

SMD

Precision Metal Film Resistors

MELF Style



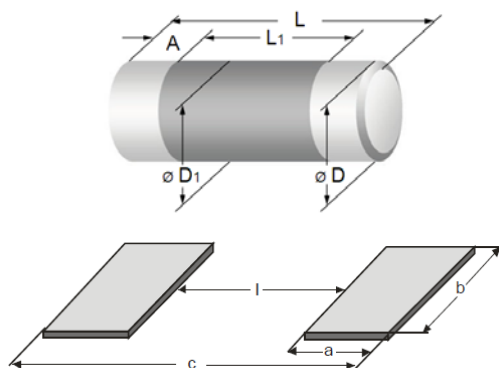
ELECTRICAL SPECIFICATIONS

Type		ZC0204	ZC0207
Nominal Power rating P_{70}	[W]	0,4	1,0
Resistance range	[Ω]	0R22 ... 10M	0R16 ... 10M
E-Series		E24 / E96 / E192	
Tolerances	± [%]	5 ; 1 ; 0,5 ; 0,25 ; 0,1	
Temperature coefficient <i>IEC60115-1 clause 4.2 ; 4.8</i> <i>(+20/-55[°C] and +20/+125[°C])</i>	[10 ⁻⁶ *K ⁻¹]	100 ; 50 ; 25 ; 15	
Temperature range	[°C]	-55 ... +155	
Permissible film temperature, $\vartheta_{F \max}$	[°C]	155	
Dielectric withstanding voltage <i>IEC60115-1 clause 4.7 (1[min])</i>	[V]	300	500
Max. working voltage	[AC or DC] _{RMS}	200	350

PERFORMANCE DATA

Short Time Overload <i>IEC60115-1 clause 4.13</i> $(U=2,5 \cdot \sqrt{P_{70} \cdot R} \leq 2 \cdot U_{\max}, 5[s])$	± [%]	0,05 (≤1M) ; 0,1 (>1M)	0,05 (≤1M) ; 0,15 (>1M)
Endurance <i>IEC60115-1 clause 4.25.</i> (P_{70} , @ 70[°C], 1000[h]) 1,5h ON; 0,5h OFF	± [%]	0,25	0,25 (≤1M) ; 0,5 (>1M)
Climatic category		55/155/56	
Failure Rate (Total, ϑ_o , max, 60[%] cont. lev.)	[10 ⁻⁹ h ⁻¹]	≤0.1	
Damp heat, steady state <i>IEC60068-2, IEC60115-1 clause 4.24</i> 40 ⁺² [°C], 93 ⁺³ [% r.h.], 56[d]	± [%]	0,15 (≤1M) ; 0,25 (>1M)	0,25 (≤1M) ; 1 (>1M)
Temperature Cycling <i>IEC60068-2-14, IEC60115-1 clause 4.19</i> (-55/+125[°C], 30min., 1000 cycles)	± [%]	0,15 (≤1M) ; 0,25 (>1M)	0,25
Vibration <i>IEC60068-2-6, IEC60115-1 clause 4.22</i> (10; 2000 [Hz], ≤1,5[mm], or ≤200[m/s ²] 7.5h)		0,05	0,05 (≤1M) ; 0,1 (>1M)
Resistance to soldering heat <i>IEC60068-2-58, IEC60115-1 clause 4.18</i> (260 ⁺⁵ [°C] ; 10 ⁺¹ [s])	± [%]	0,1 (≤10R) ; 0,05 (>10R)	
Solderability <i>IEC60068-2-20, IEC60115-1 clause 4.17</i> (235 ⁺³ [°C] 2 ^{+0,2} [s])	[s]	Solder-bath test, 95% wetting	
Component resistance to solvents <i>IEC60068-2-45, IEC60115-1 clause 4.29</i> (50°C ; method 2)		No visible damage	
Resistance to solvents of Marking <i>IEC60068-2-45, IEC60115-1 clause 4.30</i> (50°C ; method 1)		Marking visible, no visible damage	
Electrostatic discharge <i>IEC60115-1 clause 4.38, IEC61340-3-1</i> (3 positives+3 negatives)	± [%]	0,5 [2 kV]	0,5 [4 kV]
Marking <i>IEC60062</i>		Color code	

DIMENSIONS [mm]



