Features:

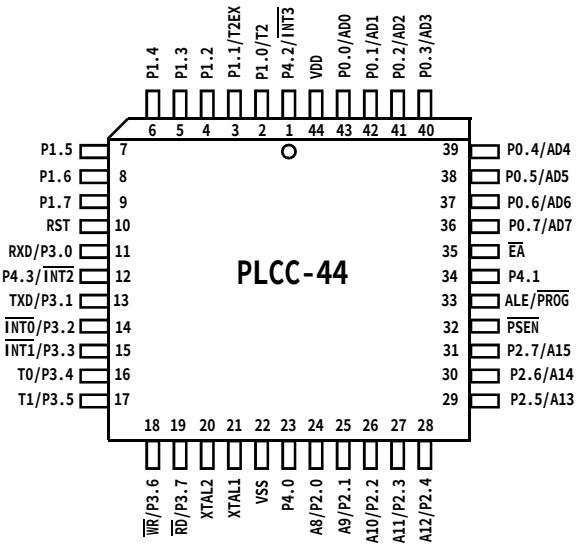
- 80C52 Compatible
  - 8-bit CMOS microcontroller
  - 8051 Instruction Compatible
  - Pin compatible with standard 80C52
  - Four 8-bit I/O Ports
  - One extra 4-bit I/O Port,/int2,/int3 interrupt
  - 256 Bytes Scratch Pad RAM
  - On-chip 1024 bytes Expanded RAM(EXT_RAM)
  - Three 16-bit Timer/Counter
  - 8 Interrupt Sources with 4 Priority Levels
- Integrated Power Monitor(PFR,Power Fail Reset) to Supervise
- ISP/IAP Using Standard Vcc Power Supply
- Hardware Watchdog Timer (One time Enabled)
- Power Control Modes:Idle Mode,Power-down Mode
  - Power-down can be woken-up by P3.2/INT0,P3.3/INT1,P4.3/INT2,P4.2/INT3
- One enhanced full duplex serial port with framing error detection and automatic address recognition
- 2 DPTR register
- Low EMI(inhibit ALE, 6T, clock 1/2 gain)
- 100,000 Write Cycles,On-chip flash(Code and Data)
- High-speed Architecture
  - In X2 Mode(6 Clocks/machine cycle),24MHz
  - In Standard Mode(12 Clocks/machine cycle),48MHz
- Wide Range Power Supply:
  - 5V MCU : 5.5V - 3.8V
  - 3V MCU : 3.6V - 2.4V
- Wide Temperature Range :
  - Commercial Temperature Range : 0°C to +70°C
  - Industrial Temperature Range : -40°C to +85°C
- Packages: PLCC-44,PQFP-44,PDIP-40

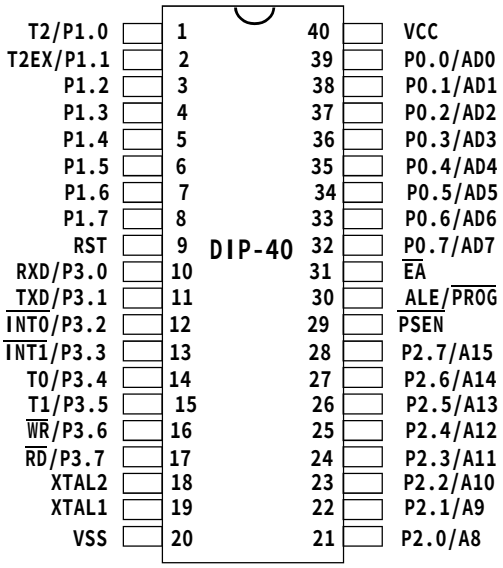
Description:

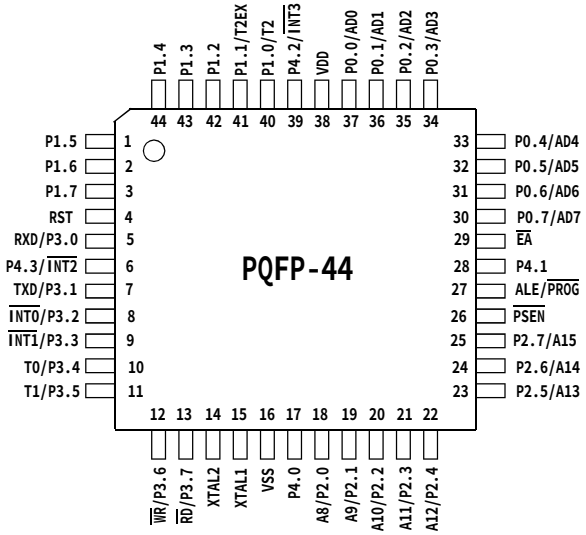
STC89C516RD+/STC89LE516RD+,STC89C58RD+/STC89LE58RD+,STC89C54RD+/STC89LE54RD+ is high performance CMOS Flash version 80C51 which has an in-system programmable Flash EPROM for firmware updating. The instruction set is fully compatible with the standard MCS-51.Pin-to-Pin compatible with 80C52 MCU. 256 bytes of on-chip RAM,1024 AUX-RAM;four 8-bit bi-directional and bit-addressable I/O ports;an additional 4-bit port P4;three 16 bit timer/counters;an enhanced serial port. These peripherals are supported by an eight sources four level interrupt capability.

Two power reduction modes,idle mode and power-down mode,both of which are software selectable.The idle mode turns off the processor clock but allows for continued peripheral operation.The power-down mode stops the crystal oscillator for minimum power consumption.

