	●	●	●	●		
TM8724	●	●	●	●		
TM8721/61	●		●	●		
TM8720	●		●			
TM87P18M	●	●	●	●	●	
TM87R04	●	●	●	●	●	
TM8530	●	●	●	●	●	

5. FRQ/ELC/ALM/SBZ

Project	FRQ D,Rx FRQX D,X	FRQ D,@HL	FRQ# D,HL	ELC	ALM	SBZ
TM8959/TM89P59M	●	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●	●



TM8951/TM89P51M	●	●	●	●	●	●
TM8793/ML28	●	●	●	●	●	●
TM87ML25/26	●	●	●	●	●	●
TM87ML22/M23	●	●	●	●	●	
TM87PL35/36/37	●	●	●	●	●	●
TM87P32	●	●	●	●	●	●
TM8727	●	●		●	●	
TM8726	●	●		●	●	
TM8725	●	●		●	●	
TM8722/62	●	●		●	●	
TM8723/63	●	●		●	●	
TM8724					●	
TM8721/61	●	●			●	
TM8720					●	
TM87P18M	●	●			●	
TM87R04	●				●	
TM8530	●	●			●	

6. Set/Read Index address of HL & ZR

Project	MVL Rx	MVH Rx	MVU Rx	MVV Rx	RVL Rx	RVH Rx	RVU Rx	RVV Rx
TM8959/TM89P59M	●	●	●	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●	●	●	●
TM8793	●	●	●*2	●	●	●	●	●
TM87ML28	●	●	●	●				
TM87PL36/37	●	●	●	●				
TM87P32/PL35	●	●	●					
TM8727	●	●	●					
TM8726/ML26	●	●	●					
TM8725/ML25	●	●	●					
TM8722/62/ML22	●	●*1						
TM8723/63/M23	●	●*1						
TM8724	●	●*1						
TM8721/61	●	●*1						
TM8720								
TM87P18M	●	●	●					
TM87R04								
TM8530	●	●	●					

Note:

*1 : Set IDBF8~11 by AC



2 : TM8793 support set IDBF8~11 by AC or MVU follow Mask Type.

Project	MRL Rx	MRH Rx	MRU Rx	MRV Rx	RRL Rx	RRH Rx	RRU Rx	RRV Rx
TM8959/TM89P59M	●	●	●	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●	●	●	●
TM8793	●	●	●	●	●	●	●	●
TM87ML28								
TM8727/PL37								
TM8726/ML26/PL36								
TM8725/ML25/PL35								
TM8722/62/ML22/P32								
TM8723/63/M23								
TM8724								
TM8721/61								
TM8720								
TM87P18M								
TM87R04								
TM8530								

Project	SHL X	SZR X	MHL X RHL X	MZR X RZR X
TM8959/TM89P59M	●	●	●	●
TM8957/TM89P57M	●	●	●	●
TM8955/TM89P55M	●	●	●	●
TM8952/TM89P52M	●	●	●	●
TM8951/TM89P51M	●	●	●	●
TM8793	●	●	●	●
TM87ML28				
TM8727/PL37				
TM8726/ML26/PL36				
TM8725/ML25/PL35				
TM8722/62/ML22/P32				
TM8723/63/M23				
TM8724				
TM8721/61				
TM8720				
TM87P18M				
TM87R04				
TM8530				

7. Arithmetic/Logic Operation Instructions

Project	ADC(*) SBC(*) ADD(*) SUB(*) ADN(*) AND(*) EOR(*)	ADC(*)# SBC(*)# ADD(*)# SUB(*)# AND(*)# AND(*)# EOR(*)#



	OR(*)				OR(*)#			
	@HL	@HL,DA	@ZR	@ZR,DA	@HL	@HL,DA	@ZR	@ZR,DA
TM8959/TM89P59M	●	●	●	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●	●	●	●
TM8793	●	●	●	●	●	●	●	●
TM87ML22/25/26/28	●	●			●	●		
TM87M23/P32	●	●			●	●		
TM87PL35/36/37	●	●			●	●		
TM8727	●				●			
TM8726	●				●			
TM8725	●				●			
TM8722/62	●							
TM8723/63	●							
TM8724	●							
TM8721/61	●							
TM8720								
TM87P18M	●				●			
TM87R04								
TM8530	●				●			

