# SEMICONDUCTORS 91

## Audio

### TDA7052                                    NXP

A 1W mono audio amplifier in an 8 pin DIL package for use in battery-fed portable audio equipment.Supply voltage 3-18V.Low power consumption.

| Type | Tube qty | Order code | Price each 1-24 | 25-99 | 100+ |
|------|----------|------------|-----------------|-------|------|
| TDA7052 | 50 | 560-037 | £0.45 | £0.40 | £0.35 |

### LM380                                  National

A 2.5W mono audio amplifier in an 14 pin DIL package for use in consumer applications. Supply voltage 10-22V. Low distortion and high input impedance.
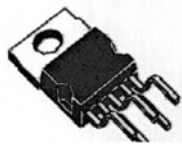
| Type | Order code | Price each 1-24 | 25-99 | 100+ |
|------|------------|-----------------|-------|------|
| LM380 | 560-049 | £0.69 | £0.57 | £0.49 |

### TDA2003H                                    ST

The TDA2003H requires few external components to produce an amplifier up to 12W into loads as low as 1.6R.It can also be used in bridging mode, delivering 18W into 4R. With an operating voltage range of 8 to 18V, it can be used in many applications including in-car stereos and radios. No electrical insulation is required beween the mounting tab and the heatsink. Full data sheet availavle on our web site.

**Technical specification**

| | |
|---|---|
| Operating voltage | 8 to 18V |
| Output current | up to 3.5A |
| Power output | 12W into 1.6R |

| Type | Order code | Price each 1-24 | 25-99 | 100+ |
|------|------------|-----------------|-------|------|
| TDA2003H | 560-025 | £1.15 | £0.95 | £0.85 |

### TBA820                                    ST

A monolithic IC in an 8 pin DIL package for use as a low frequency class B power amplifier with a wide range of supply voltage. 1.2W into 8R 9V and 1.5W into 4R 9V
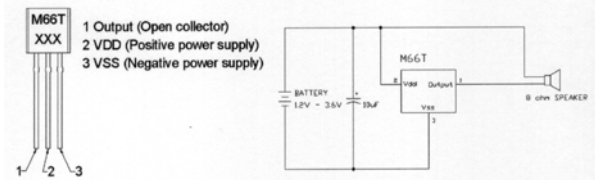
| Type | Order code | Price each 1-24 | 25-99 | 100+ |
|------|------------|-----------------|-------|------|
| TBA820M | 560-071 | £0.35 | £0.29 | £0.24 |

## Melody Generator

### M66T                                    Micro

Low cost melody generator IC ideal for novelty projects such as games,toys and greetings cards. Requiring only 3V and a small 8R loudspeaker

| Type | Order code | Price each 1-24 | 25-99 | 100+ |
|------|------------|-----------------|-------|------|
| M66T id like to teach the world | 560-038 | £0.29 | £0.24 | £0.21 |

## AM radio receiver TA7642

The TA7642 is a 10-transistor TRF receiver in a 3 pin T092 plastic package.The IC contains a RF amplifier,detector and A.G.C. circuit and requires only a few components to complete a high quality AM radio receiver. RoHS compliant
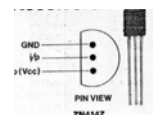
**Technical specification**

| | |
|---|---|
| Supply voltage | 1.1 to 1.6V |
| Supply current | 0.3mA |
| Input frequency | 0.15 to 3.0MHz |
| Power gain | 72dB |

| Type | Order code | Price each 1-24 | 25-99 | 100+ |
|------|------------|-----------------|-------|------|
| TA7642 (replaces ZN414Z) | 560-006 | £0.44 | £0.38 | £0.34 |

# SEMICONDUCTORS 93

## TDA7000 FM Receiver                    Phillips

The TDA7000 only requires a few external components to produce a working FM radio. Alignment is easy as only one coil is required. the IC includes the RF input stage, mixer, local oscillator, IF amplifier, phase demodulator, mute detector and switch. Operating voltage 2.7V to 10V. Full data sheet available on our website.

| Type | Order | Price each | | |
|---|---|---|---|---|
| | code | 1-24 | 25-99 | 100+ |
| TDA7000 | 560-048 | £1.49 | £1.29 | £0.99 |

## Comparators

### Voltage comparator LM311
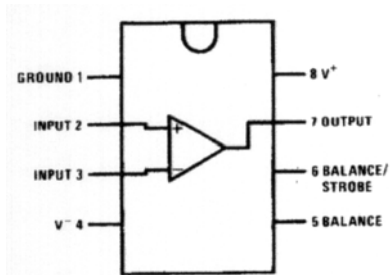
A high performance voltage comparator featuring low input current,direct output interface with TTL loads.Also capable of driving lamp or relay loads at voltages up to 40V and 50mA.Supplied in an 8 pin Dil package.

