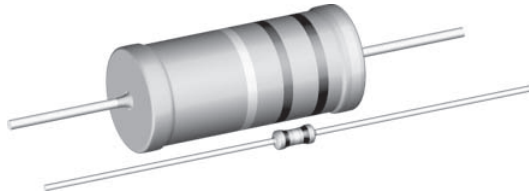


## Carbon Film Resistors, Standard



## FEATURES

- Securely bonded carbon film
- Good moisture resistance
- Good long term stability
- Low Noise
- Suitable for general purpose commercial electronics and pulse load applications

## STANDARD ELECTRICAL SPECIFICATIONS

MODEL	SIZE	POWER RATING $P_{70^{\circ}\text{C}}$ W	LIMITING ELEMENT VOLTAGE MAX. $V_{\approx}$	TOLERANCE $\pm\%$	RESISTANCE RANGE $\Omega$	E-SERIES
LCA0204 / SK1	0204	0.25	200	2 5	10R-470K 1R0-1M0	24 24
LCA0207 / SK2	0207	0.35	300	2 5	1R0-1M0 R22-5M1	24 24
LCA0309	0309	0.45	300	2 5	1R0-1M0 R22-4M7	24 24
LCA0411 / SC4	0411	0.55	500	2 5	1R0-1M0 R22-10M	24 24
LCA0414	0414	0.6	500	2 5	1R0-1M0 R22-10M	24 24
SK4	0414	0.6	500	5 10 20	10M-30M 30M-90M 90M-150M	24 12 6
LCA0617	0617	0.7	600	2 5	2R2-1M0 2R2-20M	24 24
LCA0719	0719	1	750	2 5	2R2-1M0 2R2-20M	24 24
SK5	0617	1.1	750	2 5	1R0-5M1 1R0-24M	24 24
LCA0922	0922	1.5	750	2 5	3R3-1M0 3R3-22M	24 24
LCA0933	0933	2	1000	2 5	5R1-1M0 5R1-47M	24 24

• Coating : Beige • Marking : colour code

## TECHNICAL SPECIFICATIONS

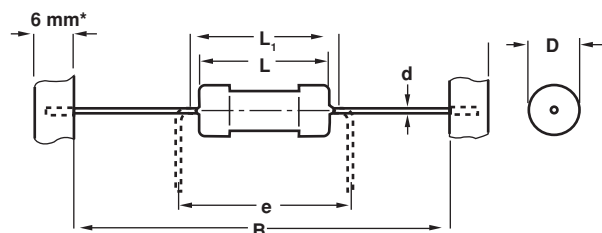
PARAMETER	UNIT	LCA0204 SK1	LCA0207 SK2	LCA0309	LCA0411 SC4	LCA0414 SK4	LCA0617	LCA0719	SK5	LCA0922	LCA0933
Rated Dissipation at 70°C	W	0.25	0.35	0.45	0.55	0.6	0.7	1.0	1.1	1.5	2.0
Limiting Element Voltage <sup>1)</sup>	$V_{\approx}$	$\leq 200$	$\leq 300$	$\leq 300$	$\leq 500$	$\leq 500$	$\leq 600$	$\leq 750$	$\leq 750$	$\leq 750$	$\leq 1000$
Limiting Voltage, short-time	$V_{\approx}$		500	600	700	1000	1000	1500		1500	2000
Insulation Voltage (1 min)	V-	> 300	> 700	> 700	> 700	> 700	> 700	> 700	> 750	> 700	> 700
Thermal Resistance	K/W	$\leq 300$	$\leq 220$	$\leq 190$	$\leq 150$	$\leq 140$	$\leq 110$	$\leq 90$	$\leq 80$	$\leq 70$	$\leq 60$
Insulation Resistance	$\Omega$	$\geq 10^{11}/h$									
Terminal Strength, axial	N	> 30	> 50	> 60	> 60	> 80	> 80	> 80	> 80	> 80	> 80
Category Temperature Range	°C	- 55 / + 155									
Failure Rate	$10^{-9}/h$	< 10									
Weight	g	0.1	0.21	0.3	0.5	0.68	1.1	1.8	1.5	3.2	4.2

<sup>1)</sup> Rated voltage  $\sqrt{P \times R}$

## ORDERING INFORMATION

LCA0207 / SK2	2K4	$\pm 5\%$	A5
MODEL	RESISTANCE VALUE $\Omega$	TOLERANCE %	PACKAGING A5-Ampopack 5000 pieces

