Agilent Technologies

Advanced Design System 2011.01

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Vendor Component Libraries - RF Transistor Library

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Intel@ Math Kernel Library, http://www.intel.com/software/products/mkl

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RF Transistor Library

The RF Transistor Library consists of nonlinear models representing 767 parts from 15 manufacturers. The models were extracted from data provided by these manufacturers. For detailed information on these libraries, refer to these sections:

- *Packaged BJTs* (vcrft)
- *Packaged GaAs FETs* (vcrft)
- *Packaged Power MOSFETs* (vcrft)

> **Note**
> The library itself is a binary file named RFTransistorLibrary.library, which can be found in $HPEESOF_DIR/ComponentLibs/models.

Packaged BJTs

The Packaged BJTs consist of nonlinear models representing 685 parts from 9 manufacturers. The BJTs available for selection from the Schematic window are:

- Agilent Technologies Packaged BJTs
- Bipolarics Packaged BJTs
- Hitachi Packaged BJTs
- Motorola Packaged BJTs
- NEC Packaged BJTs
- Panasonic Packaged BJTs
- Philips Packaged BJTs
- Siemens Packaged BJTs
- Toshiba Packaged BJTs

The library components are listed in tables in the following sections. The tables are organized by manufacturer library group and the individual components provided in each group are listed by component name along with relevant physical and electrical characteristics.

The tabulated Physical Specifications include:

Package: Package type
Type: 3- or 4-terminal
Polarity: NPN or PNP
Maximum Electrical Specifications include:
Pdiss: Maximum dissipated power, mW
Vce: Maximum collector-emitter voltage, V
Ic: Maximum collector current, mA
Typical Electrical Specifications include:
Vce: Typical collector operating voltage, V
Ic: Typical collector operating current, mA
Hfe: DC current gain at typical operating bias
Ft: Frequency at which Hfe is 3 dB below maximum value, GHz

Agilent Technologies Packaged BJTs

For modeling specifications, see Packaged BJTs.

The Agilent Technologies Packaged BJTs include 34 components, representing individual parts. The naming convention for these components is *pb_hpa*<part number><*extraction date*> .

Component Name	Description
pb_hp_AT42010_19921101	AT42010, Package:07 Model Gummel-Poon NPN, Pdiss=500mW, Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=25mA, Hfe=150, Ft=8GHz
pb_hp_AT41410_19921101	AT41410, Package:07, Model Gummel-Poon NPN, Pdiss=230mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=15mA, Hfe=150, Ft=7GHz
pb_hp_AT42035_19921101	AT42035: AVNK35 Package 4-terminal, NPN Pdiss=500mW, Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=25mA, Hfe=150, Ft=8GHz
pb_hp_AT31011_19940623	AT31011: SOT-143 style Package 4-terminal, NPN (max)Pdiss=150mW, Vce(Max)=5.5V, Ic(Max)=16mA, Vce(typical)=2.7V, Ic(Typical)=1mA, Hfe=150 Ft=10GHz
pb_hp_AT41435_19921101	AT41435: AVNK35 Package 4-terminal, NPN Pdiss=225mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=150, Ft=7GHz
pb_hp_AT01610_19921101	OBSOLETE AT01610, Package:07, Model Gummel-Poon NPN, Pdiss=230mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=15mA, Hfe=150, Ft=7GHz
pb_hp_AT42070_19931202	AT42070: AVNK70 Package 4-terminal, NPN Pdiss=600mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=35mA, Hfe=150, Ft=8GHz
pb_hp_AT41470_19931202	AT41470: AVNK70 Package 4-terminal, NPN Pdiss=500mW, Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=25mA, Hfe=150, Ft=8GHz
pb_hp_AT41486_19931202	AT41486: AVNK86 Package 4-terminal, NPN Pdiss=500mW, Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=25mA, Hfe=150, Ft=8GHz
pb_hp_AT01635_19921101	OBSOLETE AT01635, Package:35, Model Gummel-Poon NPN, Pdiss=230mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=15mA, Hfe=150, Ft=7GHz
pb_hp_AT32011_19950105	AT32011: SOT-143 AT Package style 11 Package 4-terminal, NPN (max)Pdiss=200mW, Vce(Max)=5.5V, Ic(Max)=32mA, Vce(typical)=2.7V, Ic(Typical)=2mA, Hfe=150 Ft=10GHz
pb_hp_AT41533_19950125	AT41533: SOT-23 Package 3-terminal, NPN Pdiss=225mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=5V, Ic(Typical)=5mA, Hfe=150, Ft=10GHz
pb_hp_AT00570_19921101	OBSOLETE AT00570, Package:70, Model Gummel-Poon NPN, NPN Pdiss=230mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=15mA, Hfe=150, Ft=7GHz
pb_hp_AT64020_19920721	AT64020:Hermetic, metal/Beryllia package-4 terminal NPN Pdiss=3W, Vce(Max)=20V, Ic(Max)=200mA, Vce(typical)=16V, Ic(Typical)=110mA, Hfe=50, Ft=10GHz
pb_hp_AT42070_19920721	AT42070: Hermetic Gold-ceramic microstrip package-4 terminal NPN Pdiss=600mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=35mA, Hfe=150, Ft=10GHz
pb_hp_AT31033_19940623	AT31033: SOT-23 AT Package 3-terminal, NPN (max)Pdiss=150mW, Vce(Max)=5.5V, Ic(Max)=16mA, Vce(typical)=2.7V, Ic(Typical)=1mA, Hfe=150 Ft=10GHz
pb_hp_AT41470_19920721	AT41470: Style 70, Gold-ceramic 70mil microstrip Package 4-terminal, NPN Pdiss=500mW, Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=150, Ft=10GHz
pb_hp_AT42086_19920721	AT42085: SMT plastic package-4 terminal NPN Pdiss=500mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=35mA, Hfe=150, Ft=10GHz
pb_hp_AT41486_19920721	AT41486: Style 86, plastic Package 4-terminal, NPN Pdiss=500mW, Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=150, Ft=10GHz

pb_hp_AT41411_19921101	AT41411, Package:SOT143, Model Gummel-Poon NPN, Pdiss=225mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=150, Ft=7GHz
pb_hp_AT00510_19921101	OBSOLETE AT00510, Package:NEC07, Model Gummel-Poon NPN,
pb_hp_AT42010_19920721	AT42010: Hermetic Gold-ceramic microstrip package NPN Pdiss=600mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=35mA, Hfe=150, Ft=10GHz
pb_hp_AT41410_19920721	AT41410: Style 10, 100mil Ceramic Package 4-terminal, NPN Pdiss=500mW, Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=150, Ft=10GHz
pb_hp_AT32033_19950105	AT32033: SOT-23 style Package 3-terminal, NPN (max)Pdiss=200mW, Vce(Max)=5.5V, Ic(Max)=32mA, Vce(typical)=2.7V, Ic(Typical)=2mA, Hfe=150 Ft=10GHz
pb_hp_AT00535_19921101	OBSOLETE AT00535, Package:35, Model Gummel-Poon NPN, Pdiss=230mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=15mA, Hfe=150, Ft=7GHz
pb_hp_AT30511_19940623	AT30511: SOT-143 Package 4-terminal, NPN Pdiss=100mW, Vce(Max)=5.5V, Ic(Max)=8mA, Vce(typical)=2.7V, Ic(Typical)=5mA, Hfe(min)=70, Hfe(max)=300, Ft=10GHz
pb_hp_AT42035_19920721	AT42035: Cost effective ceramic microstrip package-4 terminal NPN Pdiss=600mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=35mA, Hfe=150, Ft=10GHz
pb_hp_AT60585_19921101	OBSOLETE AT60585, Package:85, Model : Gummel-Poon NPN from MDS library, Pdiss=400mW, Vce(Max)=12V, Ic(Max)=40mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=150, Ft=8GHz
pb_hp_AT41435_19920721	AT41435: Style 35, 100mil micro-X Package 4-terminal, NPN Pdiss=500mW, Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=150, Ft=10GHz
pb_hp_AT42085_19911003	AT42085, Package:85, Model Gummel-Poon NPN, Pdiss=600mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=35mA, Hfe=150, Ft=8GHz
pb_hp_AT41586_19931202	AT41586: AVNK86 Package 4-terminal, NPN Pdiss=500mW, Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=25mA, Hfe=150, Ft=8GHz
pb_hp_AT41411_19931124	AT41411: SOT143 Package 4-terminal, NPN Pdiss=225mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=150, Ft=7GHz
pb_hp_AT32063_19961111	AT32033: SOT-363 style Package 6-terminal,dual NPN (max)Pdiss=200mW, Vce(Max)=5.5V, Ic(Max)=32mA, Vce(typical)=2.7V, Ic(Typical)=5mA, Hfe=150 Ft=10GHz
pb_hp_AT30533_19940623	AT30533: SOT-23 Package 3-terminal, NPN Pdiss=100mW, Vce(Max)=5.5V, Ic(Max)=8mA, Vce(typical)=2.7V, Ic(Typical)=5mA, Hfe(min)=70, Hfe(max)=300, Ft=10GHz
pb_hp_AT41586_19950125	AT41586: Style 86 plastic Package 4-terminal, NPN Pdiss=225mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=5V, Ic(Typical)=5mA, Hfe=150, Ft=10GHz
pb_hp_AT42085_19921101	AT42085: AVNK85 Package 4-terminal, NPN Pdiss=600mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=35mA, Hfe=150, Ft=8GHz
pb_hp_AT41485_19921101	AT41485, Package:85, Model Gummel-Poon NPN, Pdiss=500mW, Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=25mA, Hfe=150, Ft=8GHz
pb_hp_AT41411_19920721	AT41411: SOT-143 style Package 4-terminal, NPN Pdiss=225mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=150, Ft=10GHz

pb_hp_AT60535_19911003	OBSOLETE AT60535, Package:35, Model Gummel-Poon NPN, Pdiss=500mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=35mA, Hfe=150, Ft=8GHz
pb_hp_AT60570_19921101	OBSOLETE AT60570, Package:70, Model Gummel-Poon NPN, Pdiss=400mW, Vce(Max)=12V, Ic(Max)=40mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=150, Ft=8GHz
pb_hp_AT60586_19921101	OBSOLETE AT60586, Package:86, Model Gummel-Poon NPN, Pdiss=400mW, Vce(Max)=12V, Ic(Max)=40mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=150, Ft=8GHz
pb_hp_AT42086_19911008	AT42086, Package:86, Model Gummel-Poon NPN, Pdiss=500mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=35mA, Hfe=150, Ft=8GHz
pb_hp_HBFP0405_19980529	HBFP0405: SOT-343 Package 3-terminal, NPN Pdiss=54mW, Vce(Max)=4.5V, Ic(Max)=12mA, Vce(typical)=2V, Ic(Typical)=2mA, Hfe=80, Ft=25GHz
pb_hp_AT32032_19980529	AT32033: SOT-323 (SC-70) style Package 3-terminal, NPN (max)Pdiss=200mW, Vce(Max)=5.5V, Ic(Max)=32mA, Vce(typical)=2.7V, Ic(Typical)=2mA, Hfe=150 Ft=10GHz
pb_hp_AT60510_19921101	OBSOLETE AT60510, Package:07, Model Gummel-Poon NPN, Pdiss=500mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=35mA, Hfe=150, Ft=8GHz
pb_hp_AT00511_19931202	OBSOLETE AT00511: SOT143 Package 4-terminal, NPN Pdiss=230mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=15mA, Hfe=150, Ft=7GHz
pb_hp_AT41511_19931202	AT41511: SOT143 Package 4-terminal, NPN Pdiss=225mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=25mA, Hfe=150, Ft=8GHz
pb_hp_AT60535_19921101	OBSOLETE AT60535: AVNK35 Package 4-terminal, NPN Pdiss=500mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=35mA, Hfe=150, Ft=8GHz
pb_hp_AT42035_19911003	AT42035, Package:35, Model Gummel-Poon NPN, Pdiss=500mW, Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=25mA, Hfe=150, Ft=8GHz
pb_hp_AT41435_19911003	AT41435: AVNK35 Package 3-terminal,Model:BJT NPN Pdiss=225mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=150, Ft=7GHz
pb_hp_AT42070_19921101	AT42070, Package:70, Model Gummel-Pooon NPN, Pdiss=600mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=35mA, Hfe=150, Ft=8GHz
pb_hp_AT41470_19921101	AT41470, Package:70, Model Gummel-Poon NPN, Pdiss=500mW, Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=25mA, Hfe=150, Ft=8GHz
pb_hp_AT42086_19921101	AT42086: AVNK86 Package 4-terminal, NPN Pdiss=500mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=35mA, Hfe=150, Ft=8GHz
pb_hp_AT41486_19921101	AT41486, Package:86, Model Gummel-Poon NPN, Pdiss=500mW, Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=25mA, Hfe=150, Ft=8GHz
pb_hp_HBFP0450_19980529	n/a
pb_hp_AT01670_19921101	OBSOLETE AT01670, Package:70, Model Gummel-Poon NPN, Pdiss=230mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=15mA, Hfe=150, Ft=7GHz
pb_hp_AT42085_19920721	AT42085: Low cost plastic package-4 terminal NPN Pdiss=500mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=35mA, Hfe=150, Ft=10GHz

pb_hp_AT41485_19920721	AT41485: Style 85, plastic Package 4-terminal, NPN Pdiss=500mW, Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=150, Ft=10GHz
pb_hp_HBFP0420_19980529	HBFP0420: SOT-343 Package 3-terminal, NPN Pdiss=162mW, Vce(Max)=4.5V, Ic(Max)=36mA, Vce(typical)=2V, Ic(Typical)=5mA, Hfe=80, Ft=25GHz
pb_hp_AT41511_19950125	AT41511: SOT-143 AT Package style 11 Package 4-terminal, NPN (max)Pdiss=225mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=5V, Ic(Typical)=5mA, Hfe=150 Ft=10GHz

Bipolarics Packaged BJTs

For modeling specifications, see Packaged BJTs.

The Bipolarics Packaged BJTs include 9 components, representing individual parts. The naming convention for these components is *pb_bit<part number><extraction date>* .

Component Name	Description
pb_bit_B12V105d05_19921215	B12V105-05: MICROX Package 4-terminal, NPN Vce(Max)=12V, Ic(Max)=40mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=100, Ft=10GHz
pb_bit_B12V114d05_19921215	B12V114-05: MICROX Package 4-terminal, NPN Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=25mA, Hfe=150, Ft=10GHz
pb_bit_BT114d12_19911001	BT114-12: SOT23 Package 3-terminal, NPN Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=25mA, Hfe=150, Ft=10GHz
pb_bit_B12V105d02_19921215	B12V105-02: SOT143 Package 4-terminal, NPN Vce(Max)=12V, Ic(Max)=40mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=100, Ft=10GHz
pb_bit_B15V140d10_19921215	B15V140-10: 145MILXP Package 4-terminal, NPN Vce(Max)=15V, Ic(Max)=120mA, Vce(typical)=8V, Ic(Typical)=60mA, Hfe=100, Ft=8GHz
pb_bit_B12V114d02_19931202	B12V114-02: SOT143 Package 4-terminal, NPN Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=25mA, Hfe=150, Ft=10GHz
pb_bit_B15V140d09_19931202	B15V140-09: SOT223 Package 4-terminal, NPN Vce(Max)=15V, Ic(Max)=120mA, Vce(typical)=5V, Ic(Typical)=70mA, Hfe=100, Ft=8GHz
pb_bit_BT114d10_19911001	BT114-10: 145ML4PK Package 4-terminal, NPN Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=25mA, Hfe=150, Ft=10GHz
pb_bit_BT114d05_19911003	BT114-05: MICROX Package 4-terminal, NPN Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=8V, Ic(Typical)=25mA, Hfe=150, Ft=10GHz

Hitachi Packaged BJTs

For modeling specifications, see Packaged BJTs.

The Hitachi Packaged BJTs include 3 components, representing individual parts. The naming convention for these components is *pb_hit<part number><extraction date>* .

Component Name	Description
pb_hit_2SC2712_19921217	2SC2712: SOT23 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=50V, Ic(Max)=150mA, Vce(typical)=10V, Ic(Typical)=1mA, Hfe=70-700, Ft=0GHz
pb_hit_2SC3793_19921215	2SC3793: SOT23 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=20V, Ic(Max)=50mA, Vce(typical)=10V, Ic(Typical)=10mA, Hfe=80, Ft=3.5GHz
pb_hit_2SC2734_19921213	2SC2734: SOT23 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=11V, Ic(Max)=50mA, Vce(typical)=10V, Ic(Typical)=10mA, Hfe=90, Ft=3.5GHz
pb_tsb_2SC4248_19921214	2SC4248: SOT323 Package 3-terminal, NPN Pdiss=100mW, Vce(Max)=12V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=10mA, Hfe=70-300, Ft=4GHz
pb_tsb_2SC3011_19921213	2SC3011: SOT23 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=7V, Ic(Max)=30mA, Vce(typical)=5V, Ic(Typical)=10mA, Hfe=120, Ft=6.5GHz
pb_tsb_2SC4322_19921215	2SC4322: SOT23 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=10V, Ic(Max)=15mA, Vce(typical)=6V, Ic(Typical)=7mA, Hfe=50-250, Ft=10GHz
pb_tsb_2SC3609_19921214	2SC3609: 2D3J1C Package 4-terminal, NPN Pdiss=150mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=30-250, Ft=7GHz
pb_tsb_2SC3606_19921214	2SC3606: SOT23 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=30-250, Ft=7GHz

Motorola Packaged BJTs

For modeling specifications, see Packaged BJTs.

The Motorola Packaged BJTs include 97 components, representing individual parts. The naming convention for these components is *pb_mot*<part number><*extraction date*> .