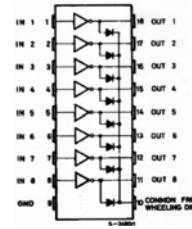| Type | Order | Price each | | |
|---|---|---|---|---|
| | code | 1-24 | 25-99 | 100-499 | 500+ |
| LM311 comparator | 560-017 | £0.19 | £0.16 | £0.13 | £0.10 |

## LM2901N                    ST
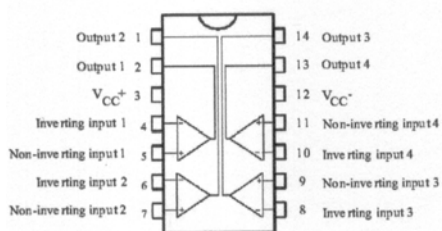
A low power quad voltage comparator in a 14 pin DIL package. Wide single supply voltage range or dual supplies +2V to + 36V or +/- 1V to +/-18V. Very low supply current 1.1mA independent of supply voltage. Low input bias current 25nA typical

| Type | Order | Price each | | |
|---|---|---|---|---|
| | code | 1-24 | 25-99 | 100-499 | 500+ |
| LM2901N | 560-030 | £0.15 | £0.12 | £0.10 | £0.08 |

## Darlington Drivers

### Octal darlington driver                    ST/Toshiba

The ULN2803A consists of 8 NPN darlington pairs to provide high voltage outputs with common cathode clamp diodes for switching inductive loads.Applications include lamp drivers,display drivers,relay drivers etc.

| Type | Order | Price each | | |
|---|---|---|---|---|
| | code | 1-24 | 25-99 | 100-499 | 500+ |
| ULN2803A DIL | 560-014 | £0.35 | £0.28 | £0.21 | |
| ULN2803AFW SO18 | 560-072 | £0.37 | £0.34 | £0.30 | £0.27 |

## Differential Bus Transceiver

### DS75176BN                    National S
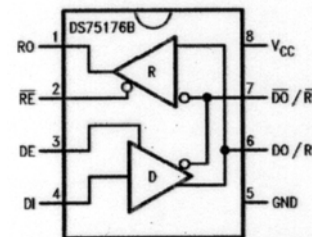
A differential bus transceiver designed for data transmission as specified by the Electronic Industries Association.Supplied in an 8 pin DIL package.E.I.A. standards RS-422A and RS-485.

| Type | Order | Price each | | |
|---|---|---|---|---|
| | code | 1-24 | 25-99 | 100-499 | 500+ |
| DS75176BN | 560-013 | £0.65 | £0.59 | £0.49 | £0.44 |

## Operational Amplifiers

### LM358N                    ST

A low power operational amplifier supplied in an 8 pin DIL package that can be used with single power supplies. RoHS compliant

| Type | Order | Price each | | |
|---|---|---|---|---|
| | code | 1-24 | 25-99 | 100-499 | 500+ |
| LM358N | 560-070 | £0.17 | £0.15 | £0.13 | £0.11 |

## Operational amplifier UA741     ST



1 - Offset null 1
2 - Inverting input
3 - Non-inverting input
4 - V$_{CC}^-$
5 - Offset null 2
6 - Output
7 - V$_{CC}^+$
8 - N.C.

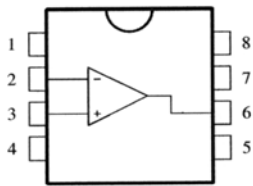The industry standard general purpose operational amplifier,the 741 offers internal frequency compensation and short circuit protection.Supplied in a 8 pin DIL plastic package.

| Type | Order | Price each | | |
|------|-------|------|-------|------|
| | code | 1-24 | 25-99 | 100+ |
| UA741 op amp | 560-015 | £0.15 | £0.12 | £0.09 |

## Dual operational amplifier 747

The 747 operational amplifier consists of two 741's in one package.The two amplifiers share a common bias network and power supply connections.Channel separation is 98dB at 1KHz. RoHS compliant.
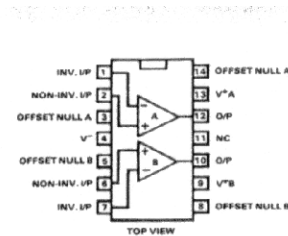


| Type | Order | Price each | | |
|------|-------|------|-------|------|
| | code | 1-24 | 25-99 | 100-499 | 500+ |
| 747 op amp | 560-063 | £0.45 | £0.39 | £0.36 | £0.33 |

## Operational amplifier NE5534     NXP

A single high performance low noise operational amplifier in an 8 pin DIL plastic package.Internal compensation is provided for a closed loop gain which is equal to or greater than three.External frequency compensation may be used to optimise the frequency response for various applications.Input noise voltage 3.5nV/Hz.
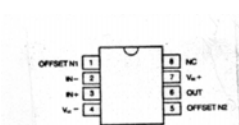
| Type | Order | Price each | | |
|------|-------|------|-------|------|
| | code | 1-24 | 25-99 | 100 |
| NE5534N | 560-005 | £0.39 | £0.33 | £0.27 |

## Single operational Amplifier TL081C     Texas

The TL081C is a single BI FET operational amplifier housed in an 8 pin DIL package.Its special feature is the provision for offset null adjustment.
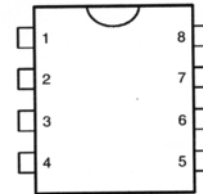


| Type | Order | Price each | | |
|------|-------|------|-------|------|
| | code | 1-24 | 25-99 | 100+ |
| TL081C | 560-004 | £0.37 | £0.27 | £0.19 |

## Timers

## Single timmer NE555     ST

An 8 pin DIL package timer that can be used to provide the basis for one shot or astable timing operations with the addition of a few external components.