## DIMENSIONS



<sup>1)</sup> Also available in 26mm tape spacing

<sup>2)</sup> Also available in 73mm spacing

• Taping in acc. with IEC60286-1

• D and L measured in acc. with IEC60294

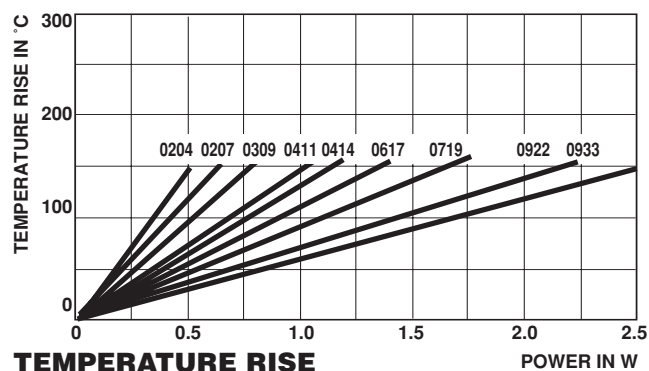
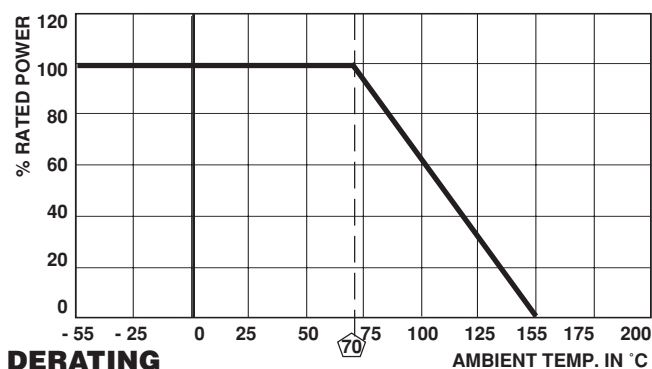
• d according to IEC60301

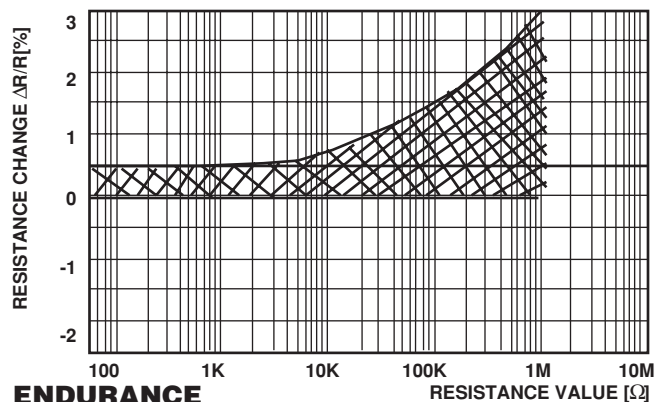
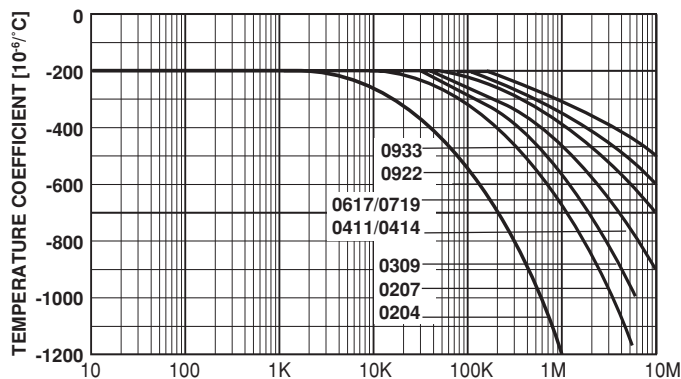
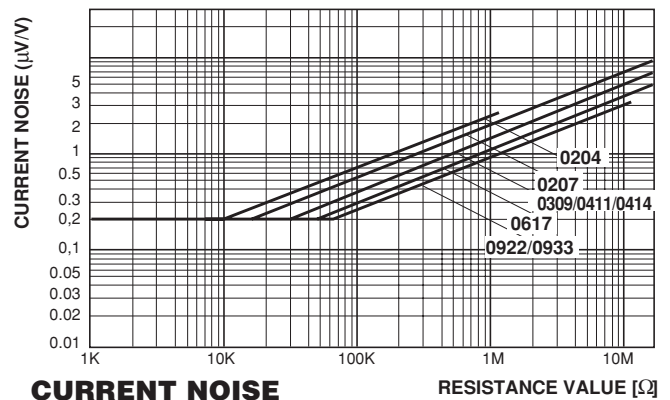
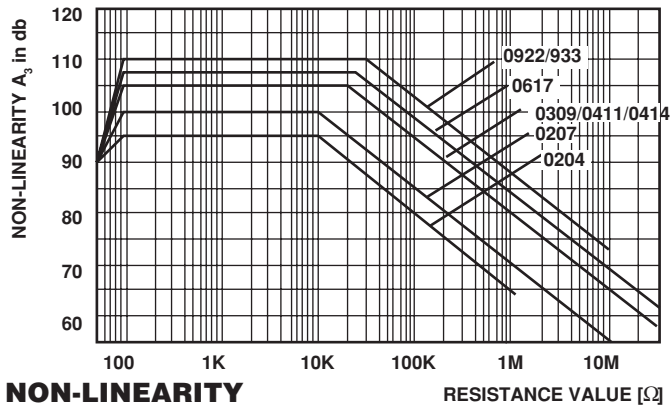
\* 9mm for SK5

