Stackpole Europe Ltd
Resistive Product Solutions

Short Form Product Selector Guide

Thick Film Resistors

Thin Film Resistors

Chip Resistors Arrays and Networks

Metal Film Oxide Resistors

Carbon Film and Carbon Comp Resistors

Wirewound Resistors

Single Layer Varistors (MOVs)

Multilayer Varistors

High Frequency Inductors

SMD Power Inductors

Power Resistors

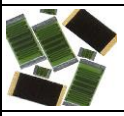
2019

Current Sense and Thin Film Resistors

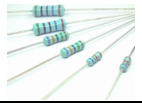
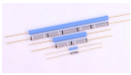
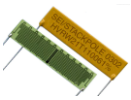
Stackpole Series		AEC-Q200 Qualified	Description	Package Size	Resistance Range (Ω)	Tolerance	TCR (ppm/ºC)	IRC/TT	KOA	Ohmite	RCD	Vishay
BR		No	Bare Element Current Sensing	1 W - 5 W	0.005 - 0.1	1% 2% 5%	± 20 (best available)	OAR	-	60	OA	SR
CSNL		No	Metal Plate Current Sensing	1206 - 2512	0.0005 - 0.1	1% 5%	± 50	ULR	TLR	-	-	WSL WSLP
CSR CSRN		No	Thick Film Current Sensing	0402 - 1225	0.001 - 8	1% 2% 5%	± 100 to ± 600	LR PLR LRF3W	SR73 UR73	LVC	ML	CRCW LR
CSRF		Sizes 0402, 0603 0805, 1206 2512	Foil on Ceramic Current Sensing	0402 - 4320	0.002 - 0.6	1% 5%	± 50 to ± 300	-	-	MCS LVT	-	-
CSS CSSH		Yes	Ultra Precision Current Sensing	0603 - 4527	0.00025 - 0.12	0.5% to 5%	± 15 to ± 100	ULR	TLR PSI	-	-	WSL WSLP WSLT
HCJ		Yes	Surface Mount High Current Jumper	0402 - 2512	< 0.003 < 0.0005	-	-	LRZ	-	-	-	-
HCS		Yes	High Current Shunt	1206 2512 3920 5930	0.0002 - 0.005	1% 5%	± 50 to ± 300	LRMAP	PSJ	EBW CRS	-	WSL WSLF WSLP
HCSM		Yes	High Power Current Shunt	2818	0.004 - 0.02	1% 5%	± 75 ± 200	-	-	-	-	-
HCSK		No	Kelvin Termination Current Shunt	2725	0.001 0.003 0.005	1% 5%	± 50	-	PSG4	-	-	WSL
MPR		No	Flameproof Metal Plate	3 W 5 W	0.01 - 0.47	5% 10%	± 350	-	BPR	-	-	-
MR		No	Low Resistance Value - Molded 2 and 4 leads	1 W - 10 W	0.005 - 0.5	1% 5%	± 40 to ± 400	LOB	-	10	-	LVR

Stackpole Series		AEC-Q200 Qualified	Description	Package Size	Resistance Range (Ω)	Tolerance	TCR (ppm/ºC)	IRC/TT	KOA	Panasonic	Vishay	Yageo
MLF MLFM		No	Metal Film Melf	0102 - 0207	0.1 - 10 M	0.1% to 5%	± 10 to ± 100	-	RN41 RM41	MGP	SMM MMU MMA MMB Precision	MMF
MLFA		Yes	Metal Film Melf AEC-Q200 Qualified	0102 0204 0207	0.1 to 1 M	0.1% to 5%	± 15 to ± 100	-	-	-	MMA MMB Professional	-
RNCF		Yes	Precision Thin Film	0201 - 2512	1 - 3 M	0.01% to 1%	± 2 to ± 50	PCF	RN73	ERA	TNPW PHR	TF 9T RT
RNCP		No	High Power Anti-Sulfur Thin Film	0402 - 1206	1 - 100 K	1% 5%	± 100	-	-	-	-	-
RNCS RNCH		Yes	Anti-Corrosive Tantalum Nitride Replacement	0402 - 2512	10 - 1 M	0.1% to 0.5%	± 15 to ± 50	PFC	-	-	PTN	-
RTAN		Yes	Tantalum Nitride Thin Film	0402 - 1206	10 - 1 M	0.05% to 1%	± 10 to ± 50	PFC	-	-	PTN	-