Pin Configurations

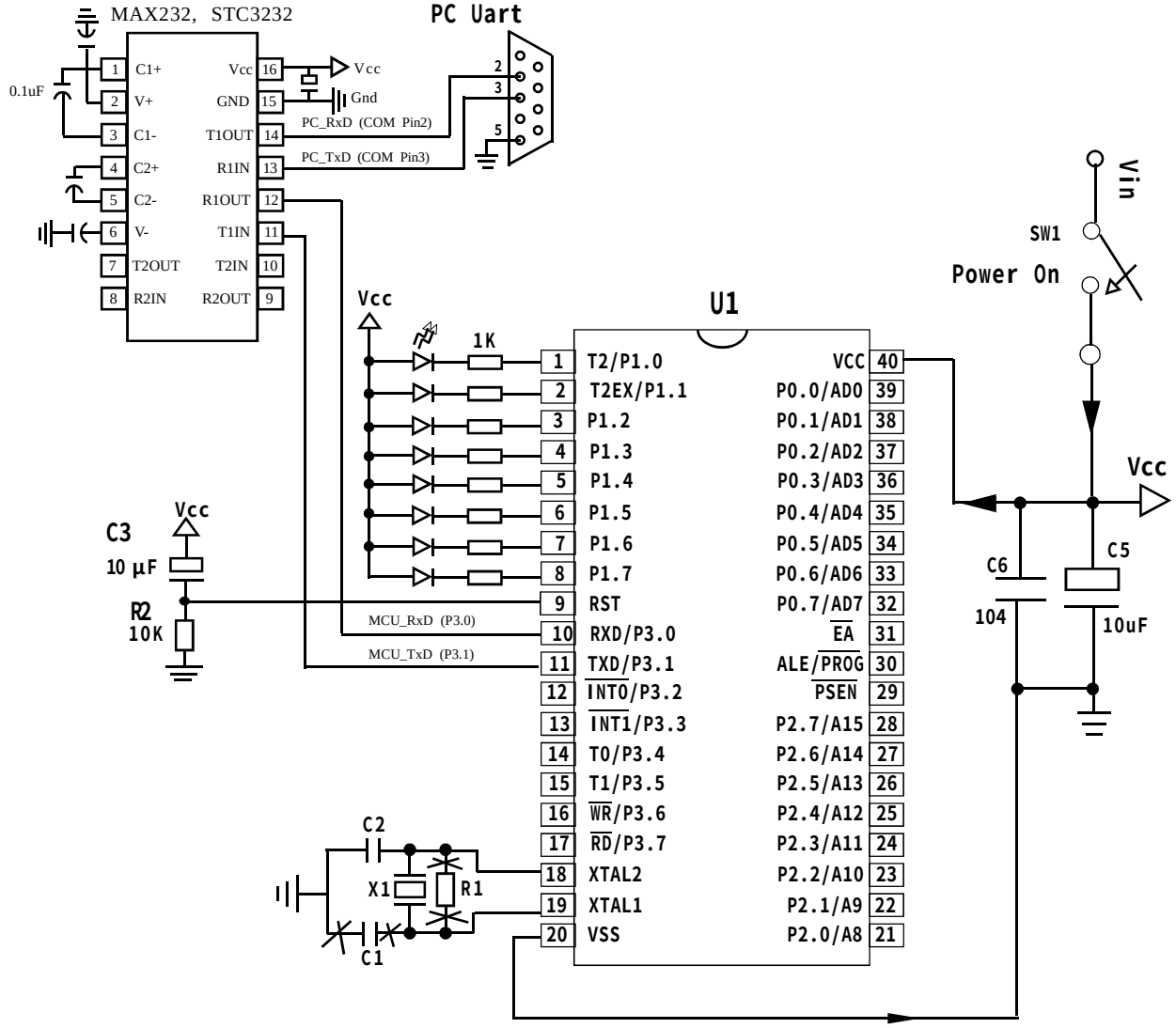






Typical Application Circuits

STC MCU ISP Circuits



CRYSTAL	C1	C2	R1	C3	R2
6MHz	Don't use	30pF,33pF,47pF	Don't use	10uF	10K/8.2K
11.0592MHz	Don't use	30pF,33pF,47pF	Don't use	10uF	10K/8.2K
16MHz	Don't use	30pF,33pF,47pF	Don't use	10uF	10K/8.2K
22.1184MHz	Don't use	30pF,33pF,47pF	Don't use	10uF	10K/15K
24MHz	Don't use	30pF,33pF,47pF	Don't use	10uF/22uF	10K/15K
33MHz	Don't use	15pF	15k - 6.8k	10uF/22uF	10K/15K
40MHz	Don't use	15pF	15k - 6.8k	10uF/22uF	10K/15K

/EA have been shorted to Vcc internally.

Pin Description:

Mnemonic	Type	Descriptions
Vss	I	Ground : 0V reference
Vcc	I	Power Supply : The power supply voltage
XTAL1	I	This is the inverting oscillator amplifier input. This pin may be driven by an external clock.
XTAL2	O	This is the inverting oscillator amplifier output.
RST	I	A high on this pin for two machine cycles while the oscillator is running,reset the device.No internal pull-down resistor.
/EA	I	External Access Enable: /EA must be externally held low to enable the device to fetch code from external program memory locations 0000H. /EA have been tied to high internally.
/PSEN	O	Program Strobe Enable: /PSEN enables the external ROM data in the Port 0 address/data bus.When internal ROM access is performed,no /PSEN strobe signal outputs originate from this pin.
ALE	O	Address Latch Enable: ALE is used to enable the address latch that seperates the address from the data on Port 0.ALE runs at 1/6th of the oscillator frequency.
P0.0 - P0.7	I/O	PORT 0: Function is the same as standard 80C52.
P1.0 - P1.7	I/O	PORT 1: Function is the same as standard 80C52.
P2.0 - P2.7	I/O	PORT 2: Function is the same as standard 80C52.
P3.0 - P3.7	I/O	PORT 3: Function is the same as standard 80C52.
P4.0 - P4.3	I/O	PORT 4: A bi-directional I/O. Address is E8H.

