



ESCOLA POLITÉCNICA DA
UNIVERSIDADE DE SÃO PAULO
Departamento de Engenharia de Sistemas Eletrônicos PSI -
EPUSP



PSI 2618
CIRCUITOS ELETRÔNICOS AUTOMOTIVOS

SENSORES DE TEMPERATURA



Figura 2.2: Visualização dos Sensores de Temperatura NTC da Bosch.

Tabela 2.1: ...

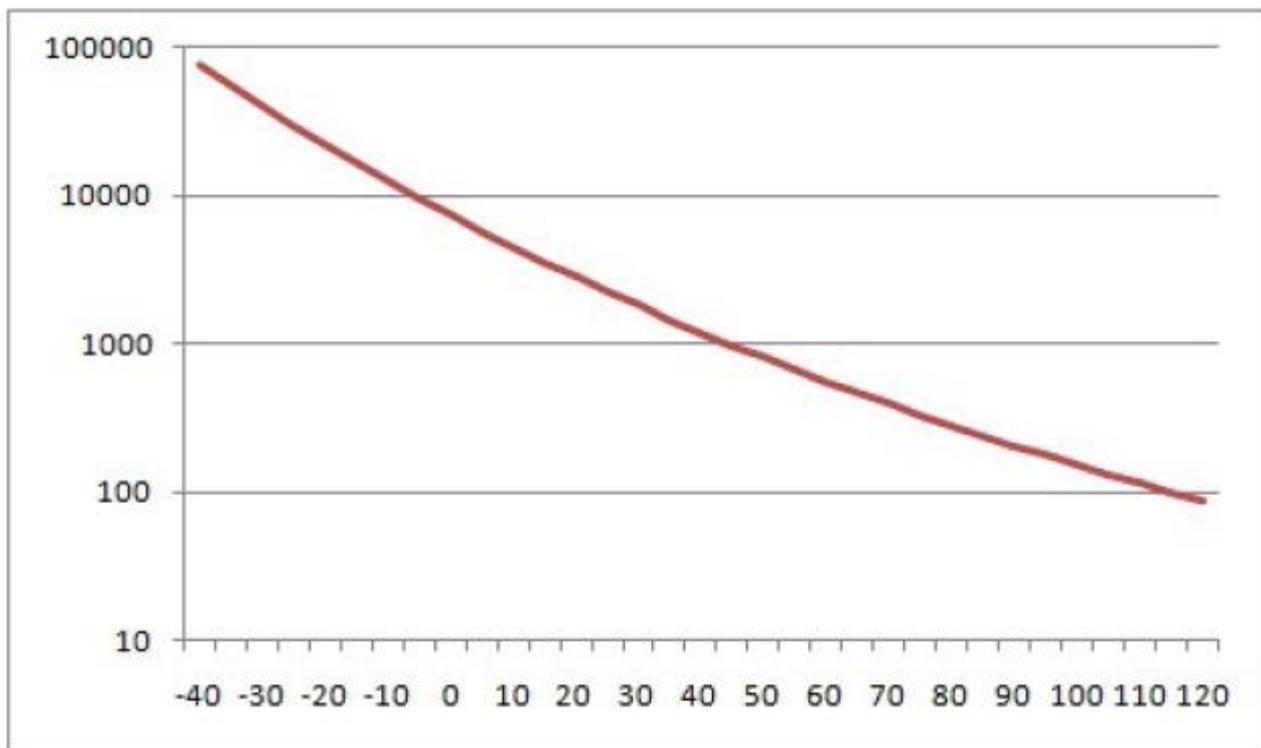


Figura 2.1: Variação de Resistência de um Elemento NTC com a Temperatura. (1)

