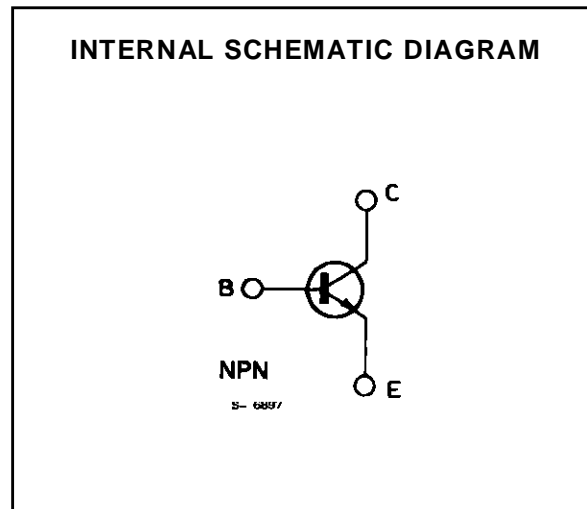
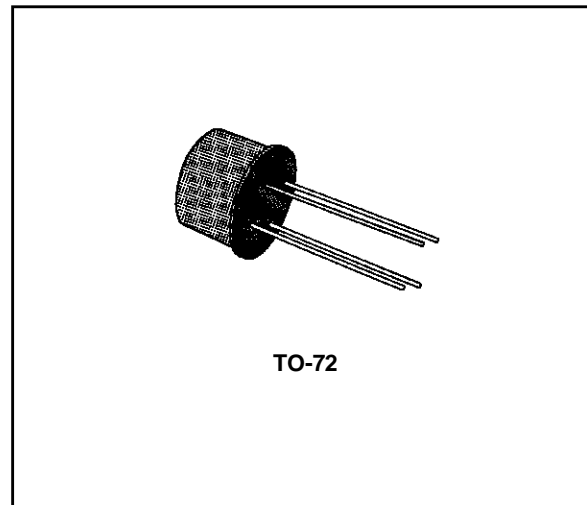


HIGH-FREQUENCY OSCILLATORS AND AMPLIFIERS

DESCRIPTION

The 2N918 is a silicon planar epitaxial NPN transistors in Jedec TO-72 metal case. It is designed for low-noise VHF amplifiers, oscillators up to 1 GHz, non-neutralized IF amplifiers and non-saturating circuits with rise and fall times of less than 2.5 ns.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)	30	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	15	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	3	V
I_C	Collector Current	50	mA
P_{tot}	Total Power Dissipation at $T_{amb} \leq 25\text{ }^\circ\text{C}$ at $T_{case} \leq 25\text{ }^\circ\text{C}$	200	mW
		300	mW
T_{stg}, T_j	Storage and Junction Temperature	- 65 to 200	$^\circ\text{C}$

THERMAL DATA

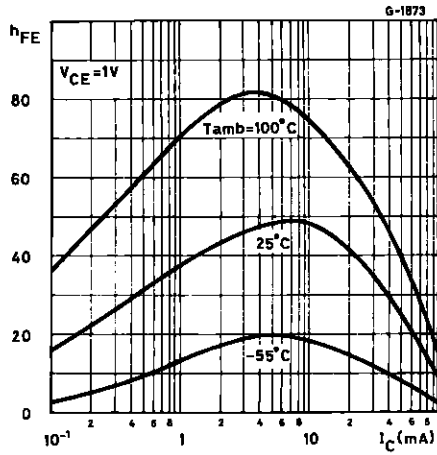
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	584	$^{\circ}C/W$
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	875	$^{\circ}C/W$

ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\ ^{\circ}C$ unless otherwise specified)

