



# BF970

## PHILIPS INTERNATIONAL

### RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134)

Collector-base voltage (open emitter)	$-V_{CB0}$	max.	40 V
Collector-emitter voltage (open base)	$-V_{CEO}$	max.	35 V
Emitter-base voltage (open collector)	$-V_{EBO}$	max.	3 V
Collector current (d.c.)	$-I_C$	max.	30 mA
Emitter current (d.c.)	$I_E$	max.	35 mA
Total power dissipation up to $T_{amb} = 55\text{ }^\circ\text{C}$	$P_{tot}$	max.	160 mW
Storage temperature	$T_{stg}$		$-55$ to $+150\text{ }^\circ\text{C}$
Junction temperature	$T_j$	max.	150 $^\circ\text{C}$

### THERMAL RESISTANCE

From junction to ambient in free air	$R_{th\ j-a}$	=	600 K/W
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### CHARACTERISTICS

$T_{amb} = 25\text{ }^\circ\text{C}$

Collector cut-off current $I_E = 0; -V_{CB} = 20\text{ V}$	$-I_{CBO}$	<	100 nA
Emitter cut-off current $I_C = 0; -V_{EB} = 1\text{ V}$	$-I_{EBO}$	<	100 nA
D.C. current gain $-I_C = 3\text{ mA}; -V_{CB} = 10\text{ V}$	$h_{FE}$	> typ.	25 50
Transition frequency at $f = 100\text{ MHz}$ $I_E = 3\text{ mA}; -V_{CB} = 10\text{ V}$	$f_T$	typ.	900 MHz 750 to 1060 MHz
$I_E = 7\text{ mA}; -V_{CB} = 5\text{ V}$	$f_T$	> typ.	400 MHz 700 MHz
Feedback capacitance at $f = 1\text{ MHz}$ $I_E = 0; -V_{CB} = 10\text{ V}$	$C_{rb}$	typ. <	110 fF 140 fF
$I_E = 1\text{ mA}; -V_{CB} = 10\text{ V}$	$C_{re}$	typ.	475 fF
Noise figure at $R_S = 60\ \Omega$ $I_E = 3\text{ mA}; -V_{CB} = 10\text{ V}; f = 200\text{ MHz}$	F	typ.	2,6 dB
$I_E = 3\text{ mA}; -V_{CB} = 10\text{ V}; f = 800\text{ MHz}$	F	typ. <	4,7 dB 6,0 dB
Transducer gain (common base) at $f = 800\text{ MHz}$ $I_E = 3\text{ mA}; -V_{CB} = 10\text{ V}; R_S = 60\ \Omega; R_L = 500\ \Omega$	$G_{tr}$	> typ.	13,0 dB 14,5 dB