
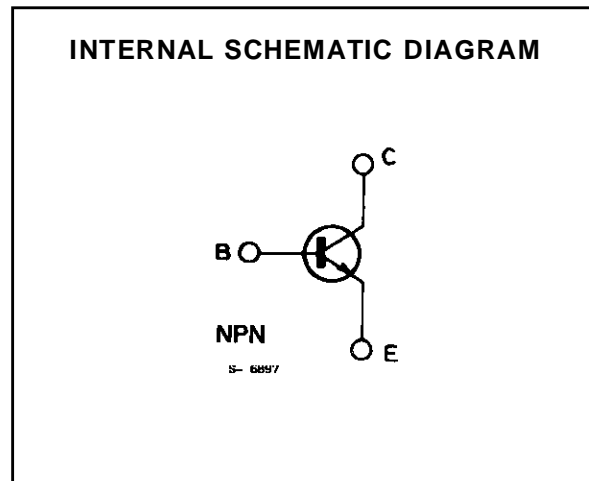
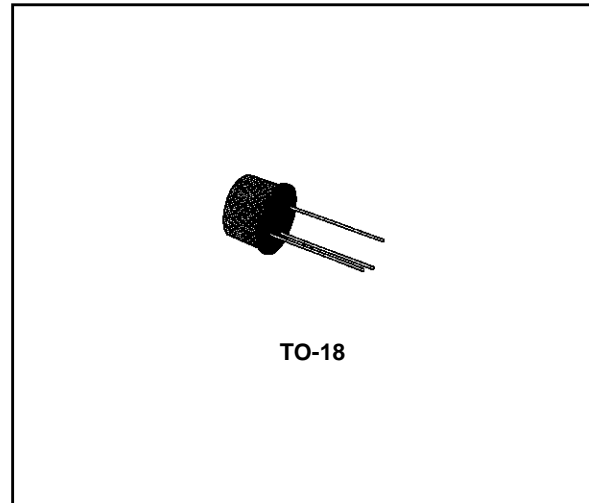


**LOW-LEVEL, LOW-NOISE AMPLIFIERS**

**DESCRIPTION**

The 2N2484 is a silicon planar epitaxial NPN transistor in Jedec TO-18 metal case. It is designed for use in high-performance, low-noise amplifier circuits from audio to high-frequency.

 Products approved to CECC50002-129 available on request.



**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-base Voltage ( $I_E = 0$ )	60	V
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )	60	V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )	6	V
$I_C$	Collector Current	50	mA
$P_{tot}$	Total Power Dissipation at $T_{amb} \leq 25\text{ }^\circ\text{C}$	0.36	W
	at $T_{case} \leq 25\text{ }^\circ\text{C}$	1.2	W
	at $T_{case} \leq 100\text{ }^\circ\text{C}$	0.68	W
$T_{stg}, T_j$	Storage and Junction Temperature	- 65 to 200	$^\circ\text{C}$

## THERMAL DATA

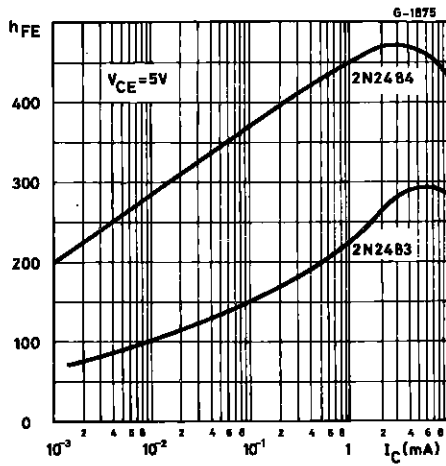
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	146	°C/W
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	486	°C/W