Component Name	Description
pb_mot_MRF942_19911009	MRF942: NEC07 Package 4-terminal, NPN Pdiss=200mW, Vce(Max)=10V, Ic(Max)=50mA, Vce(typical)=6V, Ic(Typical)=15mA, Hfe=50-200, Ft=8GHz
pb_mot_MRF586_19911008	MRF586: C7904 Package 3-terminal, NPN Pdiss=2500mW, Vce(Max)=17V, Ic(Max)=200mA, Vce(typical)=15V, Ic(Typical)=90mA, Hfe=50-200, Ft=4.5GHz
pb_mot_MRF957_19921213	MRF957, SOT323, Model:EE_BJT2 NPN, Pdiss=175mW, Vce(Max)=10V, Ic(Max)=100mA, Vce(typical)=8V, Ic(Typical)=30mA, Hfe=50-200, Ft=8GHz
pb_mot_MRF9511_19911017	MRF9511L, Package:SOT143, Model:Gummel-Poon NPN, Pdiss=175mW, Vce(Max)=10V, Ic(Max)=50mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe=50-200, Ft=8GHz
pb_mot_MRF951_19911008	MRF9511L, Package:SOT143, Model:EE_BJT2 NPN, Extracted in Santa Rosa, Pdiss=175mW, Vce(Max)=10V, Ic(Max)=50mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe=50-200, Ft=8GHz
pb_mot_MRF581A_19911008	MRF581A: MACROX Package 4-terminal, NPN Pdiss=1200mW, Vce(Max)=15V, Ic(Max)=200mA, Vce(typical)=10V, Ic(Typical)=75mA, Hfe=90-250, Ft=5GHz
pb_mot_BFR96_19911003	BFR96: MACROT Package 3-terminal, NPN Pdiss=500mW, Vce(Max)=15V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=50mA, Hfe=30-200, Ft=4.5GHz
pb_mot_BF431L_19921101	BF431L, SOT143, Model:Gummel-Poon NPN, Pdiss=300mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe=25-300, Ft=0.9GHz
pb_mot_MMBR951L_19911007	MMBR951L, SOT23, Model:Gummel-Poon NPN, Pdiss=400mW, Vce(Max)=10V, Ic(Max)=50mA, Vce(typical)=6V, Ic(Typical)=15mA,

	Hfe=50-200, Ft=8GHz
pb_mot_MRF237_19931202	MRF237: TO39 Package 3-terminal, NPN Pdiss=8000mW, Vce(Max)=18V, Ic(Max)=1000mA, Vce(typical)=5V, Ic(Typical)=250mA, Hfe=>5, Ft=6GHz
pb_mot_MRF8372_19911008	MRF8372: C751D03 Package 8-terminal, NPN Pdiss=1000mW, Vce(Max)=16V, Ic(Max)=200mA, Vce(typical)=10V, Ic(Typical)=50mA, Hfe=90, Ft=4.5GHz
pb_mot_MRF9411L_19931202	MRF9411L, SOT143, Model:EE_BJT2 NPN Pdiss=50mW, Vce(Max)=5V, Ic(Max)=5mA, Vce(typical)=1V, Ic(Typical)=1mA, Hfe=30-150, Ft=3GHz
pb_mot_MRF947_19961030	MRF947, package:SOT323, Model:Gummel-Poon Motorola extraction ** Version 1.1.1b 1996
pb_mot_MRF5211_19961023	MRF5211, package:SOT143, Model:Gummel-Poon PNP Motorola extraction ** Version 1.0.0a
pb_mot_MRF522_19921101	MRF522: NEC07 Package 4-terminal, Model Gummel-Poon PNP, Extracted in Sant Rosa, Pdiss=200mW, Vce(Max)=15V, Ic(Max)=50mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe= 30-250, Ft=1GHz
pb_mot_MRF942_19921101	MRF942: NEC07 Package 4-terminal, NPN Pdiss=200mW, Vce(Max)=10V, Ic(Max)=50mA, Vce(typical)=6V, Ic(Typical)=15mA, Hfe=50-200, Ft=8GHz
pb_mot_MRF5711L_19911004	MRF5711L: SOT143, Model:Gummel-Poon NPN, Extracted in Santa Rosa, Pdiss=2000mW, Vce(Max)=16V, Ic(Max)=150mA, Vce(typical)=10V, Ic(Typical)=100mA, Hfe=90, Ft=3GHz
pb_mot_MRF553_19911007	MRF553: C317D02 Package 4-terminal, NPN Pdiss=3000mW, Vce(Max)=16V, Ic(Max)=500mA, Vce(typical)=5V, Ic(Typical)=250mA, Hfe=30-200, Ft=5GHz
pb_mot_MMBR930L_19921101	MMBR930L: SOT23 Package 3-terminal, NPN Pdiss=350mW, Vce(Max)=15V, Ic(Max)=35mA, Vce(typical)=10V, Ic(Typical)=14mA, Hfe=25-250, Ft=4.5GHz
pb_mot_MMBR571_19961218	MMBR571, package:SOT23, Model:Gummel-Poon Motorola extraction ** Version 1.0.0a
pb_mot_MMBR951L_19921101	MMBR951L, SOT23, Model:EE_BJT2 NPN, Pdiss=400mW, Vce(Max)=10V, Ic(Max)=50mA, Vce(typical)=6V, Ic(Typical)=15mA, Hfe=50-200, Ft=8GHz
pb_mot_MRF917_19961218	MRF917, package:SOT323, Model:Gummel-Poon Motorola extraction ** Version 1.0.0a 1996
pb_mot_MRF9511L_19921101	MRF9511L, Package:SOT143, Model:EE_BJT2 NPN, Pdiss=175mW, Vce(Max)=10V, Ic(Max)=50mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe=50-200, Ft=8GHz
pb_mot_MRF571_19911007	MRF5711L, Package:SOT143, Model:EE_BJT2 NPN, Extracted in Santa Rosa, Pdiss=2000mW, Vce(Max)=16V, Ic(Max)=150mA, Vce(typical)=10V, Ic(Typical)=100mA, Hfe=90, Ft=3GHz
pb_mot_MMBR930_19911003	MMBR930L: SOT23 Package 3-terminal, NPN Pdiss=350mW, Vce(Max)=15V, Ic(Max)=35mA, Vce(typical)=10V, Ic(Typical)=14mA, Hfe=25-250, Ft=4.5GHz
pb_mot_BFW92A_19911003	BFW92A: MACROT Package 3-terminal, NPN Pdiss=180mW, Vce(Max)=15V, Ic(Max)=35mA, Vce(typical)=10V, Ic(Typical)=10mA, Hfe=50, Ft=4.5GHz
pb_mot_MRF580_19911008	MRF580A: MACROT Package 3-terminal, NPN Pdiss=1200mW, Vce(Max)=15V, Ic(Max)=200mA, Vce(typical)=10V, Ic(Typical)=75mA, Hfe=90-250, Ft=5GHz
pb_mot_MRF904_19911009	MRF904: C2003 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=15V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=15mA, Hfe=30-200, Ft=4GHz
pb_mot_MMBR901L_19911003	MMBR901L, SOT23, Model:Gummel-Poon NPN, Pdiss=200mW, Vce(Max)=-10V, Ic(Max)=-30mA, Vce(typical)=-5V, Ic(Typical)=-20mA, Hfe= 20-200, Ft=4GHz

pb_mot_MRF9411_19961025	MRF9411, package:SOT143, Model:Gummel-Poon Motorola extraction ** Version 1.0.1a 1996
pb_mot_BFR90_19911003	BFR90: MACROT Package 3-terminal, NPN Pdiss=180mW, Vce(Max)=15V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=14mA, Hfe=25-250, Ft=5GHz
pb_mot_MRF557_19911007	MRF557: C317D02 Package 4-terminal, NPN Pdiss=3000mW, Vce(Max)=16V, Ic(Max)=400mA, Vce(typical)=5V, Ic(Typical)=100mA, Hfe=90, Ft=5GHz
pb_mot_MRF961_19911008	MRF961: MACROX Package 4-terminal, NPN Pdiss=500mW, Vce(Max)=15V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=50mA, Hfe=30-200, Ft=4.5GHz
pb_mot_MPS571_19911009	MPS571: TO226AA Package 3-terminal, NPN Pdiss=625mW, Vce(Max)=10V, Ic(Max)=80mA, Vce(typical)=5V, Ic(Typical)=50mA, Hfe=50-300, Ft=6GHz
pb_mot_MMBR931_19961218	MMBR931, package:SOT23, Model:Gummel-Poon Motorola extraction ** Version 1.0.0a 1996
pb_mot_MRF501_19921211	MRF501: C2003 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=15V, Ic(Max)=50mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe= 30-250, Ft=1GHz
pb_mot_MRF9011L_19921101	MRF9011L: SOT143 Package, NPN Model:Gummel-Poon, Extracted in Santa Rosa, Pdiss=2500mW, Vce(Max)=16V, Ic(Max)=200mA, Vce(typical)=10V, Ic(Typical)=50mA, Hfe=90, Ft=4.5GHz
pb_mot_MRF5711L_19921101	MRF5711L, Package: SOT143, Model:eebjt2 NPN, Pdiss=2000mW, Vce(Max)=16V, Ic(Max)=150mA, Vce(typical)=10V, Ic(Typical)=100mA, Hfe=90, Ft=3GHz
pb_mot_MMBR901_19961218	MMBR901, package:SOT23, Model:Gummel-Poon Motorola extraction ** Version 1.0.0a
pb_mot_MMBR571L_19921101	MMBR571L, SOT23, Model:Gummel-Poon NPN, Pdiss=200mW, Vce(Max)=-10V, Ic(Max)=-30mA, Vce(typical)=-5V, Ic(Typical)=-20mA, Hfe= 20-200, Ft=4GHz
pb_mot_2N2857_19911017	2N2857: TO206AF Package 3-terminal, NPN Pdiss=300mW, Vce(Max)=15V, Ic(Max)=40mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe=64, Ft=1.6GHz
pb_mot_MRF931_19911011	MRF931: MACROX Package 4-terminal, NPN Pdiss=50mW, Vce(Max)=5V, Ic(Max)=5mA, Vce(typical)=1V, Ic(Typical)=1mA, Hfe=30-150, Ft=3GHz
pb_mot_MM4049_19931122	MM4049: C2003 Package 3-terminal, PNP Pdiss=200mW, Vce(Max)=-10V, Ic(Max)=-30mA, Vce(typical)=-5V, Ic(Typical)=-20mA, Hfe= 20-200, Ft=4GHz
pb_mot_MRF8372_19931202	MRF8372: extracted by: HP Santa Rosa in 1993
pb_mot_MMBR930_19921101	packaged bjt extracted by Santa Rosa 1992
pb_mot_MRF2369_19911003	MRF2369: MACROX Package 4-terminal, NPN Pdiss=750mW, Vce(Max)=15V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=40mA, Hfe=50-300, Ft=6GHz
pb_mot_MRF5812_19961023	MRF5812, package:SO8, Model:Gummel-Poon Motorola extraction ** Version 1.0.0a
pb_mot_MRF952_19921101	MRF952: NEC07 Package 4-terminal, model Gummel-Poon NPN, Pdiss=1000mW, Vce(Max)=10V, Ic(Max)=100mA, Vce(typical)=8V, Ic(Typical)=30mA, Hfe=50-200, Ft=8GHz
pb_mot_MRF607_19931202	MRF607: C7904 Package 3-terminal, NPN Pdiss=3500mW, Vce(Max)=160V, Ic(Max)=330mA, Vce(typical)=5V, Ic(Typical)=50mA, Hfe=150, Ft=4.5GHz
pb_mot_MMBR901L_19921101	MMBR901L, SOT23, Model:EEBJT2 NPN, Pdiss=200mW, Vce(Max)=-10V, Ic(Max)=-30mA, Vce(typical)=-5V, Ic(Typical)=-20mA, Hfe= 20-200, Ft=4GHz
pb_mot_MRF5211L_19921101	MRF5211L, SOT143, Model:Gummel-Poon PNP, Extracted in Santa Rosa, Pdiss=200mW, Vce(Max)=15V, Ic(Max)=50mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe= 30-250, Ft=1GHz
pb_mot_MRF901_19911021	MRF9011L, Package:SOT143, Model:EE_BJT2 NPN, Pdiss=2500mW,

	Vce(Max)=16V, Ic(Max)=200mA, Vce(typical)=10V, Ic(Typical)=50mA, Hfe=90, Ft=4.5GHz
pb_mot_MPS901_19911003	MPS901: TO206AA Package 3-terminal, NPN Pdiss=300mW, Vce(Max)=15V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=15mA, Hfe=80, Ft=4.5GHz
pb_mot_MRF572_19911007	MRF572: Package:NEC07, Model Gummel-Poon NPN, Pdiss=1000mW, Vce(Max)=10V, Ic(Max)=70mA, Vce(typical)=8V, Ic(Typical)=50mA, Hfe=50-300, Ft=8GHz
pb_mot_MMBR941_19961020	MMBR941, package:SOT23, Model:Gummel-Poon Motorola extraction ** Version 1.0.0a
pb_mot_MRF927_19961218	MRF927, package:SOT323, Model:Gummel-Poon Motorola extraction ** Version 1.0.1a 1996
pb_mot_2N5179_19921211	2N5179, Package:TO72, Model:EE_BJT2 NPN, Pdiss=300mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe=25-300, Ft=0.9GHz
pb_mot_MRF581_19911008	MRF581A: MACROX Package 4-terminal, NPN Pdiss=1200mW, Vce(Max)=15V, Ic(Max)=200mA, Vce(typical)=10V, Ic(Typical)=75mA, Hfe=90-250, Ft=5GHz
pb_mot_MRF9331_19961023	MRF9331, package:SOT143, Model:Gummel-Poon Motorola extraction ** Version 1.0.0a
pb_mot_BFR91_19911003	BFR91: MACROT Package 3-terminal, NPN Pdiss=180mW, Vce(Max)=12V, Ic(Max)=35mA, Vce(typical)=5V, Ic(Typical)=30mA, Hfe=25-250, Ft=5GHz
pb_mot_MMBR5031_19961218	MMBR5031, package:SOT23, Model:Gummel-Poon Motorola extraction ** Version 1.1.0a 1996
pb_mot_MRF914_19911009	MRF914: C2003 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=12V, Ic(Max)=40mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=30-200, Ft=4.5GHz
pb_mot_MRF962_19911009	MRF962: C30301 Package 4-terminal, NPN Pdiss=750mW, Vce(Max)=15V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=50mA, Hfe=30-200, Ft=4.5GHz
pb_mot_MRF949_19961023	MRF949, package:SC-90, Model:Gummel-Poon Motorola extraction ** Version 1.1.0a
pb_mot_MMBR521_19961218	MMBR521, package:SOT23, Model:Gummel-Poon PNP Motorola extraction ** Version 1.1.0a 1996
pb_mot_MRF9511_19961023	MRF9511, package:SOT143, Model:Gummel-Poon Motorola extraction ** Version 1.0.0a
pb_mot_MRF947_19921213	MRF947: SOT323 Package 3-terminal, NPN Pdiss=175mW, Vce(Max)=10V, Ic(Max)=50mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe=50-200, Ft=8GHz
pb_mot_2N6603_19921101	2N6603, Package:NEC07, Model Gummel-Poon NPN, Pdiss=300mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe=25-300, Ft=0.9GHz
pb_mot_2N3903_19921211	2N3903: TO92 Package 3-terminal, NPN Pdiss=1500mW, Vce(Max)=40V, Ic(Max)=200mA, Vce(typical)=20V, Ic(Typical)=10mA, Hfe=50-200, Ft=0.25GHz
pb_mot_BFR92_19961218	BFR92, package:SOT23, Model:Gummel-Poon Motorola extraction ** Version 1.0.0a
pb_mot_MMBR941L_19911003	MMBR941L, SOT23, Model:Gummel-Poon NPN, Pdiss=350mW, Vce(Max)=12V, Ic(Max)=35mA, Vce(typical)=5V, Ic(Typical)=30mA, Hfe=25-250, Ft=4.5GHz
pb_mot_MRF580A_19911008	MRF580A: MACROT Package 3-terminal, NPN Pdiss=1200mW, Vce(Max)=15V, Ic(Max)=200mA, Vce(typical)=10V, Ic(Typical)=75mA, Hfe=90-250, Ft=5GHz
pb_mot_BF430L_19921101	BF430L, SOT143, Model:Gummel-Poon NPN, Extracted in Santa Rosa,

	Pdiss=300mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe=25-300, Ft=0.9GHz
pb_mot_MMBR911_19961218	MMBR911, package:SOT23, Model:Gummel-Poon Motorola extraction ** Version 1.1.0a 1996
pb_mot_MMBR920L_19911017	MMBR920L, SOT23, Model:EE_BJT2 NPN, Pdiss=350mW, Vce(Max)=15V, Ic(Max)=35mA, Vce(typical)=10V, Ic(Typical)=14mA, Hfe=25-250, Ft=4.5GHz
pb_mot_MRF572_19921101	MRF572: NEC07 Package 4-terminal, NPN Pdiss=1000mW, Vce(Max)=10V, Ic(Max)=70mA, Vce(typical)=8V, Ic(Typical)=50mA, Hfe=50-300, Ft=8GHz
pb_mot_MRF837_19911008	MRF8372: C751D03 Package 8-terminal, NPN Pdiss=1000mW, Vce(Max)=16V, Ic(Max)=200mA, Vce(typical)=10V, Ic(Typical)=50mA, Hfe=90, Ft=4.5GHz
pb_mot_MMBR920_19961218	MMBR920, package:SOT23, Model:Gummel-Poon Motorola extraction ** Version 1.0.0a
pb_mot_MRF8372_19961023	MRF8372, package:SO8, Model:Gummel-Poon Motorola extraction ** Version 1.0.0a
pb_mot_MRF911_19911008	MRF911: MACROX Package 4-terminal, NPN Pdiss=400mW, Vce(Max)=12V, Ic(Max)=40mA, Vce(typical)=10V, Ic(Typical)=30mA, Hfe=30-200, Ft=5GHz
pb_mot_MRF555_19911007	MRF555: C317D02 Package 4-terminal, NPN Pdiss=3000mW, Vce(Max)=16V, Ic(Max)=400mA, Vce(typical)=5V, Ic(Typical)=100mA, Hfe=90, Ft=5GHz
pb_mot_BFY90_19911017	BFY90: C2003 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=15V, Ic(Max)=50mA, Vce(typical)=5V, Ic(Typical)=25mA, Hfe=20-125, Ft=1.3GHz
pb_mot_MRF536_19931123	MRF536: MACROX Package 4-terminal, PNP Pdiss=300mW, Vce(Max)=-10V, Ic(Max)=-30mA, Vce(typical)=-5V, Ic(Typical)=-20mA, Hfe= 20-200, Ft=5GHz
pb_mot_MPS911_19911009	MPS911: TO206AA Package 3-terminal, NPN Pdiss=625mW, Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=10V, Ic(Typical)=30mA, Hfe=30-200, Ft=7GHz
pb_mot_MPS918_19911018	MPS918: TO92 Package 3-terminal, NPN Pdiss=625mW, Vce(Max)=15V, Ic(Max)=50mA, Vce(typical)=10V, Ic(Typical)=8mA, Hfe=20-200, Ft=0.6GHz
pb_mot_MRF5711_19961023	MRF5711, package:SOT143, Model:Gummel-Poon NPN, Motorola extraction ** Version 1.0.0a
pb_mot_MPS536_19931122	MPS536: TO226AA Package 3-terminal, PNP Pdiss=625mW, Vce(Max)=-10V, Ic(Max)=-30mA, Vce(typical)=-5V, Ic(Typical)=-20mA, Hfe= 20-200, Ft=4.5GHz
pb_mot_MMBR941L_19921101	MMBR941L, SOT23 , Model:EE_BJT2 NPN, Pdiss=350mW, Vce(Max)=12V, Ic(Max)=35mA, Vce(typical)=5V, Ic(Typical)=30mA, Hfe=25-250, Ft=4.5GHz
pb_mot_MRF9411L_19921101	MRF9411L, SOT143, Model:Gummel-Poon NPN, Pdiss=50mW, Vce(Max)=5V, Ic(Max)=5mA, Vce(typical)=1V, Ic(Typical)=1mA, Hfe=30-150, Ft=3GHz
pb_mot_MRF559_19911007	MRF559: MACROX Package 4-terminal, NPN Pdiss=2000mW, Vce(Max)=16V, Ic(Max)=150mA, Vce(typical)=10V, Ic(Typical)=100mA, Hfe=90, Ft=3GHz
pb_mot_MRF524_19931123	MRF524: C2003 Package 3-terminal, PNP Pdiss=200mW, Vce(Max)=-10V, Ic(Max)=-50mA, Vce(typical)=-8V, Ic(Typical)=-50mA, Hfe= 25-125, Ft=4.2GHz
pb_mot_BFS17_19961218	BFS17, package:SOT23, Model:Gummel-Poon Motorola extraction ** Version 1.1.0a 1996
pb_mot_MRF9011_19961023	MRF9011, package:SOT143, Model:Gummel-Poon Motorola extraction ** Version 1.0.0a 1996
pb_mot_2N6604_19921101	2N6604, Package:NEC07, Model Gummel-Poon NPN, Pdiss=300mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe=25-300, Ft=0.9GHz
pb_mot_2N3904_19921211	2N3904: TO92 Package 3-terminal, NPN Pdiss=1500mW, Vce(Max)=40V,

	Ic(Max)=200mA, Vce(typical)=20V, Ic(Typical)=10mA, Hfe=100-400, Ft=0.3GHz
pb_mot_BFR93_19961218	BFR93, package:SOT23, Model:Gummel-Poon Motorola extraction ** Version 1.1.0a 1996
pb_mot_MMBR951_19961218	MMBR951, package:SOT23, Model:Gummel-Poon Motorola extraction ** Version 1.0.0a

NEC Packaged BJTs

For modeling specifications, see Packaged BJTs.

