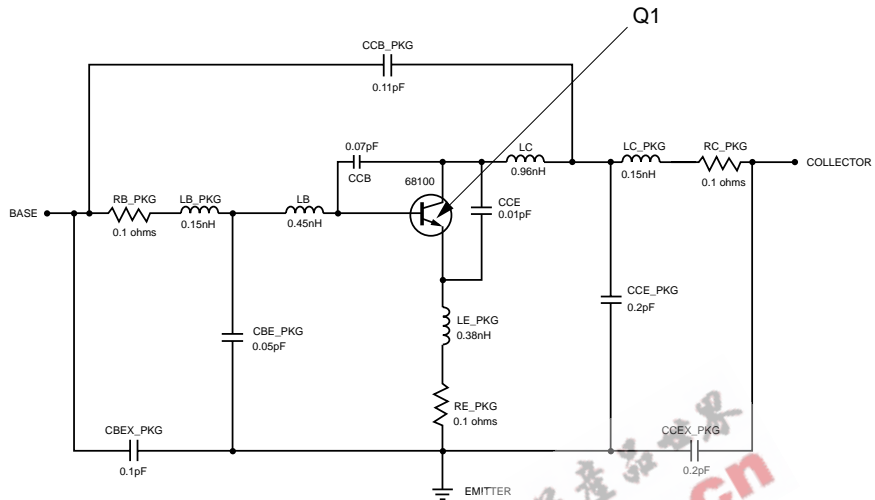


SCHEMATIC



BJT NONLINEAR MODEL PARAMETERS (1) UNITS

| Parameters | Q1 | Parameters | Q1 |
|------------|-----------|------------|----------|
| IS | 3.84e-16 | MJC | 0.64 |
| BF | 124.9 | XCJC | 0 |
| NF | 1.05 | CJS | 0 |
| VAF | 11.9 | VJS | 0.75 |
| IKF | 0.027 | MJS | 0 |
| ISE | 1.0e-14 | FC | 0.5 |
| NE | 2.17 | TF | 8.7e-12 |
| BR | 1 | XTF | 18 |
| NR | 1.05 | VTF | 19.1 |
| VAR | Infinity | ITF | 0.082 |
| IKR | Infinity | PTF | 0 |
| ISC | 0 | TR | 0.635e-9 |
| NC | 2 | EG | 1.11 |
| RE | 0.6 | XTB | 0 |
| RB | 17.9 | XTI | 3 |
| RBM | 1.02 | KF | 0 |
| IRB | 4.01e-4 | AF | 1 |
| RC | 10.5 | | |
| CJE | 0.358e-12 | | |
| VJE | 0.71 | | |
| MJE | 0.5 | | |
| CJC | 0.162e-12 | | |
| VJC | 0.79 | | |

| Parameter | Units |
|-------------|---------|
| time | seconds |
| capacitance | farads |
| inductance | henries |
| resistance | ohms |
| voltage | volts |
| current | amps |

MODEL RANGE

Frequency: 0.05 to 5.0 GHz
 Bias: $V_{CE} = 6\text{ V}$, $I_C = 5\text{ mA to } 20\text{ mA}$
 Date: 10/31/96

(1) Gummel-Poon Model

California Eastern Laboratories