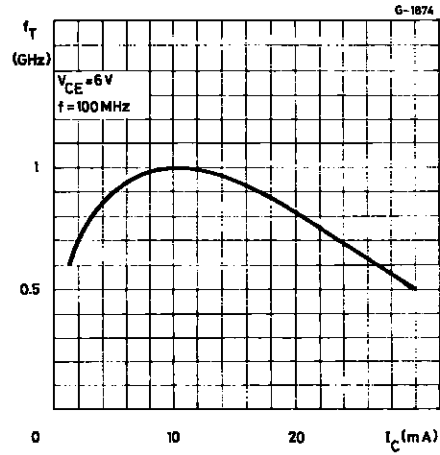
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current ($I_E = 0$)	$V_{CB} = 15\ V$ $V_{CB} = 15\ V$ $T_{amb} = 150\ ^{\circ}C$			10 1	nA μA
$V_{(BR)CBO}$	Collector–base Breakdown Voltage ($I_E = 0$)	$I_C = 1\ \mu A$	30			V
$V_{CEO(sus)}$	Collector–emitter Sustaining Voltage ($I_B = 0$)	$I_C = 3\ mA$	15			V
$V_{(BR)EBO}$	Emitter–base Breakdown Voltage ($I_C = 0$)	$I_E = 10\ \mu A$	3			V
$V_{CE(sat)}$	Collector–emitter Saturation Voltage	$I_C = 10\ mA$ $I_B = 1\ mA$			0.4	V
$V_{BE(sat)}$	Base–emitter Saturation Voltage	$I_C = 10\ mA$ $I_B = 1\ mA$			1	V
h_{FE}	DC Current Gain	$I_C = 3\ mA$ $V_{CE} = 1\ V$	20	50		–
f_T	Transition Frequency	$I_C = 4\ mA$ $f = 100\ MHz$ $V_{CE} = 10\ V$	600	900		MHz
C_{EBO}	Emitter–base Capacitance	$I_C = 0$ $f = 1\ MHz$ $V_{EB} = 0.5\ V$			2	pF
C_{CBO}	Collector–base Capacitance	$I_E = 0$ $f = 1\ MHz$ $V_{CE} = 0$ $V_{CE} = 10\ V$		1.8 1	3 1.7	pF pF
NF	Noise Figure	$I_C = 1\ mA$ $R_g = 400\ \Omega$ $V_{CE} = 6\ V$ $f = 60\ MHz$			6	dB
G_{pe}	Power Gain	$R_g = 50\ \Omega$ $I_C = 6\ mA$ $f = 200\ MHz$ $V_{CE} = 12\ V$	15	21		dB
P_o^*	Output Power	$I_C = 12\ mA$ $f = 500\ MHz$ $V_{CB} = 10\ V$	30	40		mW
η	Collector Efficiency	$I_C = 12\ mA$ $f = 500\ MHz$ $V_{CB} = 10\ V$	25			%

* See test circuit.

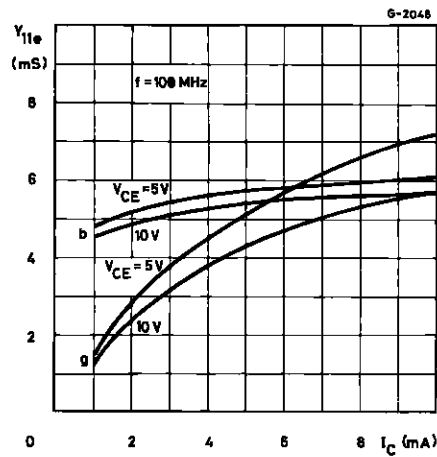
DC Current Gain.



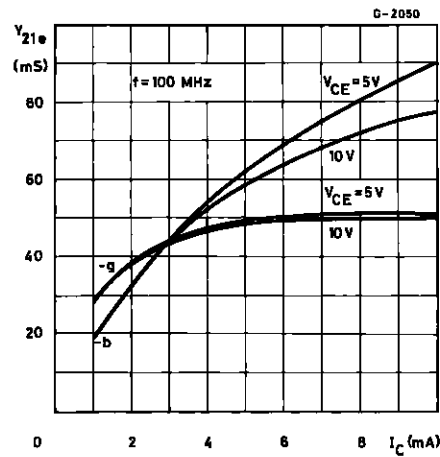
Transition Frequency.