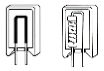
Surface Mount Resistors and Arrays

Stackpole Series		AEC-Q200 Qualified	Description	Package Size	Resistance Range Ω	Tolerance	TCR (ppm/ºC)	IRC/TT	KOA	Panasonic	Vishay	Yageo
FCR		No	Trimmable Thick Film	0402 - 2512	10 - 1 M	± 5% ± 30%	± 200	-	RK73N	-	CRCW-TR	TR
HGC		No	Precision High Resistance Thick Film	0402 - 3512	10 K - 50 G	0.1% to 20%	± 25 to ± 200	-	-	-	-	-
HMC		No	High Value Thick Film	0402 - 2512	11 M - 10 G	1% 5% 10%	± 200 to ± 1500	HR	-	-	CRCW_HR RCHR	-
HVC		No	High Voltage Thick Film	0603 - 3512	10 K - 50 G	0.1% to 20%	± 25 to ± 200	HVC	HV73	-	CRHV	-
RACF		164D	Concave Termination Resistor Array	0402x2, 0402x4 0603x4, 0603x8 1206x4	1 - 1 M	1% 2% 5%	± 200 to ± 650	-	CN, CNB CND_Y CNZ	EXB	CRA/P	TC
RAF		052D 054D	Flat Termination Chip Resistor Array	0201x2 0201x4	3 - 1 M	1% 5%	± 200 ± 300	-	CNIH	EXB14 EXB18	-	YC102
RAVF		102D 104D 164D	Convex Resistor Array	0201x2, 0402x2 0402x4, 0603x2 0603x4, 0603x8	1 - 1 M	1% 2% 5%	± 200 to ± 500	WCA	CN_K/N CNZ	EXB	CRA/S	YC
RAVS		No	Convex Anti-Sulfur Chip Array	102D - 324D	1 - 10 M	1% 2% 5%	± 200 ± 300	-	-	-	-	-
RGC		0402 0603	Semi-Precision Thick Film	0201 - 2512	1 - 10M	0.1% 0.5% 1%	± 50 to ± 200	-	RK73G	ERJ_D	CRCW_P	RE
RHC		No	High Power Thick Film	2512 (2 W)	0.1 - 1 M	1%, 5%	± 100	-	-	-	-	-
RMCF		Yes	General Purpose Thick Film	01005 - 2512	0.1 - 20 M	1%, 5%	± 100 to ± 600	WCR	RK73B RM73 RK 73Z	ERJ	CRCW	9C, RC
RMCG		No	Gold Barrier Sulfur Impervious	0402 - 2512	1 - 10 M	1% 2% 5%	± 100 to ± 600	-	-	ERJS	-	AR
RMCP		except 0201	High Power Thick Film	0201 - 2512	1 - 1 M	1%, 5%	± 100 to ± 400	-	-	-	-	RC High Power
RMCS		No	Sulfur Resistant Thick Film	0201 - 2512	1 - 10 M	0.5% 1% 5%	± 100 ± 200	-	RK73-RT	ERJU	RCA	AF
RPC		1% and wider	Pulse Withstanding Thick Film	0402 - 2512	1 - 20 M	0.5% to 20%	± 100 to ± 300	PWC	SG73	ERJP ERJT	CRCW-IF	SR
RVC		No	Medium Voltage Thick Film	0402 - 2512	30 K - 100 M	1%, 5%	± 100 to ± 400	-	HV73	-	RCV	RV

