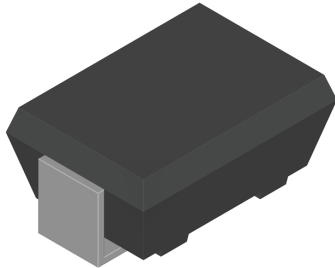


# RESISTORS

## SMD - Resistors

## MMP and MMQ series



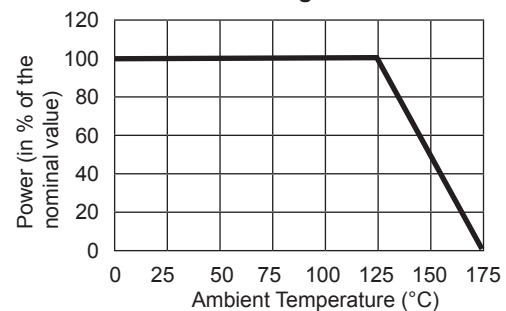
- SMD - size
- Any Resistance from 30Ω - 60kΩ
- Resistance Tolerance 0,05% (>100Ω)
- Standard TCR ±5ppm/K (>100Ω)
- Temperature Range -65°C - +175°C
- Low Inductance and Current Noise
- Tape on Reel Packaging or Bulk

Spezifikation	MMP	MMQ
Resistance Range	30Ω - 30kΩ	30Ω - 60kΩ
Power (@ 125°C)	0,1W	0,125W
Standard Tolerances	>30Ω ±0,1% >100Ω ±0,05%	>30Ω ±0,1% >100Ω ±0,05%
Temperature Coefficient	10ppm/K 30Ω to 100Ω 5ppm/K 100Ω to 30kΩ	10ppm/K 30Ω to 100Ω 5ppm/K 100Ω to 60kΩ
Temperature Range	-55 °C - 275 °C	
Max. Operating Temperature	125°C	
Operating Temperature	50VDC	100VDC
Working Current (max.)	350 mA	

### Mechanical Data

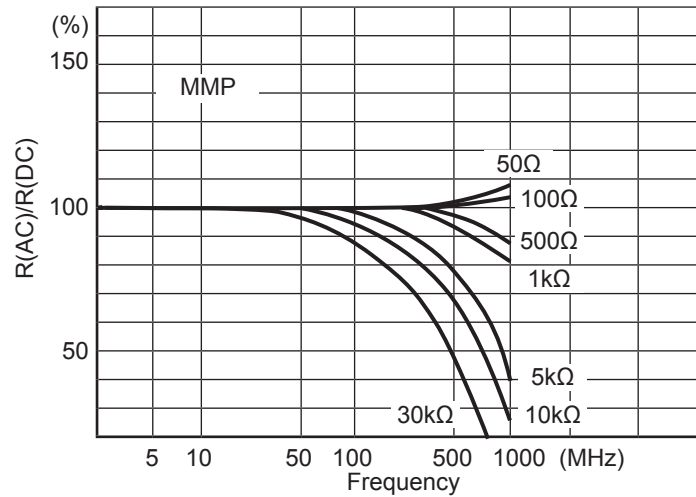
Housing	Epoxy - Moulded
Resistance Element	NiCr - Foil
Carrier	Ceramics
Connectors	Brass, silver plated