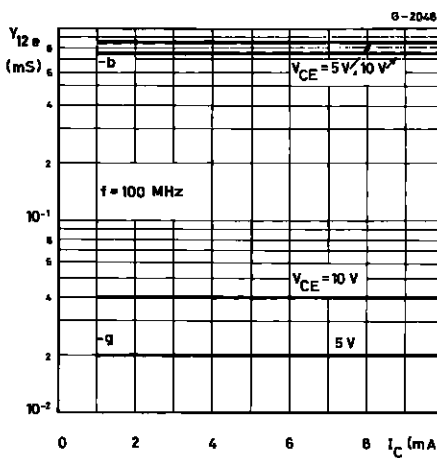
Input Admittance vs. Collector Current.



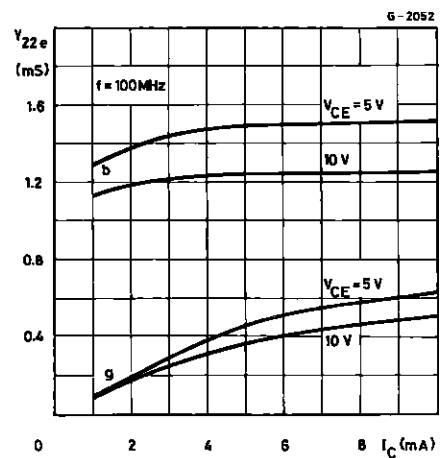
Forward Transadmittance vs. Collector Current.



Reverse Transadmittance vs. Collector Current.

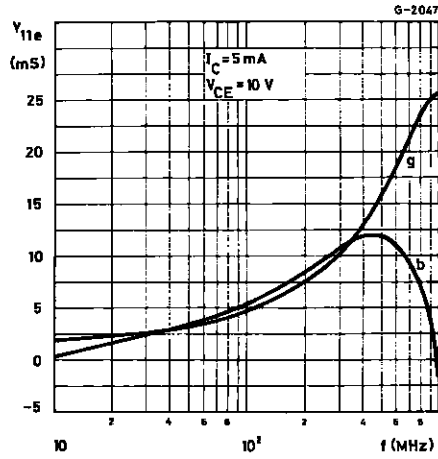


Output Admittance vs. Collector Current.

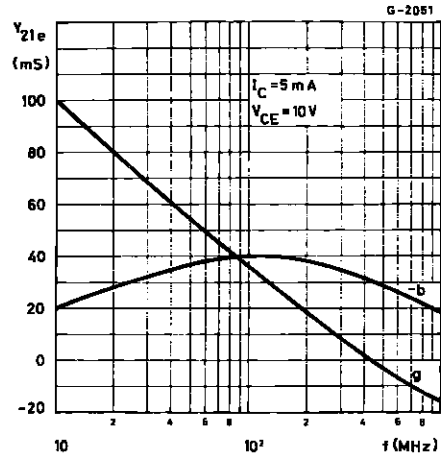


2N918

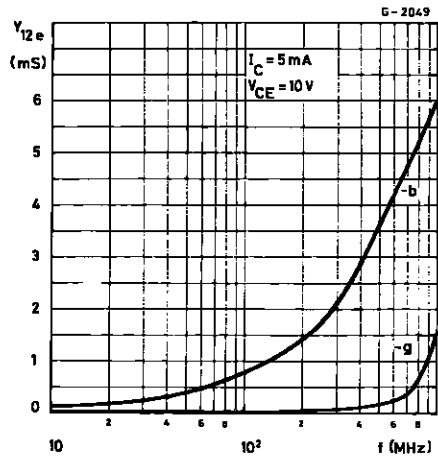
Input Admittance vs. Frequency.



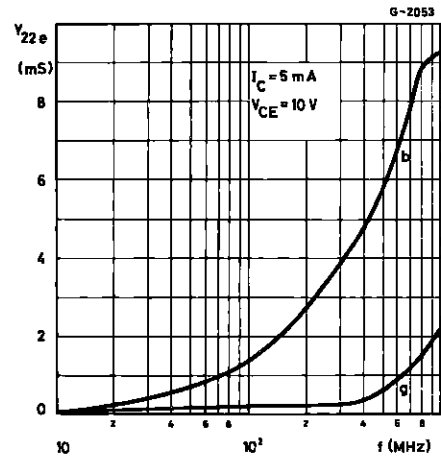
Forward Transadmittance vs. Frequency.