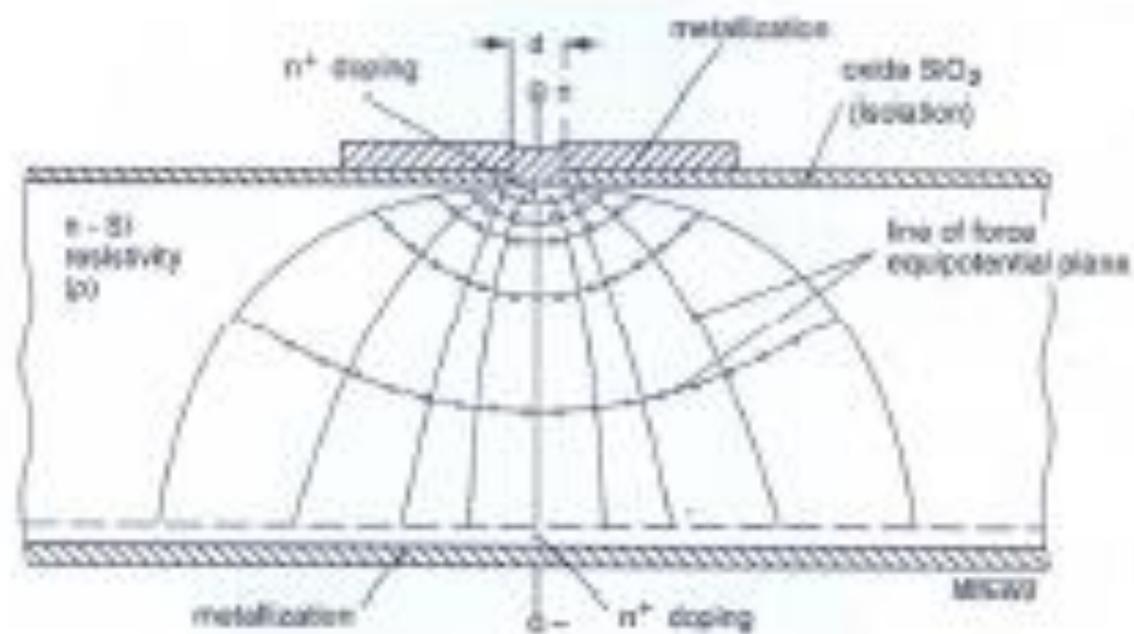
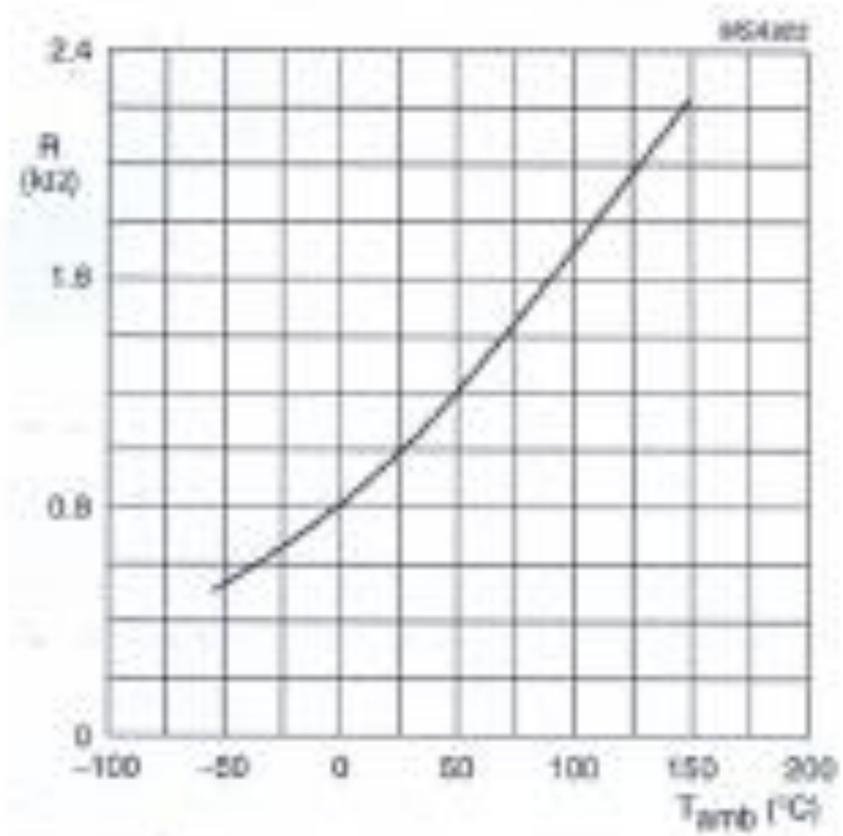


Figura 2.3: .



Família	R_{25} (Ω)	Tolerância (ΔR)	Range de Temperatura ($^{\circ}C$)	Encapsulamento
KTY81-1	1000	$\pm 1\%$ até $\pm 5\%$	-55 até 150	SOD70
KTY81-2	2000	$\pm 1\%$ até $\pm 5\%$	-55 até 150	SOD70
KTY82-1	1000	$\pm 1\%$ até $\pm 5\%$	-55 até 150	SOT23
KTY82-2	2000	$\pm 1\%$ até $\pm 5\%$	-55 até 150	SOT23
KTY83-1	1000	$\pm 1\%$ até $\pm 5\%$	-55 até 175	SOD68 (DO - 34)
KTY84-1	1000 R_{100}	$\pm 3\%$ até $\pm 5\%$	-40 até 300	SOD68 (DO - 34)
KTY85-1	1000	$\pm 1\%$ até $\pm 5\%$	-40 até 125	SOD80