Power Derating Curve

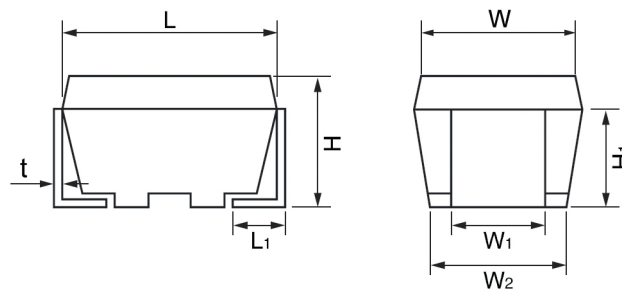


Test	Condition	Δ R
Thermal Shock	-65°C/30 min., +125°C/30 min., 5 cycles	±0,01%
Short Time Overload	Related Voltage x 2, 5 sec.	±0,01%
Soldering	260°C, 10 sec.	±0,01%
Insulation Resistance	100 VDC, 1 min.	über 10.000 MΩ
Shock	100G, 6 ms, Sawtooth Wave X,Y,Z	±0,01%
Vibration, High Frequency	20G, 10Hz-55Hz-10Hz, 20 min., X,Y,Z each 2,5h	±0,01%
Life	Rated Power, 0°C-125°C, 1,5h ON, 0,5h OFF, 2000h	±0,03% (typisch)
Shelf Stability	15° - 35°C, r.H. 15 - 75%, 10.000h	±0,0025%
Current Noise		-42 dB
Voltage Coefficient		0,00001 % / V

## Frequency Characteristics



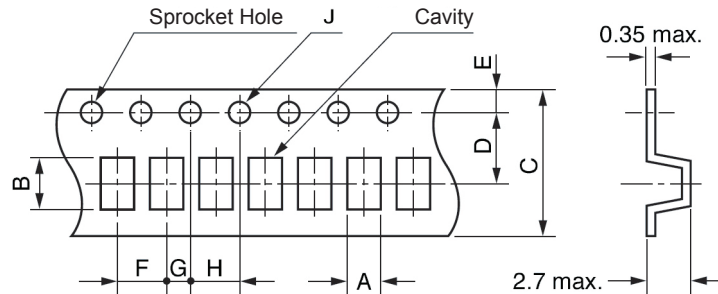
## Technical Drawing



Typ	L	W	H	L <sub>1</sub>	W <sub>1</sub>	W <sub>2</sub>	H <sub>1</sub>	t
MMP	3,2 ±0,2	2,5 ±0,2	2,0 ±0,2	0,6 ±0,2	1,4 ±0,2	2,3 ±0,2	1,5 ±0,2	0,15 ±0,05
MMQ	4,5 ±0,2	3,2 ±0,2	2,0 ±0,2	0,8 ±0,2	1,4 ±0,2	3,0 ±0,2	1,5 ±0,2	0,15 ±0,05

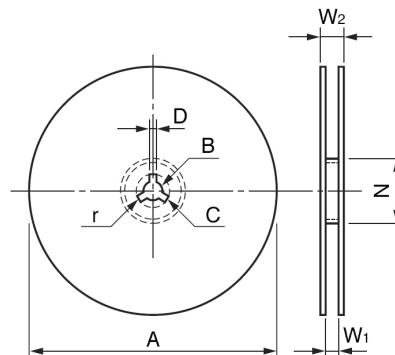
All Dimensions in mm

### Tape Dimensions



Dim. (mm)	A	B	C	D	E	F	G	H	J
MMP	2,8 ±0,2	3,9 ±0,2	12 ±0,3	5,5 ±0,05	1,75 ±0,1	4 ±0,1	2 ±0,05	4 ±0,1	Ø1,5 ±0,1
MMQ	3,6 ±0,2	5,2 ±0,2	12 ±0,3	5,5 ±0,05	1,75 ±0,1	8 ±0,1	2 ±0,05	4 ±0,1	Ø1,5 ±0,1

### Reel Dimensions



Dim. (mm)	A	N	B	C	D	W <sub>1</sub>	W <sub>2</sub>	r
	Ø178 ±0,2	Ø60 min	Ø13 ±0,5	Ø21 ±0,8	2 ±0,5	12,4 +2	18,4 max.	1 ±0,5

### Packaging

MMP

MMQ

### Reel Capacity

1200

800

### Ordering Information

MMP Type	W0,1% Resistance Tolerance ±0,1% <100Ω: ±0,05%	TK5 Temperature Coefficient >30Ω: ±10ppm/K <100Ω: ±5ppm/K	10k000 Resistance Value (30Ω - 60kΩ)
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The specifications and information in this datasheet cannot consider all special demands that are caused by the application. Because of this, they are no general description of the properties of the product. All specifications are subject to change without notice.