

## Intel 80C186EB and 80C188EB device types

Intel Part #	Temperature	Package	Frequency	Replaced by
N80C186EB25	0 to +70	Plastic 84 PLCC – RoHS	25 MHz	TK80C186EB-25CA
S80C186EB25	0 to +70	Plastic 80 PQFP – RoHS	25 MHz	TK80C186EB-25CB
SB80C186EB25	0 to +70	Plastic 80 TQFP – RoHS	25 MHz	TK80C186EB-25CT
TN80C186EB25	-40 to +85	Plastic 84 PLCC – RoHS	25 MHz	TK80C186EB-25IA
TS80C186EB25	-40 to +85	Plastic 80 PQFP – RoHS	25 MHz	TK80C186EB-25IB
TSB80C186EB25	-40 to +85	Plastic 80 TQFP – RoHS	25 MHz	TK80C186EB-25IT
N80C188EB25	0 to +70	Plastic 84 PLCC – RoHS	25 MHz	TK80C188EB-25CA
S80C188EB25	0 to +70	Plastic 80 PQFP – RoHS	25 MHz	TK80C188EB-25CB
SB80C188EB25	0 to +70	Plastic 80 TQFP – RoHS	25 MHz	TK80C188EB-25CT
TN80C188EB25	-40 to +85	Plastic 84 PLCC – RoHS	25 MHz	TK80C188EB-25IA
TS80C188EB25	-40 to +85	Plastic 80 PQFP – RoHS	25 MHz	TK80C188EB-25IB
TSB80C188EB25	-40 to +85	Plastic 80 TQFP – RoHS	25 MHz	TK80C188EB-25IT
80C188EB-25ITR	-40 to +85	Plastic 80 TQFP – Non-RoHS	25 MHz	TK80C188EB-25ITR

## NXP 83C751 device types

NXP Part #	Temperature	Package	Frequency	Replaced by
S83C751-1N24	0 to +70	Plastic 24.3 DIP - RoHS	3.5 to 12 MHz	TK83C751-1N24
S83C751-2N24	-40 to +85	Plastic 24.3 DIP - RoHS	3.5 to 12 MHz	TK83C751-2N24
S83C751-4N24	0 to +70	Plastic 24.3 DIP - RoHS	3.5 to 16 MHz	TK83C751-4N24
S83C751-5N24	-40 to +85	Plastic 24.3 DIP - RoHS	3.5 to 16 MHz	TK83C751-5N24
S83C751-1A28	0 to +70	Plastic 28 PLCC – RoHS	3.5 to 12 MHz	TK83C751-1A28
S83C751-2A28	-40 to +85	Plastic 28 PLCC-RoHS	3.5 to 12 MHz	TK83C751-2A28
S83C751-4A28	0 to +70	Plastic 28 PLCC- RoHS	3.5 to 16 MHz	TK83C751-4A28
S83C751-5A28	-40 to +85	Plastic 28 PLCC - RoHS	3.5 to 16 MHz	TK83C751-5A28

## NXP 87C751 device types

NXP Part #	Temperature	Package	Frequency	Replaced by
S87C751-1A28	0 to +70	Plastic 28 PLCC - RoHS	3.5 to 12 MHz	TK87C751-1A28
S87C751-2A28	-40 to +85	Plastic 28 PLCC - RoHS	3.5 to 12 MHz	TK87C751-2A28
S87C751-4A28	0 to +70	Plastic 28 PLCC - RoHS	3.5 to 16 MHz	TK87C751-4A28
S87C751-5A28	-40 to +85	Plastic 28 PLCC - RoHS	3.5 to 16 MHz	TK87C751-5A28

## NXP 89C668 device types

NXP Part #	Temperature	Package	Frequency	Replaced by
P89C668HBA	0 to +70	Plastic 44 PLCC - RoHS	20/33 MHz	TK89C668AC
P89C668HFA	-40 to +85	Plastic 44 PLCC - RoHS	20/33 MHz	TK89C668AI

## 80C31,80C32,80C51 Microcontroller Cross References

The TK80C51FA contains a superset of previous 8051 architectures. As a result, it may be used to replace many earlier devices. The following table provides a cross reference.