The NEC Packaged BJTs include 143 components, representing individual parts. Of these, 66 components represent devices that have both CEL and EIAJ part designations. Two components represent CEL parts with no corresponding EIAJ designation. One component represents an EIAJ-numbered part with no CEL designation. The naming convention for these components is *pb_nec<part number><extraction date>* .

CEL part numbers with an E suffix designate a common-emitter package configuration, as opposed to common-base (B suffix) versions of the same transistor available from CEL under the same part number.

Component Name	Description
pb_nec_NE68618_19960601	NE68618, Package:NE18, Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=2.5V to 3V, Ic=0.3mA to 5mA} Frequency{0.1GHz to 3.0GHz}
pb_nec_NE68030_19961001	NE68030, Package:NEC30 Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=2.5V to 6V, Ic=1mA to 15mA} FREQ RANGE: 0.05GHz to 3GHz}
pb_nec_NE68130_19921215	NE68130: NEC30 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=10V, Ic(Max)=65mA, Vce(typical)=3V, Ic(Typical)=7mA, Hfe= 40-240, Ft=7GHz
pb_nec_NE73439_19921101	NE73439, Package:NEC39, Model Gummel-Poon NPN, Extracted in Santa Rosa in 1992
pb_nec_NE64535_19911007	NE64535: NEC35 Package 4-terminal, NPN Pdiss=400mW, Vce(Max)=12V, Ic(Max)=65mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=100, Ft=8.5GHz
pb_nec_NE68119_19931201	NE68119: NEC19 Package 3-terminal, NPN Pdiss=100mW, Vce(Max)=10V, Ic(Max)=65mA, Vce(typical)=3V, Ic(Typical)=7mA, Hfe=80-160, Ft=7GHz
pb_nec_2SC3604_19911002	2SC3604, Package:NEC35, Model Gummel-Poon NPN, Extracted in Santa Rosa, Pdiss=295mW, Vce(Max)=10V, Ic(Max)=65mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=100, Ft=9GHz
pb_nec_2SC3603_19921210	2SC3603: NEC35 Package 4-terminal, NPN Pdiss=580mW, Vce(Max)=12V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=120, Ft=7GHz
pb_nec_NE41607_19911007	NE41607, Package:NEC07, Package Model Gummel-Poon NPN, Extracted in Santa Rosa, Pdiss=580mW, Vce(Max)=18V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=50mA, Hfe=100, Ft=3.5GHz
pb_nec_NE02133_19921101	NE02133: NEC33 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=70, Ft=4.5GHz
pb_nec_NE02130_19911017	NE02130: NEC30 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=100, Ft=0.5GHz
pb_nec_NE68133_19951001	NE68133, Package:NE33, Model:Gummel-Poon NPN, Valid within: Bias

	VCE=2.5V, IC=0.3/1/3mA: VCE=8V, IC=7/20mA Frequency 0.1GHz TO 3.0GHz
pb_nec_2SC4228_19921211	2SC4228: NEC30 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=10V, Ic(Max)=35mA, Vce(typical)=3V, Ic(Typical)=5mA, Hfe= 50-250, Ft=8.5GHz
pb_nec_NE85632_19931201	NE85632: NEC32 Package 3-terminal, NPN Pdiss=600mW, Vce(Max)=12V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=120, Ft=6.5GHz
pb_nec_2SC3583_19921101	2SC3583-L: NEC33 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=10V, Ic(Max)=65mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=100, Ft=9GHz
pb_nec_NE68039_19921101	NE68039: NEC39 Package 4-terminal, NPN Pdiss=200mW, Vce(Max)=10V, Ic(Max)=35mA, Vce(typical)=6V, Ic(Typical)=10mA, Hfe=100, Ft=10GHz
pb_nec_2SC2585_19911007	2SC2585: NEC35 Package 4-terminal, NPN Pdiss=400mW, Vce(Max)=12V, Ic(Max)=65mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=100, Ft=8.5GHz
pb_nec_NE68518_19931201	NE68518: NEC18 Package 4-terminal, NPN Pdiss=150mW, Vce(Max)=6V, Ic(Max)=30mA, Vce(typical)=3V, Ic(Typical)=10mA, Hfe=110, Ft=12GHz
pb_nec_NE73433_19911002	NE73433: NEC33 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=14V, Ic(Max)=50mA, Vce(typical)=10V, Ic(Typical)=10mA, Hfe=100, Ft=2GHz
pb_nec_NE68135_19911002	NE68135, Package:35, Model Gummel-Poon NPN, Pdiss=295mW, Vce(Max)=10V, Ic(Max)=65mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=100, Ft=9GHz
pb_nec_NE68339_19921101	NE68339 NEC39 package Model Gummel-Poon extracted in Santa Rosa in 1992
pb_nec_NE68019_19960501	NE68019, Package:NEC19 Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=1V to 6V, Ic=1mA to 15mA} Frequency{0.05GHz to 3GHz}
pb_nec_2SC3356dL_19921213	2SC3356-L: SOT23 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=12V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=120, Ft=7GHz
pb_nec_NE74114_19911016	NE74114: NEC14 Package 3-terminal, NPN Pdiss=5000mW, Vce(Max)=25V, Ic(Max)=300mA, Vce(typical)=15V, Ic(Typical)=70mA, Hfe=80, Ft=1.7GHz
pb_nec_2SC4094_19911002	2SC4094: NEC39 Package 4-terminal, NPN Pdiss=200mW, Vce(Max)=10V, Ic(Max)=65mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=100, Ft=9GHz
pb_nec_NE85633_19921101	NE85633: SOT23 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=12V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=120, Ft=7GHz
pb_nec_2SC2759_19921101	2SC2759-L: NEC33 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=14V, Ic(Max)=50mA, Vce(typical)=10V, Ic(Typical)=10mA, Hfe=100, Ft=2GHz
pb_nec_NE68139_19960601	NE68139, Package:NEC39, Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=2.5V to 8.0V, Ic=0.3mA to 7mA} Frequency{0.1GHz to 3.0GHz}
pb_nec_NE68118_19960501	NE68118, Package:NEC18, Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=2.5V to 8V, Ic=3mA to 10mA} Frequency{0.05GHz TO 3.0GHz}
pb_nec_2SC3604_19921101	2SC3604: NEC35 Package 4-terminal, NPN Pdiss=295mW, Vce(Max)=10V, Ic(Max)=65mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=100, Ft=9GHz
pb_nec_2SC4090_19921101	2SC4090, Package:NEC39, Model Gummel-Poon NPN, Extracted by HP in Santa Rosa in 1992
pb_nec_NE41607_19921101	NE41607: NEC07 Package 4-terminal, NPN Pdiss=580mW, Vce(Max)=18V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=50mA, Hfe=100, Ft=3.5GHz
pb_nec_NE68033_19911001	NE68033: NEC33 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=10V, Ic(Max)=35mA, Vce(typical)=6V, Ic(Typical)=10mA, Hfe=100, Ft=10GHz
pb_nec_2SC1253_19911016	2SC1253: NEC14 Package 3-terminal, NPN Pdiss=5000mW, Vce(Max)=25V, Ic(Max)=300mA, Vce(typical)=15V, Ic(Typical)=50mA, Hfe=100, Ft=2GHz
pb_nec_2SC3355_19931201	2SC3355: NEC32 Package 3-terminal, NPN Pdiss=600mW, Vce(Max)=12V,

	Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=120, Ft=6.5GHz
pb_nec_2SC3587_19921101	2SC3587, Package:NEC35, Model Gummel-Poon NPN, Extracted in Santa Rosa in 1992
pb_nec_NE85635_19961101	NE85635, Package:NEC35 Model Gummel-Poon NPN, Vce(Max)=V, Ic(Max)=mA, Vce(typical)=V, Ic(Typical)=mA, Hfe=, Ft=Hz Valid within: Bias{Vce=10V, Ic=7mA to 30mA} Frequency{0.05GHz to 5GHz}
pb_nec_NE94433_19960601	NE94433 Package:NEC33 Type:NPN Vce(Max)=V, Ic(Max)=mA, Vce(typical)=V, Ic(Typical)=mA, Hfe=, Ft=Hz Valid within: Bias{Vce=3V, Ic=3mA and 50mA} Frequency{0.05GHz to 2.6GHz}
pb_nec_NE85634_19950901	NE85634, Package: NE34, Model Gummel-Poon NPN, Vce(Max)=V, Ic(Max)=mA, Vce(typical)=V, Ic(Typical)=mA, Hfe=, Ft=Hz Valid within: Bias{Vce=5V to 10V, Ic=20mA to 20mA} Frequency{0.1GHz to 3.0GHz}
pb_nec_NE68530D_19950901	NE68530D, Package:NEC30, Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{1V, 1mA; 2.5V, 0.3/1/3mA; 3V, 3/5/20mA} Frequency{0.05GHz to 3.0GHz}
pb_nec_NE02107_19921101	NE02107, Package:NEC07, Model Gummel-Poon, Eextracted in Santa Rosa in 1992
pb_nec_2SC5008_19931130	2SC5008: NEC19 Package 3-terminal, NPN Pdiss=100mW, Vce(Max)=10V, Ic(Max)=35mA, Vce(typical)=3V, Ic(Typical)=7mA, Hfe=80-160, Ft=8GHz
pb_nec_NE68139_19911002	NE68139, Package:NEC39 ,Model Gummel-Poon NPN, Extracted in Santa Rosa, Pdiss=200mW, Vce(Max)=10V, Ic(Max)=65mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=100, Ft=9GHz
pb_nec_NE46134_19950901	NE46134, Package:NEC34, Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=5V, to 12.5V, Ic=50mA to 100mA} Frequency{0.1GHz TO 2.5GHz}
pb_nec_NE68718_19960501	NE68718, Package:NEC18, Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=1V to 2V, Ic=1mA to 10mA} Frequency{0.05GHz to 5GHz}
pb_nec_NE68619_19960601	NE68619, Package:NEC19, Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=2.5V to 3V, Ic=0.3mA to 5mA } Frequency{0.1GHz to 3.0GHz}
pb_nec_2SC5010_19931201	2SC5010: NEC19 Package 3-terminal, NPN Pdiss=100mW, Vce(Max)=6V, Ic(Max)=30mA, Vce(typical)=3V, Ic(Typical)=10mA, Hfe=65-175, Ft=12GHz
pb_nec_NE68839_19961001	NE68839, Package:NEC39 Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=0.5V to 5V, Ic=0.5mA to 10mA} Frequency{0.05GHZ to 5GHZ}
pb_nec_NE73433_19921101	NE73433: NEC33 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=14V, Ic(Max)=50mA, Vce(typical)=10V, Ic(Typical)=10mA, Hfe=100, Ft=2GHz
pb_nec_2SC3356_19921101	2SC3356-L: SOT23 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=12V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=120, Ft=7GHz
pb_nec_NE68135_19921101	NE68135: NEC35 Package 4-terminal, NPN Pdiss=295mW, Vce(Max)=10V, Ic(Max)=65mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=100, Ft=9GHz
pb_nec_NE68130_19961001	NE68130, Package:NEC30 Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=2.5V to 8V, Ic=0.3mA to 10mA} Frequency{0.05GHz to 3GHz}
pb_nec_NE33353E_19921213	NE33353E: NEC53E Package 3-terminal, NPN Pdiss=5000mW, Vce(Max)=14V, Ic(Max)=200mA, Vce(typical)=10V, Ic(Typical)=100mA, Hfe=40, Ft=4.5GHz
pb_nec_2SC2367_19911007	2SC2367, Package:MICROX, Model Gummel-Poon NPN, Pdiss=150mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=70, Ft=4.5GHz
pb_nec_NE68630_19960601	NE68630, Package:NEC30, Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=2.5V to 3V, Ic=0.3mA to 5mA} Frequency{0.1GHz to

	3.0GHz}
pb_nec_NE68030D_19950901	NE68030D, Package:NEC30, Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=2.5V to 6V, Ic=0.3mA to 20mA} Frequency{0.05GHz TO 3.0GHz}
pb_nec_2SC2759dL_19921213	2SC2759-L: NEC33 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=14V, Ic(Max)=50mA, Vce(typical)=10V, Ic(Typical)=10mA, Hfe=100, Ft=2GHz
pb_nec_NE94430_19960601	NE94430 Package:NEC30, Model Gummel-Poon NPN, Extracted by CEL Vce(Max)=V, Ic(Max)=mA, Vce(typical)=V, Ic(Typical)=mA, Hfe=, Ft=Hz Valid within: Bias{Vce=3V, Ic=3mA and 50mA} Frequency{0.05GHz to 3GHz}
pb_nec_NE68519_19931201	NE68519: NEC19 Package 3-terminal, NPN Pdiss=100mW, Vce(Max)=6V, Ic(Max)=30mA, Vce(typical)=3V, Ic(Typical)=10mA, Hfe=65-175, Ft=12GHz
pb_nec_NE68033_19921101	NE68033: NEC33 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=10V, Ic(Max)=35mA, Vce(typical)=6V, Ic(Typical)=10mA, Hfe=100, Ft=10GHz
pb_nec_NE85630_19921213	NE85630: NEC30 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=12V, Ic(Max)=100mA, Vce(typical)=3V, Ic(Typical)=7mA, Hfe=110, Ft=4.5GHz
pb_nec_NE68730_19961001	NE68730, Package:NEC30, Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=1V to 2V, Ic=1mA to 10mA} Frequency{0.05GHz to 3GHz}
pb_nec_NE85619_19931201	NE85619: NEC19 Package 3-terminal, NPN Pdiss=100mW, Vce(Max)=12V, Ic(Max)=100mA, Vce(typical)=3V, Ic(Typical)=7mA, Hfe=80-160, Ft=4.5GHz
pb_nec_NE696M01_19970201	NE696M01, Package:NEC01 Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=0.5V to 5.0V, Ic=0.5mA to 10mA} Frequency{0.4GHz to 7.5GHz}
pb_nec_2SC1365_19911016	2SC1365: NEC13 Package 3-terminal, NPN Pdiss=5000mW, Vce(Max)=25V, Ic(Max)=300mA, Vce(typical)=15V, Ic(Typical)=70mA, Hfe=80, Ft=1.7GHz
pb_nec_2SC4095_19911007	2SC4095: NEC39 Package 4-terminal, NPN Pdiss=200mW, Vce(Max)=10V, Ic(Max)=35mA, Vce(typical)=6V, Ic(Typical)=10mA, Hfe=100, Ft=10GHz
pb_nec_NE68139_19921101	NE68139: NEC39 Package 4-terminal, NPN Pdiss=200mW, Vce(Max)=10V, Ic(Max)=65mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=100, Ft=9GHz
pb_nec_NE68530F_19961001	NE68530F Package:NEC30,Model Gummel Poon NPN, Extracted at CEL, Valid within: Bias{ Vce=0.5V to 3V, Ic=0.5mA to 10mA} Frequency{0.05GHz to 3GHz}
pb_nec_2SC3585dL_19911001	2SC3585-L: NEC33 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=10V, Ic(Max)=35mA, Vce(typical)=6V, Ic(Typical)=10mA, Hfe=100, Ft=10GHz
pb_nec_NE68035_19961101	NE68035, Package:NEC35 Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=6V, Ic=5mA to 20mA} Frequency{0.05GHz to 5GHz}
pb_nec_NE68119_19960501	NE68119, Package:NEC19, Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=2.5V to 8.0V, Ic=0.3mA to 10mA} Frequency{0.05GHz to 3GHz}
pb_nec_NE68019D_19950901	NE68019D, Package:NEC19 Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=1V to 6V, Ic=0.25mA to 15mA} Frequency{0.1GHz TO 5.0GHz}
pb_nec_2SC4091_19921101	2SC4091, Package:NEC39 Model Gummel-Poon NPN, Extracted in Santa Rosa in 1992
pb_nec_2SC2148_19921101	2SC2148, Package:MICROX, Model Gummel-Poon NPN, Pdiss=700mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=70, Ft=4.5GHz
pb_nec_2SC4226_19921213	2SC4226: NEC30 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=12V, Ic(Max)=100mA, Vce(typical)=3V, Ic(Typical)=7mA, Hfe=110, Ft=4.5GHz
pb_nec_2SC2351_19921101	2SC2351-L: NEC33 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=70, Ft=4.5GHz