SFR Mapping

	Bit Addressable	Non Bit Addressable							
	0/8	1/9	2/A	3/B	4/C	5/D	6/E	7/F	
F8h									FFh
F0h	B 0000,0000								F7h
E8h	P4 xxxx,1111								EFh
E0h	ACC 0000,0000	WDT_CONTR xx00,0000	ISP_DATA 1111,1111	ISP_ADDRH 0000,0000	ISP_ADDRL 0000,0000	ISP_CMD 1111,1000	ISP_TRIG xxxx,xxxx	ISP_CONTR 000x,x000	E7h
D8h									DFh
D0h	PSW 0000,0000								D7h
C8h	T2CON 0000,0000	T2MOD xxxx,xx00	RCAP2L 0000,0000	RCAP2H 0000,0000	TL2 0000,0000	TH2 0000,0000			CFh
C0h	XICON 0000,0000								C7h
B8h	IP xx00,0000	SADEN 0000,0000							BFh
B0h	P3 1111,1111							IPH 0000,0000	B7h
A8h	IE 0000,0000	SADDR 0000,0000							AFh
A0h	P2 1111,1111		AUXR1 xxxx,0xx0						A7h
98h	SCON 0000,0000	SBUF xxxx,xxxx							9Fh
90h	P1 1111,1111								97h
88h	TCON 0000,0000	TMOD 0000,0000	TL0 0000,0000	TL1 0000,0000	TH0 0000,0000	TH1 0000,0000	AUXR xxxx,xx00		8Fh
80h	P0 1111,1111	SP 0000,0111	DPL 0000,0000	DPH 0000,0000				PCON 0xx1,0000	87h
	0/8	1/9	2/A	3/B	4/C	5/D	6/E	7/F	

C51 Core SFRs

Mnemonic	Add	Name	7	6	5	4	3	2	1	0	Reset Value
ACC	E0h	Accumulator									0000,0000
B	F0h	B Register									0000,0000
PSW	D0h	Program Status Word	CY	AC	F0	RS1	RS0	OV	-	P	0000,0000
SP	81h	Stack Pointer									0000,0111
DPL	82h	Data Pointer Low Byte									0000,0000
DPH	83h	Data Pointer High Byte									0000,0000

System Management SFRs

Mnemonic	Add	Name	7	6	5	4	3	2	1	0	Reset value
PCON	87h	Power Control	SMOD	-	-	POF	GF1	GF0	PD	IDL	0xx1,0000
AUXR	8Eh	Auxiliary Register 0	-	-	-	-	-	-	AUXRAM	ALEOFF	xxxx,xx00
AUXR1	A2h	Auxiliary Register 1	-	-	-	-	GF2	-	-	DPS	xxxx,0xx0

Port SFRs

Mnemonic	Add	Name	7	6	5	4	3	2	1	0	Reset Value
P0	80h	8-bit Port 0	P0.7	P0.6	P0.5	P0.4	P0.3	P0.2	P0.1	P0.0	1111,1111
P1	90h	8-bit Port 1	P1.7	P1.6	P1.5	P1.4	P1.3	P1.2	P1.1	P1.0	1111,1111
P2	A0h	8-bit Port 2	P2.7	P2.6	P2.5	P2.4	P2.3	P2.2	P2.1	P2.0	1111,1111
P3	B0h	8-bit Port 3	P3.7	P3.6	P3.5	P3.4	P3.3	P3.2	P3.1	P3.0	1111,1111
P4	E8h	4-bit Port 4	-	-	-	-	P4.3	P4.2	P4.1	P4.0	xxxx,1111

Serial I/O Port SFRs

Mnemonic	Add	Name	7	6	5	4	3	2	1	0	Reset Value
SCON	98h	Serial Control	SM0/FE	SM1	SM2	REN	TB8	RB8	TI	RI	0000,0000
SBUF	99h	Serial Data Buffer									xxxx,xxxx
SADEN	B9h	Slave Address Mask									0000,0000
SADDR	A9h	Slave Address									0000,0000

Watch Dog Timer SFRs

Mnemonic	Add	Name	7	6	5	4	3	2	1	0	Reset Value
WDT_CONTR	E1h	Watch-Dog-Timer Control register	-	-	EN_WDT	CLR_WDT	IDLE_WDT	PS2	PS1	PS0	xx00,0000

ISP/IAP SFRs

Mnemonic	Add	Name	7	6	5	4	3	2	1	0	Reset Value
ISP_DATA	E2h	ISP/IAP Flash Data Register									1111,1111
ISP_ADDRH	E3h	ISP/IAP Flash Address High									0000,0000
ISP_ADDRL	E4h	ISP/IAP Flash Address Low									0000,0000
ISP_CMD	E5h	ISP/IAP Flash Command Register	-	-	-	-	-	MS2	MS1	MS0	xxxx,x000
ISP_TRIG	E6h	ISP/IAP Flash Command Trigger									xxxx,xxxx
ISP_CONTR	E7h	ISP/IAP Control Register	ISPEN	SWBS	SWRST	-	-	WT2	WT1	WT0	000x,x000