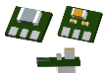
Through-Hole Resistors

Stackpole Series		AEC-Q200 Qualified	Description	Package Size	Resistance Range (Ω)	Tolerance	TCR (ppm/ºC)	IRC/TT	KOA	NIC	Vishay	Yageo
ASR ASRM SPR		No	Anti-Surge	0.25 W - 2 W	3.3 - 22 M	5%	+0/-500 +0/-1800	-	RCR	-	-	-
CF CFM CD		No	Carbon Film (zero ohm)	0.125 W - 2 W	1 - 22 M (0.01 or less zero ohm)	2% 5%	± 400	CF zero ohm	CF Z J	NCF	CCF FR5	CFR ZOR
FRN		No	Fusing Metal Film	0.166 W - 2 W	0.22 - 10 K	5%	± 350	WFF	-	-	CMF XX-39	FRM
HDM		No	Moisture Resistant Carbon Film	0.25 W 0.5 W	1 - 2.2 M	1% 2% 5%	N/A	-	-	-	-	-
HVA		No	High Voltage Axial Leaded	0.5 W 0.8 W 1.2 W	1 M - 1 G	1% 5% 10%	± 200	-	-	-	ROX RNX	-
HVAM		No	Precision High Voltage Axial Leaded	2 W, 3.6 W 5 W, 7.5 W 10 W	500 K - 10 G	0.1% to 20%	± 50 ± 100	-	-	-	ROX RNX	-
JW		No	Jumper Wire	24 - 20 gauge	3 A to 4 A max current	N/A	N/A	-	JL	-	-	JPW
MG MGM		No	High Voltage Metal Glaze	0.25 W - 3 W	1 K - 1 G	1% 5% 10%	± 100	GC MH	GS	-	VR	HVR
RC		No	Carbon Composition	0.25 W 0.5 W	1 - 22 M	5% 10%	N/A	IBT	RC	-	-	-
RNF RNMF		No	Metal Film	0.125 W - 2 W	1 - 22 M	0.05% to 5%	± 10 to ± 100	GP RC	MF RK	NMR	CMF CCF	MFR
RNS		No	Ultra Miniature Metal Film	0.5 W 1 W 2 W	10 - 1 M	0.5% to 5%	± 50 to ± 200	MFP	-	-	CPF SFR16S	-
RNV		No	High Voltage Anti-Moisture Metal Film	0.25 W	100 K - 15 M	1% 5%	± 100 ± 200	-	RCR25	-	VR25 HVR25	-
RSF RSMF		No	General Purpose Metal Oxide	0.5 W - 5 W	0.1 - 1 M	1% 2% 5%	± 200	MO MOM	MO MOS (RSS)	NMO	SXA CPF	RSF
RSPF RSPL		No	Flameproof Power	0.25 W - 3 W	0.1 - 1 M	1% 2% 5%	- 200 / + 350	MO-S	SPR	-	FP PR	RSF
Stackpole Series		**AEC-Q200 Qualified**	**Description**	**Package Size**	**Resistance Range (Ω)**	**Tolerance**	**TCR (ppm/ºC)**	**Caddock**	**KOA**	**Ohmite**	**RCD**	**Vishay**
HVR		No	High Voltage Radial Leaded Plate Resistor	39 - 56	100 K - 50 G	0.1% to 20%	± 25 to ± 200	THV USP	RK92	-	-	FHV TR
TR		No	Power Resistor	20 - 100	0.05 - 1 M	0.5% to 10%	± 50 to ± 300	MP820 821, 825 580, 915 916, 925 930	-	TAH, TBH, TCH, TDH, TEH, TFH	-	LTO RTO

Wirewound and Power Resistors

Stackpole Series		AEC-Q200 Qualified	Description	Power Rating	Resistance Range (Ω)	Tolerance	TCR (ppm/ºC)	IRC/TT	Ohmite	RCD	Riedon	Vishay
BVM		No	Ceramic Housed Vertical Bracket Mount	5 W - 25 W	0.1 - 50 K	5%	± 300	-	-	PWV	-	-
CB MCB		No	Ceramic Housed with Axial Leads	2 W - 15 W	0.056 - 51 K	5% 10%	± 200 to ± 800	PW PPW LPW	TUW TUM	PW ULV LOR	UW	CP CPL
KAL NKAL		No	Aluminum Housed Chassis Mount	10 W - 250 W	0.05 - 150 K	0.1% to 5%	± 20 to ± 100	AL	89 HS	600	UAL	RH
LCB LCBF TCB		No	Ceramic Housed Current Sensing	2 W - 15 W	0.005 - 0.33	1% to 10%	± 200 (LCBF) ± 50 to ± 400 ± 40 (TCB)	LPW 4LPW	TUW TUM	ULV LVH LVF	-	CPL CPSL
LVM NVM WVM		No	Vertical Mount Ceramic Housed Current Sensing	5 W - 10 W	0.01 - 8 K	0.5% to 10%	± 20 to ± 400	PWRL	TWW	PVH	PV	CPCL
MHL		No	Metal Clad Low Profile Power Wirewound	60 W - 1000 W	0.1 - 100 K	1% 5% 10%	± 260	-	ARCOL ARF	-	-	VACR
NSZ		No	Specialty Lead Ceramic Housed	5 W - 10 W	0.22 - 51 K	5% 10%	N/A	-	TVM	PWLL	-	CPR
RWT		No	Thermal Fusing Vertical Mount	2 W - 7 W	1 - 470	5%	± 200	-	-	-	-	-
SM SMH		No	Surface Mount Wirewound	1 W - 4 W	0.01 - 5 K	0.1% to 5%	± 20 to ± 100	WSM	RW RWS	MWM	S SL	WSC WSR
SP3A		No	Fusing Wirewound	4 W	10 - 100	5%	± 20	ULW3	-	-	-	-
SWT EWT		No	Non-Flammable Edgewound Tubular Wirewound	25 W - 225 W	0.1 - 130 K	5% 10%	± 100 to ± 400	-	270	T	TSC TVC	HLW
VM MVM		No	Ceramic Housed Vertical Mount	2 W - 10 W	0.056 - 51 K	5% 10%	± 200 to ± 800	PWR PWRG PWRL	TWM TWW	PV	UV	CPCC CPCF CPCL CPCP
WCB WCBF NWCB		No	Welded Ceramic Housed Axial Leaded	5 W - 25 W	0.1 - 20 K	0.5% to 5%	± 50 < 10 Ω ± 20 > 10 Ω	PW PPW LPW	TUW	PW ULV LOR	UW	CPW CPL
WW MWW WRC		No	General Purpose and Precision Wirewound	0.4 W - 11 W	0.5 - 100 K	0.1% to 5%	± 20 to ± 90, - 80 ~ + 900	AS SP20 SPH	40 80	100 RW	UT	RS/NS

