Axial Vitreous Wirewound Resistors

FEATURES

- Complete welded construction
- Vitreous coating
- Enhanced humidity protection
- TCR 100 ppm/K to 180 ppm/K
- CECC 40201-801 approved version available
- Pure tin plating provides compatibility with lead (Pb)-free and lead containing soldering processes
- Material categorization: For definitions please see www.vishay.com/doc?99912

RoHS COMPLIANT
HALOGEN FREE

STANDARD ELECTRICAL SPECIFICATIONS

MODEL	SIZE	POWER RATING W $P_{40\,°C}$	LIMITING VOLTAGE V	RESISTANCE RANGE (1) Ω TCR = 100 ppm/K to 180 ppm/K	TOLERANCE (2) ± %
G202	G220414	4	200	0.10 to 10K	10, 5, 2
G204	G240719	7	350	0.10 to 39K	10, 5, 2
G206	G260933	13	500	0.15 to 68K	10, 5, 2
G207	G270947	17	650	0.20 to 120K	10, 5, 2

Notes

(1) Resistance value to be selected for ± 10 % tolerance from E12 and for ± 5 % from E24

(2) 1 % on request

PART NUMBER AND PRODUCT DESCRIPTION

Part Number: G240719339 02J4B000

G	2	4	0	7	1	9	3	3	9	0	2	J	4	B	0	0	0

MODEL	TCR/MATERIAL	VALUE	TOLERANCE CODE	PACKAGING CODE	SPECIAL
G220414 = G202 **G240719** = G204 **G260933** = G206 **G270947** = G207	**3** = Class 3 WM 110 100 to 180 ppm/K	**3 digit value** **1 digit multiplier** MULTIPLIER **7** = $*10^{-3}$ **8** = $*10^{-2}$ **9** = $*10^{-1}$ **0** = $*10^{0}$ **1** = $*10^{1}$ **2** = $*10^{2}$ **3** = $*10^{3}$	**F** = ± 1.0 % **G** = ± 2.0 % **J** = ± 5.0 % **K** = ± 10.0 %	(3)	The 5 digit BV number will be encoded using a 36 character code. This code contains numbers 0...9 and letters A...Z (36 characters total) and allows to encode at least 46 655 five digit BV numbers. **000** = Standard

Product Description: G204 39K 5 % AB G73

G204	39K	5 %	AB G73
MODEL	VALUE	TOLERANCE CODE	PACKAGING DESCRIPTION (3)

Note

(3) See “Packaging Table”

For technical questions, contact: ww1resistors@vishay.com

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ELECTRICAL SPECIFICATIONS FOR PARTS QUALIFIED ACCORDING TO CECC 40201-801

MODEL	STYLE ACC. TO CECC40201-801	POWER RATING W $P_{25\,°C}$	POWER RATING W $P_{40\,°C}$	LIMITING VOLTAGE V	RESISTANCE RANGE (1) Ω TCR = 100 ppm/K to 180 ppm/K	TOLERANCE (2) ± %
G202	FDG	3.5	3.0	100	0.10 to 10K	5, 2
G204	FDK	6.5	5.5	200	0.10 to 39K	5
					0.10 to 22K	2
G206	FDP	11.5	10	350	0.15 to 68K	5
					0.15 to 33K	2

PART NUMBER AND PRODUCT DESCRIPTION FOR CECC 40201-801 QUALIFIED PART

Part Number: FDPCEE031809JLA000

F	D	P	C	E	E	0	3	1	8	0	9	J	L	A	0	0	0

MODEL	TCR/MATERIAL	VALUE	TOLERANCE CODE	PACKAGING CODE	SPECIAL
FDGCEE0 = G202 **FDKCEE0** = G204 **FDPCEE0** = G206	**3** = Class 3 WM 110 100 to 180 ppm/K	**3 digit value** **1 digit multiplier** MULTIPLIER **7** = $*10^{-3}$ **8** = $*10^{-2}$ **9** = $*10^{-1}$ **0** = $*10^{0}$ **1** = $*10^{1}$ **2** = $*10^{2}$ **3** = $*10^{3}$	**F** = ± 1.0 % **G** = ± 2.0 % **J** = ± 5.0 % **K** = ± 10.0 %	**4C** = Ammopack tape 73 mm, 500 pcs **7B** = Ammopack tape 88 mm, 250 pcs **LA** = Loose, 100 pcs **4A** = Ammopack tape 73 mm, 100 pcs **F1** = Reel tape 73 mm, 1000 pcs	**000** = Standard