Timer SFRs

Mnemonic	Add	Name	7	6	5	4	3	2	1	0	Reset Value
TCON	88h	Timer / Counter 0 and 1 Control	TF1	TR1	TF0	TR0	IE1	IT1	IE0	IT0	0000,0000
TMOD	89h	Timer / Counter 0 and 1 Modes	GATE GATE1	C/T# C/T1#	M1 M1_1	M0 M1_0	GATE GATE0	C/T# C/T0#	M1 M0_1	M0 M0_0	0000,0000
TL0	8Ah	Timer / Counter 0 Low Byte									0000,0000
TH0	8Ch	Timer / Counter 0 High Byte									0000,0000
TL1	8Bh	Timer / Counter 1 Low Byte									0000,0000
TH1	8Dh	Timer / Counter 1 High Byte									0000,0000
T2CON	C8h	Timer / Counter 2 Control	TF2	EXF2	RCLK	TCLK	EXEN2	TR2	C/T2#	CP/RL2#	0000,0000
T2MOD	C9h	Timer / Counter 2 Mode	-	-	-	-	-	-	T2OE	DCEN	xxxx,xx00
RCAP2L	CAh	Timer / Counter 2 Reload/Capture Low Byte									0000,0000
RCAP2H	CBh	Timer / Counter 2 Reload/Capture High Byte									0000,0000
TL2	CCh	Timer / Counter 2 Low Byte									0000,0000
TH2	CDh	Timer / Counter 2 High Byte									0000,0000

Interrupt SFRs

Mnemonic	Add	Name	7	6	5	4	3	2	1	0	Reset Value
IE	A8h	Interrupt Enable	EA	-	ET2	ES	ET1	EX1	ET0	EX0	0000,0000
IP	B8h	Interrupt Priority Low	-	-	PT2	PS	PT1	PX1	PT0	PX0	xx00,0000
IPH	B7h	Interrupt Priority High	PX3H	PX2H	PT2H	PSH	PT1H	PX1H	PT0H	PX0H	0000,0000
XICON	C0h	Auxiliary Interrupt Control	PX3	EX3	IE3	IT3	PX2	EX2	IE2	IT2	0000,0000

Interrupt Source	Vector Address	Polling Sequence	Priority Bits	Interrupt Priority Level 0 (lowest)	Interrupt Priority Level 1	Interrupt Priority Level 1	Interrupt Priority Level 3 (highest)	Interrupt Request
/INT0	0003H	1(highest)	PX0H,PX0	0,0	0,1	1,0	1,1	IE0
Timer 0	000BH	2	PT0H,PT0	0,0	0,1	1,0	1,1	TF0
/INT1	0013H	3	PX1H,PX1	0,0	0,1	1,0	1,1	IE1
Timer 1	001BH	4	PT1H,PT1	0,0	0,1	1,0	1,1	IF1
UART	0023H	5	PSH, PS	0,0	0,1	1,0	1,1	RI + TI
Timer 2	002BH	6	PT2H,PT2	0,0	0,1	1,0	1,1	TF2 + EXF2
/INT2	0033H	7	PX2H,PX2	0,0	0,1	1,0	1,1	IE2
/INT3	003BH	8(lowest)	PX3H,PX3	0,0	0,1	1,0	1,1	IE3

Name	Function
PX3	External interrupt 3 priority high if set
EX3	External interrupt 3 enable if set
IE3	IE3 is set/cleared automatically by hardware when interrupt is detected/serviced
IT3	External interrupt 3 is falling-edge/low-level triggered when this bit is set/cleared by software
PX2	External interrupt 2 priority high if set
EX2	External interrupt 2 enable if set
IE2	IE2 is set/cleared automatically by hardware when interrupt is detected/serviced
IT2	External interrupt 2 is falling-edge/low-level triggered when this bit is set/cleared by software
PXH3	External interrupt 3 priority highest if set
PXH2	External interrupt 2 priority highest if set

Functional Description:

RAM , ALE , Auxiliary Register

The internal data RAM in the STC89C58RD+ is 256 + 1024 bytes.It is divided into two banks:256 bytes of scratchpad RAM and 1K bytes of AUX-RAM.These RAMs are addressed by different ways.

- RAM 0H - 7FH can be addressed directly and indirectly as the same as in 8052. Address pointers are R0 and R1 of the selected register bank.
- RAM 80H - FFH can only be addressed indirectly as the same as in 8052.Address pointers are R0 and R1 of the selected register bank.
- AUX-RAM 0H - 3FFH is addressed indirectly as the same way to access external data memory with the MOVX instruction.Address pointer are R0 and R1 of the selected register bank and DPTR register.An access to external data memory locations higher than 3FFH will be performed with the MOVX instruction in the same way as in the 8052.The AUX-RAM will be enabled after a reset.

  Clearing the bit 1 in AUXR register will enable the access to AUX-RAM.When AUX-RAM is enabled the instructions of "MOVX @Ri" will always access to on-chip AUX-RAM and "MOVX @Ri" only can access 256 bytes AUX-RAM.When executing from internal program memory,an access to AUX-RAM will not affect the Ports P0,P2,/WR and /RD.

Example:

```
AUXR  EQU    8EH

MOV   AUXR,  #00000000B ; Enable AUX-RAM
MOV   DPTR,  #3FFH      ; Address
MOV   A,     #5AH       ; Data
MOVX  @DPTR, A          ; Write 5AH data to AUX-RAM at address 3FFH
MOVX  A,     @DPTR      ; Read data from AUX-RAM at address 3FFH to Acc.
MOV   DPTR,  #400H      ; Address
MOV   A,     #5AH       ; Data
MOVX  @DPTR, A          ; Write 5AH data to external RAM at address 400H
MOVX  A,     @DPTR      ; Read data from external RAM at address 400H

MOV   AUXR,  #00000010B ; Disable AUX-RAM
```

	MOVX @DPTR, A or MOVX A, @DPTR		MOVX @Ri, A or MOVX A, @Ri
AUX-RAM	ADDR <400H	ADDR>=400H	ADDR = Any
AUXRAM = 0	/WR,/RD not asserted	/WR,/RD asserted	/WR,/RD not asserted
AUXRAM = 1	/WR,/RD asserted	/WR,/RD asserted	/WR,/RD asserted

AUXR Register

AUXR	8Eh	Auxiliary Register 0	-	-	-	-	-	-	AUXRAM	ALEOFF	only write

AUXRAM: 0, enable AUX-RAM; 1, disable AUX-RAM

ALEOFF: 0, ALE output is enabled; 1, ALE output is disabled.