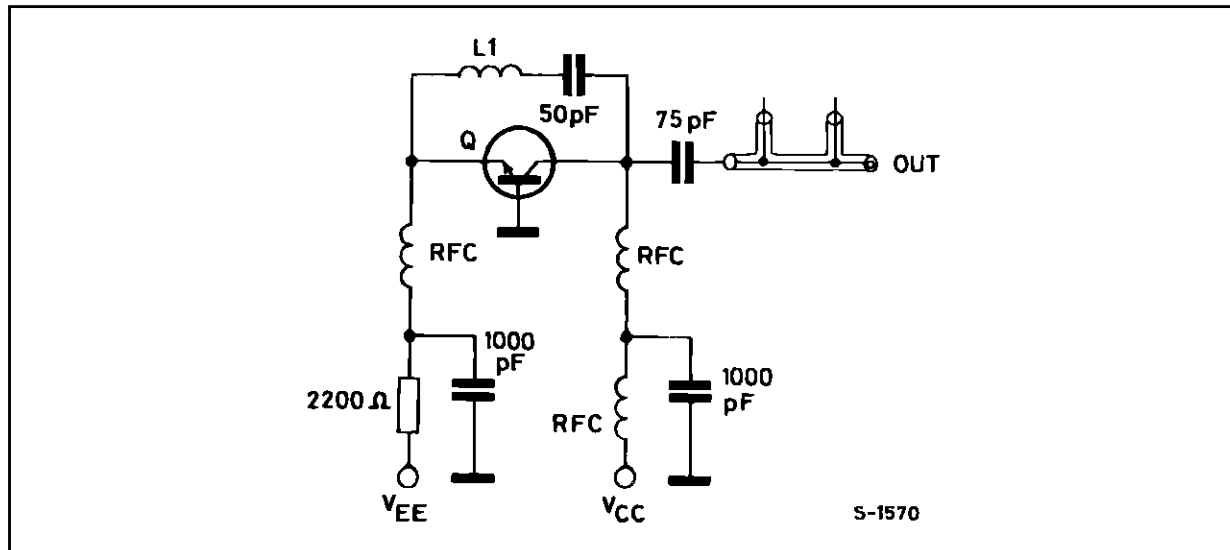
Reverse Transadmittance vs. Frequency.



Output Admittance vs. Frequency.

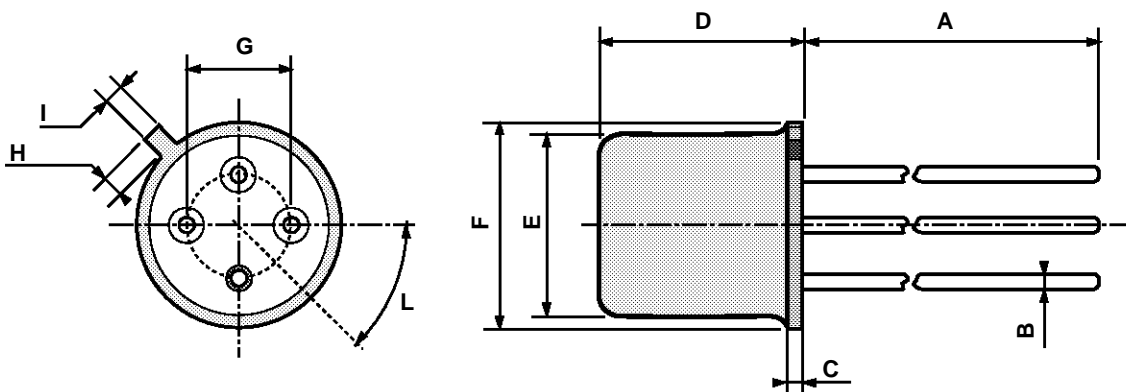


500 MHz Oscillator Test Circuit.



TO-72 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		12.7			0.500	
B			0.49			0.019
D			5.3			0.208
E			4.9			0.193
F			5.8			0.228
G	2.54			0.100		
H			1.2			0.047
I			1.16			0.045
L	45°			45°		



0016198

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1994 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES
Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands -
Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A