MODEL	DIMENSIONS [in millimeters]					
	D max.	L	L <sub>1</sub>	B	d	e
LCA0204/SK1	1.6 <sub>-0.3</sub>	3.6 <sub>-0.4</sub>	5.0	53 <sub>±1</sub>	0.5	5.0
LCA0207/SK2	2.4 <sub>-0.3</sub>	6.1 <sub>-0.5</sub>	8.1	53 <sub>±1</sub> <sup>1)</sup>	0.6	7.5
LCA0309	3.0 <sub>-0.4</sub>	8.1 <sub>-0.6</sub>	10.1	53 <sub>±1</sub> <sup>1)</sup>	0.7	10.0
LCA0411/SC4	3.7 <sub>-0.4</sub>	10.5 <sub>-0.6</sub>	12.5	53 <sub>±1</sub> <sup>2)</sup>	0.7	12.5
LCA0414	4.2 <sub>-0.5</sub>	12.2 <sub>-0.7</sub>	14.2	53 <sub>±1</sub> <sup>2)</sup>	0.8	15.0
SK4	4.1 <sub>-0.5</sub>	12.0 <sub>-1.5</sub>	14.2	73 <sub>±1</sub> <sup>2)</sup>	0.8	15.0
LCA0617	5.0 <sub>-0.5</sub>	15.3 <sub>-0.8</sub>	18.3	83 <sub>±1</sub>	0.8	17.5
LCA0719	6.5 <sub>-0.5</sub>	18.5 <sub>-0.8</sub>	21.5	83 <sub>±1</sub>	0.8	22.5
SK5	6.0 <sub>-0.5</sub>	16.5 <sub>-1.5</sub>	20.5	77 <sub>±1</sub>	0.8	15.0
LCA0922	8.3 <sub>-0.6</sub>	21.4 <sub>-0.9</sub>	24.4	83 <sub>±1</sub>	0.8	25.0
LCA0933	8.3 <sub>-0.6</sub>	31.4 <sub>-0.9</sub>	34.4	83 <sub>±1</sub>	0.8	35.0

## PACKAGING

MODEL	REEL			BOX		
	PIECES / REEL	CODE	MIN. ORDER QTY PACKAGING UNITS	PIECES / BOX	CODE	MIN. ORDER QTY PACKAGING UNITS
LCA0204/SK1	5000	R5	1	5000 2000	A5 A2	1 1
LCA0207/SK2	5000	R5	1	5000 2000	A5 A2	1 1
LCA0309	2500	RE	1	5000 2000	A5 A2	1 1
LCA0411 / SC4	2500	RE	1	1000	A1	1
LCA0414	2000	R2	1	1000	A1	1
SK4	2500	RE	1	1000	A1	1
LCA0617	1000	R1	1	1000	A1	1
LCA0719	500	RC	4	500	AC	4
SK5	1500	RP	1	1000	A1	1
LCA0922	500	RC	2	250	AB	4
LCA0933	500	RC	2	250	AB	4