Project	ADCM(*) SBCM(*) ADDM(*) SUBM(*)				ADCM#(*) SBCM#(*) ADDM#(*) SUBM#(*)			
	@HL	@HL,DA	@ZR	@ZR,DA	@HL	@HL,DA	@ZR	@ZR,DA
TM8959/TM89P59M	●	●	●	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●	●	●	●
TM8793	●	●	●	●	●	●	●	●
TM87ML28								
TM8727/PL37								
TM8726/ML26/PL36								
TM8725/ML25/PL35								
TM8722/62/ML22/P32								
TM8723/63/M23								
TM8724								
TM8721/61								
TM8720								
TM87P18M								
TM87R04								
TM8530								



Project	SMUI MMH	SMUI(#) MMH(#)	SMUI(#) MMH(#)	MULH	MULH(#)	MULH(#)	MULD	MULD(#)	MULD(#)
	Rx	@HL	@ZR	Rx	@HL	@ZR	Rx	@HL	@ZR
TM8959/TM89P59M	●	●	●	●	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●	●	●	●	●
TM8793	●	●	●	●	●	●	●	●	●
TM87ML28									
TM8727/PL37									
TM8726/ML26/PL36									
TM8725/ML25/PL35									
TM8722/62/ML22/P32									
TM8723/63/M23									
TM8724									
TM8721/61									
TM8720									
TM87P18M									
TM87R04									
TM8530									

Project	INC* DEC*		INC*# DEC*#		DAA* DAS*		DAA*# DAS*#	
	@HL	@ZR	@HL	@ZR	@HL	@ZR	@HL	@ZR
TM8959/TM89P59M	●	●	●	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●	●	●	●
TM8793	●	●	●	●	●	●	●	●
TM87ML22/ML28	●		●		●		●	
TM87M23/P32	●		●		●		●	
TM8727/PL37	●		●		●		●	
TM8726/ML26/PL36	●		●		●		●	
TM8725/ML25/PL35	●		●		●		●	
TM8722/62	●				●			
TM8723/63	●				●			
TM8724	●				●			
TM8721/61	●				●			
TM8720								
TM87P18M	●		●		●		●	
TM87R04								



TM8530	●		●		●		●	
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Project	RRC RLC			RRC# RLC#	
	Rx	@HL	@ZR	@HL	@ZR
TM8959/TM89P59M	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●
TM8793	●	●	●	●	●
TM87ML22/25/26/28	●	●		●	
TM87M23/P32	●	●		●	
TM87PL35/36/37	●	●		●	
TM8727					
TM8726					
TM8725					
TM8722/62					
TM8723/63					
TM8724					
TM8721/61					
TM8720					
TM87P18M					
TM87R04					
TM8530					

8. LDS/8/H for INDEX REGISTER (HL and ZR)

Project	LDS(#)		LDS8(#)		LDSH(#)	
	@HL,D	@ZR,D	@HL,D	@ZR,D	@HL	@ZR
TM8959/TM89P59M	●	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●	●
TM8793	●	●	●	●	●	●
TM87ML22/25/26/28	●					
TM87M23/P32	●					
TM87PL35/36/37	●					
TM8727						
TM8726						
TM8725						
TM8722/62						
TM8723/63						
TM8724						
TM8721/61						
TM8720						
TM87P18M						
TM87R04						
TM8530						



9. LDA/STA/MMW/MWM

Project	LDA STA		LDA# STA#		MMW	MWM
	@HL	@ZR	@HL	@ZR	Ry,Rm	Rm,Ry
TM8959/TM89P59M	●	●	●	●		
TM8957/TM89P57M	●	●	●	●		
TM8955/TM89P55M	●	●	●	●		
TM8952/TM89P52M	●	●	●	●		
TM8951/TM89P51M	●	●	●	●		
TM8793	●	●	●	●		
TM87PL35/36/37	●		●		●	●
TM87P32	●		●		●	●
TM87ML22/25/26/28	●		●		●	●
TM87M23	●		●			
TM8727	●		●			
TM8726	●		●			
TM8725	●		●			
TM8722/62	●					
TM8723/63	●					
TM8724	●					
TM8721/61	●					
TM8720						
TM87P18M	●		●			
TM87R04						
TM8530	●		●			

10. MRW/MWR with INDEX REGISTER (HL and ZR)

Project	MRW		MWR		MRW#		MWR#	
	@HL,Rx	@ZR,Rx	Rx,@HL	Rx,@ZR	@HL,Rx	@ZR,Rx	Rx,@HL	Rx,@ZR
TM8959/TM89P59M	●	●	●	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●	●	●	●
TM8793	●	●	●	●	●	●	●	●
TM87ML22/28	●		●		●		●	
TM87M23/P32	●		●		●		●	
TM8727/PL37	●		●		●		●	
TM8726/ML26/PL36	●		●		●		●	
TM8725/ML25/PL35	●		●		●		●	
TM8722/62	●		●					
TM8723/63	●		●					