1 - GND
2 - Trigger
3 - Output
4 - Reset
5 - Control voltage
6 - Threshold
7 - Discharge
8 - V$_{CC}$

Technical specification

| | |
|---|---|
| Supply voltage | 4.5 to 15V |
| Max power dissipation | 600mW |
| Temperature range | 0 deg C to +70 deg C |

| Type | Order | Price each | | | |
|------|-------|------|-------|------|------|
| | code | 1-24 | 25-99 | 100-499 | 500+ |
| NE555 timer | 560-003 | £0.15 | £0.12 | £0.10 | £0.08 |
| NE555 timer SMD | 560-065 | £0.12 | £0.075 | £0.07 | £0.062 |

## Low power single timer 555

Low power version of the NE555 timer offering a much lower power consumption (typically 1mW at Vcc=5v).Voltage range 2 to 18v.Supplied in a standard 8 pin dil package. In most standard applications it will replace the NE555. RoHS compliant
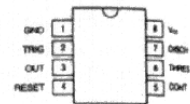


| Type | Order | Price each | | | |
|------|-------|------|-------|------|------|
| | code | 1-24 | 25-99 | 100-499 | 500+ |
| TS555CN  low power | 560-062 | £0.19 | £0.17 | £0.15 | £0.13 |

## Bargraph displays     National

A range of 18 pin DIL bargraph displays that have two modes of operation. In bar mode all LEDs indicating below the input voltage are on. In dot mode the IC will sequentially light 10 LEDs when a gradually increasing voltage is applied to pin 5. As there is a slight overlap at no time are all the LEDs off. The LED current can be set between 2mA and 30mA with a brightness control.



Supply voltage between 3 and 18V. the ICs are stackable so displays with up to 100 or more LEDs are possible. The LM3914 produces linear steps, the LM3915 produces -3dB steps and the LM3916 produces a Vu scale. (-10dB, -7dB, -5dB, -3dB, -1dB, 0dB,1dB and 3dB). RoHS compliant.
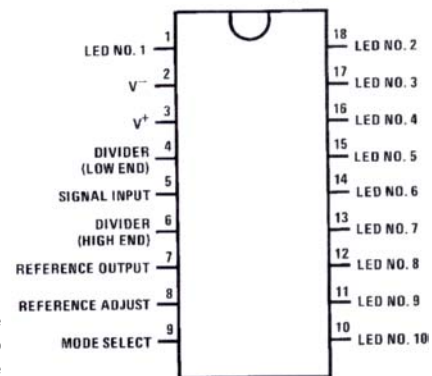
| Type | Order | Price each | | |
|------|-------|------|-------|------|
| | code | 1-24 | 25-99 | 100+ |
| LM3914N | 560-054 | £1.49 | £1.15 | £0.89 |
| LM3915N | 560-055 | £1.49 | £1.15 | £0.89 |
| LM3916N | 560-056 | £1.49 | £1.15 | £0.89 |

# SEMICONDUCTORS 95

## Microprocessor Supervisory Circuits

### MAX690A                                        Maxim

The MAX690A reduces the complexity and number of components required for power supply monitoring and battery control functions in microprocessor systems.Supplied in an 8 pin dil package.

**Technical specification**

| Precision supply voltage | 4.65V |
| Reset time delay | 200mS |
| Quiescent supply current | 200uA |
| Current in battery backup | 50nA |
| Temperature range | 0 to +70 deg C |

| Type | Order | Price each | | |
| | code | 1-24 | 25-99 | 100+ |
| MAX690A | 560-022 | £2.95 | £2.65 | £2.45 |

### MAX807                                        Maxim

The MAX807 reduces the complexity and number of components required for power supply monitoring and battery control functions in up systems.Supplied in an 16 pin dil package (MAX807LCPE) or in an SO package (MAX807LCWE).
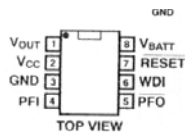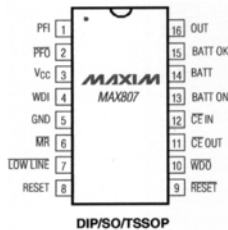
**Technical specification**

| Precision supply voltage | 4.675V |
| Reset time delay | 200mS |
| Output supply current | 250mA |
| Current in battery backup | 20mA |
| Temperature range | 0 to +70 deg C |

| Type | Order | Price each | | |
| | code | 1-24 | 25-99 | 100+ |
| MAX807LCPE (DIL) | 560-043 | £3.50 | £3.25 | £3.10 |
| MAX807LCWE (SO) | 560-035 | £3.50 | £3.25 | £3.10 |

## RS232 Drivers/Receivers

### MAX232                                        Maxim
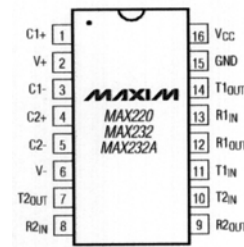
A 16 pin Dil (CPE) or SO (CSE) RS232 driver/receiver ideal for use in battery powered systems,since their low-power shutdown mode reduces power dissipation to less than 5uW.