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

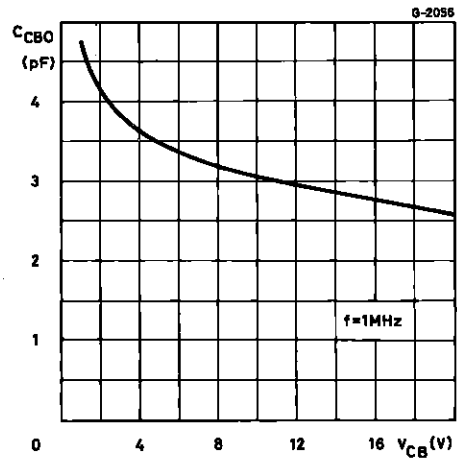
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cutoff Current ( $I_E = 0$ )	$V_{CB} = 45\text{ V}$ $V_{CB} = 45\text{ V}$ $T_{amb} = 150\text{ °C}$			10 10	nA $\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current ( $I_C = 0$ )	$V_{EB} = 5\text{ V}$			10	nA
$V_{(BR)CBO}$	Collector-base Breakdown Voltage ( $I_E = 0$ )	$I_C = 10\text{ }\mu\text{A}$	60			V
$V_{(BR)CEO}^*$	Collector-emitter Breakdown Voltage ( $I_B = 0$ )	$I_C = 10\text{ mA}$	60			V
$V_{(BR)EBO}$	Emitter-base Breakdown Voltage ( $I_C = 0$ )	$I_E = 10\text{ }\mu\text{A}$	6			V
$V_{CE(sat)}$	Collector-emitter Saturation Voltage	$I_C = 1\text{ mA}$ $I_B = 0.1\text{ mA}$		0.2	0.35	V
$V_{BE}$	Base-emitter Voltage	$I_C = 100\text{ }\mu\text{A}$ $V_{CE} = 5\text{ V}$	0.5	0.57	0.7	V
$h_{FE}^*$	DC Current Gain	$I_C = 1\text{ }\mu\text{A}$ $V_{CE} = 5\text{ V}$ $I_C = 10\text{ }\mu\text{A}$ $V_{CE} = 5\text{ V}$ $I_C = 100\text{ }\mu\text{A}$ $V_{CE} = 5\text{ V}$ $I_C = 500\text{ }\mu\text{A}$ $V_{CE} = 5\text{ V}$ $I_C = 1\text{ mA}$ $V_{CE} = 5\text{ V}$ $I_C = 10\text{ mA}$ $V_{CE} = 5\text{ V}$ $I_C = 10\text{ }\mu\text{A}$ $V_{CE} = 5\text{ V}$ $T_{amb} = -55\text{ °C}$	30 100 175 200 250	200 290 375 430 450 430	500 800	
$h_{fe}$	Small Signal Current Gain	$I_C = 1\text{ mA}$ $V_{CE} = 5\text{ V}$ $f = 1\text{ kHz}$	150	400	900	
$f_T$	Transition Frequency	$I_C = 50\text{ }\mu\text{A}$ $V_{CE} = 5\text{ V}$ $f = 5\text{ MHz}$ $I_C = 500\text{ }\mu\text{A}$ $V_{CE} = 5\text{ V}$ $f = 30\text{ MHz}$	15 60	20 78		MHz MHz
$C_{EBO}$	Emitter-base Capacitance	$I_C = 0$ $f = 1\text{ MHz}$ $V_{EB} = 0.5\text{ V}$		3.5	6	pF
$C_{CBO}$	Collector-base Capacitance	$I_E = 0$ $f = 1\text{ MHz}$ $V_{CB} = 5\text{ V}$		3.5	6	pF
NF	Noise Figure	$I_C = 10\text{ }\mu\text{A}$ $V_{CE} = 5\text{ V}$ $R_g = 10\text{ k}\Omega$ $f = 100\text{ Hz}$ $f = 1\text{ kHz}$ $f = 10\text{ kHz}$ $f = 10\text{ to }10000\text{ Hz}$		4 1.8 0.6 1.8	10 3 2 3	dB dB dB dB
$h_{ie}^{**}$	Input Impedance	$I_C = 1\text{ mA}$ $V_{CE} = 5\text{ V}$	3.5	15	24	k $\Omega$
$h_{re}^{**}$	Reverse Voltage Ratio	$I_C = 1\text{ mA}$ $V_{CE} = 5\text{ V}$		4.25	8	$10^{-4}$
$h_{oe}^{**}$	Output Admittance	$I_C = 1\text{ mA}$ $V_{CE} = 5\text{ V}$		15	40	$\mu\text{S}$

\* Pulsed : pulse duration = 300  $\mu\text{s}$ , duty cycle = 1 %.\*\*  $f = 1\text{ kHz}$ .

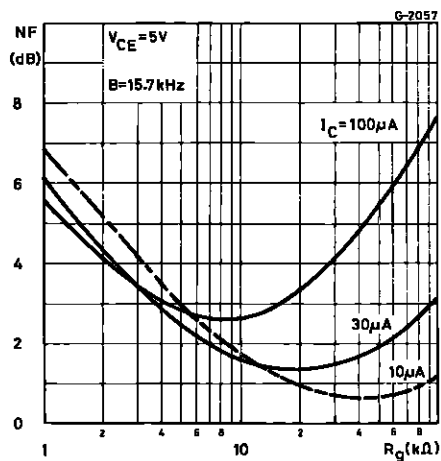
DC Current Gain.