Tabela 2.3: Valor da resistência a $25^{\circ}C$

Sensor type	$A(K^{-1})$	$B(K^{-2})$	$C^{(1)}(K^{-D})$	D	$T_I(^{\circ}C)$
KTY81 - 1	7.874×10^{-3}	1.874×10^{-5}	3.42×10^{-8}	3.7	100
KTY81 - 2	7.874×10^{-3}	1.874×10^{-5}	1.096×10^{-6}	3.0	100
KTY82 - 1	7.874×10^{-3}	1.874×10^{-5}	3.42×10^{-8}	3.7	100
KTY82 - 2	7.874×10^{-3}	1.874×10^{-5}	1.096×10^{-6}	3.0	100
KTY83	7.635×10^{-3}	1.731×10^{-5}	-	-	-
KTY84	6.12×10^{-3}	1.1×10^{-5}	3.14×10^{-8}	3.6	250
KTY85	7.635×10^{-3}	1.731×10^{-5}	-	-	-

Tabela 2.4: Parâmetros da equação polimomial

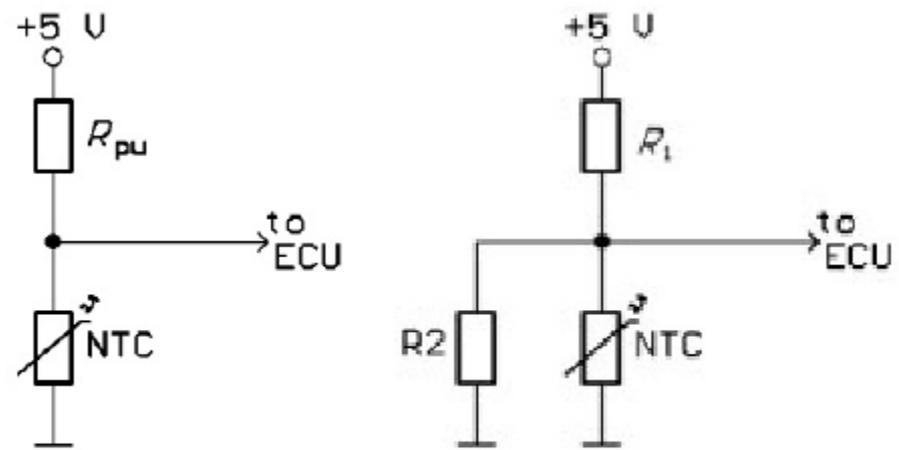
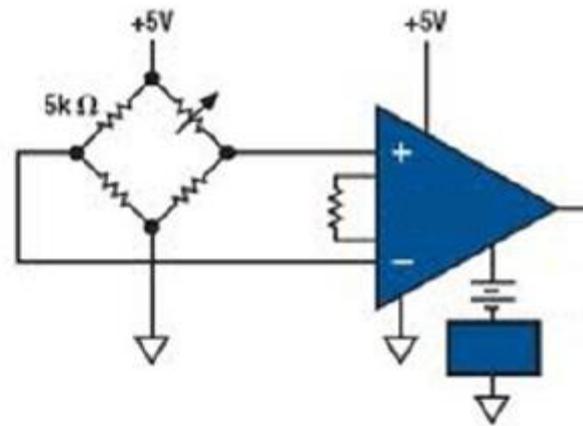
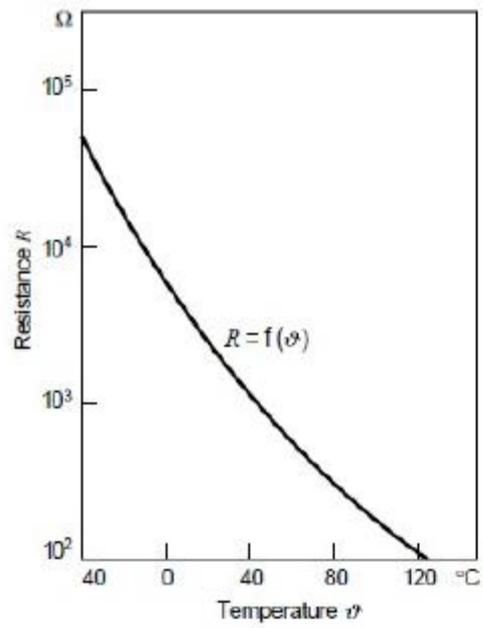


Figura 2.5: Circuitos utilizados para a medida (4)



