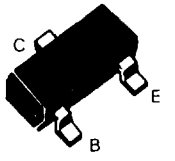
SOT23 NPN LOW NOISE SILICON MICROWAVE TRANSISTOR PROVISIONAL DATA

ZGF300F

FEATURES

* HIGH GAIN BANDWIDTH PRODUCT.
  f_T = 9GHz TYP @ I_C = 25mA.
* LOW NOISE FIGURE.
  1.9 dB TYP AT 1.0 GHz.
* HIGH GAIN.
  $|S_{21}|^2$ = 12.0 dB @ 1.0 GHz.
  = 7.0 dB @ 2.0 GHz.

PARTMARKING DETAIL – G30



DESCRIPTION AND APPLICATIONS:

The ZETEX ZGF300F is a high performance silicon bipolar transistor, in SOT23 package, intended for use in low noise applications at VHF, UHF and microwave frequencies. These applications include narrowband and wideband amplifiers, oscillators and micropower transmitters. Typical applications include cellular telephone pre-amplifiers/mixers, CATV amplifiers and Part 15 receivers and transmitters.

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	20	V
Collector-Emitter Voltage	V_{CEO}	12	V
Emitter-Base Voltage	V_{EBO}	1.5	V
Continuous Collector Current	I_C	60	mA
Power Dissipation	P_{TOT}	330	°C
Operating and Storage Temperature Range	tj:stg	-65 TO +150	°C

ZGF300F

CHARACTERISTICS (at T_{amb} = 25°C). V_{CE} = 8V, I_C = 25mA Unless Stated.

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Gain Bandwidth Product	f_T		9		GHz	
Insertion Power Gain	$\|S_{21}\|^2$		12		dB	f=1.0GHz
			7		dB	f=2.0GHz
Noise Figure Current	NF		1.9		dB	V_{CE}=8V, I_C=10mA f=1.0GHz
Forward Current Transfer Ratio	h_{FE}	30	150	300		V_{CE}=8V, I_C=10mA
Collector Cut-off Current	I_{CBO}			0.2	μA	V_{CB}=8V
Emitter Cut-off Current	I_{EBO}			1.0	μA	V_{EB}=1V
Collector-Base Capacitance	C_{CB}		0.45		pF	V_{CB}=8V, f=1MHz
Unilateral Power Gain	G_{UM}		13		dB	f=1GHz
			8		dB	f=2GHz

TYPICAL PARAMETERS:

BIAS CONDITION: V_{CE}=8.0V, I_C=25mA

S-MATRIX: Z_S=50.0 + J, 0.0 Z_L=50 + J, 0.0

FREQ.	S11		S21		S12		S22		G_{UM}
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	dB
500	0.132	-100.9	8.073	95.0	0.071	77.0	0.504	-32.2	19.49
600	0.104	-123.9	6.626	91.8	0.082	76.4	0.489	-35.4	17.66
700	0.106	-118.7	5.793	85.4	0.097	73.9	0.472	-27.4	16.40
800	0.108	-127.7	5.151	87.1	0.110	79.6	0.473	-32.3	15.39
900	0.067	-141.4	4.625	79.7	0.123	77.1	0.469	-32.3	14.40
1000	0.081	-137.5	4.224	82.2	0.136	79.1	0.452	-34.7	13.54
1100	0.048	-176.9	3.781	78.4	0.146	77.9	0.479	-38.7	12.69
1200	0.048	-166.8	3.593	78.3	0.157	79.6	0.484	-40.3	12.28
1300	0.058	144.1	3.203	75.5	0.167	78.3	0.484	-39.5	11.29
1400	0.036	157.1	3.144	71.4	0.184	76.2	0.502	-44.7	11.22
1500	0.057	152.2	2.908	74.6	0.195	81.1	0.491	-43.5	10.49
1600	0.057	112.0	2.712	68.4	0.206	76.7	0.502	-45.6	9.94
1700	0.052	170.9	2.625	70.9	0.218	81.3	0.506	-46.5	9.68
1800	0.100	94.1	2.470	68.2	0.229	79.4	0.481	-49.0	9.04
1900	0.048	136.0	2.349	68.1	0.249	80.3	0.524	-54.7	8.82
2000	0.131	101.2	2.281	65.1	0.251	78.7	0.503	-57.4	8.50