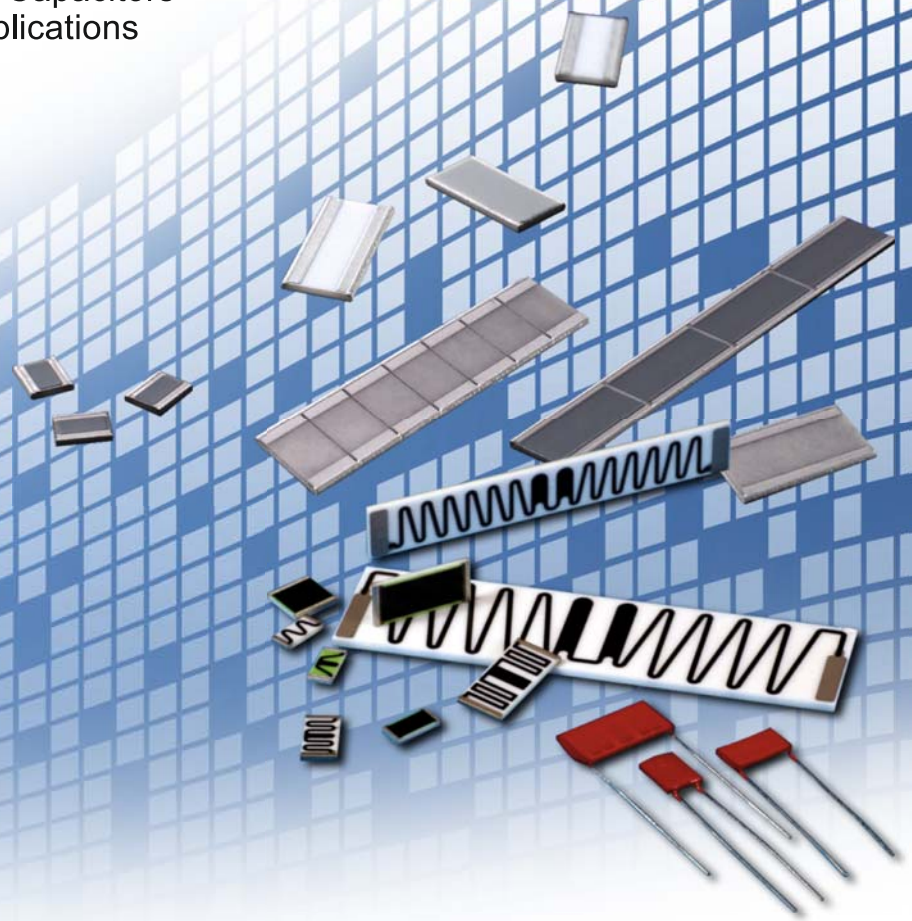
MMXXV - Edition

Short Form Catalog

SRT Resistor Technology

Active at passive Components

Resistors and Capacitors
for special applications



- Chip Resistors
- Leaded Resistors
- Resistor Networks
- Multilayer Chip Capacitors
- Customized Resistor Products

Resistor Technology

www.srt-restech.de

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As a leading manufacturer of special resistors, the focus of **SRT Resistor Technology GmbH** is on high-value resistors, high temperature resistors, high voltage resistors, non-magnetic resistors, precision resistors, wire-bondable resistors, resistor networks and some more. The special features of our sophisticated components qualify these for a wide range of applications such as industrial electronics, security and medical electronics, sensors, high temperature applications and aerospace. The leaflet gives a short overview of our different resistor series and complementary products from our partners worldwide. For detailed information, please use the data sheets or contact us.

SRT Resistor Series

CHx-Series thick film Resistors with PtAg-terminals
(CHR, CHS, CHM, CHK, CHP, CRB)

- RohS-konform
- Non-magnetic resistors
- Thick film termination for soldering and conductive glueing (Silver Epoxy)
- High temperature versions available
- Suitable for high vacuum applications – no organics
- Good wetting (< 3s @ 250°C) with all solders
- Excellent leaching resistance (> 40 s @ 260°C)
- Absolut no Tin whiskering

Leaded thick film high value Resistors
(GST, HVR, HVM, HVT)

