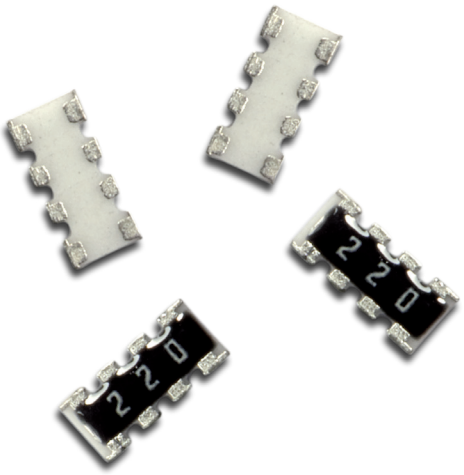
Resistors

Green Thick Film Chip Arrays

GBCN Series



- Completely free of Pb and its compounds
- RoHS compliant without exemption
- AEC-Q200 qualified

All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

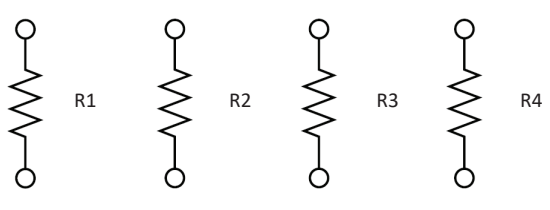
Summary of Types

Type	Part Number Start	Width (mm)	Resistor Elements	Circuit	Package Size	Scalloped Convex	Square Convex
GBCN164	GBCN164AB	1.6	0603 x 4	Isolated	1206		

Electrical Data

		GBCN164
Resistor power rating @70°C	mW	63
Package power rating @70°C	mW	250
Limiting element voltage	V	50
Maximum overload voltage	V	100
Resistance range	ohms	1R0 – 1M0
Resistance tolerance	%	1, 5
TCR	ppm/°C	<10Ω: ±400 ≥10Ω: ±200
Standard values		E24 preferred, E96 available
Ambient temperature range	°C	-55 to +155
Dielectric withstand	V	300

Circuit



R1 = R2 = R3 = R4

General Note

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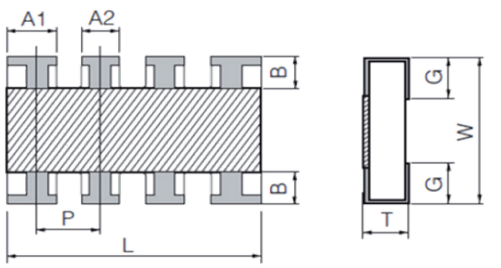
Physical Data

Dimensions (mm) & weight (mg)									
Type	L	W	T	A1	A2	B	P	G	Wt.
GBCN164	3.2 ±0.2	1.6 ±0.2	0.5 ±0.1	0.65 ±0.15	0.5 ±0.15	0.3 ±0.15	0.8 ±0.1	0.3 ±0.15	8.6

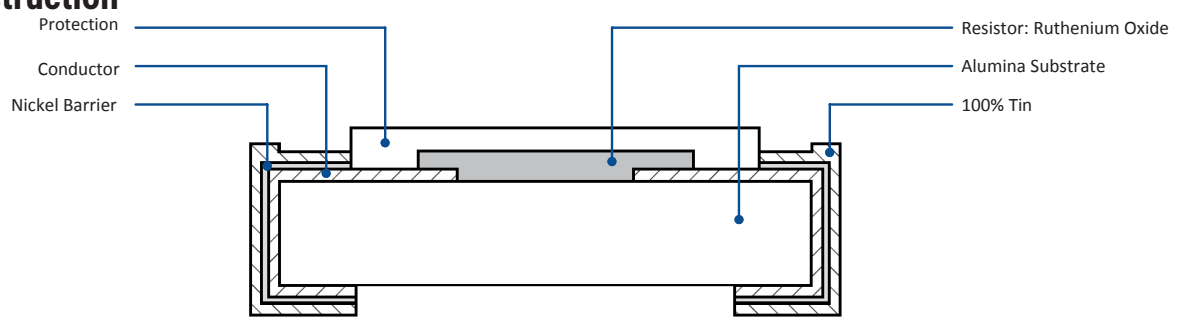


Marking

5% tolerance parts are individually marked with three digits. The first two digits are the significant figures and the third defines the number of added zeros.