Dual Data Pointers , Auxiliary 1 Register

AUXR1	A2h	Auxiliary Register 1	-	-	-	-	GF2	-	-	DPS	xxxx,0xx0

GF2: General purpose user-defined flag.

DPS: DPTR registers select bit.

0: DPTR0 is selected.

1: DPTR1 is selected.

Use “INC AUXR1” to switch DPTR0 / DPTR1

Port4, P4 Register

Mnemonic	Add	Name	7	6	5	4	3	2	1	0	Reset Value
P0	80h	8-bit Port 0	P0.7	P0.6	P0.5	P0.4	P0.3	P0.2	P0.1	P0.0	1111,1111
P1	90h	8-bit Port 1	P1.7	P1.6	P1.5	P1.4	P1.3	P1.2	P1.1	P1.0	1111,1111
P2	A0h	8-bit Port 2	P2.7	P2.6	P2.5	P2.4	P2.3	P2.2	P2.1	P2.0	1111,1111
P3	B0h	8-bit Port 3	P3.7	P3.6	P3.5	P3.4	P3.3	P3.2	P3.1	P3.0	1111,1111
P4	E8h	4-bit Port 4	-	-	-	-	P4.3	P4.2	P4.1	P4.0	xxxx,1111

Port 4 is new added PORT,in PLCC-44,PQFP-44.Port 4 is the same as P3,P2,P1.
P4.3 is /INT2, P4.2 is /INT3.

ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings

Parameter	Symbol	MIN	MAX	UNIT
Storage temperature	T_{ST}	-55	+125	℃
Operating Temperature(I)	T_A	-40	+85	℃
Operating Temperature(C)	T_A	0	+70	℃
DC Power Supply(5V MCU)	V_{DD} - V_{SS}	-0.3	+6.0	V
DC Power Supply(3V MCU)	V_{DD} - V_{SS}	-0.3	+4.0	V
Voltage on any Pin		-0.5	+5.5	V

DC Specification(5V MCU)

Symbol	Parameter	Specification				Test Condition
		Min.	Typ.	Max.	Unit	
V_{DD}	Operating Voltage	3.8	5.0	5.5	V	
I_{PWDN}	Power Down Current		0.4		uA	5V
I_{IDLE}	Idle Current		2.0		mA	5V
I_{CC}	Operating Current		4 mA	20	mA	5V
V_{IL1}	Input low voltage (P0,1,2,3,4)			0.8	V	5V
V_{IL2}	Input low voltage (RESET,XTAL1)			1.5	V	5V
V_{IH1}	Input High voltage (P0,1,2,3,4,/EA)	2.0			V	5V
V_{IH2}	Input High voltage (RESET)	3.0			V	5V
I_{OL1}	Sinking Current for Output Low (P1,P2,P3,P4)	4	6		mA	5V
I_{OL2}	Sinking Current for Output Low (P0,ALE,PSEN)	8	12		mA	5V
I_{OH1}	Sourcing Current for Output High (P1,P2,P3,P4)	150	220		uA	5V
I_{OH2}	Sourcing Current for Output High (ALE,PSEN)	14	20		mA	5V
I_{IL}	Logic 0 input current (P1,2,3,4)		18	50	uA	V_{PIN}=0V
I_{TL}	Logic 1 to 0 transition current (P1,2,3,4)		270	600	uA	V_{PIN}=2V

DC Specification(3V MCU)

Symbol	Parameter	Specification				Test Condition
		Min.	Typ.	Max.	Unit	
V_{DD}	Operating Voltage	1.8	3.3	3.6	V	
I_{PWDN}	Power Down Current		0.4		uA	3.3V
I_{IDLE}	Idle Current		2.0		mA	3.3V
I_{CC}	Operating Current		4 mA	15	mA	3.3V
V_{IL1}	Input low voltage (P0,1,2,3,4)			0.8	V	3.3V
V_{IL2}	Input low voltage (RESET,XTAL1)			1.5	V	3.3V
V_{IH1}	Input High voltage (P0,1,2,3,4,/EA)	2.0			V	3.3V
V_{IH2}	Input High voltage (RESET)	3.0			V	3.3V
I_{OL1}	Sinking Current for Output Low (P1,P2,P3,P4)	2.5	4		mA	3.3V
I_{OL2}	Sinking Current for Output Low (P0,ALE,PSEN)	5	8		mA	3.3V
I_{OH1}	Sourcing Current for Output High (P1,P2,P3,P4)	40	70		uA	3.3V
I_{OH2}	Sourcing Current for Output High (ALE,PSEN)	8	13		mA	3.3V
I_{IL}	Logic 0 input current (P1,2,3,4)		8	50	uA	V_{PIN}=0V
I_{TL}	Logic 1 to 0 transition current (P1,2,3,4)		110	600	uA	V_{PIN}=2V

Ordering Information:

STC89C54RD+

Part Number	Supply Voltage	Temperature Range	Package	Operation Frequency	
				External	Internal
STC89C54RD+25-I-PI	3.8V - 5.5V	Industrial	PDIP-40	0 - 24 MHz	0 - 24/48 MHz
STC89C54RD+50-I-PI	3.8V - 5.5V	Industrial	PDIP-40	0 - 48 MHz	0 - 48/96 MHz
STC89C54RD+50-C-PI	3.8V - 5.5V	Commercial	PDIP-40	0 - 48 MHz	0 - 48/96 MHz
STC89C54RD+25-I-NJ	3.8V - 5.5V	Industrial	PLCC-44	0 - 24 MHz	0 - 24/48 MHz
STC89C54RD+50-I-NJ	3.8V - 5.5V	Industrial	PLCC-44	0 - 48 MHz	0 - 48/96 MHz
STC89C54RD+50-C-NJ	3.8V - 5.5V	Commercial	PLCC-44	0 - 48 MHz	0 - 48/96 MHz
STC89C54RD+25-I-PQJ	3.8V - 5.5V	Industrial	PQFP-44	0 - 24 MHz	0 - 24/48 MHz
STC89C54RD+50-I-PQJ	3.8V - 5.5V	Industrial	PQFP-44	0 - 48 MHz	0 - 48/96 MHz
STC89C54RD+50-C-PQJ	3.8V - 5.5V	Commercial	PQFP-44	0 - 48 MHz	0 - 48/96 MHz

STC89C58RD+

Part Number	Supply Voltage	Temperature Range	Package	Operation Frequency	
				External	Internal
STC89C58RD+25-I-PI	3.8V - 5.5V	Industrial	PDIP-40	0 - 24 MHz	0 - 24/48 MHz
STC89C58RD+50-I-PI	3.8V - 5.5V	Industrial	PDIP-40	0 - 48 MHz	0 - 48/96 MHz
STC89C58RD+50-C-PI	3.8V - 5.5V	Commercial	PDIP-40	0 - 48 MHz	0 - 48/96 MHz
STC89C58RD+25-I-NJ	3.8V - 5.5V	Industrial	PLCC-44	0 - 24 MHz	0 - 24/48 MHz
STC89C58RD+50-I-NJ	3.8V - 5.5V	Industrial	PLCC-44	0 - 48 MHz	0 - 48/96 MHz
STC89C58RD+50-C-NJ	3.8V - 5.5V	Commercial	PLCC-44	0 - 48 MHz	0 - 48/96 MHz
STC89C58RD+25-I-PQJ	3.8V - 5.5V	Industrial	PQFP-44	0 - 24 MHz	0 - 24/48 MHz
STC89C58RD+50-I-PQJ	3.8V - 5.5V	Industrial	PQFP-44	0 - 48 MHz	0 - 48/96 MHz
STC89C58RD+50-C-PQJ	3.8V - 5.5V	Commercial	PQFP-44	0 - 48 MHz	0 - 48/96 MHz

STC89C516RD+

Part Number	Supply Voltage	Temperature Range	Package	Operation Frequency	
				External	Internal
STC89C516RD+25-I-PI	3.8V - 5.5V	Industrial	PDIP-40	0 - 24 MHz	0 - 24/48 MHz
STC89C516RD+50-I-PI	3.8V - 5.5V	Industrial	PDIP-40	0 - 48 MHz	0 - 48/96 MHz
STC89C516RD+50-C-PI	3.8V - 5.5V	Commercial	PDIP-40	0 - 48 MHz	0 - 48/96 MHz
STC89C516RD+25-I-NJ	3.8V - 5.5V	Industrial	PLCC-44	0 - 24 MHz	0 - 24/48 MHz
STC89C516RD+50-I-NJ	3.8V - 5.5V	Industrial	PLCC-44	0 - 48 MHz	0 - 48/96 MHz
STC89C516RD+50-C-NJ	3.8V - 5.5V	Commercial	PLCC-44	0 - 48 MHz	0 - 48/96 MHz
STC89C516RD+25-I-PQJ	3.8V - 5.5V	Industrial	PQFP-44	0 - 24 MHz	0 - 24/48 MHz
STC89C516RD+50-I-PQJ	3.8V - 5.5V	Industrial	PQFP-44	0 - 48 MHz	0 - 48/96 MHz
STC89C516RD+50-C-PQJ	3.8V - 5.5V	Commercial	PQFP-44	0 - 48 MHz	0 - 48/96 MHz

STC89LE54RD+

Part Number	Supply Voltage	Temperature Range	Package	Operation Frequency	
				External	Internal
STC89LE54RD+25-I-PI	2.4V - 3.6V	Industrial	PDIP-40	0 - 24 MHz	0 - 24/48 MHz
STC89LE54RD+50-I-PI	2.4V - 3.6V	Industrial	PDIP-40	0 - 48 MHz	0 - 48/96 MHz
STC89LE54RD+50-C-PI	2.4V - 3.6V	Commercial	PDIP-40	0 - 48 MHz	0 - 48/96 MHz
STC89LE54RD+25-I-NJ	2.4V - 3.6V	Industrial	PLCC-44	0 - 24 MHz	0 - 24/48 MHz
STC89LE54RD+50-I-NJ	2.4V - 3.6V	Industrial	PLCC-44	0 - 48 MHz	0 - 48/96 MHz
STC89LE54RD+50-C-NJ	2.4V - 3.6V	Commercial	PLCC-44	0 - 48 MHz	0 - 48/96 MHz
STC89LE54RD+25-I-PQJ	2.4V - 3.6V	Industrial	PQFP-44	0 - 24 MHz	0 - 24/48 MHz
STC89LE54RD+50-I-PQJ	2.4V - 3.6V	Industrial	PQFP-44	0 - 48 MHz	0 - 48/96 MHz
STC89LE54RD+50-C-PQJ	2.4V - 3.6V	Commercial	PQFP-44	0 - 48 MHz	0 - 48/96 MHz