**Technical specification**

| Power supply | +5V |
| No RS232 drivers/rec | 2/2 |
| Data rate | 120 |

| Type | Order | Price each | | |
| | code | 1-24 | 25-99 | 100 |
| MAX232CPE | 560-018 | £1.29 | £0.99 | £0.79 |
| MAX232CSE+ | 560-034 | £1.29 | £0.99 | £0.79 |

## RS-485/RS-422 Transceivers

### MAX488                                        Maxim
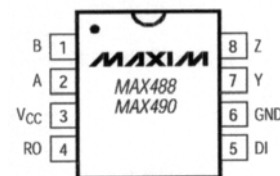
The MAX488CPA+ is a low power transceiver for RS-485 and RS422 communication in an 8 pin DIL package.It features reduced slew-rate drivers that minimise EMI and reduce reflections caused by improperly terminated cables,thus allowing error-free data transmissions up to 250kbps.Can operate from a single 5V supply and draws between 120uA and 500uA of supply current when unloaded or fully loaded with disabled drivers. RoHS compliant

| Type | Order | Price each | | |
| | code | 1-24 | 25-99 | 100+ |
| MAX488CPA+ | 560-029 | £1.49 | £1.29 | £1.04 |

# 96 SEMICONDUCTORS

## MAX485E

**Maxim**

The MAX485E is low-power transceiver for RS-485 and RS-422 communications in harsh environments. Each driver output and receiver input is protected against ±15kV electro-static discharge (ESD) shocks, without latchup. These parts contain one driver and one receiver. The driver slew rate of the MAX485E is not limited, allowing it to transmit up to 2.5Mbps.
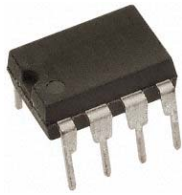
The transceiver draws as little as 120µA supply current when unloaded or when fully loaded with disabled drivers. The MAX485E operates from a single +5V supply.

Drivers are short-circuit current limited, and are protected against excessive power dissipation by thermal shutdown circuitry that places their outputs into a high-impedance state. The receiver input has a fail-safe feature that guarantees a logic-high output if the input is open circuit.

| Type | Order | Price each | | |
|------|-------|------|-------|------|
| | code | 1-24 | 25-99 | 100+ |
| MAX485ECPA | 560-053 | £1.89 | £1.49 | £1.19 |

## Stepper motor drive IC

### L293D

**Texas**

The L293D is a monolithic IC offering high voltage,high current and 4 channel driver.Supplied in a DIL 16 pin package. RoHS compliant

| Type | Order | Price each | | |
|------|-------|------|-------|------|
| | code | 1-24 | 25-99 | 100+ |
| L293DNE | 560-046 | £1.50 | £1.25 | £0.99 |

## Timekeeping

### DS1302

**Dallas**

An 8 pin DIL real time clock that counts seconds , minutes, hours, date of the month, month, day of the week and year with leap year compensation valid up to 2100. Access is via a simple 3 wire serial interface. 8 x 31 RAM, TTL compatible, dual power supply pins for primary backup power supplies, trickle charge capability.

| Type | Order | Price each | | |
|------|-------|------|-------|------|
| | code | 1-24 | 25-99 | 100+ |
| DS1302 | 560-050 | £1.49 | £1.19 | £0.99 |

## DS1305

**Maxim**

The DS1305 serial alarm real-time clock provides a full binary coded decimal (BCD) clock calendar that is accessed by a simple serial interface. The clock/calendar provides seconds, minutes, hours, day, date, month, and year information. The end of the month date is automatically adjusted for months with fewer than 31 days, including corrections for leap year. The clock operates in either the 24-hour or 12-hour format with AM/PM indicator. In addition, 96 bytes of NV RAM are provided for data storage. An interface logic power-supply input pin (VCCIF) allows the DS1305 to drive SDO and PF-bar pins to a level that is compatible with the interface logic. This allows an easy interface to 3V logic in mixed supply systems.

