Magneto resistor

FP 30 D 250 E is a magneto resistor made of indium antimonide — nickel antimonide with a basic resistance R_0 of 250 Ω. The "D" material produces the largest resistance variation R_B/R_0 in the magnetic field. The temperature coefficient TC, however, is very high. The magneto resistor is mounted on an iron substrate.

Type	Order number
FP 30 D 250 E	Q 65030-D 250-E
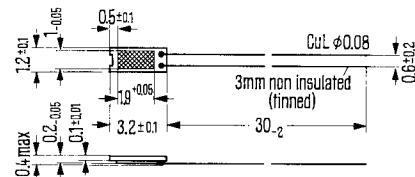
Weight approx. 0.017 g   Dimensions in mm

Maximum ratings		FP 30 D 250 E	
Maximum operating temperature	T_{max}	95	°C
Maximum electrical load ($T_{case} = 25\,°C$)	P_{tot}	500	mW
Insulation voltage between system and substrate	V_I	100	V
Storage temperature	T_S	95	°C
Thermal conduction constant:			
one side glued to metal surface	$G_{th\,case}$	10	mW/K
free in air	$G_{th\,amb}$	1	mW/K

Characteristics ($T_{amb} = 25\,°C$)			
Basic resistance	R_0	250	Ω
Tolerance of basic resistance	R_0-Tol.	± 20	%
Relative resistance variation:			
$B = \pm 0.3$ T (T = Tesla)	R_B/R_0	3 (> 2.8)	—
$B = \pm 1$ T[1])	R_B/R_0	15 (> 12)	—
Temperature coefficient:			
$B = 0$ T	TC_{25}	-1.8	%/°C
$B = \pm 0.3$ T	TC_{25}	-2.7	%/°C
$B = \pm 1$ T[1])	TC_{25}	-2.9	%/°C

[1]) 1 T = 1 Tesla = 10^4 Gauss

FP 30 D 250 E

Total permissible power dissipation $P_{tot} = f(T)$

Spread of resistance of magneto resistor[1]) at various magnetic flux values B
$R_{FP} = f(B)$; $T_{amb} = 25\,°C$

Magneto resistor resistance as a function of temperature[2])
$R_{FP} = f(T)$; B = parameter

Current-voltage characteristics
$I_{FP} = f(V_{FP})$; magnetic flux density
B = parameter; $T_{amb} = 25\,°C$
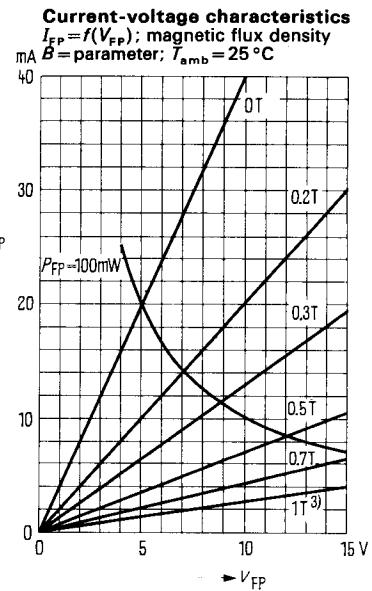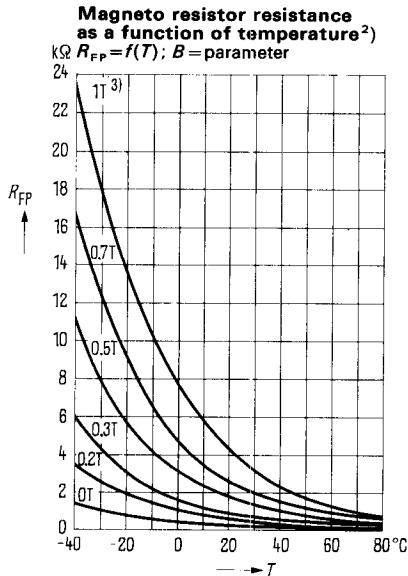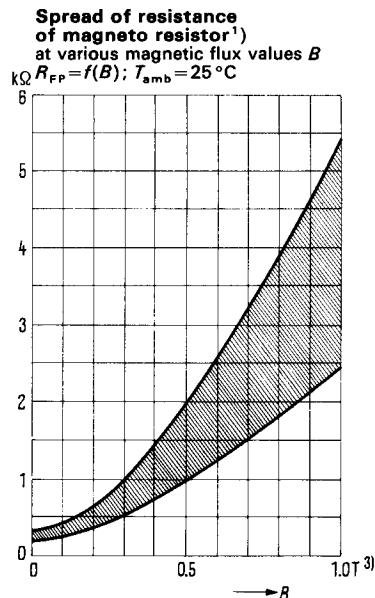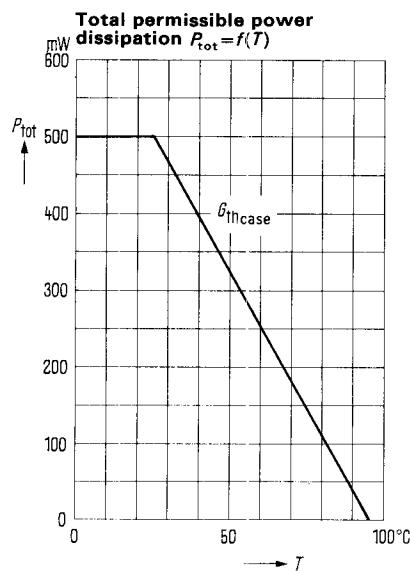
[1]) incl. the spread of $\pm 20\%$ of basic resistance R_o
[2]) for mean values of MR resistance R_{FP}
[3]) $1\,T = 1$ Tesla $= 10^4$ Gauss