- RohS-konform
- Climatic protection by silicone lacquer coating
- Non-magnetic
- Different lead styles available
  - Radial leads (standard), variable lead spacing by bending
  - Pin type with single-in-line (SIL) pins Axial versions
  - Unleaded version with solder pads available
  - Various wire diameters (standard 0.6 and 0.4mm)
- Customized versions possible

CRx-Series thick film Resistors with NiSn-terminals
(CRS, CRM, CRW, CRA)

- RohS-konform
- Nickel-barrier / matte Tin terminations for standard assembly by soldering
- No high temperature versions available
- Suitable for high vacuum applications – no organics
- Well-known termination for the customer
- Excellent wetting (< 3s @ 250°C) with all solders

Special Resistors
(CBW, CRD)

- RohS-konform
- Wire bondable resistors and networks
- Flip-chip resistors
- Thick film chip dividers

Product Introduction

Type	Description	Values R / Tolerance / TCR	Remarks	Terminal
CHR	Standard thick film chip resistors	1R ~ 10M 0.5 ~ 20% 50 ~ 250 ppm/K	• Standard value range, non-magnetic • High temperature version CHR-HT (up to 300°C) • RF-versions untrimmed	PtAg
CHS	High value thick film chip resistors	10M ~ 1T 0.25 ~ 30% 50 ~ 3000 ppm/K	• High temperature version CHS-HT (up to 300°C) • Low temperature and voltage dependency (TCR, VCR) • Continuous operating voltage up to 6000 V	PtAg
CHM	High value precision thick film chip resistors	100k ~ 10T 0.25 ~ 30% 50 ~ 3000 ppm/K	• Meander structured chip resistors • High temperature version CHM-HT up to 300°C • Lower temperature and voltage dependency (TCR, VCR)	PtAg
CHK	Chip resistors for Silver Epoxy application	10M ~ 1T 0.25 ~ 30% 50 ~ 3000 ppm/K	• For conductive gluing only • For high volumes only • Parameters as CHR, CHS or CHM	AgPd
CHP	Power chip resistors on Aluminium-Nitride substrates (AlN)	1R0 ~ 1k6 1 ~ 20% 100 / 250 ppm/K	• High thermal conductivity • High temperature applicability up to 200°C • Untrimmed for improved pulse power rating (NA)	PtAg
CRB	Trimmable thick film chip resistors	1R ~ 10M 5 ~ 30% 50 ~ 250 ppm/K	• For active circuit adjustment • User-trimmable (not pre-trimmed) • Suitable for Laser and air-abrasive trimming	PtAg
CRS	Standard thick film chip resistors	0R1 ~ 500M 0.5 ~ 20% 50 ~ 250 ppm/K	• Standard value range • Resistance element glass-passivated • RF-versions untrimmed	NiSn
CRW	Power thick film chip resistors	0R1 ~ 100M 0.5 ~ 20% 50 ~ 250 ppm/K	• Resistance element glass-passivated • High pulse load at un-trimmed resistors • Power mode with increased power rating available	NiSn
CRM	Precision high-value chip resistors	0M1 ~ 100G 0.25 ~ 30% 25 ~ 2000 ppm/K	• Meander structured chip resistors • Lower temperature and voltage dependency (TCR, VCR) • Untrimmed for higher working voltage up to 6000 V	NiSn
CRA	Trimmable thick film chip resistors	1R ~ 10M 5 ~ 30% 50 ~ 250 ppm/K	• User-trimmable (not pre-trimmed) • Suitable for Laser and air-abrasive trimming • For soldering only	NiSn
CBW	Flip-chip resistors	10R ~ 1T 0.5 ~ 30% 25 ~ 3000 ppm/K	• For flip chip assembly (face-down; conductive epoxy) • No wrap-around; Bottom side completely insulated • High temperature version CBW-HT (up to 200°C)	AgPd
CBW-Au	Wire-bondable chip resistors	10R ~ 1T 0.5 ~ 30% 25 ~ 3000 ppm/K	• For wire bonding (US/TC; face-up) • No wrap-around; Bottom side completely insulated • High temperature version CBW-HT (up to 200°C)	Au
CDV	Precision thick film chip dividers	10R ~ 1G Resistance ratio up to 1000:1	• 2 integrated resistors with close relative data • Different terminations for flip chip assembly or standard soldering • Sizes 2512 and 4020	AgPd or NiSn