Varistors and Circuit Protection

Stackpole Series		AEC-Q200 Qualified	Description	Package Size	Voltage Range (Vrms) (V)	Max Energy (J)	Peak Current (Amps)	Epcos	Littelfuse	Maida	Panasonic
AVL AVYL		Yes (Grade 1)	Automotive Leaded Varistor AVY - High Temperature	6 mm - 40 mm	14 V - 40 V	76 J	2,000 A	S - AUTO	ZA	-	-
C3V		No	Voltage Suppressor and Broadband EMI Filter	12 mm x 12 mm	14 V - 30 V	4.5 J	800 A	-	-	-	-
MV		No	Low Voltage Leaded Dual Function Varicon RFI Suppressors	6 mm x 9 mm	8 V - 95 V	2.5 J	150 A	-	-	-	-
OV		No	Automotive Leaded Dual Function Varicon RFI Suppressors	7.3 mm x 9 mm 7.8 mm x 12 mm	14 V - 40 V	12 J	1,200 A	SHCV	-	-	-
RV		No	Standard Metal Oxide Varistor	5 mm - 20 mm	11 V - 1000 V	625 J	6,500 A	S	ZA/LA	D_ZOV	ERZV
RV-HE		No	Standard Metal Oxide High-Energy Varistor	10 mm - 25 mm	130 V - 1,000 V	990 J	18,000 A	S-E2 S-E3	ZA/LA UltraMOV	D_ZOV	ERZV
SV		No	Special Medium Voltage Leaded Varistor	5 mm - 23 mm	60 V - 680 V	980 J	15,000 A	Q	-	R_ZOV	-
ZOV		No	Square Shaped High Energy Varistor	23 mm - 60 mm	60 V - 680 V	4140 J	80,000 A	LS	DHB HB HF HG	D_ZOV	ERZC
ZVL ZVYL		No	Low Voltage Leaded Varicon ZVY - High Temperature	5 mm - 20 mm	8 V - 40 V	37.8 J	2,000 A	-	-	-	-
Stackpole Series		**AEC-Q200 Qualified**	**Description**	**Package Size**	**Operating Voltage (VDC)**	**ESD Capability**	**Trigger Voltage (V)**	**Clamping Voltage (V)**	**Littelfuse**	**Maida**	**Panasonic**
ESD ESDU		No	Low and Ultra Low Capacitance ESD Suppressor	0402 0603	3.3 - 24	8 kV Direct Discharge 15 kV Air Discharge	150 V - 250 V (typical)	17 - 25 (typical)	-	-	-
Stackpole Series		**AEC-Q200 Qualified**	**Description**	**Package Size**	**Voltage Range (Vrms) (V)**	**Max Energy (J)**	**Peak Current (Amps)**	**AVX**	**Epcos**	**Littelfuse**	**Maida**
AV AVY		Yes (Grade 1)	Automotive SMD Varistor Grade 12 and 24 Volt Power Supply AVY - High Temperature	0805 - 3225	14 V - 40 V	21 J	2,000 A	-	CN CT AUTO	AUML	-
DV		No	Low and Medium Voltage SMD Varistor	3225 4032	11 V - 300 V	30 J	1,200 A	VC	-	CH	8S
PV		No	Low and Medium Voltage Plastic Encapsulated SMD Varistor	3225 4032	11 V - 300 V	30 J	1,200 A	-	CU	-	-
ZV ZVY		Yes (Grade 1)	Low Voltage SMD Varicon ZVY - High Temperature	0603 - 2220	8 V - 130 V	12.2 J	1,200 A	transguard	CN CT	ML	AV PV SV
ZVE ZVX		No	ESD Suppression SMD Varicon	0603 - 1210	14 V (ZVE) 8 V - 30 V (ZVX)	0.1 J	2 A (ZVE) 40 A (ZVX)	staticguard	-	MLE MLA	TV