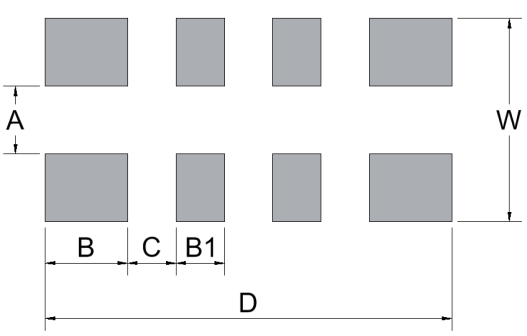
1% tolerance parts are individually marked with four digits. The first three digits are the significant figures and the fourth defines the number of added zeros.

Construction



Recommended Solder Pad Size

Dimensions (mm)						
Type	A	B	B1	W	C	D
GBCN164	1.0 ±0.1	0.55 ±0.1	0.4 ±0.1	2.6 ±0.1	0.4 ±0.1	2.8 ±0.1



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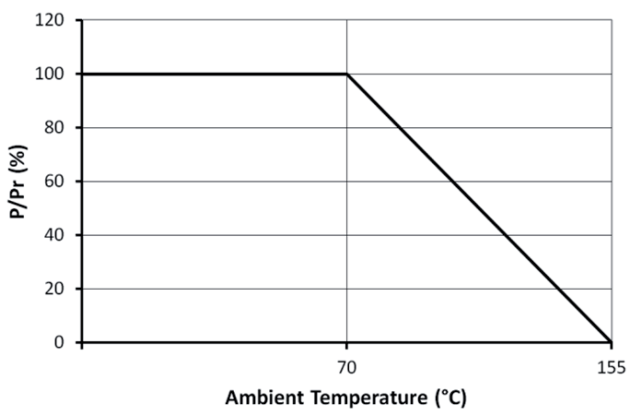
Performance Data

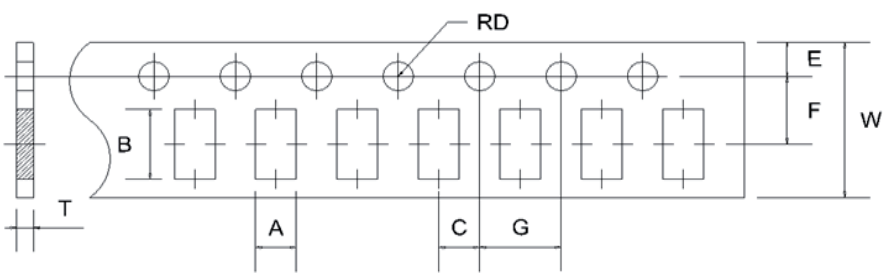
Test	Condition	ΔR% (+0.1Ω)
Load life	1000 hrs cyclic load @ 70°C	3
Short term overload	2.5 x rated voltage or maximum overload voltage for 5s	2
High temperature operation	1000 hrs @ 155°C	3
Biased humidity	1000hrs 85°C, 85%RH, 10% operating power	3
Temperature cycling	1000 cycles, -55 to +155°C	1
Resistance to solder heat	260°C for 10s	1
Mechanical shock	6ms half-sine, 100 g's peak	1
Vibration	12 cycles, 20 min, 3 orientations, 5 g's peak, 10 – 2000Hz	1
ESD	Direct contact discharge to 8kV	1
Board flex	2mm deflection	1
Termination strength	1.8kg for 60s	No damage
Solderability		≥95% coverage
Resistance to solvents		Legible

De-rating Curve



Packaging

GBCN resistor arrays are supplied taped and reeled as per IEC 286-3.



Dimensions (mm)									
Type	A	B	C	RD	E	F	G	W	T
GBCN164	2±0.2	3.6±0.2	2±0.05	1.5+0.1-0	1.75±0.1	3.5±0.05	4±0.1	8±0.2	0.83±0.1

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Ordering Procedure

Example: GBCN164AB472J7 (GBCN 1.6mm wide, 4 resistors, isolated circuit, square convex at 4.7 kilohms ±5%, packed on a 7” reel, Pb-free)

G	B	C	N	1	6	4	A	B	4	7	2		J	7
1				2		3	4	5	6				7	8

1 Series	2 Width	3 Number of Resistors	4 Circuit	5 Termination	6 Value	7 Tolerance	8 Packaging		
GBCN	16=1.6mm	4	A=Isolated	B=Square Convex	3 digits for 5%	F=±1%	7	7” reel	5000/reel, Paper tape
					4 digits for 1%	J=±5%			
					JP=Jumper	(Blank for jumper)			