### Cross Reference for Intel 80C31,80C32,80C51 devices

Device	Temp	Speed	Package	Tekmos Replacement	Note
<b>80C31BH Family</b>					
BE80C31BH-1	M	16	PDIP	TK80C51FA-PM	1
EE80C31BH-1	C	16	PDIP	TK80C51FA-PC	
EN80C31BH-1	C	16	PLCC	TK80C51FA-AC	
ES80C31BH-1	C	16	LQFP	TK80C51FA-BC	
LD80C31BH-1	I	16	CERDIP	TK80C51FA-PI	1, 2
LN80C31BH-1	I	16	PLCC	TK80C51FA-AI	1
LP80C31BH-1	I	16	PDIP	TK80C51FA-PI	1
N80C31BH-1	C	16	PLCC	TK80C51FA-AC	
P80C31BH-1	C	16	PDIP	TK80C51FA-PC	
S80C31BH-1	C	16	LQFP	TK80C51FA-BC	
TN80C31BH-1	I	16	PLCC	TK80C51FA-AI	
TP80C31BH-1	I	16	PDIP	TK80C51FA-PI	
UJ80C31BH-1					3
<b>80C32 Family</b>					
P80C32-1	C	16	PDIP	TK80C51FA-PC	
P80C32-24	C	24	PDIP	TK80C51FA-PC	
N80C32-1	C	16	PLCC	TK80C51FA-AC	
N80C32-24	C	24	PLCC	TK80C51FA-AC	
TP80C32-1	I	16	PDIP	TK80C51FA-PI	
TN80C32-1	I	16	PLCC	TK80C51FA-AI	
LP80C32-1	I	16	PDIP	TK80C51FA-PI	1
LN80C32-1	I	16	PLCC	TK80C51FA-AI	1
<b>80C51 Family</b>					
P80C51FA-1	C	16	PDIP	TK80C51FA-PC	
P80C51FA-24	C	24	PDIP	TK80C51FA-PC	
N80C51FA-1	C	16	PLCC	TK80C51FA-AC	
N80C51FA-24	C	24	PLCC	TK80C51FA-AC	
TP80C51FA-1	I	16	PDIP	TK80C51FA-PI	
TN80C51FA-1	I	16	PLCC	TK80C51FA-AI	
LP80C51FA-1	I	16	PDIP	TK80C51FA-PI	1
LN80C51FA-1	I	16	PLCC	TK80C51FA-AI	1

#### Notes:

1. Tekmos part is not burned-in. Burn-in services are available. Contact Factory
2. PDIP package replacing CERDIP package.
3. Contact Factory for specification matching.
4. Tekmos parts have a maximum speed of 20 MHz with 6X clock

## Cross Reference for NXP 80C31,80C32,80C51 devices

Device	Temp	Speed	Package	Tekmos Replacement	Note
<b>80C31 Family</b>					
P80C31SBAA	C	16	PLCC	TK80C51FA-AC	
P80C31SBBB	C	16	LQFP	TK80C51FA-BC	
P80C31SBPN	C	16	PDIP	TK80C51FA-PC	
P80C31SFAA	I	16	PLCC	TK80C51FA-AI	
P80C31SFBB	I	16	LQFP	TK80C51FA-BI	
P80C31SFPN	I	16	PDIP	TK80C51FA-PI	
P80C31UBAA	C	33	PLCC	TK80C51FA-AC	
P80C31UBBB	C	33	LQFP	TK80C51FA-BC	
P80C31UBPN	C	33	PDIP	TK80C51FA-PC	
P80C31UFAA	I	33	PLCC	TK80C51FA-AI	
P80C31UFBB	I	33	LQFP	TK80C51FA-BI	
P80C31UFPN	I	33	PDIP	TK80C51FA-PI	
<b>80C32 Family</b>					
P80C32EBPN			PLCC	TK80C51FA-PC	1
P80C32IBAA	C	33	PLCC	TK80C51FA-AC	
P80C32IBBB	C	33	LQFP	TK80C51FA-BC	
P80C32IBPN	C	33	PDIP	TK80C51FA-PC	
P80C32NBPN			PDIP	TK80C51FA-PC	1
P80C32SBAA	C	16	PLCC	TK80C51FA-AC	
P80C32SBBB	C	16	LQFP	TK80C51FA-BC	
P80C32SBPN	C	16	PDIP	TK80C51FA-PC	
P80C32SFAA	I	16	PLCC	TK80C51FA-AI	
P80C32SFBB	I	16	LQFP	TK80C51FA-BI	
P80C32SFPN	I	16	PDIP	TK80C51FA-PI	
P80C32UBAA	C	33	PLCC	TK80C51FA-AC	
P80C32UBBB	C	33	LQFP	TK80C51FA-BC	
P80C32UBPN	C	33	PDIP	TK80C51FA-PC	
P80C32UFAA	I	33	PLCC	TK80C51FA-AI	
P80C32UFBB	I	33	LQFP	TK80C51FA-BI	
P80C32UFPN	I	33	PDIP	TK80C51FA-PI	
<b>80C32X2 Family</b>					
P80C31X2BA	C	30/33	PLCC	TK80C51FA-AC	2
P80C31X2BN	C	30/33	PDIP	TK80C51FA-PC	2
P80C32X2BA	C	30/33	PLCC	TK80C51FA-AC	2
P80C32X2BN	C	30/33	PDIP	TK80C51FA-PC	2
P80C32X2BBD	C	30/33	LQFP	TK80C51FA-BC	2
P80C32X2FA	I	30/33	PLCC	TK80C51FA-AI	2
P80C32X2FN	I	30/33	PDIP	TK80C51FA-PI	2
P80C32X2FBD	I	30/33	LQFP	TK80C51FA-BI	2