Product Description: G206 18R 5 % LA CECC 40201-801

G206	18R	5 %	LA	CECC 40201-801
MODEL	VALUE	TOLERANCE CODE	PACKAGING DESCRIPTION	VARIANT

PACKAGING TABLE

MODEL	TAPE/LEAD LENGTH (mm)	AMMO PACK			REEL			LOOSE		
		PCS	PACKAGING CODE	PACKAGING DESCRIPTION	PCS	PACKAGING CODE	PACKAGING DESCRIPTION	PCS	PACKAGING CODE	PACKAGING DESCRIPTION
G202	53	500	2C	AC G53	1000	D1	R1 G53			
	73	500	4C	AC G73	1000	F1	R1 G73			
G204	73	250	4B	AB G73	500	FC	RC G73			
	88	250	7B	AB G88	500	IC	RC G88			
		250	8B	AB G88 CL						
	98							50	LD	LD
								200	LJ	LJ
G206	107							100	LA	LA
G207	120							100	LA	LA

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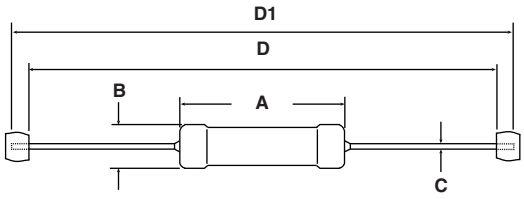
DIMENSIONS



For packaging dimensions see separate packaging dimensions page.

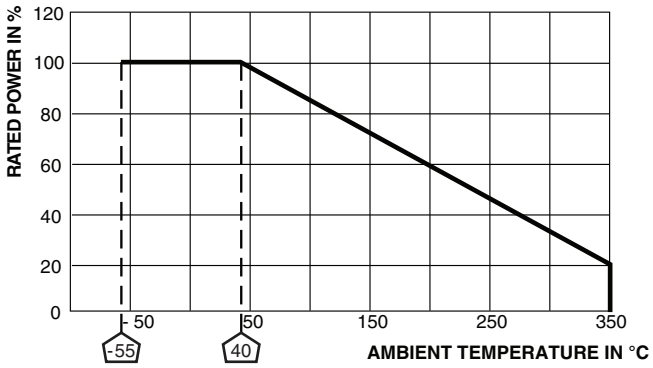
MODEL	DIMENSIONS in millimeters [inches]					
	$A_{max.}$	$B_{max.}$ (1)	C (2)	D	D1	MASS (g)
G202	13 [0.512]	5.7 [0.224]	0.8 [0.031]	53 ± 1 [2.087 ± 0.039]		1
G204	19.3 [0.760]	8.5 [0.335]	0.8 [0.031]	73 ± 1 [2.874 ± 0.039]		2.2
G206	32.3 [1.272]	9.8 [0.386]	0.8 [0.031]		107 ± 2 [4.213 ± 0.079]	6.5
G207	49.3 [1.941]	10.5 [0.413]	0.8 [0.031]		120 ± 2 [4.724 ± 0.079]	10

Notes

(1) The body diameter should be increased by 1 mm [0.039"] for ohmic values ≤ 10 Ω

(2) C according to IEC 60301

DERATING



TEMPERATURE RISE

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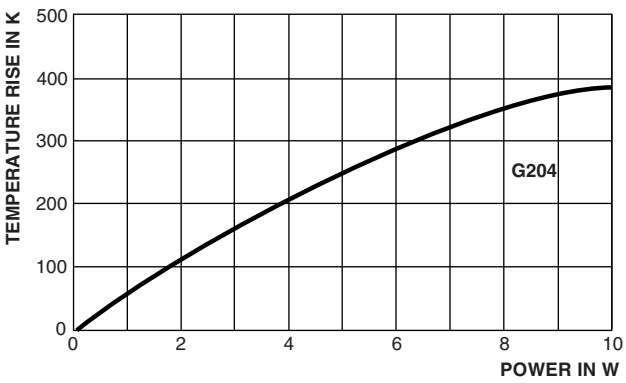

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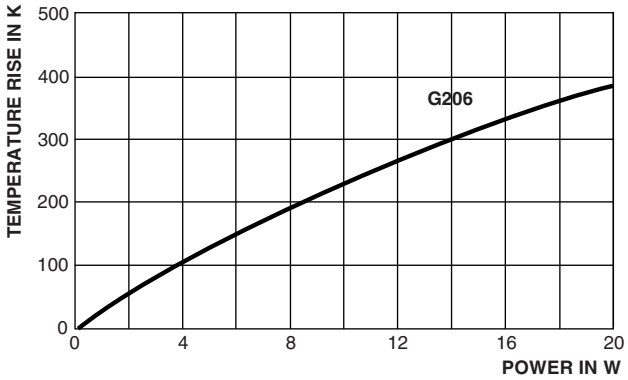