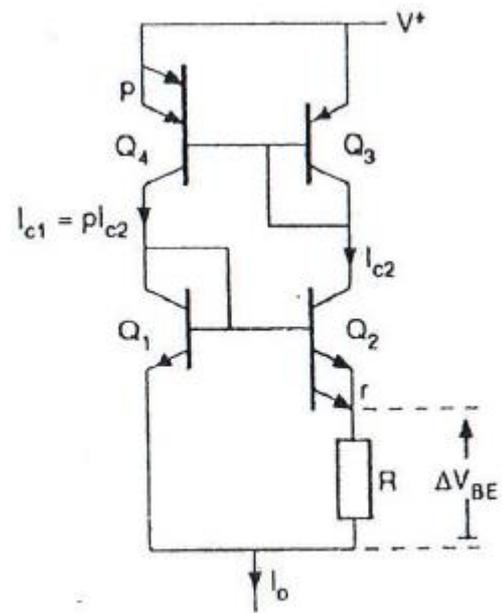


Figura 2.7: Circuito sensor de temperatura (5)

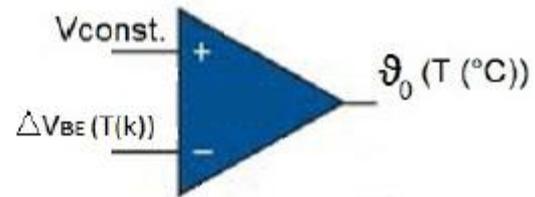
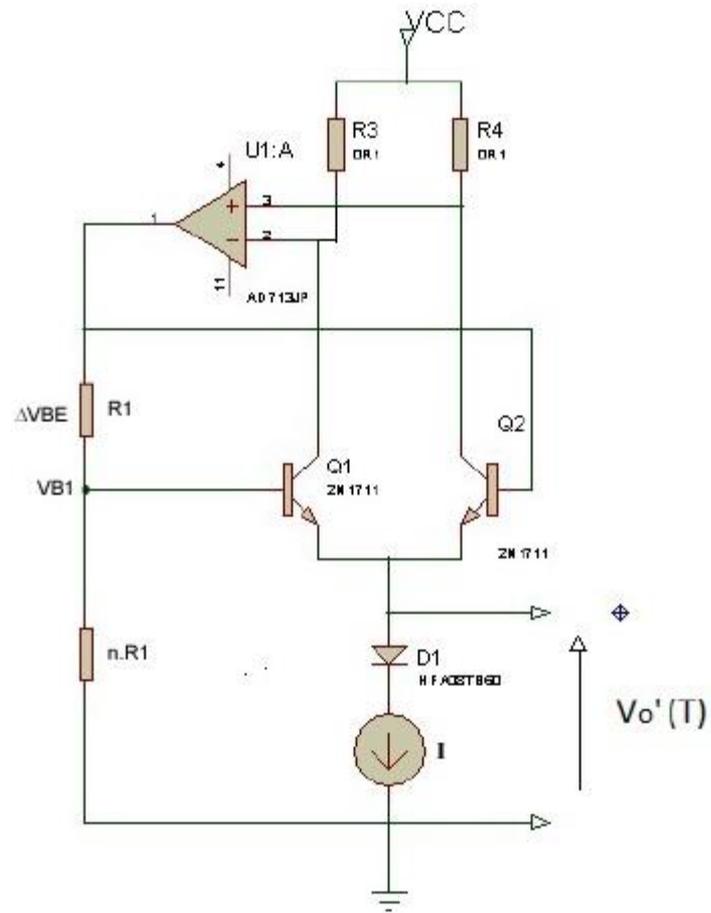


Figura 2.9: .

amplificador de instrumentação com ganho 1 e

$$V_{cons} = \frac{k}{q} [\ln(p \cdot r)] \cdot 273$$



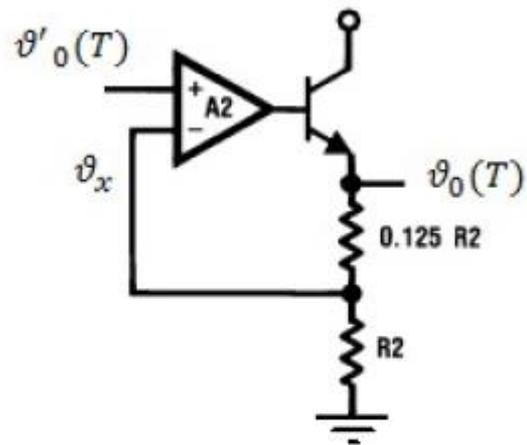


Figura 2.13: .