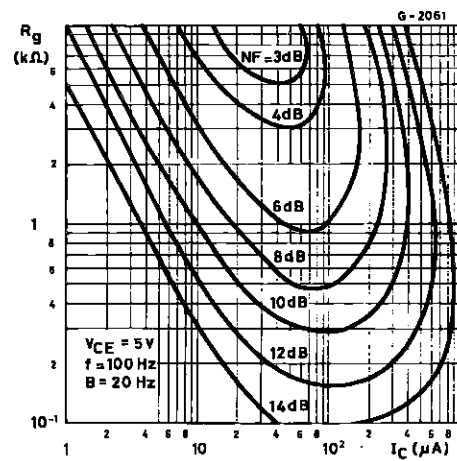
Collector-base Capacitance.



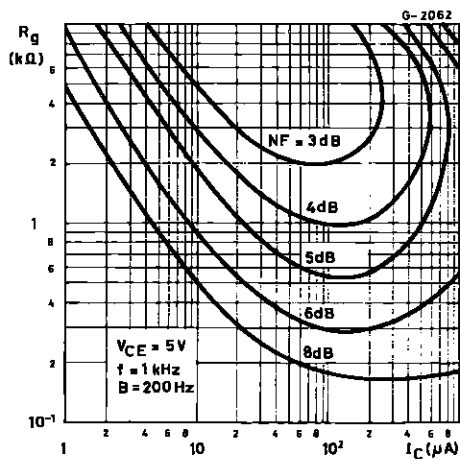
Noise Figure vs. Source Resistance.



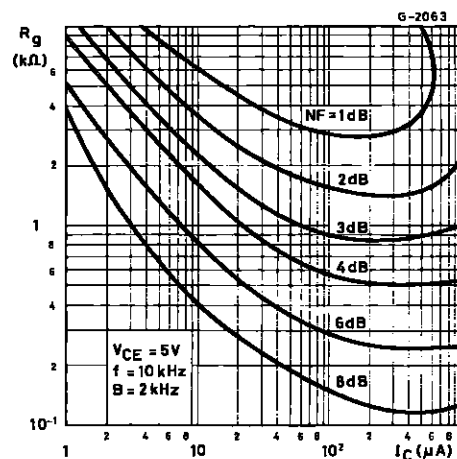
Contours of Constant Noise Figure  
f = 100 Hz.



Contours of Constant Noise Figure  
f = 1 kHz.

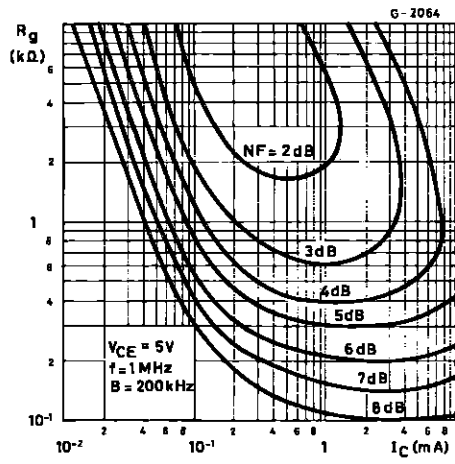


Contours of Constant Noise Figure  
f = 10 kHz.



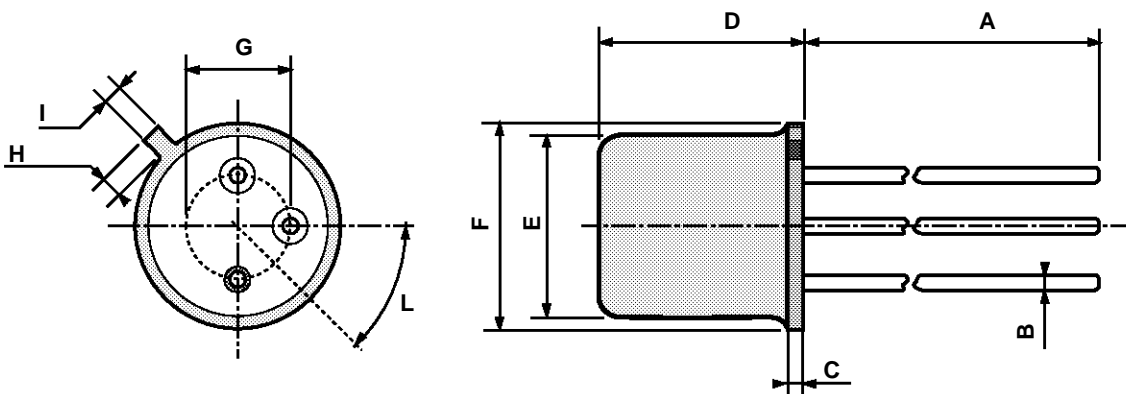
# 2N2484

Contours of Constant Noise Figure  
 $f = 1 \text{ MHz}$ .



## TO-18 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°		



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