pb_nec_2SC2367_19921101	2SC2367: MICROX Package 4-terminal, NPN Pdiss=150mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=70, Ft=4.5GHz
pb_nec_NE21908_19911007	NE21908: NEC08 Package 4-terminal, NPN Pdiss=350mW, Vce(Max)=10V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=100, Ft=8GHz
pb_nec_NE85634_19921211	NE85634: SOT89 Package 3-terminal, NPN Pdiss=2000mW, Vce(Max)=12V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=120, Ft=6.5GHz
pb_nec_NE68719_19960501	NE68719, Package:NEC19, Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=1V to 2V, Ic=1mA to 10mA} Frequency{0.05GHZ to 3GHZ}
pb_nec_NE68539_19960601	NE68539, Package:NE39, Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=0.5V to 3V, Ic=0.5mA to 20mA} Frequency{0.05GHz to 3.0GHz}
pb_nec_NE02139_19911007	NE02139, Package:39, Model Gummel-Poon NPN, Pdiss=200mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=70, Ft=4.5GHz
pb_nec_NE68133_19911007	NE68133: NEC33 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=10V, Ic(Max)=65mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=100, Ft=9GHz
pb_nec_NE64408_19911007	NE64408: NEC08 Package 4-terminal, NPN Pdiss=260mW, Vce(Max)=10V, Ic(Max)=35mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe=100, Ft=10GHz
pb_nec_NE68518_19960501	NE68518, Package:NEC18 Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=0.5V to 3.0V, Ic=0.5mA to 20mA} Frequency{0.05GHz to 3.0GHz}
pb_nec_NE85639_19960601	NE85639, Package:NEC39, Model Gummel-Poon NPN, Vce(Max)=V, Ic(Max)=mA, Vce(typical)=V, Ic(Typical)=mA, Hfe=, Ft=Hz Valid within: Bias{Vce=2.5V to 10V, Ic=0.3mA to 7mA} Frequency{0.1GHz to 3.0GHz}
pb_nec_NE02132E_19911009	NE02132E: NEC32 Package 3-terminal, NPN Pdiss=250mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=70, Ft=4.5GHz
pb_nec_NE41635_19921101	extracted in Santa Rosa in 1992 micro-x packaged bjt
pb_nec_2SC4092_19911007	2SC4092, Package:39, Model Gummel Poon NPN, Pdiss=200mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=70, Ft=4.5GHz
pb_nec_2SC2570A_19911009	2SC2570A: NEC32 Package 3-terminal, NPN Pdiss=250mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=70, Ft=4.5GHz
pb_nec_NE02135_19921101	MDS extraction 1992, micro-x packaged bjt
pb_nec_NE21935_19911007	NE21935, Package:35, Model Gummel-Poon NPN, Pdiss=580mW, Vce(Max)=10V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=100, Ft=8GHz
pb_nec_2SC5006_19931201	2SC5006: NEC19 Package 3-terminal, NPN Pdiss=100mW, Vce(Max)=12V, Ic(Max)=100mA, Vce(typical)=3V, Ic(Typical)=7mA, Hfe=80-160, Ft=4.5GHz
pb_nec_NE68030_19921211	NE68030: NEC30 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=10V, Ic(Max)=35mA, Vce(typical)=3V, Ic(Typical)=5mA, Hfe= 50-250, Ft=8.5GHz
pb_nec_2SC3585_19921101	2SC3585-L: NEC33 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=10V, Ic(Max)=35mA, Vce(typical)=6V, Ic(Typical)=10mA, Hfe=100, Ft=10GHz
pb_nec_NE85639_19911002	NE85639, Package:39, Model Gummel-Poon NPN, Pdiss=200mW, Vce(Max)=12V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=120, Ft=9GHz
pb_nec_NE85618_19960601	NE85618, Package:NEC18 Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=2.5V to 10V, Ic=3mA to 10mA} Frequency{0.05GHz to 5.0GHz}
pb_nec_2SC5015_19931201	2SC5015: NEC18 Package 4-terminal, NPN Pdiss=150mW, Vce(Max)=6V, Ic(Max)=30mA, Vce(typical)=3V, Ic(Typical)=10mA, Hfe=110, Ft=12GHz
pb_nec_NE68019_19931130	NE68019: NEC19 Package 3-terminal, NPN Pdiss=100mW, Vce(Max)=10V,

	Ic(Max)=35mA, Vce(typical)=3V, Ic(Typical)=7mA, Hfe=80-160, Ft=8GHz
pb_nec_2SC3357_19921216	2SC3357: SOT89 Package 3-terminal, NPN Pdiss=2000mW, Vce(Max)=12V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=120, Ft=6.5GHz
pb_nec_2SC2351dL_19911002	2SC2351-L: NEC33 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=70, Ft=4.5GHz
pb_nec_2SC2757_19921215	2SC2757: SOT23 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=20V, Ic(Max)=50mA, Vce(typical)=10V, Ic(Typical)=5mA, Hfe=120, Ft=1.1GHz
pb_nec_2SC2218_19911007	2SC2218: NEC08 Package 4-terminal, NPN Pdiss=350mW, Vce(Max)=10V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=100, Ft=8GHz
pb_nec_NE68530_19961001	NE68530, Package:NEC30, Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=0.5V to 3V, Ic=0.5mA to 10mA} Frequency{0.05GHz to 3GHz}
pb_nec_NE68118_19931201	NE68118: NEC18 Package 4-terminal, NPN Pdiss=150mW, Vce(Max)=10V, Ic(Max)=65mA, Vce(typical)=6V, Ic(Typical)=10mA, Hfe=100, Ft=10GHz
pb_nec_NE85635_19921101	NE85635, Package:35, Model Gummel-Poon NPN, Pdiss=580mW, Vce(Max)=12V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=120, Ft=7GHz
pb_nec_NE02139_19921101	NE02139: NEC39 Package 4-terminal, NPN Pdiss=200mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=70, Ft=4.5GHz
pb_nec_NE68133_19921101	NE68133: NEC33 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=10V, Ic(Max)=65mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=100, Ft=9GHz
pb_nec_NE85630_19961001	NE85630, Package:NEC30, Model Gummel-Poon NPN,Extracted by CEL, Valid within: Bias{Vce=2.5V to 10V, Ic=0.3mA to 10mA} Frequency{0.05GHz to 3GHz}
pb_nec_NE68830_19961001	NE68830, Package:NEC30, Model Gummel-Poon NPN,Extracted at CEL, Valid within: Bias{Vce=1V to 5V, Ic=1mA to 10mA} Frequency{0.05GHz to 3GHz}
pb_nec_2SC3583dL_19911007	2SC3583-L: NEC33 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=10V, Ic(Max)=65mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=100, Ft=9GHz
pb_nec_2SC4092_19921101	2SC4092: NEC39 Package 4-terminal, NPN Pdiss=200mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=70, Ft=4.5GHz
pb_nec_2SC2149_19921101	2SC2149, Package:MICROX, Model Gummel-Poon NPN, Pdiss=700mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=70, Ft=4.5GHz
pb_nec_2SC4227_19921215	2SC4227: NEC30 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=10V, Ic(Max)=65mA, Vce(typical)=3V, Ic(Typical)=7mA, Hfe= 40-240, Ft=7GHz
pb_nec_NE74014_19911016	NE74014: NEC14 Package 3-terminal, NPN Pdiss=5000mW, Vce(Max)=25V, Ic(Max)=300mA, Vce(typical)=15V, Ic(Typical)=50mA, Hfe=100, Ft=2GHz
pb_nec_NE21935_19921101	NE21935: NEC35 Package 4-terminal, NPN Pdiss=580mW, Vce(Max)=10V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=100, Ft=8GHz
pb_nec_NE68135_19961101	NE68135, Package:NEC35, Model Gummel-Poon NPN, Extracted at CEL,Valid within: Bias{Vce=8V, Ic=7mA to 30mA} Frequency{0.05GHz to 5GHz}
pb_nec_NE85635_19921210	NE85635: NEC35 Package 4-terminal, NPN Pdiss=580mW, Vce(Max)=12V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=120, Ft=7GHz
pb_nec_2SC5012_19931201	2SC5012: NEC18 Package 4-terminal, NPN Pdiss=150mW, Vce(Max)=10V, Ic(Max)=65mA, Vce(typical)=6V, Ic(Typical)=10mA, Hfe=100, Ft=10GHz
pb_nec_NE68018_19960501	NE68018, Package:NEC18 Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=1V to 6V, Ic=1mA to 15mA} Frequency{0.1GHz to 5GHz}
pb_nec_NE85639_19921101	NE85639: NEC39 Package 4-terminal, NPN Pdiss=200mW, Vce(Max)=12V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=120, Ft=9GHz
pb_nec_NE68519_19960501	NE68519, Package:NE19, Model Gummel-Poon NPN, Extracted at CEL, Valid

	within: Bias{Vce=0.5V to 3.0V, Ic=0.5mA to 20mA} Frequency{0.05GHz to 3.0GHz}
pb_nec_NE02133_19911002	NE02133: NEC33 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=70, Ft=4.5GHz
pb_nec_NE74113_19911016	NE74113: NEC13 Package 3-terminal, NPN Pdiss=5000mW, Vce(Max)=25V, Ic(Max)=300mA, Vce(typical)=15V, Ic(Typical)=70mA, Hfe=80, Ft=1.7GHz
pb_nec_2SC4093_19911002	2SC4093: NEC39 Package 4-terminal, NPN Pdiss=200mW, Vce(Max)=12V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=120, Ft=9GHz
pb_nec_NE73435_19921101	NEC734, Package NEC35, Model Gummel-Poon NPN, Extracted in Santa Rosa in 1992
pb_nec_NE85633_19960601	NE85633, Package:NEC33 Model Gummel-Poon NPN, Extracted by CEL Valid within: Bias{Vce=2.5V to 10V, Ic=0.3mA to 30mA} Frequency{0.1GHz to 3GHz}
pb_nec_NE85619_19960501	NE85619, Package:NEC19, Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=2.5V to 10V, Ic=0.3mA to 10mA} Frequency{0.05GHz to 3.0GHz}
pb_nec_NE68819_19960501	NE68819, Package:NEC19, Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=1V to 3V, Ic=1mA to 10mA} Frequency{0.1GHZ to 5GHZ}
pb_nec_NE41603_19911002	NE41603: NEC03 Package 4-terminal, NPN Pdiss=580mW, Vce(Max)=18V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=50mA, Hfe=100, Ft=3.5GHz
pb_nec_2SC2272_19911007	2SC2272: NEC08 Package 4-terminal, NPN Pdiss=260mW, Vce(Max)=10V, Ic(Max)=35mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe=100, Ft=10GHz
pb_nec_NE68039_19911007	NE68039, Package:39, Model Gummel-Poon NPN, Pdiss=200mW, Vce(Max)=10V, Ic(Max)=35mA, Vce(typical)=6V, Ic(Typical)=10mA, Hfe=100, Ft=10GHz
pb_nec_NE68533_19950901	NE68533, Package:NEC33 Model Gummel-Poon NPN, Extracted at CEL, Valid within: Bias{Vce=0.5V to 6V, Ic=0.5mA to 20mA} Frequency{0.1GHz TO 3.0GHz}
pb_nec_2SC3603_19921101	2SC3603, Package:35, Model Gummel-Poon NPN, Pdiss=580mW, Vce(Max)=12V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=120, Ft=7GHz
pb_nec_2SC1252_19911016	2SC1252: NEC14 Package 3-terminal, NPN Pdiss=5000mW, Vce(Max)=25V, Ic(Max)=300mA, Vce(typical)=15V, Ic(Typical)=70mA, Hfe=80, Ft=1.7GHz
pb_nec_2SC5007_19931201	2SC5007: NEC19 Package 3-terminal, NPN Pdiss=100mW, Vce(Max)=10V, Ic(Max)=65mA, Vce(typical)=3V, Ic(Typical)=7mA, Hfe=80-160, Ft=7GHz
pb_nec_2SC1988_19911007	2SC1988: NEC12 Package 3-terminal, NPN Pdiss=700mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=70, Ft=4.5GHz
pb_nec_NE02112_19911007	NE02112: NEC12 Package 3-terminal, NPN Pdiss=700mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=70, Ft=4.5GHz
pb_nec_NE68035_19921101	NE68035, package:NEC35, Model Gummel-Poon NPN, Extracted in Santa Rosa in 1992
pb_nec_2SC4225_19911017	2SC4225: NEC30 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=100, Ft=0.5GHz
pb_nec_NE85633_19911002	NE85633: SOT23 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=12V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=120, Ft=7GHz
pb_nec_2SC1949_19911002	2SC1949: NEC03 Package 4-terminal, NPN Pdiss=580mW, Vce(Max)=18V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=50mA, Hfe=100, Ft=3.5GHz

Panasonic Packaged BJTs

For modeling specifications, see Packaged BJTs.

The Panasonic Packaged BJTs include 13 components, representing individual parts. The naming convention for these components is *pb_pan*<part number><extraction date> .

Component Name	Description
pb_pan_2SC3932dT_19921211	2SC3932-T: SOT323 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=20V, Ic(Max)=50mA, Vce(typical)=10V, Ic(Typical)=15mA, Hfe=25-250, Ft=0.8GHz
pb_pan_2SC3934_19921214	2SC3934: SOT323 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=12V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=10mA, Hfe=>40, Ft=4.5GHz
pb_pan_2SC3931dD_19921211	2SC3931-D: SOT323 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=20V, Ic(Max)=15mA, Vce(typical)=6V, Ic(Typical)=1mA, Hfe=100-260, Ft=0.65GHz
pb_pan_2SC3935dQ_19921215	2SC3935-Q: SOT323 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=10V, Ic(Max)=50mA, Vce(typical)=4V, Ic(Typical)=5mA, Hfe=110-120, Ft=1.9GHz
pb_pan_2SC3930dB_19921211	2SC3930-B: SOT323 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=20V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=1mA, Hfe=70-140, Ft=0.25GHz
pb_pan_2SC3936dB_19921211	2SC3936-B: SOT323 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=20V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=1mA, Hfe=70-160, Ft=0.23GHz
pb_pan_2SC4068_19921214	2SC4068: SOT323 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=20V, Ic(Max)=20mA, Vce(typical)=3.4V, Ic(Typical)=1.8mA, Hfe=40-200, Ft=1.5GHz
pb_pan_2SC3704_19921211	2SC3704: SOT23 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=10V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=150, Ft=6GHz
pb_pan_2SC3110_19921211	2SC3110: SOT23 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=12V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=10mA, Hfe=>40, Ft=4.5GHz
pb_pan_2SC3930dC_19921211	2SC3930-C: SOT323 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=20V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=1mA, Hfe=110-220, Ft=0.25GHz
pb_pan_2SC3936dC_19921211	2SC3936-C: SOT323 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=20V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=1mA, Hfe=110-250, Ft=0.23GHz
pb_pan_2SC3967_19921215	2SC3967: SOT23 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=20V, Ic(Max)=20mA, Vce(typical)=3.4V, Ic(Typical)=1.8mA, Hfe=40-200, Ft=1.5GHz
pb_pan_2SC3935dP_19921215	2SC3935-P: SOT323 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=10V, Ic(Max)=50mA, Vce(typical)=4V, Ic(Typical)=5mA, Hfe=75-130, Ft=1.9GHz

Philips Packaged BJTs

For modeling specifications, see Packaged BJTs.

The Philips Packaged BJTs include 66 components, representing individual parts. The naming convention for these components is *pb_phl*<part number><extraction date> .