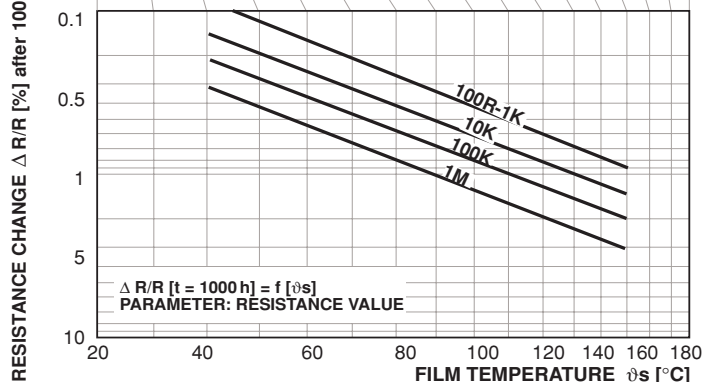
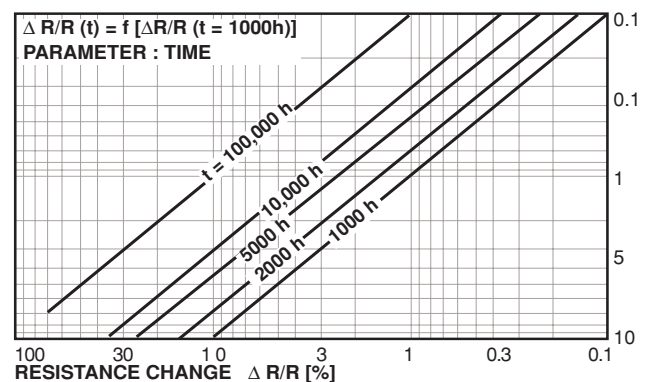
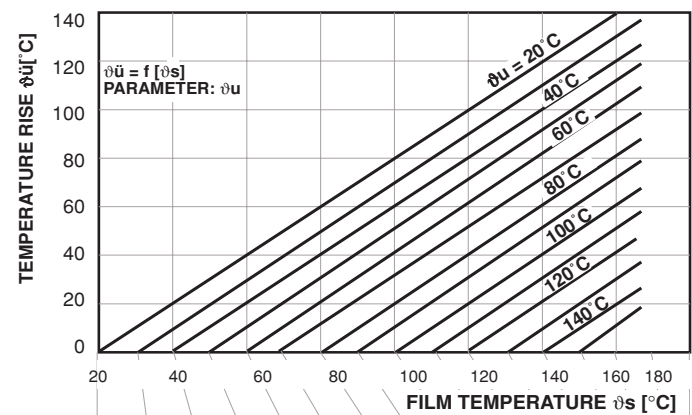
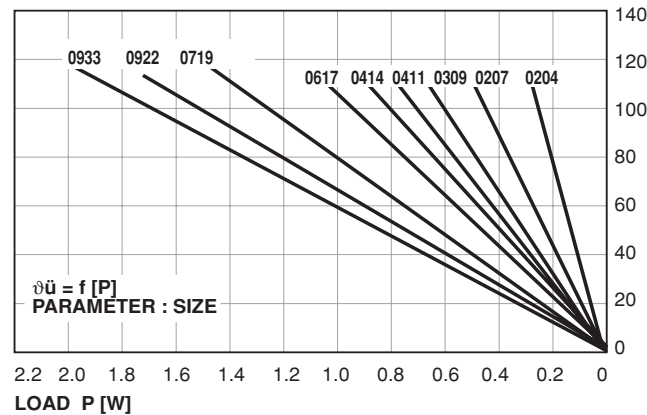


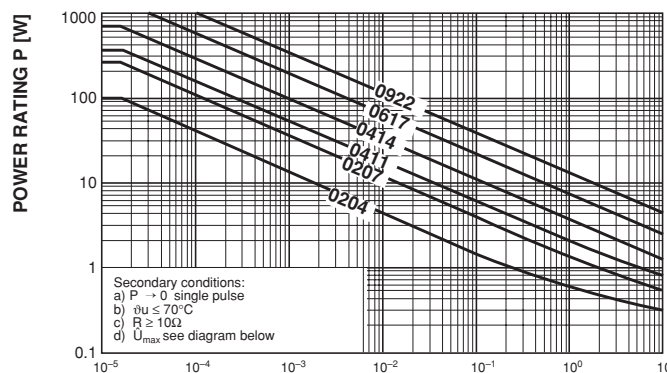


**TEMPERATURE COEFFICIENT**  
(mean value) between -25... +125°C deviation  $\pm 25\%$

**ENDURANCE**  
at upper category temperature, 155°C 1000h

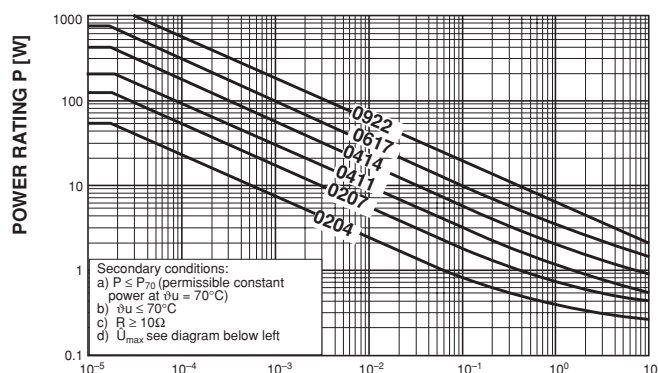
### STABILITY NOMOGRAM, TYPICAL VALUES (For handling see General Information)





