

### BJT NONLINEAR MODEL PARAMETERS (1)

Parameters	Q1, Q2	Parameters	Q1, Q2
IS	6e-16	MJC	0.55
BF	120	XCJC	0.3
NF	0.98	CJS	0
VAF	10	VJS	0.75
IKF	0.08	MJS	0
ISE	32e-16	FC	0.5
NE	1.93	TF	12e-12
BR	12	XTF	6
NR	0.991	VTF	10
VAR	3.9	ITF	0.2
IKR	0.17	PTF	0
ISC	0	TR	1e-9
NC	2	EG	1.11
RE	0.38	XTB	0
RB	4.16	XTI	3
RBM	3.6	KF	1.56e-18
IRB	1.96e-4	AF	1.49
RC	2		
CJE	2.8e-12		
VJE	1.3		
MJE	0.5		
CJC	1.1e-12		
VJC	0.7		

(1) Gummel-Poon Model

**Note:**

This nonlinear model utilized the latest data available.  
See our Design Parameter Library at [www.cel.com](http://www.cel.com) for this data.

### UNITS

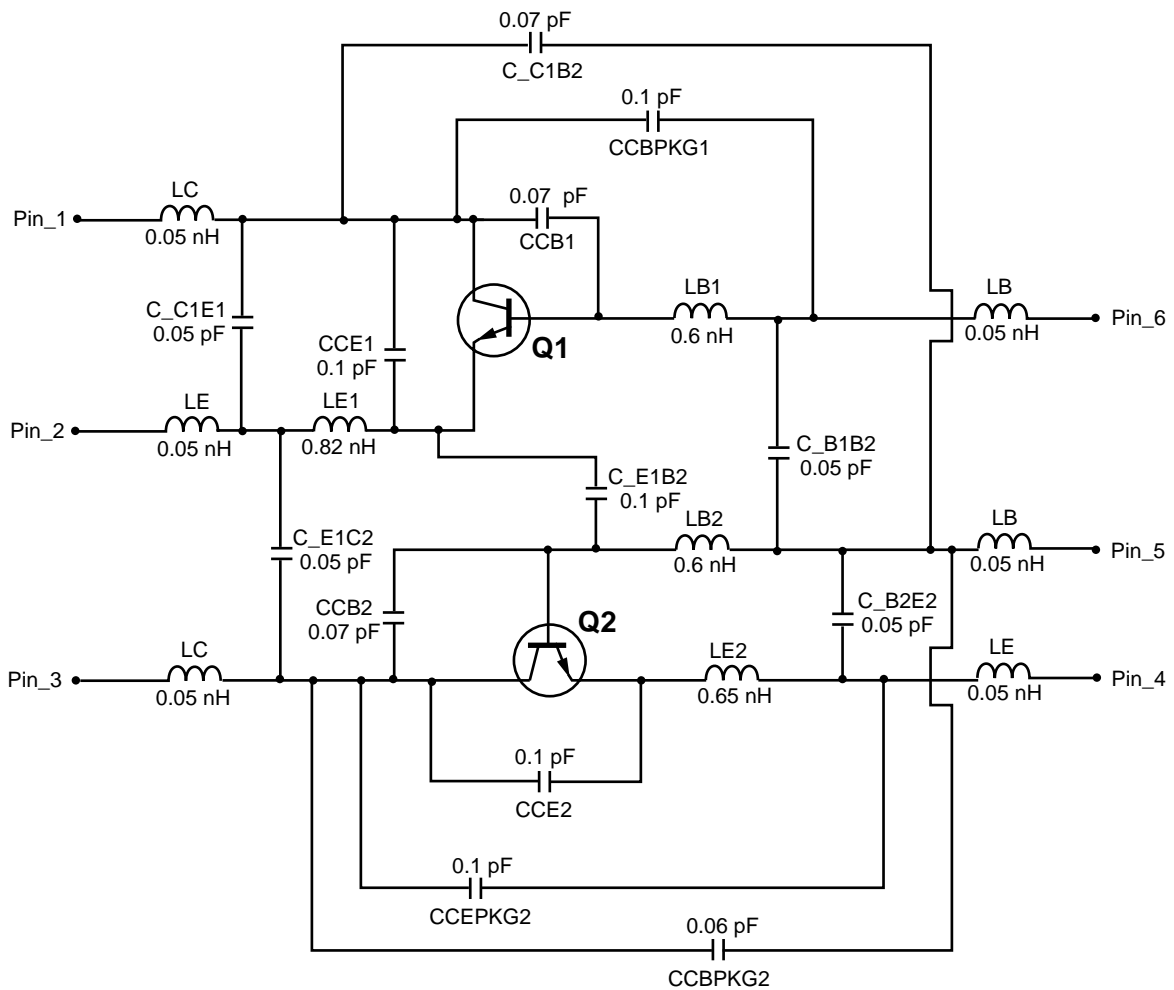
Parameter	Units
time	seconds
capacitance	farads
inductance	henries
resistance	ohms
voltage	volts
current	amps

### MODEL RANGE

Frequency: 0.1 to 3.0 GHz  
Bias: VCE = 1 V to 5 V, IC = 1 mA to 10 mA  
Date: 12/98

NONLINEAR MODEL

SCHEMATIC



MODEL RANGE

Frequency: 0.1 to 3.0 GHz  
 Bias:  $V_{CE} = 1\text{ V to }5\text{ V}$ ,  $I_c = 1\text{ mA to }10\text{ mA}$   
 Date: 12/98