

Title (en)  
Temperature compensated integrated semiconductor resistor.

Title (de)  
Temperaturkompensierter integrierter Halbleiterwiderstand.

Title (fr)  
Résistance semiconductrice intégrée à compensation de température.

Publication  
**EP 0000863 A1 19790307 (DE)**

Application  
**EP 78100173 A 19780615**

Priority  
US 82575977 A 19770818

Abstract (en)  
[origin: US4229753A] A circuit technique is disclosed for compensating for changes in the resistance of an integrated circuit resistor in an epitaxial bed, which is exposed to temperature changes. The resistance of an integrated circuit resistor is a function of the temperature at which it operates. The invention is based on the recognition that the resistance of the resistor is also a function of the potential difference between the body of the resistor and the epitaxial bed itself. Temperature compensation is achieved by connecting a temperature sensing circuit to the epitaxial bed, which has a voltage output which varies inversely with respect to the temperature coefficient of resistance of the resistor. Thus, the net change in the resistance of the resistor as it undergoes a temperature change, approximates zero.

Abstract (de)  
Zur Kompensation des Temperaturganges von integrierten Halbleiterwiderständen wird die Erkenntnis angewandt, dass der Wert eines Widerstandes auch eine Funktion der Potentialdifferenz zwischen dem Widerstand (8) selbst und der diesen umgebenden Epitaxieschicht 4 ist. Die Temperaturkompensation wird dadurch bewirkt, dass ein Temperaturfühler an die Epitaxieschicht angeschlossen wird und eine Kompensationsspannung liefert, welche die Potentialdifferenz gegenläufig zu dem Widerstandstemperaturkoeffizienten des Widerstands beeinflusst. Auf diese Weise wird der Widerstand (8) über einen weiten Temperaturbereich konstant gehalten.

IPC 1-7  
**H01L 23/56**; **H01L 27/08**

IPC 8 full level  
**H01L 27/04** (2006.01); **G05D 23/20** (2006.01); **H01L 21/822** (2006.01); **H01L 23/34** (2006.01); **H01L 27/02** (2006.01); **H01L 27/08** (2006.01)

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Citation (search report)  
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• [A] US 3484658 A 19691216 - KOMATSU RYOSAKU  
• [P] FR 2351505 A1 19771209 - IBM FRANCE [FR]  
• [A] ELECTRONICS, vol. 48, 23-1-1975, New York: W.E. OTT: "Monolithic converter augments ac-measurement capabilities", pages 79-83

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**EP 78100173 A 19780615**; DE 2860835 T 19780615; JP 8410578 A 19780712; US 82575977 A 19770818