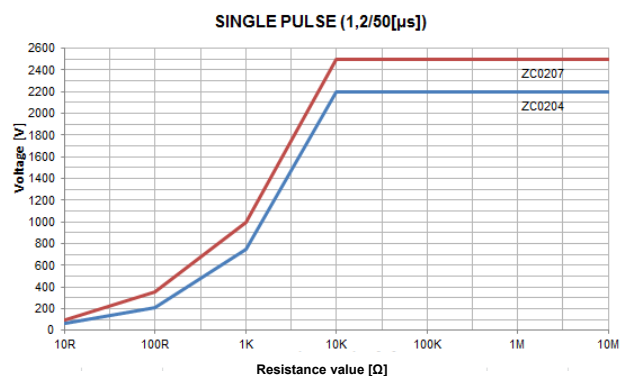
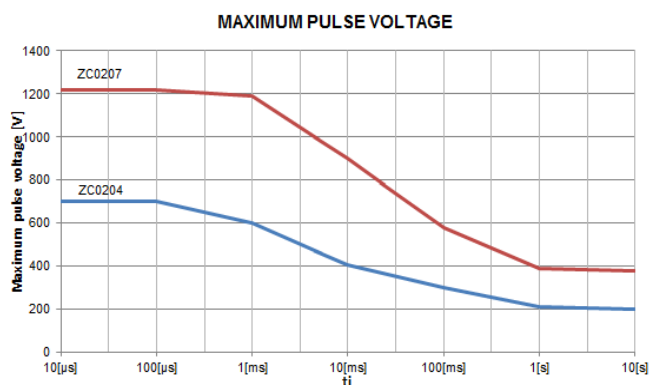
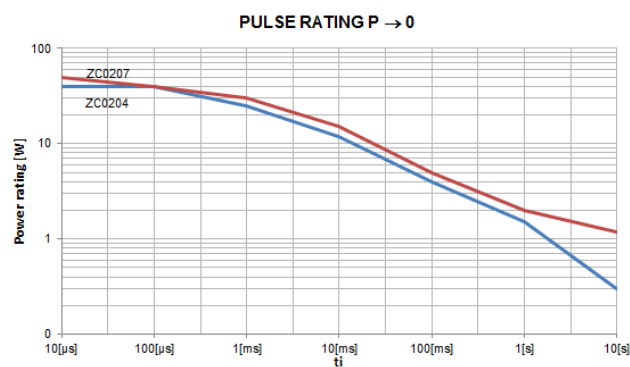
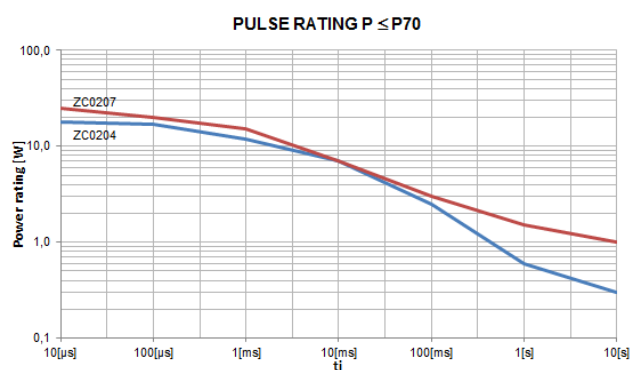
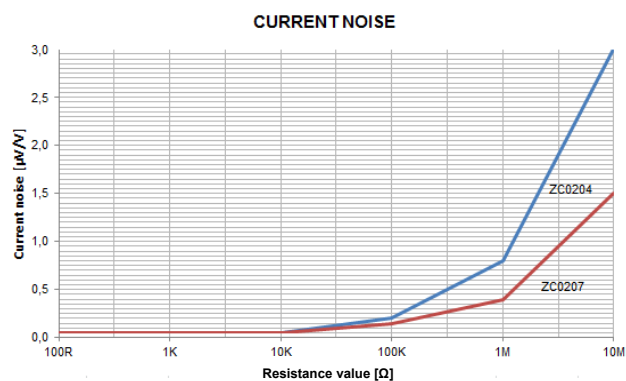
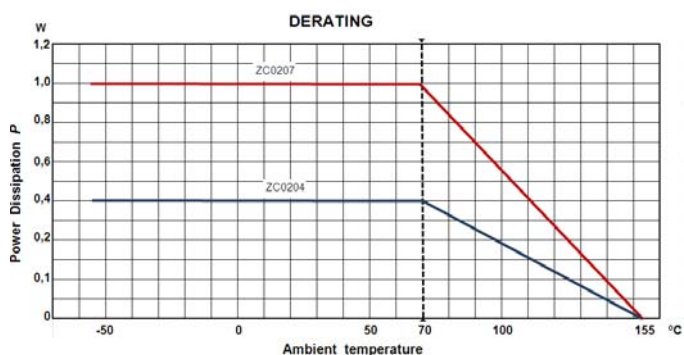
Type	L [mm]	Ø D [mm]	L ₁ min. [mm]	Ø D ₁ [mm]	A [mm]	MASS [mg]
ZC0204	3,6 ^{-0,2}	1,4 ^{-0,1}	1,4	D ^{-0,15}	0,8 ^{±0,1}	22
ZC0207	5,8 ^{-0,3}	2,2 ^{±0,2}	2,6	D ^{-0,2}	1,25 ^{±0,2}	77

TYPE	Solder pads dimensions			
	a	b	l	c
ZC0204	1,5	1,8	1,5	4,5
ZC0207	2,3	2,6	2,4	7,0

Notes:

- ZC0204** Color code marking is applied according to IEC 60062 in four bands (E24 series) for 5 % tolerance, or in five bands (E96 or E192 series). Each color band appears as a single solid line, voids are permissible if at least $\frac{2}{3}$ of the band is visible from each radial angle of view. The last color band for tolerance is approximately 50 % wider than the other bands.
- ZC0207** Color code marking is applied according to IEC 60062 in four (E24 series) or six bands (E96 series). Each color band appears as a single solid line, voids are permissible if at least $\frac{2}{3}$ of the band is visible from each radial angle of view. The last color band represents the TCR for resistors with TCR ≤ 50 ppm/K and nominal tolerance ≤ 1 %.
- Zero ohm jumper** are marked with one centered black band.

