In response to a question of the GQRP reflector about Japanese / European transistors, John G8SEQ our VHF columnist in SPRAT offered this advice:-

I wrote something in SPRAT (VHF Column) about 10 years ago and gave some rough equivalents. I got my information from "Towers" - 2 books one on bipolar & one on FET's. The Japanese system is similar to the American system, but more refined (logical). Basically
1N = 1S = one semiconductor junction.
2N = 2S = two semiconductor junctions. The second letter refers to the type of device. eg:

2SA = medium power devices (say up to 1 W) PNP
2SB = Germanium devices (I'm not sure about this), usually PNP
2SC = Silicon small signal devices and power devices up to 40 W NPN
2SD = Silicon power devices NPN
2SK = N-channel FET's
2SJ = P channel FET's
3SK = N-Channel dual gate MOSFET

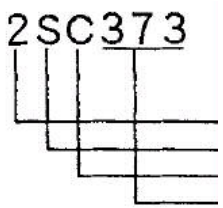
73 de John G8SEQ.

And here is that article from SPRAT 62 – Spring 1990 :-

VHF MANAGER REPORT - JOHN BEECH Q8SEQ

An article in "Radcom Helplines" has prompted this SPRAT article. Some years ago I had a lot of electronic bits and pieces given to me which were basically domestic radios amplifiers and electronic toys plus a lot of jumbled up spares. What particularly interested me were the semiconductors which were virtually all of Japanese origin. With the help of "Towers Transistor Selector" I set about identifying the components. Here is a list and explanation of Japanese transistor marking - it's the most logical I have come across and is based on the American 2N system.

How the system works:-

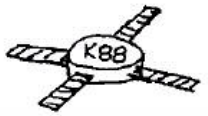


Number of Junctions
Semi conductor
General Type eg. small / large signal, HF etc
Type Specific eg. RF to 100MHz etc

The most frequent configuration for packaging is:

so it easy to identify the base and thus the emitter in a good device.

Note also the prefix 2S or 3S is frequently omitted from the package marking. It is obvious what it is from the number of leads viz:



is a dual gate MOSFET (3SK88)

Caution: Every device in a T0220 style package labelled "C106" has been found to be a thyristor (SCR). I don't think the Japanese Transistor 2SC106 exists (fortunately).

Some useful devices to the radio amateur are:
(with near equivalents).

2SC 373 & 735:		BSX19, 2N2222. HF, VHF
2SA 777:		ZTX502 PNP SWITCH 1A
2SC 1372:		RF Power to 10 MHz (7W device)
2SK 19:		FET: 2N3819
3SK 88	D-Gate:	FET: TO 1GHz. BF 981
2SC 710:		HF BC108
2SC 2221:		RF POWER (5W) TO VHF

Most of the 2SC series of physically small devices are good to 100 MHz and will work well in most audio and HF circuits and of course as switches. So next, time you see some junk transistor radio, cordless 'phone etc. don't dismiss the semiconductors as U/S because you don't know what they are - suck it and see with the above info as a guide - you'll be pleasantly surprised!

Title: A short guide to Japanese Transistors and their European equivalents.

Author: John G8SEQ

GQRP Club Datasheet