Component Name	Description
pb_phl_BFG94_19911002	BFG94: SOT223 Package 4-terminal, NPN Pdiss=700mW, Vce(Max)=12V, Ic(Max)=60mA, Vce(typical)=5V, Ic(Typical)=30mA, Hfe=90, Ft=6GHz
pb_phl_BFQ67W_19921215	BFQ67W: SOT323 Package 3-terminal, NPN Pdiss=300mW, Vce(Max)=10V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=15mA, Hfe=100, Ft=8GHz
pb_phl_BFR91A_19911003	BFR91A: SOT37 Package 3-terminal, NPN Pdiss=300mW, Vce(Max)=12V, Ic(Max)=35mA, Vce(typical)=5V, Ic(Typical)=30mA, Hfe=90, Ft=6GHz
pb_phl_BFG505_19921213	BFG505XR: SOT143R Package 4-terminal, NPN Pdiss=150mW, Vce(Max)=15V, Ic(Max)=18mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe=120, Ft=9GHz
pb_phl_BFG34_19911003	BFG34: SOT103 Package 4-terminal, NPN Pdiss=1000mW, Vce(Max)=18V, Ic(Max)=150mA, Vce(typical)=10V, Ic(Typical)=100mA, Hfe=>25, Ft=3.7GHz
pb_phl_BFG198_19911009	BFG198: SOT223 Package 4-terminal, NPN Pdiss=1000mW, Vce(Max)=10V, Ic(Max)=100mA, Vce(typical)=8V, Ic(Typical)=50mA, Hfe=100, Ft=8GHz
pb_phl_BFG134_19911011	BFG134: SOT103 Package 4-terminal, NPN Pdiss=1000mW, Vce(Max)=15V, Ic(Max)=150mA, Vce(typical)=10V, Ic(Typical)=100mA, Hfe=>80, Ft=7GHz
pb_phl_BFG92AXR_19921211	BFG92AXR: SOT143R Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=15V, Ic(Max)=25mA, Vce(typical)=10V, Ic(Typical)=14mA, Hfe=90, Ft=5GHz
pb_phl_BLU98_19911008	BLU98: SOT103 Package 4-terminal, NPN Pdiss=1000mW, Vce(Max)=16V, Ic(Max)=150mA, Vce(typical)=13V, Ic(Typical)=100mA, Hfe=>25, Ft=4GHz
pb_phl_BFG92A_19911008	BFG92AXR: SOT143R Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=15V, Ic(Max)=25mA, Vce(typical)=10V, Ic(Typical)=14mA, Hfe=90, Ft=5GHz
pb_phl_BFG67X_19911002	BFG67XR: SOT143R Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=10V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=15mA, Hfe=100, Ft=7.5GHz
pb_phl_BFR134_19911011	BFR134: SOT37 Package 3-terminal, NPN Pdiss=1000mW, Vce(Max)=15V, Ic(Max)=150mA, Vce(typical)=10V, Ic(Typical)=100mA, Hfe=>80, Ft=7GHz
pb_phl_BFG51_19931123	BFG51: SOT103 Package 4-terminal, PNP Pdiss=180mW, Vce(Max)=-15V, Ic(Max)=-25mA, Vce(typical)=-10V, Ic(Typical)=-14mA, Hfe= >20, Ft=5GHz
pb_phl_BFG195_19911014	BFG195: SOT103 Package 4-terminal, NPN Pdiss=500mW, Vce(Max)=10V, Ic(Max)=100mA, Vce(typical)=8V, Ic(Typical)=50mA, Hfe=>40, Ft=7.5GHz
pb_phl_BFT92_19931130	BFT92: SOT23 Package 3-terminal, PNP Pdiss=200mW, Vce(Max)=-15V, Ic(Max)=-25mA, Vce(typical)=-10V, Ic(Typical)=-14mA, Hfe=50, Ft=5GHz
pb_phl_BFG520_19921215	BFG520XR: SOT143R Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=15V, Ic(Max)=70mA, Vce(typical)=6V, Ic(Typical)=20mA, Hfe=120, Ft=9GHz
pb_phl_BFG65_19911002	BFG65: SOT103 Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=10V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=15mA, Hfe=>60, Ft=7.5GHz
pb_phl_BFQ23_19931201	BFQ23: SOT37 Package 3-terminal, PNP Pdiss=180mW, Vce(Max)=-12V, Ic(Max)=-35mA, Vce(typical)=-5V, Ic(Typical)=-30mA, Hfe= >20, Ft=5GHz
pb_phl_BFR93AW_19921214	BFR93AW: SOT323 Package 3-terminal, NPN Pdiss=300mW, Vce(Max)=12V, Ic(Max)=35mA, Vce(typical)=5V, Ic(Typical)=30mA, Hfe=90, Ft=6GHz
pb_phl_BFQ32S_19931124	BFQ32S: SOT37 Package 3-terminal, PNP Pdiss=700mW, Vce(Max)=-15V, Ic(Max)=-100mA, Vce(typical)=-10V, Ic(Typical)=-70mA, Hfe= >20, Ft=4.5GHz
pb_phl_BFQ67_19911017	BFQ67W: SOT323 Package 3-terminal, NPN Pdiss=300mW, Vce(Max)=10V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=15mA, Hfe=100, Ft=8GHz
pb_phl_BFG35_19911003	BFG35: SOT223 Package 4-terminal, NPN Pdiss=1000mW, Vce(Max)=18V, Ic(Max)=150mA, Vce(typical)=10V, Ic(Typical)=100mA, Hfe=140, Ft=4GHz
pb_phl_BFG55_19931123	BFG55: SOT223 Package 4-terminal, PNP Pdiss=2700mW, Vce(Max)=-18V, Ic(Max)=-150mA, Vce(typical)=-10V, Ic(Typical)=-100mA, Hfe=25, Ft=4GHz
pb_phl_BFG135_19911011	BFG135: SOT223 Package 4-terminal, NPN Pdiss=1000mW, Vce(Max)=15V,

	Ic(Max)=150mA, Vce(typical)=10V, Ic(Typical)=100mA, Hfe=120, Ft=7GHz
pb_phl_BFQ19_19911025	BFQ19: SOT89V2 Package 3-terminal, NPN Pdiss=500mW, Vce(Max)=15V, Ic(Max)=75mA, Vce(typical)=10V, Ic(Typical)=50mA, Hfe=50, Ft=5GHz
pb_phl_BFR520_19921214	BFR520: SOT23 Package 3-terminal, NPN Pdiss=300mW, Vce(Max)=15V, Ic(Max)=70mA, Vce(typical)=6V, Ic(Typical)=20mA, Hfe=120, Ft=9GHz
pb_phl_BFR93_19911003	BFR93: SOT323 Package 3-terminal, NPN Pdiss=300mW, Vce(Max)=12V, Ic(Max)=35mA, Vce(typical)=5V, Ic(Typical)=30mA, Hfe=90, Ft=6GHz
pb_phl_BFG92AX_19911002	BFG92AXR: SOT143R Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=15V, Ic(Max)=25mA, Vce(typical)=10V, Ic(Typical)=14mA, Hfe=90, Ft=5GHz
pb_phl_BFG93A_19911002	BFG93AXR: SOT143R Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=12V, Ic(Max)=35mA, Vce(typical)=5V, Ic(Typical)=30mA, Hfe=90, Ft=6GHz
pb_phl_BFS25A_19921211	BFS25A: SOT323 Package 3-terminal, NPN Pdiss=32mW, Vce(Max)=5V, Ic(Max)=6.5mA, Vce(typical)=1V, Ic(Typical)=0.5mA, Hfe=80, Ft=5GHz
pb_phl_BFG93AXR_19921214	BFG93AXR: SOT143R Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=12V, Ic(Max)=35mA, Vce(typical)=5V, Ic(Typical)=30mA, Hfe=90, Ft=6GHz
pb_phl_BFG67R_19911002	BFG67R: SOT143RV2 Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=10V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=15mA, Hfe=100, Ft=7.5GHz
pb_phl_BFG96_19911008	BFG96: SOT103 Package 4-terminal, NPN Pdiss=700mW, Vce(Max)=15V, Ic(Max)=75mA, Vce(typical)=10V, Ic(Typical)=50mA, Hfe=>25, Ft=5GHz
pb_phl_BLT80_19921214	BLT80: SOT223 Package 4-terminal, NPN Pdiss=2000mW, Vce(Max)=10V, Ic(Max)=250mA, Vce(typical)=5V, Ic(Typical)=150mA, Hfe= >25, Ft=5GHz
pb_phl_BFG90A_19911002	BFG90A: SOT103 Package 4-terminal, NPN Pdiss=180mW, Vce(Max)=15V, Ic(Max)=25mA, Vce(typical)=10V, Ic(Typical)=14mA, Hfe=>40, Ft=5GHz
pb_phl_BFS505_19921214	BFS505: SOT323 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=15V, Ic(Max)=18mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe=120, Ft=9GHz
pb_phl_BFT25A_19911003	BFT25A: SOT23 Package 3-terminal, NPN Pdiss=300mW, Vce(Max)=5V, Ic(Max)=6.5mA, Vce(typical)=1V, Ic(Typical)=1mA, Hfe=30, Ft=2.3GHz
pb_phl_BFR92A_19921214	BFR92A: SOT23 Package 3-terminal, NPN Pdiss=300mW, Vce(Max)=15V, Ic(Max)=25mA, Vce(typical)=10V, Ic(Typical)=14mA, Hfe=90, Ft=5GHz
pb_phl_BFG505XR_19921213	BFG505XR: SOT143R Package 4-terminal, NPN Pdiss=150mW, Vce(Max)=15V, Ic(Max)=18mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe=120, Ft=9GHz
pb_phl_BFR93A_19911003	BFR93A: SOT323 Package 3-terminal, NPN Pdiss=300mW, Vce(Max)=12V, Ic(Max)=35mA, Vce(typical)=5V, Ic(Typical)=30mA, Hfe=90, Ft=6GHz
pb_phl_BFG520XR_19921214	BFG520XR: SOT143R Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=15V, Ic(Max)=70mA, Vce(typical)=6V, Ic(Typical)=20mA, Hfe=120, Ft=9GHz
pb_phl_BFG31_19931130	BFG31: SOT223 Package 4-terminal, EE_BJT2 PNP, Pdiss=1500mW, Vce(Max)=-15V, Ic(Max)=-100mA, Vce(typical)=-10V, Ic(Typical)=-70mA, Hfe= >25, Ft=5GHz
pb_phl_BFR96S_19911014	BFR96S: SOT37 Package 3-terminal, NPN Pdiss=700mW, Vce(Max)=15V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=70mA, Hfe=>25, Ft=5GHz
pb_phl_BFR90A_19911008	BFR90A: SOT37 Package 3-terminal, NPN Pdiss=180mW, Vce(Max)=15V, Ic(Max)=25mA, Vce(typical)=10V, Ic(Typical)=14mA, Hfe=90, Ft=5GHz
pb_phl_BFQ51_19931130	BFQ51: SOT37 Package 3-terminal, PNP Pdiss=180mW, Vce(Max)=-15V, Ic(Max)=-25mA, Vce(typical)=-10V, Ic(Typical)=-14mA, Hfe= >20, Ft=5GHz
pb_phl_BC847B_19921215	BC847B: SOT23 Package 3-terminal, NPN Pdiss=330mW, Vce(Max)=30V, Ic(Max)=100mA, Vce(typical)=5V, Ic(Typical)=2mA, Hfe=200-450, Ft=0.3GHz
pb_phl_BFQ65_19911003	BFQ65: SOT37 Package 3-terminal, NPN Pdiss=300mW, Vce(Max)=10V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=15mA, Hfe=100, Ft=7.5GHz
pb_phl_BFG591_19921214	BFG591: SOT223 Package 4-terminal, NPN Pdiss=1200mW, Vce(Max)=15V, Ic(Max)=200mA, Vce(typical)=10V, Ic(Typical)=90mA, Hfe=120, Ft=8GHz

pb_phl_BFG197X_19911010	BFG197X: SOT143 Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=10V, Ic(Max)=100mA, Vce(typical)=4V, Ic(Typical)=50mA, Hfe=90, Ft=7.5GHz
pb_phl_BFG33_19911002	BFG33X: SOT143 Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=7V, Ic(Max)=20mA, Vce(typical)=5V, Ic(Typical)=14mA, Hfe=>25, Ft=12GHz
pb_phl_BFS520_19921214	BFS520: SOT323 Package 3-terminal, NPN Pdiss=300mW, Vce(Max)=15V, Ic(Max)=70mA, Vce(typical)=6V, Ic(Typical)=20mA, Hfe=120, Ft=9GHz
pb_phl_BFG97_19911008	BFG97: SOT223 Package 4-terminal, NPN Pdiss=1000mW, Vce(Max)=15V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=70mA, Hfe=90, Ft=5.5GHz
pb_phl_BFG505X_19921213	BFG505XR: SOT143R Package 4-terminal, NPN Pdiss=150mW, Vce(Max)=15V, Ic(Max)=18mA, Vce(typical)=6V, Ic(Typical)=5mA, Hfe=120, Ft=9GHz
pb_phl_BFG197_19911011	BFG197X: SOT143 Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=10V, Ic(Max)=100mA, Vce(typical)=4V, Ic(Typical)=50mA, Hfe=90, Ft=7.5GHz
pb_phl_BFG93AX_19911002	BFG93AXR: SOT143R Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=12V, Ic(Max)=35mA, Vce(typical)=5V, Ic(Typical)=30mA, Hfe=90, Ft=6GHz
pb_phl_BFR106_19911008	BFR106: SOT23 Package 3-terminal, NPN Pdiss=350mW, Vce(Max)=15V, Ic(Max)=100mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=>25, Ft=3.3GHz
pb_phl_BFG23_19931201	BFG23: SOT103 Package 4-terminal, PNP Pdiss=180mW, Vce(Max)=-12V, Ic(Max)=-35mA, Vce(typical)=-5V, Ic(Typical)=-30mA, Hfe= >20, Ft=5GHz
pb_phl_BFQ34T_19911008	BFQ34T: SOT37 Package 3-terminal, NPN Pdiss=1000mW, Vce(Max)=18V, Ic(Max)=150mA, Vce(typical)=10V, Ic(Typical)=100mA, Hfe=>25, Ft=3.7GHz
pb_phl_BFG91A_19911002	BFG91A: SOT103 Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=12V, Ic(Max)=35mA, Vce(typical)=5V, Ic(Typical)=30mA, Hfe=>40, Ft=6GHz
pb_phl_BFG67_19911002	BFG67R: SOT143RV2 Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=10V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=15mA, Hfe=100, Ft=7.5GHz
pb_phl_BFS20_19910228	BFS20: SOT23 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=20V, Ic(Max)=25mA, Vce(typical)=10V, Ic(Typical)=5mA, Hfe=85, Ft=0.45GHz
pb_phl_BFG67XR_19921211	BFG67XR: SOT143R Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=10V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=15mA, Hfe=100, Ft=7.5GHz
pb_phl_BFG25AX_19911002	BFG25AX: SOT143 Package 4-terminal, NPN Pdiss=50mW, Vce(Max)=5V, Ic(Max)=6.5mA, Vce(typical)=-5V, Ic(Typical)=-30mA, Hfe= >20, Ft=5GHz
pb_phl_BFG33X_19911002	BFG33X: SOT143 Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=7V, Ic(Max)=20mA, Vce(typical)=5V, Ic(Typical)=14mA, Hfe=>25, Ft=12GHz
pb_phl_BFG520X_19921215	BFG520XR: SOT143R Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=15V, Ic(Max)=70mA, Vce(typical)=6V, Ic(Typical)=20mA, Hfe=120, Ft=9GHz

Siemens Packaged BJTs

For modeling specifications, see Packaged BJTs.

The Siemens Packaged BJTs include 283 components, representing individual parts. The naming convention for these components is *pb_sms*<part number><*extraction date*> .

Component Name	Description
pb_sms_BF554_19911021	BF554: SOT23 Package 3-terminal, NPN Pdiss=280mW, Vce(Max)=20V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=1mA, Hfe=60-250, Ft=0.25GHz
pb_sms_SMBTA93_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_PZT43_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *

pb_sms_BFR181_19921101	BFR181: SOT23 Package 3-terminal, NPN Pdiss=30mW, Vce(Max)=8V, Ic(Max)=4mA, Vce(typical)=3V, Ic(Typical)=2mA, Hfe=50-250, Ft=6.2GHz
pb_sms_BFP183W_19960901	BFP183W, Package:sot343, Model Gummel-Poon NPN, Siemens SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_PZTA93_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BC859_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BSS81_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_SXT3906_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BCP51_19961209	BCP51, Package:sot223, Model Gummel-Poon PNP, Siemens AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_SMBTA06_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_SMBT4403_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BF569_19931122	BF569: SOT23 Package 3-terminal, PNP Pdiss=280mW, Vce(Max)=-35V, Ic(Max)=-30mA, Vce(typical)=-10V, Ic(Typical)=-3mA, Hfe=50, Ft=0.95GHz
pb_sms_BFQ29P_19921101	BFQ29P: SOT23 Package 3-terminal, NPN Pdiss=1000mW, Vce(Max)=15V, Ic(Max)=75mA, Vce(typical)=10V, Ic(Typical)=70mA, Hfe=50-250, Ft=5.1GHz
pb_sms_BFG135A_19960901	BFG135A, Package:sot2232 Model Gummel-Poon NPN, SiemensSPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BCX59_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP420_19960901	BFP420, Package:sot343, Model Gummel-Poon NPN, SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BF799_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFQ645_19911009	BFQ645: CERECX Package 4-terminal, NPN Pdiss=400mW, Vce(Max)=12V, Ic(Max)=40mA, Vce(typical)=8V, Ic(Typical)=15mA, Hfe=100, Ft=9GHz
pb_sms_BFP193_19960901	BFP193, Package:sot143, Model Gummel-Poon NPN, Siemens SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFS480_19960901	BFS480 SOT363 Package 6-terminal Model:BJT Vce(max)=8V,Ic(max)=10mA,Ft(typical)=7.5GHz
pb_sms_BFR90_19911009	BFR90: TPLAST Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=15V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=>40, Ft=5GHz
pb_sms_BC328_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BCX52_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP180W_19960901	BFP180W, Package:sot343, Model Gummel-Poon NPN, Siemens SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BCX68_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFR194_19960901	BFR194 rf-bjt package: sot23 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFQ70_19911009	BFQ70, Package:CERECX, Model Gummel-Poon NPN Pdiss=300mW, Vce(Max)=15V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=15mA, Hfe=100, Ft=5.8GHz
pb_sms_BFN23_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BC337_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFN39_19961209	BFN39, Package:223, Model Gummel-Poon PNP, Siemens AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP181_19911010	BFP181, Package:SOT143, Model Gummel-Poon NPN, Pdiss=175mW, Vce(Max)=12V, Ic(Max)=20mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=100, Ft=8GHz

pb_sms_SMBT6429_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFR182_19911009	BFR182: SOT23 Package 3-terminal, NPN Pdiss=175mW, Vce(Max)=12V, Ic(Max)=20mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=50-250, Ft=8GHz
pb_sms_BFG135A_19921101	BFG135A: SOT223 Package 4-terminal, NPN Pdiss=280mW, Vce(Max)=20V, Ic(Max)=35mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=50-250, Ft=1.1GHz
pb_sms_BF423_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BCX70_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BC637_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_SMBT2907_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP193_19921101	BFP193: SOT143 Package 4-terminal, NPN Pdiss=450mW, Vce(Max)=12V, Ic(Max)=65mA, Vce(typical)=8V, Ic(Typical)=30mA, Hfe=50-250, Ft=8GHz
pb_sms_BC847_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFQ82_19921101	BFQ82: CERECX Package 4-terminal, NPN Pdiss=280mW, Vce(Max)=16V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=15mA, Hfe=>50, Ft=5.8GHz
pb_sms_BFQ76_19931201	BFQ76: CERECX Package 4-terminal, PNP Pdiss=250mW, Vce(Max)=-15V, Ic(Max)=-30mA, Vce(typical)=-10V, Ic(Typical)=-14mA, Hfe=50, Ft=5GHz
pb_sms_SMBTA42_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BCP55_19961209	BCP55, Package:sot223, Model Gummel-Poon NPN, Siemens AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP280_19911010	BFP280: SOT143 Package 4-terminal, NPN Pdiss=80mW, Vce(Max)=8V, Ic(Max)=10mA, Vce(typical)=5V, Ic(Typical)=6mA, Hfe=100, Ft=7GHz
pb_sms_BF723_19961209	BF723, Package:SOT223, Model Gummel-Poon PNP, Siemens AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_PZTA42_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BC808_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BCW66_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BC856_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFR193W_19960901	BFR193W rf-bjt package: sot323 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFP181_19960901	BFP181, Package:sot143, Model Gummel-Poon NPN, Siemens SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFQ196_19911008	BFQ196, Package:CERECX, Model Gummel-Poon NPN, Pdiss=650mW, Vce(Max)=-15V, Ic(Max)=-100mA, Vce(typical)=-10V, Ic(Typical)=-70mA, Hfe=50-250, Ft=4.5GHz
pb_sms_BF550_19931122	BF550: SOT23 Package 3-terminal, PNP Pdiss=280mW, Vce(Max)=-40V, Ic(Max)=-25mA, Vce(typical)=-10V, Ic(Typical)=-1mA, Hfe=50-250, Ft=0.35GHz
pb_sms_BFS55A_19911017	BFS55A: TO72 Package 3-terminal, NPN Pdiss=250mW, Vce(Max)=15V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=25mA, Hfe=>30, Ft=4.5GHz
pb_sms_BFN18_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BF603_19961209	BF603, Package:TO72, Model Gummel-Poon PNP, Siemens AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BC817_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_PZT2222_19961209	PZT2222, Model Gummel-Poon NPN, Siemens extraction: AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BCX56_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFR181W_19960901	BFR181W rf-bjt package: sot323 SPICE Lib. V1.00 09.01.1996 valid under

