General

Pro electron type numbering of integrated circuits

BASIC TYPE NUMBER

This type designation code applies to semiconductor monolithic, semiconductor multi-chip, thin film, thick film and hybrid integrated circuits. The basic type number comprises three letters followed by a serial number.

First and second letters

DIGITAL FAMILY CIRCUITS

The first two letters identify the family.(1)

SOLITARY CIRCUITS

The first letter divides solitary circuits into:

S Solitary digital circuits

T Analog circuits

U Mixed analog/digital circuits.

The second letter is a serial letter without any further significance except 'H' which stands for hybrid circuits.(2)

MICROPROCESSORS

The first two letters identify microprocessors and related circuits:

MA Microcomputer or central processing unit

MB Slice processor (functional slice of microprocessor)

MD Related memories

ME Other related circuits such as interfaces, clocks, peripheral controllers, etc.

CHARGE-TRANSFER DEVICES AND SWITCHED CAPACITORS

The first two letters identify:

NH Hybrid circuits

NL Logic circuits

NM Memories

NS Analog signal processing using switched capacitors

NT Analog signal processing using charge-transfer devices

NX Imaging devices

NY Other related circuits.

(1) A logic family is an assembly of digital circuits designed to be interconnected and defined by its base electrical characteristics, such as supply voltage, power consumption, propagation delay, noise immunity.

(2) The first letter 'S' should be used for all solitary memories, to which, in the event of hybrids, the second letter 'H' should be added, for example, SH for bubble memories.

Third letter

The third letter indicates the operating ambient temperature range:

A temperature range not specified below

B 0 to +70 °C

C –55 to +125 °C

D –25 to +70 °C

E –25 to +85 °C

F –40 to +85 °C

G –55 to +85 °C.

If a device has another temperature range, the letter 'A' or a letter indicating a narrower temperature may be used, for example, the range of 0 to +75 °C can be indicated by 'A' or 'B'. Should two devices with the same basic type number both have temperature ranges other than those specified, one would use the letter 'A' and the other the letter 'X'.

SERIAL NUMBER

This may be a four-digit number assigned by Pro Electron, or the serial number (which may be a combination of figures and letters) of an existing company type designation of the manufacturer.

VERSION LETTER

A single version letter may be added to the basic type number. This indicates a minor variant of the basic type or the package. The version letter has no fixed meaning except for 'Z' which means customized wiring. The following letters are recommended for package variants:

C Cylindrical

D Ceramic dual in-line (CERDIL, CERDIP)

F Flat pack (two leads)

G Flat pack (four leads)

H Quad flat pack (QFP)

L Chip on tape (foil)

P Plastic dual in-line (DIL)

Q Quad in-line (QUIL)

T Mini pack (SOL, SO, VSO)

U Uncased chip.

TWO-LETTER SUFFIX

A two-letter suffix may be used instead of a single package version letter to give more information. To avoid confusion with serial numbers that end with a letter, a hyphen should precede the suffix.

First letter (general shape)

C Cylindrical
D Dual in-line (DIL)
E Power DIL (with external heatsink)
F Flat pack (leads on two sides)
G Flat pack (leads on four sides)
H Quad flat pack (QFP)
K Diamond (TO-3 family)
M Multiple in-line (except dual, triple and quad)
Q Quad in-line (QUIL)
R Power QUIL (with external heatsink)
S Single in-line (SIL)
T Triple in-line
W Leaded chip carrier (LCC)
X Leadless chip carrier (LLCC)
Y Pin grid array (PGA).

Second letter (material)

C Metal-ceramic
G Glass-ceramic
M Metal
P Plastic.

EXAMPLES

PCF1105WP: digital IC; PC family; operating temperature range –40 to +85 °C; serial number 1105; plastic leaded chip carrier.

GMB74LS00A-DC: digital IC; GM family; operating temperature range 0 to +70 °C; company number 74LS00A; ceramic DIL package.

TDA1000P: analog IC; operating temperature range non-standard; serial number 1000; plastic DIL package.

SAC2000: solitary digital circuit; operating temperature range –55 to +125 °C; serial number 2000.