PERFORMANCE GRAPH'S



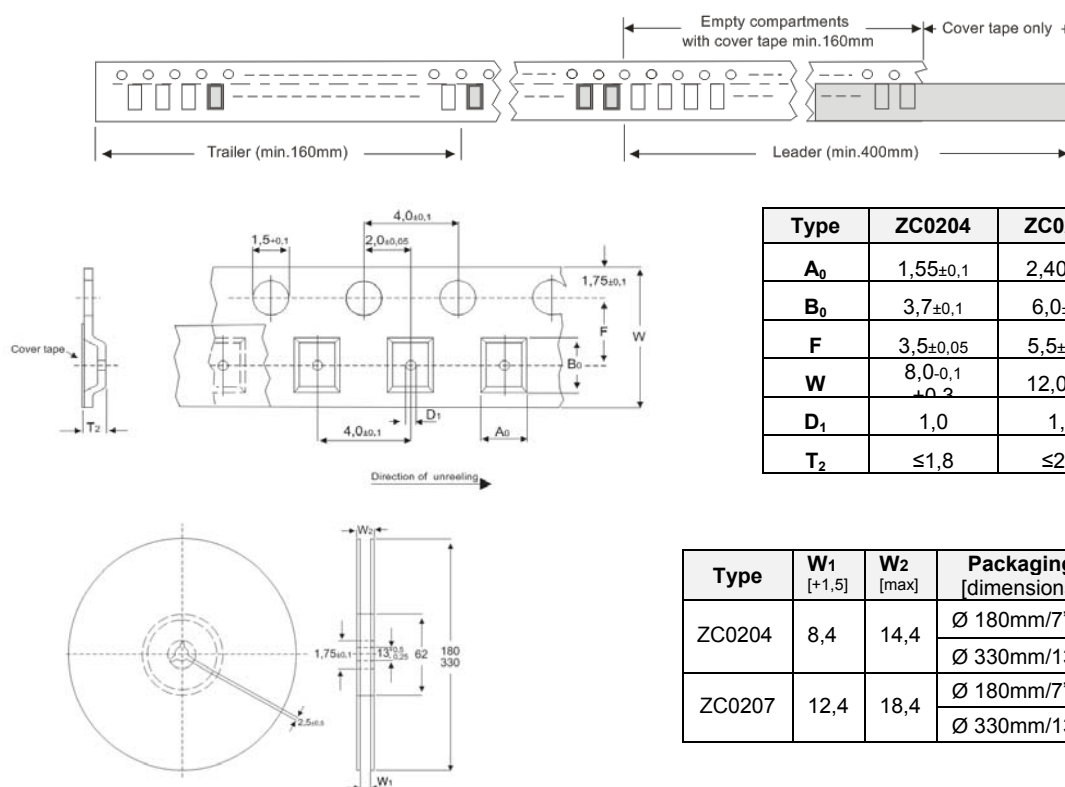
TEMPERATURE COEFFICIENT

Resistance range ZC0204	Resistance range ZC0207	Tolerance $\pm$ [%]	Temperature coefficient [$10^{-6} K^{-1}$]	E-Series
0R22 ... 10M	0R16 ... 0R91	5	100	E24
0R82 ... 10M	1R ... 10M	1	50	E24 / E96
10R ... 1M65	1R ... 2M21	0,5		E24 / E192
10R ... 1M65	43R ... 1M	0,5	25	E24 / E192
22R ... 1M65	43R ... 1M	0,25		
22R ... 1M65	43R ... 1M	0,1		
10R ... 221K	100R ... 511K	0,5	15	E24 / E192
22R ... 221K	100R ... 511K	0,25		
43R ... 221K	100R ... 511K	0,1		
Jumper $I_{max.} = 3 A$	Jumper $I_{max.} = 5 A$	$\leq 10m\Omega$		

Notes :

- The color of the body coating is light green for jumpers and for a temperature coefficient of ± 50 ppm/K or ± 100 ppm/K, pink for ± 25 ppm/K, or violet for ± 15 ppm/K.
- Zero ohm jumper are marked with one centered black band.

PACKAGING – Blister tape



ORDERING EXAMPLE

ZC0204	F	K	E	07	1K
0-0hm = ZC0204	F	K	E	07	0R
Type	Tolerance	Blister tape reel	TC	reel diameter	R-Value
B	$\pm 0,1$ [%]		C	± 15 [ppm]	
C	$\pm 0,25$ [%]		D	± 25 [ppm]	
D	$\pm 0,5$ [%]		E	± 50 [ppm]	
F	± 1 [%]		F	± 100 [ppm]	
J	± 5 [%]		0	Jumper	
0	Jumper				