	6Ghz
pb_sms_BFR182_19960901	BFR182 rf-bjt package: sot23 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFT98T_19911009	BFT98T: TPLAST Package 3-terminal, NPN Pdiss=800mW, Vce(Max)=20V, Ic(Max)=150mA, Vce(typical)=8V, Ic(Typical)=80mA, Hfe=50, Ft=3.2GHz
pb_sms_BFQ74_19911009	BFQ74: CERECX Package 4-terminal, NPN Pdiss=500mW, Vce(Max)=15V, Ic(Max)=100mA, Vce(typical)=5V, Ic(Typical)=75mA, Hfe=90, Ft=5.4GHz
pb_sms_BFN27_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFG194_19931201	BFG194: SOT223 Package 4-terminal, PNP Pdiss=1000mW, Vce(Max)=-15V, Ic(Max)=-100mA, Vce(typical)=-10V, Ic(Typical)=-70mA, Hfe=50, Ft=4.5GHz
pb_sms_BFP136W_19960901	BFP136W, Package:sot343, Model Gummel-Poon NPN, Siemens SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BF799W_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_SMBT3906_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_SXTA92_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP280_19960901	BFP280, Package:sot143, Model Gummel-Poon NPN, SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BSS64_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_MPSA93_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFT65_19911017	BFT65: TPLAST Package 3-terminal, NPN Pdiss=250mW, Vce(Max)=15V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=25mA, Hfe=>30, Ft=5GHz
pb_sms_BFN36_19961209	BFN36, Package:SOT223, Model Gummel-Poon NPN, Siemens AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP181_19921101	BFP181: SOT143 Package 4-terminal, NPN Pdiss=175mW, Vce(Max)=12V, Ic(Max)=20mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=100, Ft=8GHz
pb_sms_BFR280W_19960901	BFR280W rf-bjt package: sot323 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFQ70_19921101	BFQ70: CERECX Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=15V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=15mA, Hfe=100, Ft=5.8GHz
pb_sms_BFT92W_19960901	BFT92W rf-bjt package: sot323 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BF420_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFR182_19921101	BFR182: SOT23 Package 3-terminal, NPN Pdiss=175mW, Vce(Max)=12V, Ic(Max)=20mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=50-250, Ft=8GHz
pb_sms_BFP196W_19960901	BFP196W, Package:sot343, Model Gummel-Poon NPN, SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BSS82_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BCP52_19961209	BCP52, Pacakge:sot223, Model Gummel-Poon PNP, Siemens AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_SMBT2222A_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_SMBTA55_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFQ69_19911009	BFQ69: TPLAST Package 3-terminal, NPN Pdiss=300mW, Vce(Max)=15V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=15mA, Hfe=100, Ft=5.8GHz
pb_sms_BF720_19961209	BF720, Package:sot223, Model Gummel-Poon NPN, Siemens AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BCP68_19961209	BCP68, Package:sot223, Model Gummel-Poon NPN, Siemens AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BC368_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *

pb_sms_BF799_19911017	BF799: SOT23 Package 3-terminal, NPN Pdiss=280mW, Vce(Max)=20V, Ic(Max)=35mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=100, Ft=1.1GHz
pb_sms_BFQ193_19911009	BFQ193: SOT89V2 Package 3-terminal, NPN Pdiss=600mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=50mA, Hfe=100, Ft=7.5GHz
pb_sms_PZT2907A_19961209	PZT2907A, Model Gummel-Poon NPN, Siemens extraction: AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP194_19960901	BFP194, Package:SOT143, Model Gummel-Poon PNP, SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFS481_19960901	BFS481 SOT363 Package 6-terminal Model:BJT Vce(max)=12V,Ic(max)=20mA,Ft(typical)=8GHz
pb_sms_BFP81_19911008	BFP81, Package:SOT143, Model Gummel-Poon NPN, Pdiss=280mW, Vce(Max)=16V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=15mA, Hfe=>50, Ft=5.8GHz
pb_sms_BFP25_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFQ180_19921101	BFQ180, Package:CERECX, Model Gummel-Poon NPN, Pdiss=1000mW, Vce(Max)=25V, Ic(Max)=150mA, Vce(typical)=5V, Ic(Typical)=150mA, Hfe=50-250, Ft=1.2GHz
pb_sms_BCX53_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP193W_19960901	BFP193W, Package:sot343, Model Gummel-Poon NPN, Siemens SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFQ196_19921101	BFQ196: CERECX Package 4-terminal, NPN Pdiss=650mW, Vce(Max)=-15V, Ic(Max)=-100mA, Vce(typical)=-10V, Ic(Typical)=-70mA, Hfe=50-250, Ft=4.5GHz
pb_sms_BCX69_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFR194_19931122	BFR194: SOT23 Package 3-terminal, PNP Pdiss=700mW, Vce(Max)=-15V, Ic(Max)=-100mA, Vce(typical)=-10V, Ic(Typical)=-70mA, Hfe=50, Ft=4.5GHz
pb_sms_BFQ19S_19911009	BFQ19S: SOT89V2 Package 3-terminal, NPN Pdiss=1000mW, Vce(Max)=15V, Ic(Max)=75mA, Vce(typical)=10V, Ic(Typical)=70mA, Hfe=70, Ft=5.1GHz
pb_sms_BFR91_19911014	BFR91: TPLAST Package 3-terminal, NPN Pdiss=250mW, Vce(Max)=15V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=25mA, Hfe=>30, Ft=5GHz
pb_sms_BFQ71_19911009	BFQ71: CERECX Package 4-terminal, NPN Pdiss=300mW, Vce(Max)=15V, Ic(Max)=30mA, Vce(typical)=6V, Ic(Typical)=20mA, Hfe=100, Ft=5.2GHz
pb_sms_BFN24_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFW92_19911017	BFW92: TPLAST Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=15V, Ic(Max)=25mA, Vce(typical)=5V, Ic(Typical)=14mA, Hfe=20-150, Ft=2.4GHz
pb_sms_BC338_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BF579_19931130	BF579: SOT23 Package 3-terminal, PNP Pdiss=280mW, Vce(Max)=-20V, Ic(Max)=-30mA, Vce(typical)=-10V, Ic(Typical)=-10mA, Hfe=>20, Ft=1.6GHz
pb_sms_BFP182_19911010	BFP182, Package:SOT143, Model Gummel-Poon NPN, Pdiss=175mW, Vce(Max)=12V, Ic(Max)=20mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=50-250, Ft=8GHz
pb_sms_SMBT3903_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP181W_19960901	BFP181W, Package:sot343, Model Gummel-Poon NPN, Siemens SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_SXT2222A_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_SMBT5086_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *

pb_sms_PZT2907_19961209	Model Gummel-Poon NPN, Siemens extraction: AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFQ74_19921101	BFQ74: CERECX Package 4-terminal, NPN Pdiss=500mW, Vce(Max)=15V, Ic(Max)=100mA, Vce(typical)=5V, Ic(Typical)=75mA, Hfe=90, Ft=5.4GHz
pb_sms_MPSA42_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BCV61_19961209	BCV61, Package:sot143, Model Gummel-Poon PNP, Siemens AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BCX71_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFT92_19960901	BFT92 rf-bjt package: sot23 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BC638_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFG196_19911008	BFG196, Package:SOT223, Model Gummel-Poon NPN, Pdiss=1000mW, Vce(Max)=-15V, Ic(Max)=-100mA, Vce(typical)=-10V, Ic(Typical)=-70mA, Hfe=50-250, Ft=4.5GHz
pb_sms_BC848_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFR183_19911014	BFR183: SOT23 Package 3-terminal, NPN Pdiss=250mW, Vce(Max)=12V, Ic(Max)=35mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=50-250, Ft=8GHz
pb_sms_BFR15A_19911017	BFR15A: TO72V2 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=12V, Ic(Max)=30mA, Vce(typical)=6V, Ic(Typical)=10mA, Hfe=>25, Ft=4.5GHz
pb_sms_SMBTA43_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP81_19960901	BFP81, Package:sot143, Model Gummel-Poon NPN, SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFP280W_19960901	BFP280W, Package:sot343, Model Gummel-Poon NPN, SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BC857_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFQ181_19911008	BFQ181: CERECX Package 4-terminal, NPN Pdiss=175mW, Vce(Max)=12V, Ic(Max)=20mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=100, Ft=8GHz
pb_sms_BFR92P_19911009	BFR92P: SOT23 Package 3-terminal, NPN Pdiss=280mW, Vce(Max)=15V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=14mA, Hfe=100, Ft=5GHz
pb_sms_SXT3904_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP182_19960901	BFP182, Package:sot143, Model Gummel-Poon NPN, Siemens SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BC640_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_SMBT4401_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFN19_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BC850_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BCW60_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BCX41_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFY90_19911009	BFY90: TO72V2 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=15V, Ic(Max)=25mA, Vce(typical)=5V, Ic(Typical)=25mA, Hfe=20-125, Ft=1.5GHz
pb_sms_SMBT4126_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BC818_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_PZT3906_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFR183_19960901	BFR183 rf-bjt package: sot23 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFR93AW_19960901	BFR93AW rf-bjt package: sot323 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFP22_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *

pb_sms_BF775A_19921101	BF775A: SOT23 Package 3-terminal, NPN Pdiss=280mW, Vce(Max)=-30V, Ic(Max)=-25mA, Vce(typical)=-10V, Ic(Typical)=-5mA, Hfe=50-250, Ft=0.7GHz
pb_sms_BFT66_19911009	BFT66: TO72V2 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=15V, Ic(Max)=30mA, Vce(typical)=6V, Ic(Typical)=20mA, Hfe=50-250, Ft=4.9GHz
pb_sms_BFR182W_19960901	BFR182W rf-bjt package: sot323 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_SXTA93_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFG196_19960901	BFG196, Package:sot223, Model Gummel-Poon NPN, Siemens SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFP81_19921101	BFP81: SOT143 Package 4-terminal, NPN Pdiss=280mW, Vce(Max)=16V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=15mA, Hfe=>50, Ft=5.8GHz
pb_sms_BFN21_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFR92W_19960901	BFR92W rf-bjt package: sot323 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_SMBTA70_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFN37_19961209	BFN37, Package:SOT223, Model Gummel-Poon PNP, Siemens AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BF622_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP182_19921101	BFP182: SOT143 Package 4-terminal, NPN Pdiss=175mW, Vce(Max)=12V, Ic(Max)=20mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=50-250, Ft=8GHz
pb_sms_BFQ73S_19911008	BFQ73S: CERECX Package 4-terminal, NPN Pdiss=500mW, Vce(Max)=15V, Ic(Max)=100mA, Vce(typical)=5V, Ic(Typical)=75mA, Hfe=90, Ft=5.4GHz
pb_sms_BFR92P_19960901	BFR92P rf-bjt package: sot23 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFR96S_19911009	BFR96S: SOT37 Package 3-terminal, NPN Pdiss=700mW, Vce(Max)=15V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=70mA, Hfe=>25, Ft=5GHz
pb_sms_BF421_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BC635_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFG193_19911008	BFG193: SOT223 Package 4-terminal, NPN Pdiss=600mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=50mA, Hfe=100, Ft=8GHz
pb_sms_BFR180_19911011	BFR180: SOT23 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=12V, Ic(Max)=30mA, Vce(typical)=6V, Ic(Typical)=10mA, Hfe=50-250, Ft=4.5GHz
pb_sms_BFR183_19921101	BFR183: SOT23 Package 3-terminal, NPN Pdiss=250mW, Vce(Max)=12V, Ic(Max)=35mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=50-250, Ft=8GHz
pb_sms_BFS17S_19960901	BFS17S SOT363 Package 6-terminal Model:BJT Vce(max)=15V,Ic(max)=25mA,Ft(typical)=2.5GHz
pb_sms_BCP53_19961209	BCP53, Package:sot223, Model Gummel-Poon PNP, Siemens AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFG235_19911008	BFG235: SOT223 Package 4-terminal, NPN Pdiss=2000mW, Vce(Max)=12V, Ic(Max)=300mA, Vce(typical)=8V, Ic(Typical)=240mA, Hfe=125, Ft=6GHz
pb_sms_SMBTA56_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BF721_19961209	BF721, Package:sot223, Model Gummel-Poon PNP, Siements AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFG196_19921101	BFG196: SOT223 Package 4-terminal, NPN Pdiss=1000mW, Vce(Max)=-15V, Ic(Max)=-100mA, Vce(typical)=-10V, Ic(Typical)=-70mA, Hfe=50-250, Ft=4.5GHz
pb_sms_BCP69_19961209	BCP69, Pacakge:sot223, Model Gummel-Poon PNP, Siemens AF-bjt's: SPICE

	Lib. V4.00 12.09.1996 *
pb_sms_BFG19S_19911008	BFG19S: SOT223 Package 4-terminal, NPN Pdiss=1000mW, Vce(Max)=15V, Ic(Max)=100mA, Vce(typical)=10V, Ic(Typical)=70mA, Hfe=95, Ft=1.5GHz
pb_sms_BC369_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFS482_19960901	BFS482 SOT363 Package 6-terminal Model:BJT Vce(max)=12V,Ic(max)=35mA,Ft(typical)=8GHz
pb_sms_BFN16_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP26_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFR93A_19960901	BFR93A rf-bjt package: sot23 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BCX54_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFS17P_19911009	BFS17P: SOT23 Package 3-terminal, NPN Pdiss=280mW, Vce(Max)=15V, Ic(Max)=25mA, Vce(typical)=5V, Ic(Typical)=25mA, Hfe=70, Ft=2.5GHz
pb_sms_BFR180_19960901	BFR180 rf-bjt package: sot23 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFQ72_19911009	BFQ72: CERECX Package 4-terminal, NPN Pdiss=350mW, Vce(Max)=15V, Ic(Max)=50mA, Vce(typical)=5V, Ic(Typical)=50mA, Hfe=90, Ft=4.7GHz
pb_sms_BFN25_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP183_19911010	BFP183, Package:SOT143, Model Gummel-Poon NPN, Pdiss=250mW, Vce(Max)=12V, Ic(Max)=35mA, Vce(typical)=8V, Ic(Typical)=30mA, Hfe=50-250, Ft=8GHz
pb_sms_SXTA42_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_SMBT3904_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_SMBT5087_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFG193_19960901	BFG193, Package:sot223, Model Gummel-Poon NPN, Siemens SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_MPSA43_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFQ81_19911008	BFQ81: SOT23 Package 3-terminal, NPN Pdiss=280mW, Vce(Max)=16V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=15mA, Hfe=>50, Ft=5.8GHz
pb_sms_BFT92_19931122	BFT92: SOT23 Package 3-terminal, PNP Pdiss=200mW, Vce(Max)=-15V, Ic(Max)=-25mA, Vce(typical)=-10V, Ic(Typical)=-14mA, Hfe=50, Ft=5GHz
pb_sms_BFT93_19960901	BFT93 rf-bjt package: sot23 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BC639_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFG235_19960901	BFG235, Package:sot223, Model Gummel-Poon NPN, Siemens SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFP182W_19960901	BFP182W, Package:sot343, Model Gummel-Poon NPN, Siemens SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BC849_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFG19S_19960901	BFG19S, Package:sot223, Model Gummel-Poon NPN, Siemens SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFR193_19911009	BFR193: SOT23 Package 3-terminal, NPN Pdiss=450mW, Vce(Max)=12V, Ic(Max)=65mA, Vce(typical)=8V, Ic(Typical)=30mA, Hfe=50-250, Ft=8GHz
pb_sms_BFS17W_19960901	BFS17W rf-bjt package: sot323 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_SMBTA92_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFR180_19921101	BFR180: SOT23 Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=12V, Ic(Max)=30mA, Vce(typical)=6V, Ic(Typical)=10mA, Hfe=50-250, Ft=4.5GHz
pb_sms_PZTA92_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *

pb_sms_BFR106_19911009	BFR106: SOT23 Package 3-terminal, NPN Pdiss=350mW, Vce(Max)=15V, Ic(Max)=100mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=>25, Ft=3.3GHz
pb_sms_BC858_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BCW68_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFQ182_19911009	BFQ182: CERECX Package 4-terminal, NPN Pdiss=175mW, Vce(Max)=12V, Ic(Max)=20mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=50-250, Ft=8GHz
pb_sms_BSS80_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFS17P_19960901	BFS17P rf-bjt package: sot23 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFP183_19960901	BFP183, Package:sot143, Model Gummel-Poon NPN, Siemens SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_SMBTA05_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BCW61_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BCX42_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFT97_19911017	BFT97: TPLAST Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=15V, Ic(Max)=30mA, Vce(typical)=6V, Ic(Typical)=20mA, Hfe=>30, Ft=5GHz
pb_sms_BCX58_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFR93P_19911009	BFR93P: SOT23 Package 3-terminal, NPN Pdiss=280mW, Vce(Max)=15V, Ic(Max)=50mA, Vce(typical)=5V, Ic(Typical)=50mA, Hfe=100, Ft=4.7GHz
pb_sms_BFP23_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP93A_19911009	BFP93A: SOT143 Package 4-terminal, NPN Pdiss=280mW, Vce(Max)=12V, Ic(Max)=50mA, Vce(typical)=8V, Ic(Typical)=30mA, Hfe=90, Ft=5.5GHz
pb_sms_BFQ81_19960901	BFQ81 rf-bjt package: sot23 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BC327_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BCX51_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BC860_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP196_19911008	BFP196, Package:SOT143,Model Gummel-Poon NPN, Pdiss=400mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=30mA, Hfe=50-250, Ft=8GHz
pb_sms_BFR193_19960901	BFR193 rf-bjt package: sot23 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFR34A_19911014	BFR34A: TPLAST Package 3-terminal, NPN Pdiss=200mW, Vce(Max)=12V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=>40, Ft=5GHz
pb_sms_BFN22_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BF623_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP180_19911014	BFP180, Package:SOT143, Model Gummel-Poon NPN, Pdiss=2000mW, Vce(Max)=12V, Ic(Max)=300mA, Vce(typical)=8V, Ic(Typical)=240mA, Hfe=50-250, Ft=6GHz
pb_sms_BFP183_19921101	BFP183: SOT143 Package 4-terminal, NPN Pdiss=250mW, Vce(Max)=12V, Ic(Max)=35mA, Vce(typical)=8V, Ic(Typical)=30mA, Hfe=50-250, Ft=8GHz
pb_sms_PZT2222A_19961209	PZT2222A, Model Gummel-Poon NPN, Siemens extraction: AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_SMBT2907A_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_SMBT6428_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFR183W_19960901	BFR183W rf-bjt package: sot323 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFR181_19911009	BFR181: SOT23 Package 3-terminal, NPN Pdiss=30mW, Vce(Max)=8V, Ic(Max)=4mA, Vce(typical)=3V, Ic(Typical)=2mA, Hfe=50-250, Ft=6.2GHz
pb_sms_BFP405_19960901	BFP405, Package:sot343, Model Gummel-Poon NPN, SPICE Lib. V1.00