The DS1305 offers dual-power supplies as well as a battery input pin. The dual power supplies support a programmable trickle charge circuit that allows a rechargeable energy source (such as a super cap or rechargeable battery) to be used for a backup supply. The VBAT pin allows the device to be backed up by a non-rechargeable battery. The DS1305 is fully operational from 2.0V to 5.5V.

| Type | Order | Price each | | |
|------|-------|------|-------|------|
| | code | 1-24 | 25-99 | 100+ |
| DS1305 | 560-052 | £2.45 | £2.05 | £1.75 |

## DS1210 nonvolatile controller

**Dallas**
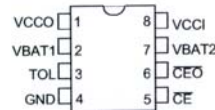
The DS1210 Nonvolatile Controller Chip is a CMOS circuit which solves the application problem of converting CMOS RAM into nonvolatile memory. Incoming power is monitored for an out-of-tolerance condition. When such a condition is detected, chip enable is inhibited to accomplish write protection and the battery is switched on to supply the RAM with uninterrupted power. Special circuitry uses a low leakage CMOS process which affords precise voltage detection at extremely low battery consumption . The 8 pin DIP package keeps PC board real estate requirements to a minimum. By combining the DS1210 Nonvolatile Controller Chip with a CMOS memory and batteries, nonvolatile RAM operation can be achieved.

| Type | Order | Price each | | |
|------|-------|------|-------|------|
| | code | 1-24 | 25-99 | 100+ |
| DS1210+ | 560-051 | £2.25 | £1.99 | £1.69 |

## LED flasher

### M34-2

**Bowin**

*new*

A low voltage single output LED flashing controller designed for a 3V power supply. Flash rate 2Hz

| Type | Order | Price each | | |
|------|-------|------|-------|------|
| | code | 1-24 | 25-99 | 100+ |
| M34-2Hz LED flasher | 560-073 | £0.25 | £0.20 | £0.16 |

# SEMICONDUCTORS 97

**8 Bit Microprocessors**

**Z80 series**                                    **Zilog**

Z0842006PSC Parallel input/output controller 6MHz 40 pin

Z0847006PSC Dual asynchronous receiver/transmitter 6MHz 40 pin

| Type | Tube qty | Order code | Price each 1-24 | 25-99 | 100+ |
|------|------|------|------|------|------|
| Z0847006PSC DART | 10 | 560-010 | £3.15 | £2.85 | £2.45 |

## Z80 CMOS series                              **Zilog**

Z84C0006PEC Central processing unit 6MHz 40 pin

Z84C3006PEC Counter/timer controller 6MHz 28 pin

| Type | Tube qty | Order code | Price each 1-24 | 25-99 | 100+ |
|------|------|------|------|------|------|
| Z84C0006PEC CPU | 10 | 560-008 | £2.79 | £2.39 | £2.08 |
| Z84C3006PEC CTC | 15 | 560-009 | £2.79 | £2.39 | £2.08 |

## Z8 series                                    **Zilog**

Z8018010VSC 8-bit CMOS CPU 10MHz clock in a 64 pin package



| Type | Tube qty | Order code | Price each 1-24 | 25-99 | 100+ |
|------|------|------|------|------|------|
| Z8018010VSC CPU | 20 | 560-026 | £4.55 | £4.15 | £3.87 |

## RAM

### 256K static ram TC55257DPL-70L          Toshiba

A low power CMOS static RAM,70ns access.256K (32Kx8).Supplied in a 28 pin package.Equivalent to HM62256ALP-70

| Type | Tube qty | Order code | Price each |
|------|------|------|------|
| TC55257DPL-70L | 13 | 560-002 | £3.29 |

 * Available until stocks are exhausted

### 512K x 8 bit static ram K6X4008C1F        Samsung

A 512K x 8 bit low power CMOS static RAM available in a 32 pin SOP package (GF55).Power supply voltage 4.5 - 5.5V.Low data retention voltage.

| Type | Tube qty | Order code | Price each 1-24 | 25-99 | 100+ |
|------|------|------|------|------|------|
| K6X4008C1F-GF55 | 20 | 560-040 | £2.45 | £2.15 | £1.95 |

**1M x 8 bit static ram K6X8008x2B**        **Samsung**

A 1M x 8 bit low power CMOS static RAM available in a a 44 pin TSOP package.Power supply voltage 2.7 - 3.6V.

| Type | Tube qty | Order code | Price each 1-24 | 25-99 | 100+ |
|------|------|------|------|------|------|
| K6X8008T2B-TF7 | | 560-047 | £3.95 | £3.60 | £3.25 |
| K6X8008T2B-TF55 | | 560-057 | £4.80 | £4.50 | £3.80 |
| K6X8008C2B-UF55 | | 560-060 | £3.95 | £3.75 | £3.45 |

## EPROM
### M27128A                                    **ST**

The M27128A is a 131,072 bit ultra violet erasable and electrically programmable read only memory.It is organised as 16,384 words by 8 bits.Supplied in a 28 pin package.

| Type | Tube qty | Order code | Price each |
|------|------|------|------|
| M27128A-2F1 | 13 | 560-012 | £2.65 |