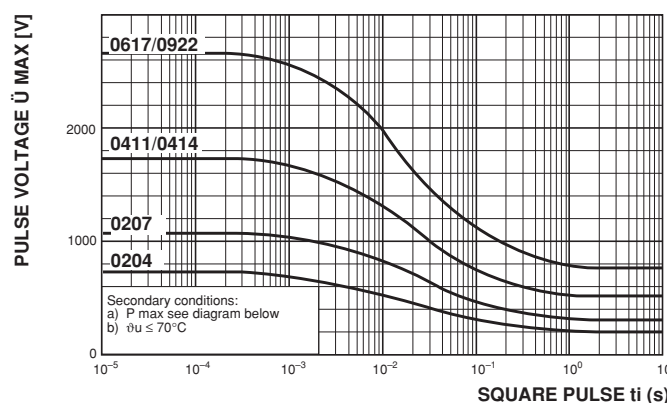
**PULSE RATING  $P \rightarrow 0$**

SQUARE PULSE  $t_i$  (s)



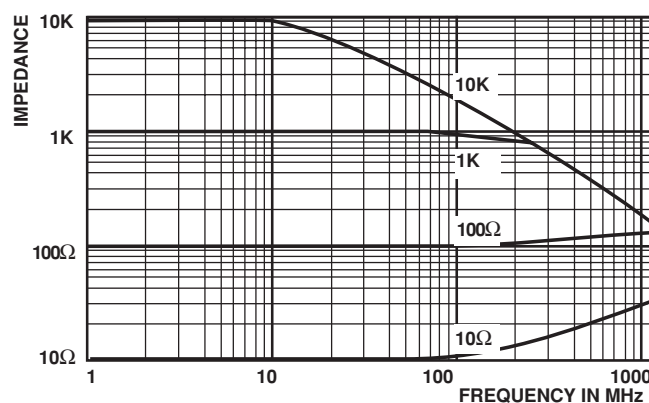
**PULSE RATING  $P \leq P_{70}$**

SQUARE PULSE  $t_i$  (s)



**MAX PULSE VOLTAGE**

SQUARE PULSE  $t_i$  (s)



**HF CHARACTERISTICS LCA0207**

PERFORMANCE CHARACTERISTICS		
TEST	CONDITIONS OF TEST	REQUIREMENTS *
Endurance Test at 70°C IEC 60115-1 4.25.1	1000 hours at 70°C, 1.5 hours "ON", 0.5 hours OFF 8000 hours at 70°C, 1.5 hours "ON", 0.5 hours OFF	$\leq \pm 1.5\%$ $\leq \pm 4.0\%$
Endurance at UCT IEC 60115-1 4.25.3	1000 hours at 155°C without load 8000 hours at 155°C without load	$\leq \pm 3.0\%$ $\leq \pm 8.0\%$
Overload Test IEC 60115-1 4.13	2.5 x rated power or twice the limiting element voltage, 2 seconds for sizes $\leq 0207$ ; - 5 seconds for sizes $\geq 0309$	$\leq \pm 0.5\%$
Thermal Shock IEC 60115-1 4.19, IEC 60068-2-14	Rapid change between upper and lower category temperature	$\leq \pm 0.25\%$
Climatic Sequence IEC 60115-1 4.23	Dry heat, damp heat cyclic, cold, low air pressure	$\leq \pm 1.5\%$
Damp Heat Steady State IEC 60115-1 4.24 IEC 60068-2-3	56 days at 40°C, 93% relative humidity	$\leq \pm 1.5\%$
Resistance to Soldering Heat IEC 60115-1 4.18, IEC 60068-2-20	10 seconds at 260°C solder bath temperature	$\leq \pm 0.25\%$
Robustness of Terminations IEC 60115-1 4.16, IEC 60068-2-21	Tensile, bending and torsion	$\leq \pm 0.25\%$
Vibration IEC 60115-1 4.22, IEC60068-2-6	0.75mm or 10g 10 Hz - 500 Hz 6 hours	$\leq \pm 0.25\%$

\* for ohmic values between 10Ω and 1MΩ

APPLICABLE SPECIFICATIONS
<ul style="list-style-type: none"> <li>CECC 40000 / 40100 / 40101</li> <li>EN 140 000 / 140 100</li> </ul>