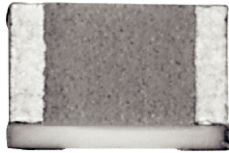
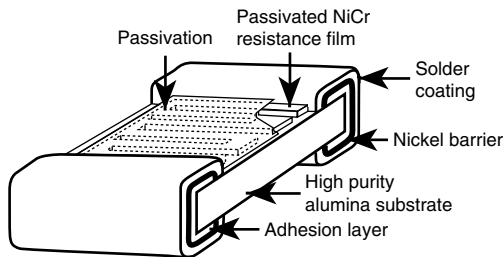


CECC (E) 40401-010 Qualified Thin Film Chip Resistors



Utilizing proven expertise in Thin Film resistors, VISHAY provides a CECC qualified chip with the same reliability and stability found in QPL resistors. These chips are available in a wide range of sizes, values and performance characteristics.

CONSTRUCTION



FEATURES

- Nickel barrier for high temperature operating conditions
- Tight TCR < 10 ppm/°C, and in lot tracking < 5 ppm/°C in (- 55 °C, + 155 °C temperature range)
- Very low noise < 35 dB and voltage coefficient 0.1 ppm/V
- Non-inductive
- Laser trimmed down to 0.1 %
- Wraparound resistance less than 0.01 Ω
- Antistatic waffle-pack or tape and reel packaging available
- High stability (0.05 % - 1000 h at Pn at + 70 °C)
- Withstand moisture resistance test of AEC-Q200
- Conform to EN 140401 804
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912


RoHS*
COMPLIANT

Note

* Lead (Pb)-containing terminations are not RoHS-compliant. Exemptions may apply.

STANDARD ELECTRICAL SPECIFICATIONS						
MODEL	SIZE	RESISTANCE RANGE (1) (2) Ω	RATED POWER Pn W	LIMITING ELEMENT VOLTAGE (UL) V	TOLERANCE ± %	TEMPERATURE COEFFICIENT ± ppm/°C
RV E	0505	100 to 260K	0.125	50	0.1, 0.5, 1, 2, 5	5, 10, 25
RV E	0603	100 to 260K	0.125	50	0.1, 0.5, 1, 2, 5	5, 10, 25
RV E	0805	100 to 300K	0.200	50	0.1, 0.5, 1, 2, 5	5, 10, 25
RV E	1206	100 to 1M	0.330	75	0.1, 0.5, 1, 2, 5	5, 10, 25

Notes

- (1) Extended resistance range on request
 (2) For ohmic range versus tolerance and TCR, see detailed table

CLIMATIC SPECIFICATIONS	
Operating temperature range	- 55 °C to + 155 °C
Storage temperature range	- 55 °C to + 155 °C

MECHANICAL SPECIFICATIONS	
Resistive material	Nichrome
Substrate material	Alumina
Plating	Tin lead over nickel or tin silver over nickel or gold over nickel
Marking resistance to solvents	Per CECC Specs

OHMIC RANGE VS. TOLERANCE AND TCR			
CASE SIZE	OHMIC RANGE Ω	TOLERANCE %	TCR ppm/°C
0505	100 < 500	0.5; 1; 2; 5	10, 25
0505	500 to 260K	0.1; 0.5; 1; 2; 5	10, 25
0603	100 < 500	0.5; 1; 2; 5	10, 25
0603	500 to 260K	0.1; 0.5; 1; 2; 5	10, 25
0805	100 < 500	0.5; 1; 2; 5	10, 25
0805	500 to 300K	0.1; 0.5; 1; 2; 5	10, 25
1206	100 < 500	0.5; 1; 2; 5	10, 25
1206	500 to 1M	0.1; 0.5; 1; 2; 5	10, 25

TECHNICAL SPECIFICATIONS		
TEST	SPECIFICATIONS	CONDITIONS
Absolute TCR	E: ± 25 ppm/°C Y: ± 10 ppm/°C	- 55 °C to + 155 °C
Absolute tolerance	± 0.1 %, ± 0.5 %, ± 1 %, ± 2 %, ± 5 % (R ≥ 500 Ω) ± 0.5 %, ± 1 %, ± 2 %, ± 5 % (R ≥ 100 Ω)	
Voltage coefficient	0.1 ppm/V	
Noise	- 35 dB typical	
Thermal EMF	< 0.1 μV/°C	
Load life stability	± (0.1 % Rn (3) ± 0.05 Ω)	1000 h Pn at + 70 °C

Note

(3) Rn: Nominal resistance

DIMENSIONS in millimeters (inches)								
SERIES/ CASE SIZES	A		B		D/E		C	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
RV 0505	1.198 (0.047)	1.502 (0.059)	1.143 (0.045)	1.397 (0.055)	0.250 (0.010)	0.510 (0.020)	0.373 (0.015)	0.627 (0.025)
RV 0603	1.368 (0.054)	1.672 (0.066)	0.623 (0.025)	0.877 (0.035)	0.250 (0.010)	0.510 (0.020)	0.373 (0.015)	0.627 (0.025)
RV 0805	1.758 (0.069)	2.062 (0.081)	1.143 (0.045)	1.397 (0.055)	0.250 (0.010)	0.510 (0.020)	0.373 (0.015)	0.627 (0.025)
RV 1206	2.908 (0.114)	3.212 (0.126)	1.473 (0.058)	1.727 (0.068)	0.250 (0.010)	0.510 (0.020)	0.373 (0.015)	0.627 (0.025)