 * Available until stocks are exhausted

### 27C256 EPROM                              **ST**



**Technical specification**

| | |
|------|------|
| Size | 262,144 bits |
| Organisation | 32,768 words x 8 bits |
| Access time | 120ns |
| Supply | +5V DC program voltage +12.75V |
| Package | 28 pin cerdip |

| Type | Tube qty | Order code | Price each 1-24 | 25-99 | 100+ |
|------|------|------|------|------|------|
| M27C256-12F1 | 13 | 560-031 | £1.90 | £1.70 | £1.52 |

# 98 SEMICONDUCTORS

## 74HC

| Type | Order code | Price each 1-24 | 25-99 | 100+ | Function |
|---|---|---|---|---|---|
| 74HC00* | 560-306 | £0.18 | £0.14 | £0.11 | Quad 2-input NAND |
| 74HC02* | 560-307 | £0.18 | £0.14 | £0.11 | Quad 2-input NOR |
| 74HC03* | 560-308 | £0.12 | £0.10 | £0.08 | Quad 2-input NAND |
| 74HC04* | 560-300 | £0.18 | £0.14 | £0.11 | Hex inverter |
| 74HC08* | 560-301 | £0.18 | £0.14 | £0.11 | Quad 2 input NAND |
| 74HC10* | 560-309 | £0.18 | £0.14 | £0.11 | Triple 3-input NAND |
| 74HC11* | 560-310 | £0.18 | £0.14 | £0.11 | Triple 3-input AND |
| 74HC14* | 560-311 | £0.18 | £0.14 | £0.11 | Hex Schmitt inverter |
| 74HC20* | 560-312 | £0.14 | £0.11 | £0.09 | Dual 4-input NAND |
| 74HC27* | 560-313 | £0.18 | £0.14 | £0.11 | Triple 3-input NOR |
| 74HC30* | 560-314 | £0.18 | £0.14 | £0.11 | 8-input NAND |
| 74HC32* | 560-315 | £0.18 | £0.14 | £0.11 | Quad 2-input OR |
| 74HC74* | 560-316 | £0.19 | £0.16 | £0.13 | Dual D-type flip-flop |
| 74HC86* | 560-317 | £0.19 | £0.16 | £0.13 | Quad exclusive OR |
| 74HC132* | 560-302 | £0.22 | £0.18 | £0.15 | Quad schmitt trigger |
| 74HC138 | 560-303 | £0.22 | £0.18 | £0.15 | 3 to 8 decoder |
| 74HC139 | 560-304 | £0.22 | £0.18 | £0.15 | 10 to 4 priority |
| 74HC240 | 560-318 | £0.22 | £0.19 | £0.15 | Octal inverter/buff |
| 74HC244 | 560-305 | £0.25 | £0.21 | £0.15 | Octal buffer |

*DIL 14 package

| Type | Order code | Price each 1-24 | 25-99 | 100+ | Function |
|---|---|---|---|---|---|
| 4072B* | 560-120 | £0.20 | £0.18 | £0.13 | Quad 4 input OR gate |
| 4073B* | 560-121 | £0.21 | £0.17 | £0.14 | Triple 3 input AND gt |
| 4075B* | 560-122 | £0.22 | £0.18 | £0.15 | Triple 3 input OR gate |
| 4076B | 560-123 | £0.35 | £0.29 | £0.25 | Quad D type flip flop |
| 4081B* | 560-106 | £0.20 | £0.16 | £0.12 | Quad 2 input AND gt |
| 4082B* | 560-124 | £0.20 | £0.16 | £0.12 | Dual 4 input AND gt |
| 4093* | 560-129 | £0.17 | £0.13 | £0.10 | Dual 4 input AND gt |
| 4511B | 560-125 | £0.30 | £0.25 | £0.20 | BCD to 7 seg dec/driv |
| 4518B | 560-128 | £0.36 | £0.30 | £0.26 | Dual BCD up counter |
| 40106B | 560-130 | £0.22 | £0.18 | £0.16 | Hex Schmitt trigger |

* DIL 14 package

## 74 TTL

| Type | Order code | Price each | Function |
|---|---|---|---|
| 7400* | 560-200 | £0.23 | Quad 2 input pos |

## Crystals



| Type | Order code | Price each 1-24 | 25-99 | 100+ |
|---|---|---|---|---|
| 32.768kHz | 565-001 | £0.19 | £0.16 | £0.14 |
| 2.4576MHz | 565-003 | £0.39 | £0.35 | £0.28 |
| 3.5795MHz | 565-004 | £0.19 | £0.17 | £0.13 |
| 4.0000MHz | 565-005 | £0.19 | £0.17 | £0.13 |
| 4.194304MHz | 565-006 | £0.18 | £0.16 | £0.13 |
| 6MHz | 565-002 | £0.19 | £0.17 | £0.13 |
| 8MHz | 565-007 | £0.19 | £0.17 | £0.13 |
| 11.0592MHZ | 565-008 | £0.19 | £0.16 | £0.12 |
| 12.288MHz | 565-010 | £0.19 | £0.17 | £0.14 |