Type	Description	Values R / Tolerance / TCR	Remarks	Terminal
CHx-HT	High temperature chip resistors	1R ~ 1T 1 ~ 20% 50 ~ 2000 ppm/K	• High temperature applications up to 300°C (200°C) • Series CHR-HT, CHS-HT, CHM-HT, CBW-HT • Parameters corresponding to base series	PtAg
GST	High value resistors, radial leaded	1M0 ~ 1T 0.5 ~ 30% 25 ~ 1000 ppm/K	• Basing on chip resistor series CHR/CHM • Excellent values of tolerance, TCR and VCR • Untrimmed for higher working voltage up to 6000 V	Sn
HVR	Flat high voltage-/ high value thick film resistors	1M0 ~ 10T 0.25 ~ 30% 25 ~ 1000 ppm/K	• Close values of tolerance, TCR and VCR • Customized and low ohmic versions possible • Operating voltages up to 80000 V (80 kV)	Sn
HVM	Flat high voltage-/ high value resistors	1M0 ~ 10T 0.25 ~ 30% 25 ~ 500 ppm/K	• Excellent values of tolerance, TCR and VCR • Customized versions possible • Operating voltages up to 30000 V (30 kV)	Sn
HVT	Precision high voltage thick film dividers	Resistance ratio up to 20000:1	• Customer specific design, special versions possible • 2 to 10 resistors are feasible • High precision of ratio (0.25 %) and low tracking TCR • High operating voltages up to 40000 V (40 kV)	Sn
	Customized resistors and resistor networks	1R ~ 10T	• Special solutions dedicated to the specific application • Adapted to the required electrical and mechanical parameters (size, shape, base material, termination etc.)	

Complementary Products from SRT cooperation Partners

Type	Description	Values R / Tolerance / TCR	Remarks
SMT-Resistors	Thin film chip resistors	1R ~ 3M 0.01 ~ 1% 1 ~ 50 ppm/K	• Sizes 0201-2512 • Anti-corrosive version • Automotive grade AEC-Q200 compliant versions
	Thick film chip resistors	0R01 ~ 1G 0.1 ~ 20% 50 ~ 500 ppm/K	• Standard components • Sizes 0201 ~ 2512 • Power up to 3W
	Wire wound chip resistors	0R05 ~ 50k 0.01 ~ 5% 25 ~ 200 ppm/K	• Power 2 ~ 5 W • Sizes 1812 ~ 8230 • types for pulse load available
	MELF resistors	0R1 ~ 10M 0.1 ~ 10% 5 ~ 100 ppm/K	• Sizes 0102, 0204, 0207, 0309 • Metal film or carbon film • Up to 2W
	Metal strip shunt resistors	0.2mR ~ 10mR 1 ~ 10% 50 ~ 200 ppm/K	• Welded structure • Non-magnetic, Low inductance (< 3nH) • Sizes 1206, 2512, 3921, 5931; Power 2 ~ 7W
	Metal foil / strip chip resistors	0.25mR ~ 560mR 0.5 ~ 5% 50 ~ 200 ppm/K	• Coated metal strip/foil resistance element • Very low inductance < 5nH • Sizes 0603 ~ 4527; Power 0.5 ~ 5W
THT-Resistors	Thick film resistors	200R ~ 10G 0.5 ~ 10% 25 ~ 100 ppm/K	• Non inductive design • High temperature capability up to 200°C • Operating voltages 3 ~ 48 kV; Power 0.5 ~ 20W
	Carbon film resistors	0R1 ~ 22M 2 ~ 10%	• Different sizes • Power up to 4W • Excellent long term stability
	Metal film resistors	1R ~ 5M 0,05 ~ 5% 3 ~ 250 ppm/K	• Different sizes • Power up to 5W • High stability
	Wire wound precision resistors	0R003 ~ 1M 0.01 ~ 10% 60 ~ 120 ppm/K	• Power up to 20 W • Non-inductive types available • Special types for pulse load available
	Wire wound power resistors	0R1 ~ 150k 0.25 ~ 10% 20 ~ 250 ppm/K	• Different types and sizes from 20 to 3000 W • Different styles: polymer coating, vitreous enamel coating, ceramic case, aluminium encased, wave band winding, flat style, etc.
MLCC	Multilayer chip capacitors	0.47pF ~ 22□F 1 ~ 20%	• Sizes 0402 ~ 5440 with different dielectrics: NP0, X7R, Y5U, Z5U, etc. • Special versions available: high voltage up to 7200 V high temperature radial leaded non-magnetic different terminations and array types