## Cross Reference for NXP 80C31,80C32,80C51 devices

Device	Temp	Speed	Package	Tekmos Replacement	Note
<b>80C51FA Family</b>					
P80C51FA-4N	C	16	PDIP	TK80C51FA-PC	
P80C51FA-4A	C	16	PLCC4	TK80C51FA-AC	
P80C51FA-4B	C	16	PQFP	TK80C51FA-BC	
P80C51FA-5N	I	16	PDIP	TK80C51FA-PI	
P80C51FA-5A	I	16	PLCC	TK80C51FA-AI	
P80C51FA-5B	I	16	PQFP	TK80C51FA-BI	
P80C51FA-IN	C	33	PDIP	TK80C51FA-PC	
P80C51FA-IA	C	33	PLCC	TK80C51FA-AC	
P80C51FA-IB	C	33	PQFP	TK80C51FA-BC	
P80C51FA-JN	I	33	PDIP	TK80C51FA-PI	
P80C51FA-JA	I	33	PLCC	TK80C51FA-AI	
P80C51FA-JB	I	33	PQFP	TK80C51FA-BI	

Notes:

1. Check with factory for specification matching.
2. Tekmos parts have a maximum speed of 20 MHz with 6X clock

## Cross Reference for Atmel 80C32 devices

Device	Temp	Speed	Package	Tekmos Replacement	Note
<b>80C32X2 Family</b>					
TS80C32X2-MCA	C	40	PDIP	TK80C51FA-PC	
TS80C32X2-MCB	C	40	PLCC	TK80C51FA-AC	
TS80C32X2-MCC	C	40	LQFP	TK80C51FA-BC	
TS80C32X2-MCE	C	40	TQFP	TK80C51FA-CC	
TS80C32X2-LCA	C	30	PDIP	TK80C51FA-PC	
TS80C32X2-LCB	C	30	PLCC	TK80C51FA-AC	
TS80C32X2-LCC	C	30	LQFP	TK80C51FA-BC	
TS80C32X2-LCE	C	30	TQFP	TK80C51FA-CC	
TS80C32X2-VCA	C	60	PDIP	TK80C51FA-PC	1
TS80C32X2-VCB	C	60	PLCC	TK80C51FA-AC	1
TS80C32X2-VCC	C	60	LQFP	TK80C51FA-BC	1
TS80C32X2-VCE	C	60	TQFP	TK80C51FA-CC	1
TS80C32X2-MIA	I	40	PDIP	TK80C51FA-PI	
TS80C32X2-MIB	I	40	PLCC	TK80C51FA-AI	
TS80C32X2-MIC	I	40	LQFP	TK80C51FA-BI	
TS80C32X2-MIE	I	40	TQFP	TK80C51FA-CI	
TS80C32X2-LIA	I	30	PDIP	TK80C51FA-PI	
TS80C32X2-LIB	I	30	PLCC	TK80C51FA-AI	
TS80C32X2-LIC	I	30	LQFP	TK80C51FA-BI	
TS80C32X2-LIE	I	30	TQFP	TK80C51FA-CI	
TS80C32X2-VIA	I	60	PDIP	TK80C51FA-PI	1
TS80C32X2-VIB	I	60	PLCC	TK80C51FA-AI	1
TS80C32X2-VIC	I	60	LQFP	TK80C51FA-BI	1
TS80C32X2-VIE	I	60	TQFP	TK80C51FA-CI	1
AT80C32X2-3CSUM	I	40	PDIP	TK80C51FA-PI	
AT80C32X2-SLSUM	I	40	PLCC	TK80C51FA-AI	
AT80C32X2-RLTUM	I	40	TQFP	TK80C51FA-CI	
AT80C32X2-3CSUL	I	30	PDIP	TK80C51FA-PI	
AT80C32X2-SLSUL	I	30	PLCC	TK80C51FA-AI	
AT80C32X2-RLTUL	I	30	TQFP	TK80C51FA-CI	
AT80C32X2-3CSUV	I	60	PDIP	TK80C51FA-PI	1
AT80C32X2-SLSUV	I	60	PLCC	TK80C51FA-AI	1
AT80C32X2-RLTUV	I	60	TQFP	TK80C51FA-CI	1
AT80C32X2-DDV	I	60	Die	TK80C51FA-DI	1, 2
AT80C32X2-RLFUM	I	40	TQFP	TK80C51FA-CI	
AT80C32X2-RLRUL	I	30	TQFP	TK80C51FA-CI	
AT80C32X2-RLRUL	I	30	TQFP	TK80C51FA-CI	
AT80C32X2-RLRUM	I	40	TQFP	TK80C51FA-CI	
AT80C32X2-RLRUV	I	60	TQFP	TK80C51FA-CI	1
AT80C32X2-RLTXL	M	30	TQFP	TK80C51FA-CI	3
AT80C32X2-RLVUM	I	40	TQFP	TK80C51FA-CI	
AT80C32X2-SLRUL	I	30	PLCC	TK80C51FA-AI	
AT80C32X2-SLRUM	I	40	PLCC	TK80C51FA-AI	
AT80C32X2-SLRUV	I	60	PLCC	TK80C51FA-AI	1
AT80C32X2-SLTUM	I	40	PLCC	TK80C51FA-AI	

