

# Transistor and Diode Data

Part Numbers on Transistor & Diodes typically follow one of 3 conventions Pro-Electron, JEDEC, or JIS. These are described below.

## Pro-Electron

Form: two letters, [ optional letter], serial number,

Example: BC108A, BAW68, BF239

1 <sup>st</sup> Letter - specifies the semiconductor material	2 <sup>nd</sup> Letter - specifies the type of device	Optional 3 <sup>rd</sup> Letter	Serial number
A Germanium B Silicon C Gallium Arsenide R Compound Materials	A Diode, low power or signal B Diode, variable capacitance C Transistor, audio frequency low power D Transistor, audio frequency power E Diode, tunnel F Transistor, high frequency low power G Miscellaneous devices H Diode, sensitive to magnetism L Transistor, high frequency power N Photocoupler P Light detector Q Light emitter R Switching device, low power e.g. thyristor, diac, unijunction etc S Transistor, low power switching T Switching device power, e.g. thyristor, triac, etc. U Transistor, switching power W Surface acoustic wave device X Diode, multiplier, e.g. varactor Y Diode, rectifying Z Diode, voltage reference	The third letter indicates that the device is intended for industrial or professional rather than commercial applications. It is usually a W,X,Y or Z.	The characters following the first two letters form the serial number for the device type. Those intended for domestic use have a three-figure number (100 – 999), those intended for commercial use normally have one letter and two figures (W10 – Z99)

**JEDEC (Joint Electron Device Engineering Council)**  
**Form: digit, letter, serial number, [suffix]**  
**Example: 2N2222A, 2N904**

1 <sup>st</sup> Number designates the type of device	2 <sup>nd</sup> Number	The following figures denote the device serial number	Suffix Optional
1 Diodes 2 Bipolar transistors 3 FET devices 4 OptoCoupler 5 OptoCoupler	N	Serial number of component yields no indication of function or spec. Since this is a serial number may provide insight into date.	A = low gain B = medium gain C = high gain

**Japanese Industrial Standard (JIS)**  
**Form: digit, two letters, serial number, [suffix]**  
**Example: 2SA1187, 2SB646**

1 <sup>st</sup> Number designates the type of device	2 Letters	The following figures denote the device serial number	Suffix Optional
1 Diodes 2 Bipolar transistors 3 FET devices	SA: PNP HF transistor SB: PNP AF transistor SC: NPN HF transistor SD: NPN AF transistor SE: Diodes SF: Thyristors SG: Gunn devices SH: UJT SJ: P-channel FET/MOSFET SK: N-channel FET/MOSFET SM: Triac SQ: LED SR: Rectifier SS: Signal diodes ST: Avalanche diodes SV: Varicaps SZ: Zener diodes	Serial number of component yields no indication of function or spec. Since this is a serial number may provide insight into date.	Suffix indicates that the type is approved for use by various Japanese organisations

## **Manufacturer Specific**

Apart from JEDEC, JIS and Pro-electron, manufacturers often introduce their own types, for commercial reasons (ie to get their name into the code) or to emphasise that the range belongs to a specialist application.

Common brand specific prefixes are:

**MJ:** Motorola power, metal case

**MJE:** Motorola power, plastic case

**MPS:** Motorola low power, plastic case

**MRF:** Motorola HF, VHF and microwave transistor

**RCA:** RCA

**RCS:** RCS

**TIP:** Texas Instruments power transistor (plastic case)

**TIPL:** TI planar power transistor

**TIS:** TI small signal transistor (plastic case)

**ZT:** Ferranti

**ZTX:** Ferranti

Examples- ZTX302, TIP31A, MJE3055, TIS43.