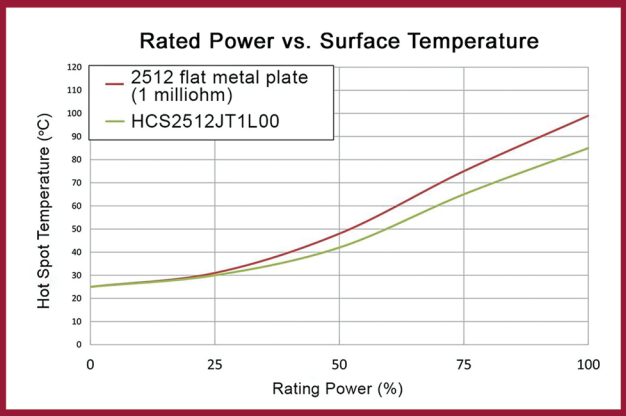
Inductors

Stackpole Series		Description	Legacy Part Number	Package Size	Inductance Range (uH)	Rated Current (A)	DCR Range (Ω)	Coil Craft	Coiltronics	NIC	Pulse	Vishay
LDRS		Shielded SMD Power Inductor	PCDR	2424 - 4949	1 - 1500	13 - 0.13	0.0117 - 4.78	MSS	-	MPIS_T	-	-
LP		Unshielded SMD Power Inductor	PD	2618 - 7360	0.47 - 1000	40 - 0.1	0.008 - 13.8	DO	UP0.4C	NPI_W	P0770 PO751/2 PF0382 PF0762	IDC
LPC		Unshielded SMD Power Inductor	PCD	1412 - 3935	0.5 - 1000	9.5 - 0.09	0.008 - 26	-	LD	NPI_C	PF0580 PF0581 PG0015	IDCP
LPCS		Shielded SMD Power Inductor	PCS	2624 - 4747	1 - 1000	25.5 - 0.14	0.007 - 9.44	MSS	DR	NPIS_H	PF0601, 1166, 1167, 1168, 1169 P1170 - 1173	-
LPS		Shielded SMD Power Inductor	PS	2618 - 7360	1 - 10000	20 - 0.02	0.021 - 32.8	DS	-	NIPS_R	P1174	IDCS

Stackpole Series		Description	Legacy Part Number	Package Size	Inductance Range (nH)	Rated Current (mA)	DCR Range (Ω)	SRF Range (GHz)	Murata	TDK	Toko	Vishay
FB		Multilayer Ferrite Chip Bead Inductor	FB	02 - 12	Impedance (Ω) 5 - 2700	6000 - 50	0.01 - 2	-	-	-	-	-
LPM		Miniature SMD Power Inductor	VLH	1008 - 2220	0.12 - 10000	6 - 0.03	0.0098 - 140	100 - 8	-	-	-	-
LTF		Thin Film Chip Inductor	AL	0201 0402	0.1 - 33	800 - 75	0.1 - 4.5	14 - 2	LQP	MLF	-	IMC
LWF		SMD Ferrite Wirewound Inductor	NL	0603 - 2220	0.047 - 1000	3200 - 25	0.03 - 150	2000 - 0.5	LQH	NL NLC	LLM	IMC ISC
LWW		Wirewound Ceramic Chip Inductor	WL	0402 - 1206	1 - 15000	2400 - 50	0.02 - 11.5	16 - 0.015	LQW	ACL MLF	LLQ	IFC IMC