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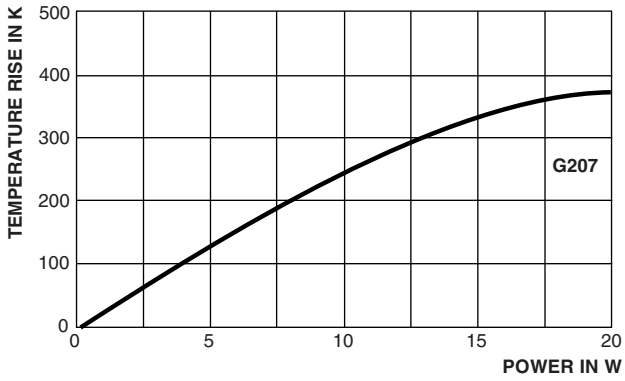

TEST PROCEDURES AND REQUIREMENTS

EN 60115-1 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE		REQUIREMENTS PERMISSIBLE CHANGE (ΔR)
4.7	-	Voltage proof	V-block-method; $U = U_{ins}$; 60 s		No flashover or breakdown
			Model	U_{ins} (V)	
			G202/FDG	300	
			G204/FDK	400	
			G206/FDP	500	
			G207	650	
4.8.4.2	-	Temperature coefficient	At (20/- 55/20) °C and (20/200/20) °C		100 ppm/K to 180 ppm/K
4.13	-	Short time overload	Overload voltage = $\sqrt{10}$ x rated voltage		± (1.0 % R + 0.05 Ω) no visible damage
			Model	Duration (s)	
			G202/FDG	5	
			G204/FDK	6	
			G206/FDP	10	
			G207	10	
4.16	21 (Ua_1) 21 (Ub) 21 (Uc)	Robustness of terminations	Tensile, bending and torsion		± (1.0 % R + 0.05 Ω), no visible damage
4.17.2	20 (Ta)	Solderability	Solder bath method; SnPb40; non-activated flux (235 ± 5) °C; (2 ± 0.2) s		Good tinning (≥ 95 % covered, no visible damage)
			Solder bath method; SnAg3Cu0.5; non-activated flux; (245 ± 5) °C; (3 ± 0.3) s		
4.18.2	20 (Tb, Method 1A)	Resistance to soldering heat	Unmounted components; (260 ± 3) °C; (10 ± 1) s		± (1.0 % R + 0.05 Ω), no visible damage
4.19	14 (Na)	Rapid change of temperature	30 min at LCT = - 55 °C 30 min at UCT = 200 °C 5 cycles		± (1.0 % R + 0.05 Ω), no visible damage
4.21	27 (Ea)	Shock	Acceleration: 981 m/s^2 Pulse Duration: 11 ms Wave Form: Half sine 3 successive shocks to be applied in each perpendicular direction		± (1.0 % R + 0.05Ω), no visible damage

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EN 60115-1 CLAUSE	**IEC 60068-2 TEST METHOD**	**TEST**	**PROCEDURE**	**REQUIREMENTS PERMISSIBLE CHANGE (ΔR)**
4.22	6 (B4)	Vibration	6 h; 10 Hz to 2000 Hz 1.5 mm or 196 m/s^2	± (1.0 % R + 0.05 Ω), no visible damage
4.23		Climatic sequence		± (5.0 % R + 0.05 Ω)
4.23.2	2 (Ba)		Dry heat 200 °C; 16 h	
4.23.3	30 (Db)		Damp heat, cyclic 55 °C; 24 h; 90 % to 100 % RH; 1 cycle	
4.23.4	1 (Aa)		Cold - 55 °C; 2 h	
4.23.5	13 (M)		Low air pressure; 1.0 kPa; 2 h; 15 °C to 35 °C	
4.23.6	30 (Db)		Damp heat, cyclic 55 °C; 5 days; 95 % to 100 % RH; 5 cycles	
4.25.2	-	Endurance at RT °C	P_{RT}, 1000 h (P_{RT} = P_{25} for CECC qualified model and P_{40} for commercial model) U = 1.5 h on; 0.5 h off	± (5.0 % R + 0.05 Ω)
			P_{RT}, 8000 h	± (8.0 % R + 0.05 Ω)
4.25.3	-	Endurance at upper category temperature	UCT = 200 °C acc. to CECC40201-801; load 54 % P_{70}; 1000 h U = 1.5 h on; 0.5 h off	± (5.0 % R + 0.05 Ω)
4.24	78 (Cab)	Damp heat, steady state	(40 ± 2) °C; 56 days; (93 ± 3) % RH	± (5.0 % R + 0.05 Ω)

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