POPULAR OPTION

AEC-Q200 moisture resistance

Option to order: 0058: Specific production process to withstand 85 °C/85 % RH at Pn/10

ENVIRONMENTAL TEST			
TEST	CONDITIONS	VALUES AND DRIFTS ($\Delta R/R \pm \%$)	
		CECC REQUIREMENTS	TYPICAL PERFORMANCE
Overload	6.25 x rated power/2 s (or 2 UL)	0.05 % Rn ⁽²⁾ + 0.05 Ω	0.01 % Rn ⁽²⁾
Climatic sequences ⁽¹⁾	- 55/+ 155 °C 5 moisture cycles	0.1 % Rn ⁽²⁾ + 0.05 Ω	0.02 % Rn ⁽²⁾
Thermal shock ⁽¹⁾	- 55/+ 155 °C 5 cycles 30 min	0.05 % Rn ⁽²⁾ + 0.05 Ω	0.02 % Rn ⁽²⁾
Load life ⁽¹⁾	+ 70 °C/Pn 1000 h	0.1 % Rn ⁽²⁾ + 0.05 Ω	0.05 % Rn ⁽²⁾
Resistance to solder heat	+ 260 °C/10 s	0.05 % Rn ⁽²⁾ + 0.05 Ω	0.02 % Rn ⁽²⁾
Moisture resistance ⁽¹⁾	+ 40 °C/93 % HR Pn/10	0.1 % Rn ⁽²⁾ + 0.05 Ω	0.01 % Rn ⁽²⁾
	AEC-Q200 ⁽³⁾ 85 °C/85 % RH/Pn/10 1000 h	0.5 % + 0.05 Ω	Max. < 0.3 % + 0.05 Ω
High temperature storage	1000 h at + 155 °C	0.1 % Rn ⁽²⁾ + 0.05 Ω	0.05 % Rn ⁽²⁾
Bending ⁽¹⁾	10 bends/2 mm/5 s	0.05 % Rn ⁽²⁾ + 0.05 Ω	0.02 % Rn ⁽²⁾

SPECIFIC CONDITIONS DUE TO TERMINATION TYPE				
TEST	CONDITIONS		VALUES AND DRIFTS	
	B; G	N	VISHAY REQUIREMENTS	TYPICAL PERFORMANCE
Solderability	+ 235 °C/2 s Sn60Pb40 alloy	+ 245 °C/3 s Sn97Ag3 alloy	VISUAL INSPECTION	
High T° reflow profile	N/A	+ 255 °C/40 s (on parts)	0.02 % Rn ⁽²⁾ + 0.05 Ω	0.01 % Rn ⁽²⁾ + 0.05 Ω

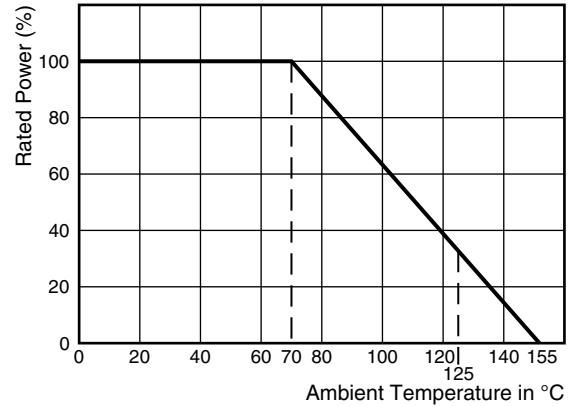
Notes

- ⁽¹⁾ Test requiring parts to be mounted on PCB will be performed with the requirement that termination alloy will be the same as solder paste alloy. Gold termination will be tested as B termination
- ⁽²⁾ Rn: Nominal Resistance
Pn: Nominal Power
- ⁽³⁾ Option to order: 0058



PACKAGING INFORMATION				
SIZE	NUMBER OF PIECES PER PACKAGE		TAPE WIDTH	
	WAFFLE PACK (2" x 2")	TAPE AND REEL		
		Min.	Max.	
0505	400	100	5000	8 mm (0.315")
0603				
0805	100	4000		
1206	140			

DERATING CURVE



GLOBAL PART NUMBER INFORMATION																	
New Global Part Numbering: RV0505E1001DBT0099																	
R	V	0	5	0	5	E	1	0	0	1	D	B	T	0	0	9	9
GLOBAL MODEL	SIZE	TCR		VALUE			TOLERANCE		TERMINATION		PACKAGING		OPTION				
	0505 0603 0805 1206	E = ± 25 ppm/°C Y = ± 10 ppm/°C		The first 3 digits (2 digits are enough for tolerance G and J) are significant figures and the last digit specifies the number of zeros to follow. R designates decimal point 10R0 = 10 Ω 3901 = 3900 Ω 1004 = 1 MΩ			B = ± 0.1 % D = ± 0.5 % F = ± 1 % G = ± 2 % J = ± 5 %		B: SnPb over nickel barrier N: SnAg over nickel barrier G: Gold over nickel barrier B: Lead bearing version N and G: Lead (Pb)-free/RoHS version		Blank = Waffle pack T = Tape and reel		Leave blank if no option				
Historical Part Number example: RV 0505 25PPM 1K 0.5 % B TR R1016																	

PART NUMBER DESCRIPTION (for information only)							
RV	0505	25 PPM	1K	0.5 %	B	TR	R1016
MODEL	SIZE	TCR	OHMIC VALUE	TOLERANCE	TERMINATION	PACKAGING	OPTION



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