	09.01.1996 valid under 6Ghz
pb_sms_BFR106_19960901	BFR106 rf-bjt package: sot23 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BF660_19931122	BF660: SOT23 Package 3-terminal, PNP Pdiss=280mW, Vce(Max)=-30V, Ic(Max)=-25mA, Vce(typical)=-10V, Ic(Typical)=-5mA, Hfe=>30, Ft=0.7GHz
pb_sms_BF422_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BC636_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BC846_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFR35AP_19911009	BFR35AP: SOT23 Package 3-terminal, NPN Pdiss=280mW, Vce(Max)=12V, Ic(Max)=30mA, Vce(typical)=6V, Ic(Typical)=20mA, Hfe=90, Ft=4.9GHz
pb_sms_BFQ29P_19911009	BFQ29P: SOT23 Package 3-terminal, NPN Pdiss=1000mW, Vce(Max)=15V, Ic(Max)=75mA, Vce(typical)=10V, Ic(Typical)=70mA, Hfe=50-250, Ft=5.1GHz
pb_sms_BFQ75_19931122	BFQ75: CERECX Package 4-terminal, PNP Pdiss=350mW, Vce(Max)=-12V, Ic(Max)=-50mA, Vce(typical)=-5V, Ic(Typical)=-30mA, Hfe=50, Ft=5GHz
pb_sms_BCP54_19961209	BCP54, Package:sot223, Model Gummel-Poon NPN, Siemens AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BF722_19961209	BF722, Package:SOT223, Model Gummel-Poon NPN, Siemens AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP93A_19960901	BFP93A, rf-bjt package:sot143 Model Gummel-Poon NPN, SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BC807_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BF599_19921213	BF599: SOT23 Package 3-terminal, NPN Pdiss=280mW, Vce(Max)=25V, Ic(Max)=25mA, Vce(typical)=10V, Ic(Typical)=5mA, Hfe=70, Ft=0.55GHz
pb_sms_BCW65_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFR180W_19960901	BFR180W rf-bjt package: sot323 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFQ17P_19911008	BFQ17P: SOT89V2 Package 3-terminal, NPN Pdiss=1000mW, Vce(Max)=25V, Ic(Max)=150mA, Vce(typical)=5V, Ic(Typical)=150mA, Hfe=>25, Ft=1.2GHz
pb_sms_BFR193_19921101	BFR193: SOT23 Package 3-terminal, NPN Pdiss=450mW, Vce(Max)=12V, Ic(Max)=65mA, Vce(typical)=8V, Ic(Typical)=30mA, Hfe=50-250, Ft=8GHz
pb_sms_BFR280_19911009	BFR280: SOT23 Package 3-terminal, NPN Pdiss=80mW, Vce(Max)=8V, Ic(Max)=10mA, Vce(typical)=5V, Ic(Typical)=6mA, Hfe=100, Ft=7GHz
pb_sms_BFP180_19960901	BFP180, Package:sot143, Model Gummel-Poon NPN, Siemens SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_SXT2907A_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFP196_19960901	BFP196, Ppackage:sot143, Model Gummel-Poon NPN, SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFS483_19960901	BFS483 SOT363 Package 6-terminal Model:BJT Vce(max)=12V,Ic(max)=65mA,Ft(typical)=8GHz
pb_sms_BFQ64_19911008	BFQ645: CERECX Package 4-terminal, NPN Pdiss=400mW, Vce(Max)=12V, Ic(Max)=40mA, Vce(typical)=8V, Ic(Typical)=15mA, Hfe=100, Ft=9GHz
pb_sms_BFN17_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFR91A_19911009	BFR91A: SOT37 Package 3-terminal, NPN Pdiss=300mW, Vce(Max)=12V, Ic(Max)=35mA, Vce(typical)=5V, Ic(Typical)=30mA, Hfe=90, Ft=6GHz
pb_sms_SMBT4124_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BCX55_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFQ182_19921101	BFQ182: CERECX Package 4-terminal, NPN Pdiss=175mW, Vce(Max)=12V,

	Ic(Max)=20mA, Vce(typical)=8V, Ic(Typical)=10mA, Hfe=50-250, Ft=8GHz
pb_sms_PZT3904_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFR181_19960901	BFR181 rf-bjt package: sot23 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFN26_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFG135A_19911008	BFG135A, Package:SOT223, Model Gummel-Poon NPN, Pdiss=280mW, Vce(Max)=20V, Ic(Max)=35mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=50-250, Ft=1.1GHz
pb_sms_SXTA43_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFG194_19960901	BFG194, Package:SOT223, Model Gummel_Poon PNP, Siemens SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BSS63_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BSS79_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_SMBTA20_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFQ82_19911008	BFQ82: Package:CERECX, Model Gummel-Poon NPN, Pdiss=280mW, Vce(Max)=16V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=15mA, Hfe=>50, Ft=5.8GHz
pb_sms_MPSA92_19961209	AF-bjt's: SPICE Lib. V4.00 12.09.1996 *
pb_sms_BFT93_19931122	BFT93: SOT23 Package 3-terminal, Model:EE_BJT2 PNP Pdiss=200mW, Vce(Max)=-12V, Ic(Max)=-35mA, Vce(typical)=-5V, Ic(Typical)=-30mA, Hfe=50, Ft=5GHz
pb_sms_BFP180_19921101	BFP180: SOT143 Package 4-terminal, NPN Pdiss=2000mW, Vce(Max)=12V, Ic(Max)=300mA, Vce(typical)=8V, Ic(Typical)=240mA, Hfe=50-250, Ft=6GHz
pb_sms_BFP193_19911010	BFP193, Package:SOT143, Model Gummel-Poon NPN Pdiss=450mW, Vce(Max)=12V, Ic(Max)=65mA, Vce(typical)=8V, Ic(Typical)=30mA, Hfe=50-250, Ft=8GHz
pb_sms_BFP196_19921101	BFP196: SOT143 Package 4-terminal, NPN Pdiss=400mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=8V, Ic(Typical)=30mA, Hfe=50-250, Ft=8GHz
pb_sms_BFQ194_19931122	BFQ194: CERECX Package 4-terminal, PNP Pdiss=650mW, Vce(Max)=-15V, Ic(Max)=-100mA, Vce(typical)=-10V, Ic(Typical)=-70mA, Hfe=50, Ft=4.5GHz
pb_sms_BFP450_19960901	BFP450, Package:sot343, Model Gummel-Poon NPN, SPICE Lib. V1.00 09.01.1996 valid under 6Ghz
pb_sms_BFR280_19960901	BFR280 rf-bjt package: sot23 SPICE Lib. V1.00 09.01.1996 valid under 6Ghz

Toshiba Packaged BJTs

For modeling specifications, see Packaged BJTs.

The Toshiba Packaged BJTs include 13 components, representing individual parts. The naming convention for these components is *pb_tsb*<part number><*extraction date*> .

Component Name	Description
pb_tsb_2SC4320_19921214	2SC4320: 2D3J1C Package 4-terminal, NPN Pdiss=150mW, Vce(Max)=10V, Ic(Max)=40mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=50-250, Ft=10GHz
pb_tsb_2SC3124_19921213	2SC3124: SOT23 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=15V, Ic(Max)=50mA, Vce(typical)=10V, Ic(Typical)=8mA, Hfe=100, Ft=1.1GHz
pb_tsb_2SC4315_19921214	2SC4315: 2D3J1C Package 4-terminal, NPN Pdiss=150mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=30-250, Ft=7GHz
pb_tsb_RN2405_19930119	RN2405: SOT23 Package 3-terminal, PNP Pdiss=200mW, Vce(Max)=-50V, Ic(Max)=-100mA, Vce(typical)=-10V, Ic(Typical)=-5mA, Hfe= >80, Ft=0.2GHz
pb_tsb_2SC4321_19921214	2SC4321: SOT323 Package 3-terminal, NPN Pdiss=100mW, Vce(Max)=10V, Ic(Max)=40mA, Vce(typical)=8V, Ic(Typical)=20mA, Hfe=50-250, Ft=10GHz
pb_tsb_2SC4394_19921211	2SC4394: SOT323 Package 3-terminal, NPN Pdiss=100mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=30-250, Ft=7GHz
pb_tsb_2SC2753_19921210	2SC2753: TO92 Package 3-terminal, NPN Pdiss=300mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=30-180, Ft=5GHz
pb_tsb_2SC3429_19921213	2SC3429: SOT23 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=12V, Ic(Max)=70mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=>25, Ft=5GHz
pb_tsb_2SC4248_19921214	2SC4248: SOT323 Package 3-terminal, NPN Pdiss=100mW, Vce(Max)=12V, Ic(Max)=30mA, Vce(typical)=10V, Ic(Typical)=10mA, Hfe=70-300, Ft=4GHz
pb_tsb_2SC3011_19921213	2SC3011: SOT23 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=7V, Ic(Max)=30mA, Vce(typical)=5V, Ic(Typical)=10mA, Hfe=120, Ft=6.5GHz
pb_tsb_2SC4322_19921215	2SC4322: SOT23 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=10V, Ic(Max)=15mA, Vce(typical)=6V, Ic(Typical)=7mA, Hfe=50-250, Ft=10GHz
pb_tsb_2SC3609_19921214	2SC3609: 2D3J1C Package 4-terminal, NPN Pdiss=150mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=30-250, Ft=7GHz
pb_tsb_2SC3606_19921214	2SC3606: SOT23 Package 3-terminal, NPN Pdiss=150mW, Vce(Max)=12V, Ic(Max)=80mA, Vce(typical)=10V, Ic(Typical)=20mA, Hfe=30-250, Ft=7GHz

Packaged GaAs FETs

The Packaged GaAs FETs consists of nonlinear models representing 65 parts from 8 manufacturers. The FETs available for selection from the Schematic window are:

- [Agilent Technologies GaAs Packaged FETs](#)
- [Fujitsu Packaged GaAs FETs](#)
- [Microwave Technology GaAs Packaged FETs](#)
- [Mitsubishi Packaged GaAs FETs](#)
- [NEC Packaged GaAs FETs](#)
- [Okidata Packaged GaAs FETs](#)
- [Siemens Packaged GaAs FETs](#)
- [Toshiba Packaged GaAs FETs](#)

The library components are listed in tables organized by manufacturer library group, and the individual components provided in each group are listed by component name along with relevant physical and electrical characteristics.

The tabulated Physical Specifications include:

Gw: Gate width, microns
Gl: Gate length, microns
Maximum Electrical Specifications include:
Pdiss: Maximum dissipated power, mW
Vbr: Breakdown voltage, V
Typical Electrical Specifications include:
Vds: Typical drain-source operating voltage, V
Idss: Saturation current, mA, simulated using the model at typical Vds
Vt: Threshold gate voltage, V, simulated using the model at typical Vds

Model Validation data has been provided as a simple large-signal figure of merit for the model. The validation was based on simulations of the model and measurements of the associated device, conducted at 1 GHz. Validation data includes:

Vds: Drain-source operating voltage, V
Ids: Operating drain current, mA
P1dB, Sim: Output power for 1dB compression, dBm, simulated using the model at validation Vds, Ids. Values listed as na denote that the associated P1dB simulation was not performed.

P1dB, Error: Error, in dB, between P1dB, Sim and P1dB measured, at the validation Vds, Ids. Values listed as na denote that the associated P1dB measurement is not available.

Agilent Technologies GaAs Packaged FETs

For modeling specifications, see [Packaged GaAs FETs](#).

The Agilent Technologies Packaged GaAs FETs include 5 components, representing individual parts. The naming convention for these components is p _f_hpa_<part number><extraction date> .

Component Name	Description
pf_hp_ATF13284_19931014	OBSOLETE ATF13284: ATF84 Package 4-terminal, Gw=250um, Gl=0.30um, Pdiss=225mW Vbr=7V, @Vds=3V: Idss(sim)=29.47mA, Vt(sim)=-1.44V
pf_hp_ATF13136_19931014	OBSOLETE ATF13136: ATF36 Package 4-terminal, Gw=250um, Gl=0.30um, Pdiss=225mW Vbr=7V, @Vds=3V: Idss(sim)=46.37mA, Vt(sim)=-1.4V
pf_hp_ATF13786_19931015	ATF13786: ATF86 Package 4-terminal, Gw=250um, Gl=0.30um, Pdiss=225mW Vbr=6V, @Vds=3V: Idss(sim)=60.66mA, Vt(sim)=-1.55V
pf_hp_ATF26884_19931015	ATF26884: ATF84 Package 4-terminal, Gw=250um, Gl=0.30um, Pdiss=275mW Vbr=7.5V, @Vds=3V: Idss(sim)=41.28mA, Vt(sim)=-1.88V
pf_hp_ATF21170_19931015	ATF21170: ATF70 Package 4-terminal, Gw=750um, Gl=0.30um, Pdiss=600mW Vbr=9V, @Vds=3V: Idss(sim)=97.42mA, Vt(sim)=-1.24V

Fujitsu Packaged GaAs FETs

For modeling specifications, see Packaged GaAs FETs.

The Fujitsu Packaged GaAs FETs include 2 components, representing individual parts. The naming convention for these components is *pf_fuj*<part number><extraction date> .

Component Name	Description
pf_fuj_FLL101ME_19931021	FLL101ME: ME Package 3-terminal, Gw=na, Gl=na, Pdiss=4160mW Vbr=19V, @Vds=3V: Idss(sim)=370.89mA, Vt(sim)=-2.71V
pf_fuj_FLL351ME_19931021	FLL351ME: ME Package 3-terminal, Gw=na, Gl=na, Pdiss=15000mW Vbr=19V, @Vds=3V: Idss(sim)=1279.64mA, Vt(sim)=-2.21V

Microwave Technology GaAs Packaged FETs

For modeling specifications, see Packaged GaAs FETs.

The Microwave Technology Packaged GaAs FETs include 11 components, representing individual parts. The naming convention for these components is *pf_mwt*<part number><extraction date> .

Component Name	Description
pf_mwt_MWT_370HP_19931015	MWT-370HP: MWT70 Package 4-terminal, Gw=300um, Gl=0.30um, Pdiss=750mW Vbr=11V, @Vds=3V: Idss(sim)=83.58mA, Vt(sim)=-2.63V
pf_mwt_MWT_770HP_19931015	MWT-770HP: MWT70 Package 4-terminal, Gw=250um, Gl=0.30um, Pdiss=600mW Vbr=8.5V, @Vds=3V: Idss(sim)=80.18mA, Vt(sim)=-2.13V
pf_mwt_MWT_671HP_19931015	MWT-671HP: MWT71 Package 3-terminal, Gw=900um, Gl=0.30um, Pdiss=2250mW Vbr=15V, @Vds=3V: Idss(sim)=273.37mA, Vt(sim)=-3.74V
pf_mwt_MWT_871HP_19931015	MWT-871HP: MWT71 Package 3-terminal, Gw=1200um, Gl=0.30um, Pdiss=3000mW Vbr=15V, @Vds=3V: Idss(sim)=280.63mA, Vt(sim)=-3.07V
pf_mwt_MWT_270_19931015	MWT-270: MWT70 Package 4-terminal, Gw=630um, Gl=0.30um, Pdiss=1500mW Vbr=11V, @Vds=3V: Idss(sim)=156.46mA, Vt(sim)=-2.45V
pf_mwt_MWT_1171HP_19931020	MWT-1171HP: MWT71 Package 3-terminal, Gw=2400um, Gl=0.30um, Pdiss=5000mW Vbr=15V, @Vds=3V: Idss(sim)=630.62mA, Vt(sim)=-2.45V
pf_mwt_MWT_770LN_19931020	MWT-770LN: MWT70 Package 4-terminal, Gw=250um, Gl=0.30um, Pdiss=600mW Vbr=7V, @Vds=3V: Idss(sim)=61.81mA, Vt(sim)=-1.98V
pf_mwt_MWT_470LN_19931015	MWT-470LN: MWT70 Package 4-terminal, Gw=180um, Gl=0.30um, Pdiss=360mW Vbr=8V, @Vds=3V: Idss(sim)=38.43mA, Vt(sim)=-1.76V
pf_mwt_MWT_170_19931015	MWT-170: MWT70 Package 4-terminal, Gw=630um, Gl=0.30um, Pdiss=1200mW Vbr=8V, @Vds=3V: Idss(sim)=163.96mA, Vt(sim)=-2.61V
pf_mwt_MWT_773HP_19931015	MWT-773HP: MWT73 Package 3-terminal, Gw=250um, Gl=0.30um, Pdiss=600mW Vbr=15V, @Vds=3V: Idss(sim)=81.66mA, Vt(sim)=-2.06V
pf_mwt_MWT_971_19931020	MWT-971: MWT71 Package 3-terminal, Gw=750um, Gl=0.30um, Pdiss=1750mW Vbr=11V, @Vds=3V: Idss(sim)=198.63mA, Vt(sim)=-2.68V

Mitsubishi Packaged GaAs FETs

For modeling specifications, see Packaged GaAs FETs.

The Mitsubishi Packaged GaAs FETs include 19 components, representing individual parts. The naming convention for these components is *pf_mit*<part number><extraction date> .