## 4000 CMOS                      ST/TI/Fairchild

| Type | Order code | Price each 1-24 | 25-99 | 100+ | Function |
|---|---|---|---|---|---|
| 4001B* | 560-101 | £0.17 | £0.13 | £0.10 | Quad 2 input NOR gate |
| 4002B* | 560-103 | £0.21 | £0.16 | £0.12 | Dual 4 input NOR gate |
| 4007U* | 560-109 | £0.24 | £0.19 | £0.15 | Dual comp. pair + inv |
| 4008B | 560-110 | £0.34 | £0.29 | £0.25 | 4-bit binary full adder |
| 4011B* | 560-100 | £0.16 | £0.14 | £0.10 | Quad 2 input NAND ge |
| 4012B* | 560-111 | £0.22 | £0.18 | £0.15 | Dual 4 input NAND gt |
| 4013B* | 560-112 | £0.20 | £0.16 | £0.12 | Dual D type flip flop |
| 4014B | 560-113 | £0.26 | £0.22 | £0.18 | 8-bit shift register |
| 4017B | 560-107 | £0.26 | £0.20 | £0.16 | Decade counter |
| 4021B | 560-114 | £0.22 | £0.18 | £0.15 | 8-bit shift register |
| 4023B* | 560-115 | £0.21 | £0.17 | £0.14 | Triple 3 input NAND gt |
| 4024B* | 560-116 | £0.21 | £0.17 | £0.14 | 7 stage binary counter |
| 4025B* | 560-117 | £0.21 | £0.17 | £0.14 | Triple 3 input NOR gt |
| 4026B | 560-126 | £0.29 | £0.24 | £0.21 | Decade counter 7 seg |
| 4047B* | 560-118 | £0.32 | £0.26 | £0.21 | Monostable/astable |
| 4050B* | 560-127 | £0.19 | £0.14 | £0.12 | Hex buffer |
| 4070B* | 560-119 | £0.20 | £0.16 | £0.12 | Quad 2 input Excl OR |
| 4071B* | 560-105 | £0.20 | £0.16 | £0.12 | Quad 2 input OR gate |

## 3 pin ceramic resonators

A range of 3 pin ceramic resonators on a
2.5mm pitch spacing



| Type | Order code | Price each 1-24 | 25-99 | 100+ |
|---|---|---|---|---|
| 4MHz 3 pin resonator | 565-100 | £0.09 | £0.07 | £0.06 |
| 6MHz 3 pin resonator | 565-101 | £0.14 | £0.12 | £0.09 |
| 100MHz 3 pin resonator | 565-103 | £0.12 | £0.10 | £0.08 |
| 20MHz 3 pin resonator | 565-102 | £0.14 | £0.12 | £0.09 |

# SEMICONDUCTORS 99

**PIC Microcontrollers**        **Microchip**

## PIC12CXXX

8 pin DIP or SOIC microcontrollers having between 512 and 2048 words of program memory and between 25 and 128 bytes of user RAM. 6 i/o pins with on chip oscillator.Max frequency 4Mhz.

| Type | Tube | Order | Price each | | |
|------|------|-------|------|------|------|
| | qty | code | 1-24 | 25-99 | 100+ |
| PIC12C508A-04/P | | 560-406 | £0.79 | £0.67 | £0.58 |
| PIC12C671-04P | | 560-410 | £1.28 | £1.15 | £1.09 |
| PIC12C509A-04/P | 60 | 560-418 | £0.84 | £0.74 | £0.64 |

## PIC12F6XX

Flash based 8 bit microcontrollers in an 8 pin package. 35 single word instructions with a 200ns instruction cycle.

| Type | Tube | Order | Price each | | |
|------|------|-------|------|------|------|
| | qty | code | 1-24 | 25-99 | 100+ |
| PIC12F629-I/P | 60 | 560-420 | £0.69 | £0.57 | £0.52 |
| PIC12F675-I/P | | 560-421 | £0.79 | £0.71 | £0.68 |

## PIC16C5X

For many applications the PIC16C5X family of microcontrollers offers the best combination of low cost,low power and speed of operation.33 12 bit wide instructions

| Type | Tube | Order | Price each | | |
|------|------|-------|------|------|------|
| | qty | code | 1-24 | 25-99 | 100+ |
| PIC16C54C-04/P | | 560-401 | £0.90 | £0.74 | £0.64 |
| PIC16C55A-04/P | | 560-404 | £1.39 | £1.15 | £0.96 |
| PIC16C56A-04/P | | 560-416 | £1.10 | £0.95 | £0.79 |
| PIC16C57C-04/P | | 560-405 | £1.35 | £1.20 | £0.99 |

## PIC16C6X

| Type | Tube | Order | Price each | | |
|------|------|-------|------|------|------|
| | qty | code | | | |
| PIC16C64A-20I/L | | 560-412 | £5.29 | £4.95 | £4.60 |

## PIC16F Flash/EEPROM

Flash/EPROM technology makes the customisation of code extremely fast and convenient.1 million data memory EEPROM erase/write cycles.14 bit wide instructions,only 35 single word instructions.