STC89LE58RD+

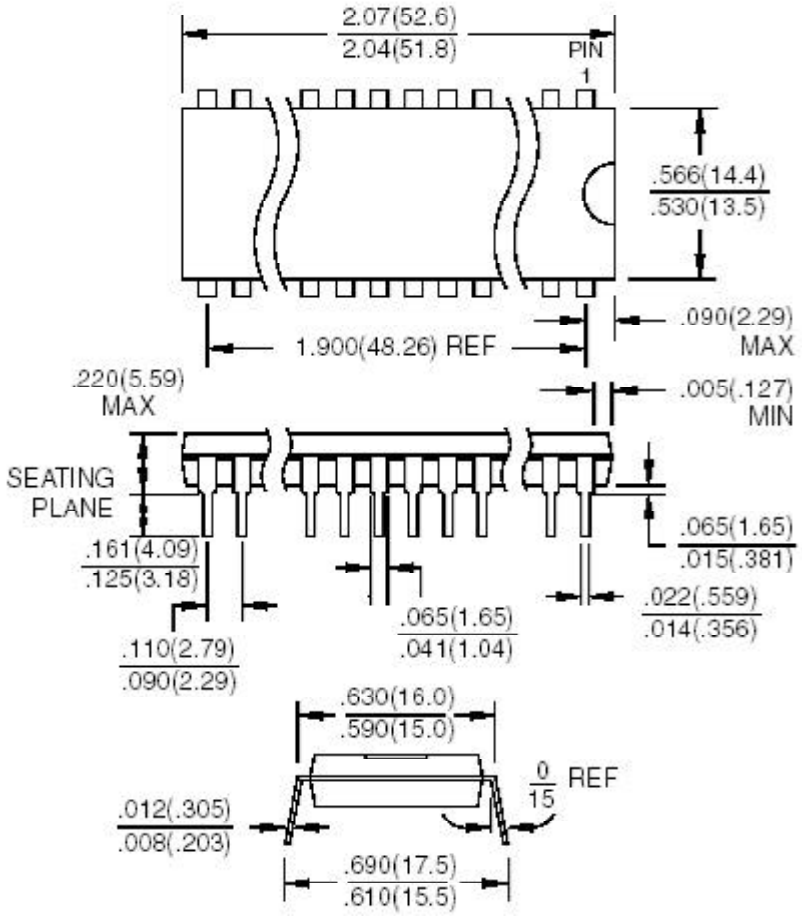
Part Number	Supply Voltage	Temperature Range	Package	Operation Frequency	
				External	Internal
STC89LE58RD+25-I-PI	2.4V - 3.6V	Industrial	PDIP-40	0 - 24 MHz	0 - 24/48 MHz
STC89LE58RD+50-I-PI	2.4V - 3.6V	Industrial	PDIP-40	0 - 48 MHz	0 - 48/96 MHz
STC89LE58RD+50-C-PI	2.4V - 3.6V	Commercial	PDIP-40	0 - 48 MHz	0 - 48/96 MHz
STC89LE58RD+25-I-NJ	2.4V - 3.6V	Industrial	PLCC-44	0 - 24 MHz	0 - 24/48 MHz
STC89LE58RD+50-I-NJ	2.4V - 3.6V	Industrial	PLCC-44	0 - 48 MHz	0 - 48/96 MHz
STC89LE58RD+50-C-NJ	2.4V - 3.6V	Commercial	PLCC-44	0 - 48 MHz	0 - 48/96 MHz
STC89LE58RD+25-I-PQJ	2.4V - 3.6V	Industrial	PQFP-44	0 - 24 MHz	0 - 24/48 MHz
STC89LE58RD+50-I-PQJ	2.4V - 3.6V	Industrial	PQFP-44	0 - 48 MHz	0 - 48/96 MHz
STC89LE58RD+50-C-PQJ	2.4V - 3.6V	Commercial	PQFP-44	0 - 48 MHz	0 - 48/96 MHz

