

● **Equation**

Failure rate $\lambda_P = \lambda_b \times \pi_T \times \pi_P \times \pi_S \times \pi_Q \times \pi_E (/ 10^6)$

- λ_b = Based Failure Rate
- π_T = Temperature Factor
- π_P = Power Factor
- π_S = Power Stress Factor
- π_Q = Quality Factor
- π_E = Environment Factor

Resistor style : RM(Resistor,Fixed,Film,Chip,Established Reliability) is applicable.

$\lambda_b = 0.0037$
 $\pi_Q = 3$ (According to result of test for MIL std.)
 $\pi_E = 1$

π_T

T (°C)	π_T
20	0.95
30	1.1
40	1.2
50	1.3
60	1.4
70	1.5
80	1.6
90	1.7
100	1.9
110	2.0
120	2.1
130	2.3
140	2.4
150	2.5

T (°C) : Atmosphere Temperature

π_P

Loaded Wattage(W)	π_P
0.001	0.068
0.01	0.17
0.13	0.44
0.25	0.58
0.50	0.76
0.75	0.89
1.0	1.0
2.0	1.3
3.0	1.5
4.0	1.7
5.0	1.9
10	2.5
25	3.5
50	4.6
100	6.0
150	7.1

π_S

Wattage Stress	π_S
0.1	0.79
0.2	0.88
0.3	0.99
0.4	1.1
0.5	1.2
0.6	1.4
0.7	1.5
0.8	1.7
0.9	1.9

$$\text{Wattage Stress} = \frac{\text{Loaded Wattage}}{\text{Rated Wattage}}$$

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