TM8724	●		●				
TM8721/61	●		●				
TM8720							
TM87P18M	●		●		●		●
TM87R04							
TM8530	●		●		●		●

11. STACK POINT & STS Read

Project	LSP Rx	MCX Rx	MSD Rx	MDX Rx	MKI Rx
TM8959/TM89P59M	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●
TM8793	●	●	●	●	●
TM87ML28		●	●	●	●
TM87ML26/P32		●	●	●(INT Only)	
TM87PL35/36/37		●	●	●(INT Only)	
TM8727		●	●		
TM8726		●	●		
TM8725/ML25		●	●		
TM8722/62/ML22		●	●		
TM8723/63/M23		●	●		
TM8724			●		
TM8721/61		●	●		
TM8720		●			
TM87P18M		●	●		
TM87R04		●	●		
TM8530		●	●		

12. Compare with INDEX REGISTER (HL and ZR)/LDL/LDH/CAC/JAC

Project	CPHL	CPZR	CPHLH	CPZRH	LDL/H(*)	CAC	JAC
	X	X			Rx,@HL		
TM8959/TM89P59M	●	●	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●	●	●
TM8793	●	●	●	●	●	●	●
TM87ML28	●		●		●	●	●
TM8727/PL37	●				●		
TM8726/ML26/PL36	●				●		



TM8725/ML25/PL35	●				●		
TM87P32	●				●		
TM8722/62/ML22					●		
TM8723/63/M23					●		
TM8724					●		
TM8721/61					●		
TM8720							
TM87P18M	●				●		
TM87R04							
TM8530	●				●		

Note:

(1) TM8726 still can't auto-mask interrupt release when execute CPHL instruction.

(2) If TM87P18M convert from TM8726, also follow TM8726 not auto-mask interrupt release when execute CPHL instruction.

13. Page & BANK

Project	S X ERX X	SRY X ERY X	SLZ X ELZ X	CLPG	SPBK	SF2 X6=1 (X5,4 for set BANK)
TM8959/TM89P59M	●	●	●	●	●	
TM8957/TM89P57M	●	●	●	●	●	
TM8955/TM89P55M	●	●	●	●	●	
TM8952/TM89P52M	●	●	●	●	●	
TM8951/TM89P51M	●	●	●	●	●	
TM8793	●	●	●	●	●	TM8727
TM87ML28	●	●	●	●	●	
TM8727/PL37/PL36						●
TM8726/ML26						
TM8725/ML25/PL35						
TM8722/62/ML22/P32						
TM8723/63/M23						
TM8724						
TM8721/61						
TM8720						
TM87P18M						
TM87R04						
TM8530						

14. Timer

Project	TMS Rx	TMS X	TMS @HL	TMS# @HL	T1RH	T1XH	T1TH	T1TH#
							@HL	@HL
TM8959/TM89P59M	●	●	●	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●	●	●	●
TM8793	●	●	●	●	●	●	●	●
TM87ML28	●	●	●	●		●	●	●



TM87ML22/25/26	●	●	●	●				
TM87M23/P32	●	●	●	●				
TM87PL35/36/37	●	●	●	●				
TM8727	●	●	●					
TM8726	●	●	●					
TM8725	●	●	●					
TM8722/62	●	●	●					
TM8723/63	●	●	●					
TM8724	●	●	●					
TM8721/61								
TM8720								
TM87P18M	●	●	●					
TM87R04	●	●						
TM8530	●	●	●					

Project	TM2	TM2	TM2	TM2#	T2RH	T2XH	T2TH	T2TH#	T2M3X
	Rx	X	@HL	@HL			@HL	@HL	X
TM8959/TM89P59M	●	●	●	●	●	●	●	●	●
TM8957/TM89P57M	●	●	●	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●	●	●	●	●
TM8793	●	●	●	●	●	●	●	●	●
TM87ML28	●	●	●	●		●	●	●	●
TM87ML22/25/26	●	●	●	●					
TM87M23/P32	●	●	●	●					
TM87PL35/36/37	●	●	●	●					
TM8727	●	●	●						
TM8726	●	●	●						
TM8725	●	●	●						
TM8722/62	●	●	●						
TM8723/63									
TM8724									
TM8721/61	●	●	●						
TM8720	●	●							
TM87P18M	●	●	●						
TM87R04	●	●							
TM8530	●	●	●						