| Type | Tube | Order | Price each | | |
|------|------|-------|------|------|------|
| | qty | code | 1-24 | 25-99 | 100+ |
| PIC16F84A-04/P | 25 | 560-413 | £2.25 | £1.95 | £1.79 |
| PIC16F627-04/P | 25 | 560-411 | £1.79 | £1.49 | £1.39 |
| PIC16F628-04/P | 25 | 560-407 | £1.79 | £1.48 | £1.45 |

## PIC16F

| Type | Tube | Order | Price each | | |
|------|------|-------|------|------|------|
| | qty | code | 1-24 | 25-99 | 100+ |
| PIC16F630-I/p | | 560-425 | £0.99 | £0.85 | £0.70 |
| PIC16F676-I/P | | 560-426 | £1.10 | £0.92 | £0.76 |
| PIC16F716-I/P | | 560-427 | £0.89 | £0.82 | £0.68 |

## PIC16F87 Flash/EEPROM

| Type | Tube | Order | Price each | | |
|------|------|-------|------|------|------|
| | qty | code | 1-24 | 25-99 | 100+ |
| PIC16F873-04SP | | 560-402 | £3.59 | £3.15 | £2.80 |
| PIC16F874-04P | | 560-403 | £3.10 | £2.94 | £2.68 |
| PIC16F876-04SP | | 560-408 | £3.70 | £3.35 | £3.20 |
| PIC16F876A-I/SP | | 560-422 | £2.90 | £2.60 | £2.20 |
| PIC16F877-04P | | 560-417 | £3.65 | £3.25 | £2.95 |

## PIC18F

| Type | Tube | Order | Price each | | |
|------|------|-------|------|------|------|
| | qty | code | 1-24 | 25-99 | 100+ |
| PIC18F8720-I/PT | | 560-419 | £7.90 | £7.20 | £6.55 |

## 89C Micrcontrollers        **Atmel**

| Type | Tube | Order | Price each |
|------|------|-------|------|
| | qty | code | |
| AT89C2051-24PC | | 560-603 | £2.75 |

**Full manufacturers data sheets can be downloaded from our website. www.electronelec.co.uk**

**For details of RoHS compliant stock visit our website at www.electronelec.co.uk**

# 100 SEMICONDUCTORS

**PIC programmers**                            **MegaAVR**                            **Atmel**

**PICKIT 2**                    **Microchip**

The Pickit 2 is a low cost microcontroller starter kit from Microchip providing a quick and easy way to start development from ideas to prototype using a selected range of Flash-based microcontrollers. It supports 8, 14 and 20 pin Flash devices. The kit includes demo board, user guide and MPLAB IDE (Integrated Development Environment) software.

The Atmel MegaAVR high performance 8 bit flash based microcontrollers with performance approaching 1 MIPS per MHz. By using the same AVR instructions as Atmels ATtiny range easy allowing for easy  migration. Self programming flash memory with boot block. 130 powerful instructions. Substantial program and data memory.

| Type | Order code | Price each 1-9 | 10-99 | 100+ |
|------|-----------|------|-------|------|
| ATMEGA8-16PU | 560-606 | £1.99 | £1.79 | £1.69 |
| ATMEGA8L-8PU | 560-617 | £1.99 | £1.79 | £1.69 |
| ATMEGA16-16PU | 560-607 | £3.85 | £3.59 | £3.39 |
| ATMEGA16-16AU | 560-611 | £3.59 | £3.19 | £2.89 |
| ATMEGA32-16PU | 560-608 | £4.55 | £4.20 | £4.05 |
| ATMEGA32L-8AU | 560-612 | £4.55 | £4.20 | £4.05 |
| ATMEGA48V-10AU | 560-613 | £1.49 | £1.39 | £1.29 |
| ATMEGA64L-8AU | 560-614 | £4.20 | £3.75 | £3.25 |
| ATMEGA88V-10PU | 560-615 | £2.09 | £1.95 | £1.79 |
| ATMEGA128L-8AU | 560-616 | £8.95 | £8.20 | £7.80 |
| ATMEGA162-16PU | 560-609 | £3.85 | £3.59 | £3.39 |
| ATMEGA8515-16PU | 560-614 | £2.35 | £1.95 | £1.80 |

| Type | Order code | Price each |
|------|-----------|------|
| Pickit 2 | 560-490 | £39.00 |

## PICAXE

The PICAXE range of microcontrollers are low cost flash memory microcontrollers with a bootstrap code and are programmed using a BASIC language commands. Ideal for education and hobbyists

| Type | Order code | Price each |
|------|-----------|------|
| PICAXE08 | 560-500 | £1.15 |
| PICAXE08M | 560-501 | £1.50 |
| PICAXE14M | 560-502 | £1.95 |
| PICAXE18M | 560-503 | £2.00 |
| PICAXE08 Surface mnt | 560-506 | £1.75 |