Component Name	Description
pf_mit_MGF2415A_19931015	MGF2415A: GF1 Package 3-terminal, Gw=1500um, Gl=0.60um, Pdiss=2500mW Vbr=19V, @Vds=3V: Idss(sim)=353.51mA, Vt(sim)=-3.17V
pf_mit_MGF1412_19931022	MGF1412: GD9 Package 4-terminal, Gw=400um, Gl=0.70um, Pdiss=360mW Vbr=5V, @Vds=3V: Idss(sim)=81.65mA, Vt(sim)=-1.52V
pf_mit_MGF1302_19921216	MGF1302: GD4 Package 4-terminal, Gw=400um, Gl=0.80um, Pdiss=360mW Vbr=5V, @Vds=3V: Idss(sim)=45.51mA, Vt(sim)=-0.97V
pf_mit_MGF1423_19931015	MGF1423: GD9 Package 4-terminal, Gw=300um, Gl=0.50um, Pdiss=240mW Vbr=6V, @Vds=3V: Idss(sim)=68.16mA, Vt(sim)=-1.91V
pf_mit_MGF1403_19921216	MGF1403: GD9 Package 4-terminal, Gw=300um, Gl=0.50um, Pdiss=240mW Vbr=5V, @Vds=3V: Idss(sim)=55.78mA, Vt(sim)=-1.24V
pf_mit_MGF1801_19931015	MGF1801: GD11 Package 4-terminal, Gw=800um, Gl=0.80um, Pdiss=1200mW Vbr=11V, @Vds=3V: Idss(sim)=212.83mA, Vt(sim)=-2.73V
pf_mit_MGF1303B_19921216	MGF1303B: GD4 Package 4-terminal, Gw=300um, Gl=0.50um, Pdiss=240mW Vbr=5V, @Vds=3V: Idss(sim)=61.62mA, Vt(sim)=-1.63V
pf_mit_MGF0904A_19931015	MGF0904A: GF7 Package 3-terminal, Gw=na, Gl=na, Pdiss=3750mW Vbr=18V, @Vds=3V: Idss(sim)=542.76mA, Vt(sim)=-3.31V
pf_mit_MGF1425_19921216	MGF1425: GD9 Package 4-terminal, Gw=250um, Gl=0.40um, Pdiss=200mW Vbr=5V, @Vds=3V: Idss(sim)=39.81mA, Vt(sim)=-1.09V
pf_mit_MGF1902B_19921216	MGF1902B: GD7 Package 4-terminal, Gw=400um, Gl=0.80um, Pdiss=360mW Vbr=15V, @Vds=3V: Idss(sim)=49.47mA, Vt(sim)=-1.12V
pf_mit_MGF2407A_19931018	MGF2407A: GF1 Package 3-terminal, Gw=750um, Gl=0.70um, Pdiss=1500mW Vbr=19V, @Vds=3V: Idss(sim)=178.68mA, Vt(sim)=-3.06V
pf_mit_MGF1903B_19931018	MGF1903B: GD7 Package 4-terminal, Gw=300um, Gl=0.50um, Pdiss=240mW Vbr=15V, @Vds=3V: Idss(sim)=40.73mA, Vt(sim)=-1.4V
pf_mit_MGF2148_19931019	MGF2148: GF4 Package 4-terminal, Gw=750um, Gl=0.60um, Pdiss=10000mW Vbr=17V, @Vds=3V: Idss(sim)=1290.24mA, Vt(sim)=-3.83V
pf_mit_MGF0905A_19931019	MGF0905A: GF7 Package 3-terminal, Gw=na, Gl=na, Pdiss=21500mW Vbr=17V, @Vds=3V: Idss(sim)=2299.21mA, Vt(sim)=-2.52V
pf_mit_MGF0906A_19931019	MGF0906A: GF21 Package 3-terminal, Gw=na, Gl=na, Pdiss=23000mW Vbr=21V, @Vds=3V: Idss(sim)=2786.99mA, Vt(sim)=-4.15V
pf_mit_MGF1402_19921216	MGF1402: GD9 Package 4-terminal, Gw=400um, Gl=0.80um, Pdiss=360mW Vbr=5V, @Vds=3V: Idss(sim)=64.83mA, Vt(sim)=-1.35V
pf_mit_MGF2430A_19931015	MGF2430A: GF1 Package 3-terminal, Gw=3000um, Gl=0.60um, Pdiss=5000mW Vbr=19V, @Vds=3V: Idss(sim)=601.86mA, Vt(sim)=-2.54V
pf_mit_MGF1304A_19921216	MGF1304A: GD4 Package 4-terminal, Gw=300um, Gl=0.50um, Pdiss=200mW Vbr=5V, @Vds=3V: Idss(sim)=24.92mA, Vt(sim)=-0.71V
pf_mit_MGF1305_19921216	MGF1305: GD4 Package 4-terminal, Gw=300um, Gl=0.40um, Pdiss=200mW Vbr=5V, @Vds=3V: Idss(sim)=36.52mA, Vt(sim)=-1.08V

NEC Packaged GaAs FETs

For modeling specifications, see Packaged GaAs FETs.

The NEC Packaged GaAs FETs include 17 components, representing individual parts. The naming convention for these components is *pf_nec<part number><extraction date>* .

Five of the parts are also directly selectable from the library group by their EIAJ cross-

referenced part designation. The underlying models are identical. These parts are paired with their CEL part designated equivalents in the table.

Component Name	Description
pf_nec_NE76184A_19921216	NE76184A: NEC84A Package 4-terminal, Gw=na, Gl=na, Pdiss=300mW Vbr=4.5V, @Vds=3V: Idss(sim)=68.24mA, Vt(sim)=-1.36V
pf_nec_NE67383_19921216	NE67383: NEC83 Package 4-terminal, Gw=300um, Gl=0.50um, Pdiss=270mW Vbr=5V, @Vds=3V: Idss(sim)=24.58mA, Vt(sim)=-0.77V
pf_nec_NE72089A_19921216	NE72089A: NEC89A Package 4-terminal, Gw=400um, Gl=1.00um, Pdiss=300mW Vbr=5V, @Vds=3V: Idss(sim)=46.48mA, Vt(sim)=-1.27V
pf_nec_2SK406_19931022	2SK406: NEC83 Package 4-terminal, Gw=300um, Gl=0.50um, Pdiss=270mW Vbr=5V, @Vds=3V: Idss(sim)=60.34mA, Vt(sim)=-1.4V
pf_nec_NE900175_19931018	NE900175: NEC75 Package 3-terminal, Gw=750um, Gl=0.50um, Pdiss=1500mW Vbr=18V, @Vds=3V: Idss(sim)=230.64mA, Vt(sim)=-3.5V
pf_nec_2SK407_19921216	2SK407: NEC84 Package 4-terminal, Gw=300um, Gl=0.50um, Pdiss=270mW Vbr=5V, @Vds=3V: Idss(sim)=24.58mA, Vt(sim)=-0.77V
pf_nec_2SK609_19921216	2SK609: NEC84 Package 4-terminal, Gw=300um, Gl=0.50um, Pdiss=270mW Vbr=5V, @Vds=3V: Idss(sim)=58.26mA, Vt(sim)=-1.43V
pf_nec_NE71083_19931022	NE71083: NEC83 Package 4-terminal, Gw=300um, Gl=0.50um, Pdiss=270mW Vbr=5V, @Vds=3V: Idss(sim)=60.34mA, Vt(sim)=-1.4V
pf_nec_NE71084_19921216	NE71084: NEC84 Package 4-terminal, Gw=300um, Gl=0.50um, Pdiss=270mW Vbr=5V, @Vds=3V: Idss(sim)=58.26mA, Vt(sim)=-1.43V
pf_nec_NE72084_19921216	NE72084: NEC84 Package 4-terminal, Gw=400um, Gl=1.00um, Pdiss=300mW Vbr=5V, @Vds=3V: Idss(sim)=68.06mA, Vt(sim)=-1.86V
pf_nec_NE76038_19921216	NE76038: NEC38 Package 4-terminal, Gw=280um, Gl=0.30um, Pdiss=240mW Vbr=7.5V, @Vds=3V: Idss(sim)=27.38mA, Vt(sim)=-0.9V
pf_nec_NE76084_19921216	NE76084: NEC84 Package 4-terminal, Gw=280um, Gl=0.30um, Pdiss=240mW Vbr=7.5V, @Vds=3V: Idss(sim)=25.5mA, Vt(sim)=-0.8V
pf_nec_NE900075_19931018	NE900075: NEC75 Package 3-terminal, Gw=400um, Gl=0.50um, Pdiss=800mW Vbr=15V, @Vds=3V: Idss(sim)=102.64mA, Vt(sim)=-3.28V
pf_nec_NE900275_19931018	NE900275: NEC75 Package 3-terminal, Gw=1500um, Gl=0.50um, Pdiss=3000mW Vbr=18V, @Vds=3V: Idss(sim)=385.32mA, Vt(sim)=-3.1V
pf_nec_2SK571_19921216	2SK571: NEC84 Package 4-terminal, Gw=400um, Gl=1.00um, Pdiss=300mW Vbr=5V, @Vds=3V: Idss(sim)=68.06mA, Vt(sim)=-1.86V
pf_nec_2SK354A_19921216	2SK354A: NEC89 Package 4-terminal, Gw=400um, Gl=1.00um, Pdiss=300mW Vbr=5V, @Vds=3V: Idss(sim)=46.48mA, Vt(sim)=-1.27V
pf_nec_NE900089A_19931018	NE900089A: NEC89A Package 4-terminal, Gw=400um, Gl=0.50um, Pdiss=800mW Vbr=13V, @Vds=3V: Idss(sim)=128.22mA, Vt(sim)=-3.79V

Okidata Packaged GaAs FETs

For modeling specifications, see Packaged GaAs FETs.

The Okidata Packaged GaAs FETs include a single component installed in the library group. The naming convention is *pf_oki<part number><extraction date>* .

Component Name	Description
pf_oki_KGF1305_19931020	KGF1305: OKI_1 Package 3-terminal, Gw=na, Gl=na, Pdiss=3000mW Vbr=9.8V, @Vds=3V: Idss(sim)=1469.99mA, Vt(sim)=-3.16V

Siemens Packaged GaAs FETs

For modeling specifications, see Packaged GaAs FETs.

The Siemens Packaged GaAs FETs include 5 components, representing individual parts. The naming convention for these components is *pf_sms<part number><extraction date>* .

Component Name	Description
pf_sms_CFY35_20_19931018	CFY35-20: MW4 Package 4-terminal, Gw=na, Gl=na, Pdiss=180mW Vbr=4V, @Vds=3V: Idss(sim)=15.39mA, Vt(sim)=-0.86V
pf_sms_CFY25_17_19921216	CFY25-17: CERECXF Package 4-terminal, Gw=na, Gl=na, Pdiss=250mW Vbr=6.5V, @Vds=3V: Idss(sim)=34.58mA, Vt(sim)=-1.25V

Toshiba Packaged GaAs FETs

For modeling specifications, see Packaged GaAs FETs.

The Toshiba Packaged GaAs FETs include 5 components, representing individual parts. The naming convention for these components is *pf_tsb<part number><extraction date>* .

Component Name	Description
pf_tsb_S8837A_19931021	S8837A: 2D7C1A Package 3-terminal, Gw=na, Gl=na, Pdiss=7500mW Vbr=19V, @Vds=3V: Idss(sim)=1090.19mA, Vt(sim)=-3.79V
pf_tsb_S8835_19931018	S8835B: 2D3H1A Package 3-terminal, Gw=na, Gl=na, Pdiss=2500mW Vbr=17V, @Vds=3V: Idss(sim)=193.5mA, Vt(sim)=-4.07V
pf_tsb_S8835B_19931018	S8835: 2D3H1A Package 3-terminal, Gw=na, Gl=na, Pdiss=2500mW Vbr=17V, @Vds=3V: Idss(sim)=193.5mA, Vt(sim)=-4.07V
pf_tsb_S8834_19931018	S8834: 2D3H1A Package 3-terminal, Gw=na, Gl=na, Pdiss=1500mW Vbr=19V, @Vds=3V: Idss(sim)=89.05mA, Vt(sim)=-3.82V
pf_tsb_S8836A_19931018	S8836A: 2D7C1A Package 3-terminal, Gw=na, Gl=na, Pdiss=5000mW Vbr=21V, @Vds=3V: Idss(sim)=569.74mA, Vt(sim)=-4.58V

Packaged Power MOSFETs

The Packaged Power MOSFET consists of nonlinear models representing 17 parts from 3 manufacturers. The MOSFETs available for selection from the Schematic window are:

- Motorola Packaged Power MOSFETs
- M/A-Com Packaged Power MOSFETs
- PolyFet Packaged Power MOSFETs

The library components are listed in tables in the following sections. The tables are organized by manufacturer library group and the individual items provided in each group are listed by component name along with relevant physical and electrical characteristics.

The tabulated Physical Specifications include a package designation and terminal type designation of 3, 4, or 5.

Maximum Electrical Specifications include:

Pdiss: maximum dissipated power, mWVbr:
breakdown voltage, V
Typical Electrical Specifications include:
Vt: threshold gate voltage, V
Vgs: gate voltage, V, for peak Gm
Vds: drain voltage, V, for peak Gm
Ids: drain current, V, for peak Gm
Gm,peak: peak Gm, mS, simulated at specified Vgs, Vds

Motorola Packaged Power MOSFETs

For modeling specifications, see Packaged Power MOSFETs.

The Motorola Packaged Power MOSFETs include 4 components, representing individual parts. The naming convention for these components is *mf_mot_ <part number> <extraction date>* .

Component Name	Description
mf_mot_MRF136Y_19930106	MRF136Y: C319BD01 Package 5-terminal, Pdiss=100W Vbr=65V, Vt(sim)=2.88V, @Vgs=6.2V Vds=28V: Ids(sim)=962.00mA, Gm(sim)=424.3mS
mf_mot_MRF134_19930106	MRF134: C211D07 Package 4-terminal, Pdiss=17.5W Vbr=65V, Vt(sim)=3.14V, @Vgs=6.7V Vds=28V: Ids(sim)=351.80mA, Gm(sim)=143mS
mf_mot_MRF161_19930106	MRF161: C244D04 Package 3-terminal, Pdiss=17.5W Vbr=65V, Vt(sim)=3.1V, @Vgs=6.82V Vds=28V: Ids(sim)=368.80mA, Gm(sim)=143.8mS
mf_mot_MRF136_19930106	MRF136: C211D07 Package 3-terminal, Pdiss=55W Vbr=65V, Vt(sim)=2.88V, @Vgs=6.2V Vds=28V: Ids(sim)=962.00mA, Gm(sim)=424.3mS

M/A-Com Packaged Power MOSFETs

For modeling specifications, see Packaged Power MOSFETs.

The M/A-Com Packaged Power MOSFETs include 9 components, representing individual parts. The naming convention for these components is *mf_phi_ <part number> <extraction date>* .

Component Name	Description
mf_phi_LF2805A_19930106	LF2805A: AFLANGE Package 3-terminal, Pdiss=14.4W Vbr=65V, Vt(sim)=4.16V, @Vgs=7.04V Vds=28V: Ids(sim)=293.20mA, Gm(sim)=146.3mS
mf_phi_UF2810P_19930106	UF2810P: PFLANGE Package 3-terminal, Pdiss=26.9W Vbr=65V, Vt(sim)=4.24V, @Vgs=7V Vds=28V: Ids(sim)=281.30mA, Gm(sim)=145.8mS
mf_phi_DU2810S_19930106	DU2810S: SFLANGE Package 4-terminal, Pdiss=35W Vbr=65V, Vt(sim)=4.12V, @Vgs=6.72V Vds=28V: Ids(sim)=582.20mA, Gm(sim)=325mS
mf_phi_UF2820P_19930106	UF2820P: PFLANGE Package 3-terminal, Pdiss=53W Vbr=65V, Vt(sim)=4.58V, @Vgs=7V Vds=28V: Ids(sim)=448.80mA, Gm(sim)=267.6mS
mf_phi_DU2805S_19930106	DU2805S: SFLANGE Package 4-terminal, Pdiss=15.8W Vbr=65V, Vt(sim)=4.8V, @Vgs=7.44V Vds=28V: Ids(sim)=268.20mA, Gm(sim)=145.5mS
mf_phi_UF2805B_19930106	UF2805B: BFLANGE Package 3-terminal, Pdiss=14.4W Vbr=65V, Vt(sim)=3.94V, @Vgs=6.72V Vds=28V: Ids(sim)=296.10mA, Gm(sim)=153mS
mf_phi_UF2815B_19930106	UF2815B: BFLANGE Package 3-terminal, Pdiss=48.6W Vbr=65V, Vt(sim)=3.5V, @Vgs=6.42V Vds=28V: Ids(sim)=874.40mA, Gm(sim)=433.9mS
mf_phi_LF2810A_19930106	LF2810A: AFLANGE Package 3-terminal, Pdiss=26.5W Vbr=65V, Vt(sim)=4.14V, @Vgs=6.98V Vds=28V: Ids(sim)=555.50mA, Gm(sim)=284.7mS
mf_phi_LF2802A_19930106	LF2802A: AFLANGE Package 3-terminal, Pdiss=8W Vbr=65V, Vt(sim)=4.06V, @Vgs=7.22V Vds=28V: Ids(sim)=188.30mA, Gm(sim)=84.7mS

PolyFet Packaged Power MOSFETs

For modeling specifications, see Packaged Power MOSFETs.

The PolyFet Packaged Power MOSFETs include 4 components, representing individual parts. The naming convention for these components is *mf_ply_ <part number> <extraction date>* .

Component Name	Description
mf_ply_F2001_19930106	F2001: AP Package 3-terminal, Pdiss=20W Vbr=70V, Vt(sim)=1.98V, @Vgs=4.26V Vds=28V: Ids(sim)=383.30mA, Gm(sim)=239.7mS
mf_ply_F2002_19930106	F2002: AP Package 3-terminal, Pdiss=30W Vbr=70V, Vt(sim)=0.9V, @Vgs=3.98V Vds=28V: Ids(sim)=680.90mA, Gm(sim)=321.8mS
mf_ply_F2003_19930106	F2003: AQ Package 5-terminal, Pdiss=30W Vbr=70V, Vt(sim)=1.98V, @Vgs=4.26V Vds=28V: Ids(sim)=383.30mA, Gm(sim)=239.7mS
mf_ply_F2004_19930106	F2004: AK Package 5-terminal, Pdiss=60W Vbr=70V, Vt(sim)=0.9V, @Vgs=3.98V Vds=28V: Ids(sim)=680.90mA, Gm(sim)=321.8mS