Project	TM3	TM3	TM3	TM3#	T3RH	T3XH	T3TH	T3TH#
	Rx	X	@HL	@HL			@HL	@HL
TM8959/TM89P59M	●	●	●	●	●	●	●	●



TM8957/TM89P57M	●	●	●	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●	●	●	●	●
TM8793	●	●	●	●	●	●	●	●	●
TM87ML28	●	●	●	●		●	●	●	●
TM8727/PL37									
TM8726/ML26/PL36									
TM8725/ML25/PL35									
TM8722/62/ML22/P32									
TM8723/63/M23									
TM8724									
TM8721/61									
TM8720									
TM87P18M									
TM87R04									
TM8530									

Project	RTM2L	RTM2I	RTMIH	RTM3L	RTM3I	STM	DISTM	SRP	STE
TM8959/TM89P59M	●	●	●	●	●	●	●		
TM8957/TM89P57M	●	●	●	●	●	●	●		
TM8955/TM89P55M	●	●	●	●	●	●	●		
TM8952/TM89P52M	●	●	●	●	●	●	●		
TM8951/TM89P51M	●	●	●	●	●	●	●		
TM8793	●	●	●	●	●	●	●		
TM87ML28	●	●	●	●	●	●	●	●	●
TM87PL35/36/37	●	●	●				●	●	
TM87P32	●	●	●				●	●	
TM87ML25/26	●	●	●				●		
TM87ML22/M23	●	●	●						
TM8727									
TM8726									
TM8725									
TM8722/62									
TM8723/63									
TM8724									
TM8721/61									
TM8720									
TM87P18M									
TM87R04									
TM8530									

15. Key-scan

Project	SPK	SPKX	SPK	SPK#	SPKRH	SPKXH	SPKTH	SPKTH#
	Rx	X	@HL	@HL			@HL	@HL
TM8959/TM89P59M	●	●	●	●	●	●	●	●



TM8957/TM89P57M	●	●	●	●	●	●	●	●
TM8955/TM89P55M	●	●	●	●	●	●	●	●
TM8952/TM89P52M	●	●	●	●	●	●	●	●
TM8951/TM89P51M	●	●	●	●	●	●	●	●
TM8793	●	●	●	●	●	●	●	●
TM87ML28	●	●	●	●		●	●	●
TM87ML25/26	●	●	●	●				
TM87PL35/36/37	●	●	●	●				
TM87P32	●	●	●	●				
TM8727	●	●	●					
TM8726	●	●	●					
TM8725	●	●	●					
TM8722/62/ML22		●*1						
TM8723/63/M23		●*1						
TM8724								
TM8721/61								
TM8720								
TM87P18M	●	●	●					
TM87R04								
TM8530								

Note:

(1) '*1' : instruction name is SPX X not SPKX X

16. RFC

Project	STRUCTURE A	STRUCTURE B				MRF1~4
	SRF	SRF	SCNT	SCX	SF2/RF2 X6,5	
TM8959/TM89P59M		●	●	●	●	●
TM8957/TM89P57M		●	●	●	●	●
TM8955/TM89P55M		●	●	●	●	●
TM8952/TM89P52M		●	●	●	●	●
TM8951/TM89P51M		●	●	●	●	●
TM8793/TM87ML28	●	●	●	●	●	●
TM8727/PL37	●					●
TM8726/ML26/PL36	●					●
TM8725/ML25/PL35	●					●
TM8722/62/ML22/P32	●					●
TM87M23	●					●
TM8723/63						
TM8724						
TM8721/61	●					●
TM8720						
TM87P18M	●					●



TM87R04						
TM8530	●					●

Note:

- (1) STRUCTURE A : SRF instruction can control all set & enable.
- (2) STRUCTURE B : SRF instruction only can control enable RFC0~5

17. IAP & UTILITY

Project	IAP			UTILITY			
	SIAP	MRI(#)	PTR	ST3OV	ADJ	SXCLK	SWPWR
TM8959/TM89P59M							
TM8957/TM89P57M							
TM8955/TM89P55M							
TM8952/TM89P52M							
TM8951/TM89P51M							
TM8793							
TM87ML28		●	●	●	●	●	
TM87PL37							●
TM87P32/PL35/PL36	●	●	●*1			●	●
TM8727							
TM8726/ML26							
TM8725/ML25							
TM8722/62/ML22							
TM8723/63/M23							
TM8724							
TM8721/61							
TM8720							
TM87P18M							
TM87R04							
TM8530							

Note:

*1 : Need set Timer2 & HEF4=1 before execute each PTR in IAP mode for control program time & enable release after execute PTR.