STC89LE516RD+

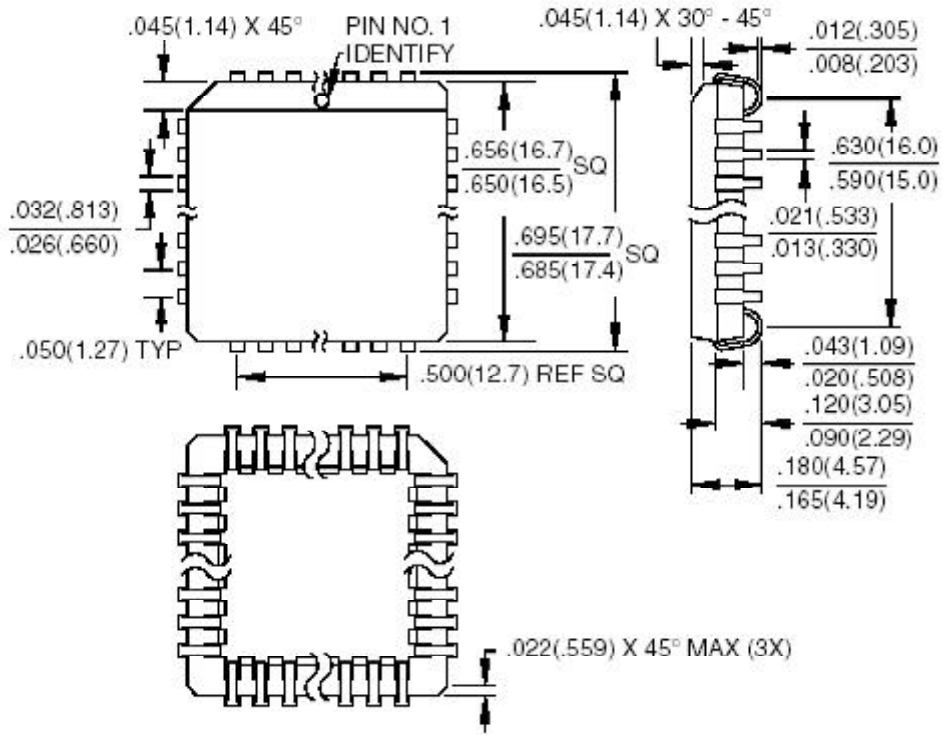
Part Number	Supply Voltage	Temperature Range	Package	Operation Frequency	
				External	Internal
STC89LE516RD+25-I-PI	2.4V - 3.6V	Industrial	PDIP-40	0 - 24 MHz	0 - 24/48 MHz
STC89LE516RD+50-I-PI	2.4V - 3.6V	Industrial	PDIP-40	0 - 48 MHz	0 - 48/96 MHz
STC89LE516RD+50-C-PI	2.4V - 3.6V	Commercial	PDIP-40	0 - 48 MHz	0 - 48/96 MHz
STC89LE516RD+25-I-NJ	2.4V - 3.6V	Industrial	PLCC-44	0 - 24 MHz	0 - 24/48 MHz
STC89LE516RD+50-I-NJ	2.4V - 3.6V	Industrial	PLCC-44	0 - 48 MHz	0 - 48/96 MHz
STC89LE516RD+50-C-NJ	2.4V - 3.6V	Commercial	PLCC-44	0 - 48 MHz	0 - 48/96 MHz
STC89LE516RD+25-I-PQJ	2.4V - 3.6V	Industrial	PQFP-44	0 - 24 MHz	0 - 24/48 MHz
STC89LE516RD+50-I-PQJ	2.4V - 3.6V	Industrial	PQFP-44	0 - 48 MHz	0 - 48/96 MHz
STC89LE516RD+50-C-PQJ	2.4V - 3.6V	Commercial	PQFP-44	0 - 48 MHz	0 - 48/96 MHz

Packaging Information

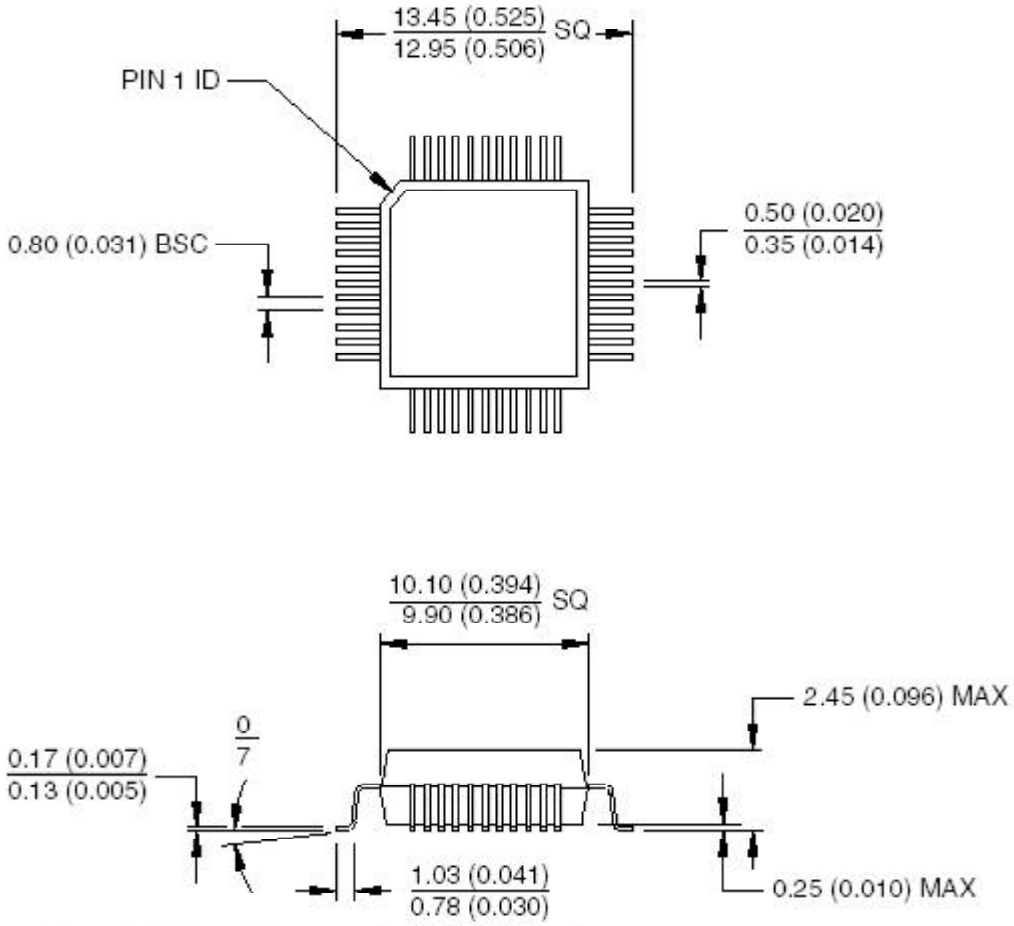
40P6, 40-lead, 0.600" Wide, Plastic Dual Inline Package (PDIP)
Dimensions in Inches and (Millimeters)



44J, 44-lead, Plastic J-leaded Chip Carrier (PLCC)
Dimensions in Inches and (Millimeters)
JEDEC STANDARD MS-018 AC



44Q, 44-lead, Plastic Quad Flat Package (PQFP)
Dimensions in Millimeters and (Inches)*
JEDEC STANDARD MS-022 AB



Controlling dimension: millimeters