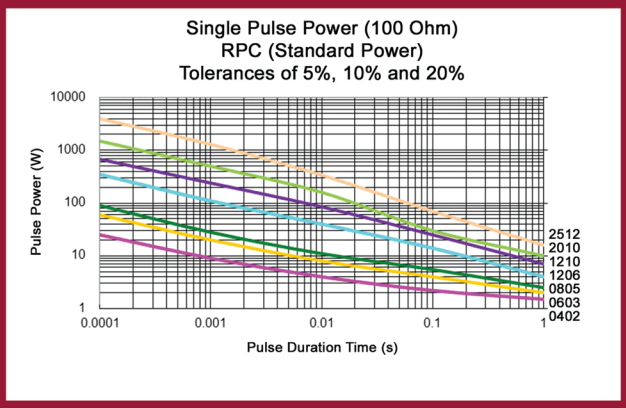
HCS High Power Current Shunt
Raised Element for Lower PCB Temperatures and More Accurate Sensing

The HCS series is an all metal surface mount current sense resistor series designed for high power and high current handling. For the 2512 chip size, the HCS series will run typically 15°C cooler than a comparable metal flat chip. Larger case sizes will have more dramatic improvement. Resistance values for the HCS range from 0.2 milliohm up to 5 milliohm in tolerances as low as 1%.
TCR ranges from 50 ppm/°C to 300 ppm/°C depending on resistance value and size. The HCS5930 in a 0.2 milliohm value can handle up to 10 Watts of power which is among the highest in the industry for a surface mount shunt.



RPC Series
Industry Leading Pulse Withstanding Chip Resistor

The RPC series of film based chip resistors offer tight tolerances with outstanding pulse handling. This performance is achieved by using a more robust film element with a limited laser trim. Standard commercial chip resistors may have a significant laser trim to calibrate them to their required resistance value. Trimming a chip resistor can greatly reduce the amount of pulse power that each size chip can handle and may lead to wide variations in surge handling from part to part. The RPC series has a tightly controlled laser trim yielding superior pulse handling characteristics that are very consistent. For select sizes and resistance values, the RPC is also available in 0.5% tolerances. For 5% and wider tolerances the RPC series has no laser calibration trim at all to maximize the pulse handling of each chip size.



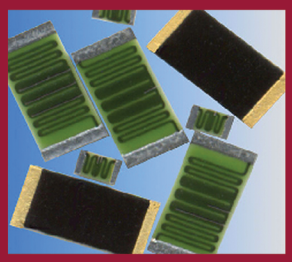
AEC-Q200 Qualification
A widely accepted industry standard for component qualification.

AEC-Q200 qualification standard requires resistors to have an operating temperature range of -55°C to +150°C and survive a wide range of electrical and mechanical stress tests including exposure to high temperatures, temperature cycling, high temperature operational life, biased humidity, ESD, board flex, and terminal strength. Components qualified to AEC-Q200 provide engineers additional assurance that they are designing in a robust and reliable component. Additional products are being qualified to AEC.

CSR 0402, 0603, 0805, 1206, 1210, 1225, 2512
CSRF 0402, 0603, 0805, 1206, 2512
CSRF-HP 0402, 0603
CSS 0603, 0805, 1206, 2010, 2512, 2725, 2728, 4527
CSSH 2512, 2728
HCC 8420
HCJ 0402, 0603, 0805, 1206, 2512
HCS 1206, 2512, 3920, 5930
MLFA 0204 (MLFA25), 0207 (MLFA1)
RACF 164D
RAF 052D, 054D
RAVF 102D, 104D, 164D
RGC 0402, 0603
RMCF 01002, 0201, 0402, 0603, 0805, 1206, 1210, 2010, 2512
RMCP 0402, 0603, 0805, 1206, 1210, 2010, 2512
RMCS-AS 0402, 0603, 0805, 1206, 1210, 2010, 2512
RNCF 0201, 0402, 0603, 0805, 1206, 1210, 2010, 2512
RNCH 0603, 0805, 1206
RNCS 0402, 0603, 0805, 1206, 2010, 2512
RNCS-AS 0402, 0603, 0805, 1206, 2010, 2512
RPC 0603, 0805, 1206, 1210, 2010, 2512 (1% and wider tolerances)
RTAN 0402, 0603, 0805, 1206

HVC High Voltage Precision Chip Resistors
High Voltage, High Performance, High Precision

Features:
* Available resistance values from 10K to 50G ohms
* 0603 chip size rated at 400V working voltage, 5KV max.
* 0805 chip size rated at 600V working voltage, 10KV max.
* 1206 chip size rated at 1500V working voltage, 15KV max.
* 2010 chip size rated at 2000V working voltage, 20KV max.
* 2512 chip size rated at 3000V working voltage, 25KV max.
* 3512 chip size rated at 3500V working voltage, 40KV max.
* Tolerances as low as 0.1%
* TCR as low as 25 ppm/°C
* Low VCR, low noise
* Custom sizes available



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