## Cross Reference for Atmel 80C31 devices

Device	Temp	Speed	Package	Tekmos Replacement	Note
<b>80C31X2 Family</b>					
TS80C31X2-MCA	C	40	PDIP	TK80C51FA-PC	
TS80C31X2-MCB	C	40	PLCC	TK80C51FA-AC	
TS80C31X2-MCC	C	40	LQFP	TK80C51FA-BC	
TS80C31X2-MCE	C	40	TQFP	TK80C51FA-CC	
TS80C31X2-LCA	C	30	PDIP	TK80C51FA-PC	
TS80C31X2-LCB	C	30	PLCC	TK80C51FA-AC	
TS80C31X2-LCC	C	30	LQFP	TK80C51FA-BC	
TS80C31X2-LCE	C	30	TQFP	TK80C51FA-CC	
TS80C31X2-VCA	C	60	PDIP	TK80C51FA-PC	1
TS80C31X2-VCB	C	60	PLCC	TK80C51FA-AC	1
TS80C31X2-VCC	C	60	LQFP	TK80C51FA-BC	1
TS80C31X2-VCE	C	60	TQFP	TK80C51FA-CC	1
TS80C31X2-MIA	I	40	PDIP	TK80C51FA-PI	
TS80C31X2-MIB	I	40	PLCC	TK80C51FA-AI	
TS80C31X2-MIC	I	40	LQFP	TK80C51FA-BI	
TS80C31X2-MIE	I	40	TQFP	TK80C51FA-CI	
TS80C31X2-LIA	I	30	PDIP	TK80C51FA-PI	
TS80C31X2-LIB	I	30	PLCC	TK80C51FA-AI	
TS80C31X2-LIC	I	30	LQFP	TK80C51FA-BI	
TS80C31X2-LIE	I	30	TQFP	TK80C51FA-CI	
TS80C31X2-VIA	I	60	PDIP	TK80C51FA-PI	1
TS80C31X2-VIB	I	60	PLCC	TK80C51FA-AI	1
TS80C31X2-VIC	I	60	LQFP	TK80C51FA-BI	1
TS80C31X2-VIE	I	60	TQFP	TK80C51FA-CI	1
AT80C31X2-3CSUM	I	40	PDIP	TK80C51FA-PI	
AT80C31X2-SLSUM	I	40	PLCC	TK80C51FA-AI	
AT80C31X2-RLTUM	I	40	TQFP	TK80C51FA-CI	
AT80C31X2-3CSUL	I	30	PDIP	TK80C51FA-PI	
AT80C31X2-SLSUL	I	30	PLCC	TK80C51FA-AI	
AT80C31X2-RLTUL	I	30	TQFP	TK80C51FA-CI	

### Notes

1. Tekmos parts have a maximum speed of 40 MHz.
2. Tekmos die is different size and with different bond pads and pad locations than Atmel die. Please contact factory for details.
3. Check with factory for suitability

## Ordering Information

Here is part ordering information for the TK80C51FA microcontroller replacements

Device data sheets for our product offerings are available by visiting [www.Tekmos.com](http://www.Tekmos.com).

Device	Temperature Specification	Package
TK80C51FA-PC	0 C – 70 C	PDIP 40
TK80C51FA-PI	-40 C – 85 C	PDIP 40
TK80C51FA-AC	0 C – 70 C	PLCC 44
TK80C51FA-AI	-40 C – 85 C	PLCC 44
TK80C51FA-BC	0 C – 70 C	LQFP 44
TK80C51FA-BI	-40 C – 85 C	LQFP 44
TK80C51FA-CC	0 C – 70 C	TQFP 44
TK80C51FA-CI	-40 C – 85 C	TQFP 44
TK80C51FA-DI	-40 C – 85 C	Die in Wafer Form

## Contact Information

For further assistance contact Tekmos or any of our manufacturers representatives and distributors.

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