Resistor Technology

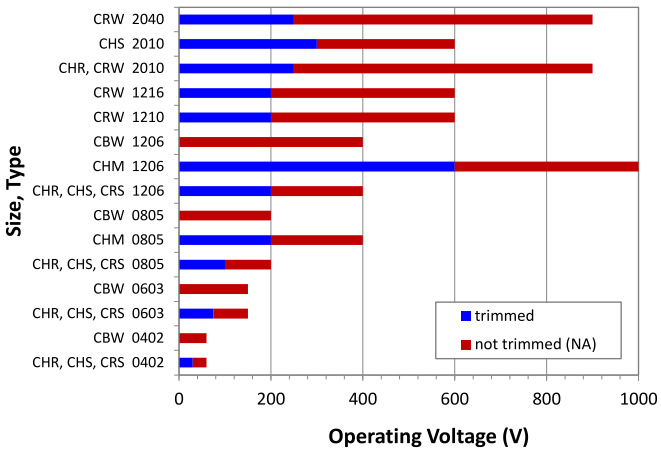
Summary of Characteristics

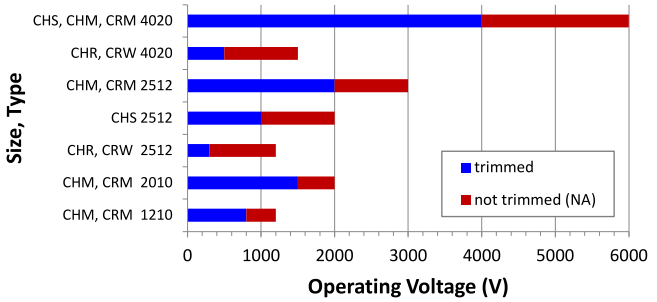
Type	Assembly			Termination					Base Material		Techno-logy		Spec. Characteristics					Range
	SMT (chip)	THT (leaded)	FC C&W	NiSn	Sn	PtAg	Au / Al	AgPd	Al_2O_3	AlN	Thick film	Thin film	Standard	non-magnetic	high temp. version	cond. epoxy suitability	high vacuum	Resistance
CHR	•					•			•		•		•	•	•	•	•	1R0 – 10M
CHS	•					•			•		•		•	•	•	•	•	10M – 1T
CHM	•					•			•		•		•	•	•	•	•	100k – 10T
CHK	•							•	•		•			•		•		10M – 1T
CHP	•					•				•	•		•	•	•	•	•	1R0 – 1k6
CRB	•					•			•		•		•	•		•	•	1R0 – 10M
CRS	•			•					•		•		•				•	0R1 – 500M
CRW	•			•					•		•		•				•	0R1 – 100M
CRM	•			•					•		•		•				•	100k – 100G
CRA	•			•					•		•		•				•	1R0 – 10M
CBW	•		•					•	•		•		•	•		•	•	10R – 1T
CBW-Au	•		•				•		•		•		•	•		•	•	10R – 1T
CDV	•		•	•		•			•		•			•	•	•	•	10R – 1G
GST		•			•				•		•		•	•				1M0 – 1T
HVR		•			•				•		•		•	•	•			1M – 10T
HVM		•			•				•		•		•	•				1M – 10T
HVT		•			•						•			•				≤ 20000:1

Sizes of Chip Resistors

Series / Size	CHR CHR-HT	CHS CHS-HT	CHM CHM-HT	CRB CRB-HT	CHP	CHK	CRS	CRM	CRA	CRW	CDV	CBW	CBW -Au	*GST*
0402	•	•				•	•					•	•	
0603	•	•		•		•	•		•			•	•	
0805	•	•	•	•		•	•	•	•			•	•	
1206	•	•	•	•		•	•	•	•			•	•	
1210		•	•	•		•		•	•	•				•
1216				•	•				•	•				
2010	•		•		•			•		•		•		
2040					•					•				
2512	•	•	•		•	•		•		•	•	•		•
4020	•	•	•		•	•		•		•	•	•		•

Operating Voltages





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RoHS / ELV conform 2011/65/EC 2000/53/EC

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