

HRRHS High-Reliability Ultra-High Power Chip Resistor



Features

- Thick film technology
- Power rating up to 3 watts at +70 °C
- High power surge withstanding
- Available with Sn, Sn/Pb, Au terminals
- MIL-PRF-55342 and Space Level screening available

Applications

- Satellite/Spacecraft
- Aerospace
- Avionics
- Military

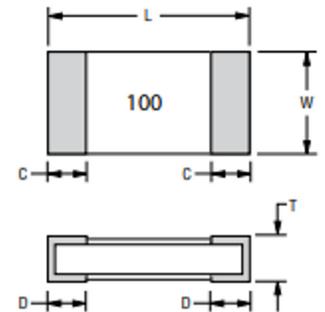
Electrical Characteristics

Characteristics	Model			
	HRRHS0603	HRRHS0805	HRRHS1206	HRRHS2512
Power Rating @70°C	0.33 W	0.5 W	0.75 W	3 W
Operating Temperature Range	-55°C to +155°C			
Derated to Zero Load	+155°C			
Maximum Working Voltage	75V	200V	250V	250V
Maximum Overload Voltage	125V	300V	500V	500V
Resistance Tolerance	±1%, ± 5%			
Temperature Coefficient 10 ohms to 1 megohm (± 1%) 10 ohms to 1 megohms (± 5%)	±100 PPM/°C ±200 PPM/°C	±100 PPM/°C ±200 PPM/°C	±100 PPM/°C ±200 PPM/°C	±100 PPM/°C ±200 PPM/°C

Product Dimensions

mm
(inches)

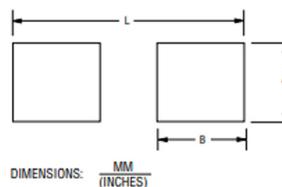
Model	L	W	C	D	T
HRRHS0603	1.60 ± 0.10 (0.063 ± 0.004)	0.80 ± 0.10 (0.031 ± 0.004)	0.30 ± 0.20 (0.012 ± 0.008)	0.30 ± 0.20 (0.012 ± 0.008)	0.45 ± 0.10 (0.018 ± 0.004)
HRRHS0805	2.00 ± 0.10 (0.079 ± 0.004)	1.25 ± 0.10 (0.049 ± 0.004)	0.40 ± 0.20 (0.016 ± 0.008)	0.40 ± 0.20 (0.016 ± 0.008)	0.50 ± 0.10 (0.020 ± 0.004)
HRRHS1206	3.10 ± 0.10 (0.122 ± 0.004)	1.60 ± 0.10 (0.063 ± 0.004)	0.50 ± 0.25 (0.020 ± 0.010)	0.50 ± 0.25 (0.020 ± 0.010)	0.55 ± 0.10 (0.022 ± 0.004)
HRRHS2512	6.40 ± 0.20 (0.252 ± 0.008)	3.10 ± 0.20 (0.122 ± 0.008)	0.45 ± 0.25 (0.018 ± 0.010)	1.80 ± 0.25 (0.071 ± 0.010)	1.10 ± 0.20 (0.043 ± 0.008)



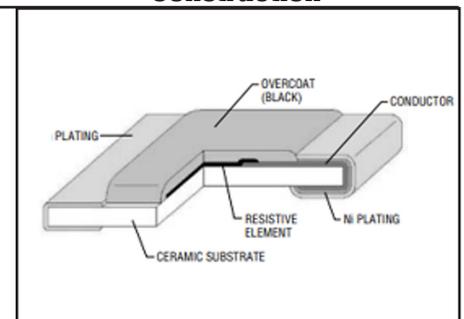
Recommended Pad Layout

mm
(inches)

Model	A	L	B
HRRHS0603	0.90 (0.035)	1.00 (0.039)	3.00 (0.118)
HRRHS0805	1.30 (0.051)	1.15 (0.045)	3.50 (0.138)
HRRHS1206	1.80 (0.071)	1.30 (0.051)	4.70 (0.185)
HRRHS2512	3.70 (0.146)	2.45 (0.096)	7.60 (0.299)

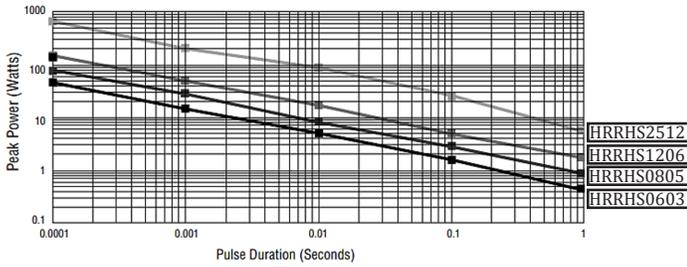


Construction

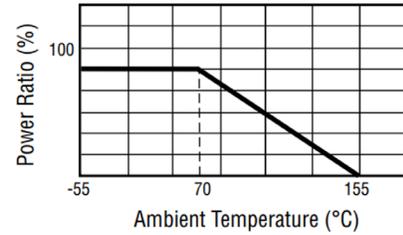


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Surge Performance



Derating Curve



Typical Part Marking

HRRHS0603, HRRHS0805, HRRHS1206, HRRHS2512	HRRHS0805, HRRHS1206, HRRHS2512
± 5% (E24) 3 digits identify the resistance value	± 1% (E24/E96) 4 digits identify the resistance value
301	1542
301=30 X 10 ¹ = 300 ohms	1542=154 X 10 ² = 15.4K ohms

HRRHS0603	HRRHS0603
± 1% (E24) 3 digits identify the resistance value	± 1% (E96) 4 digits identify the resistance value
222	01B
222=22 X 10 ² =2.2K ohms	01B=1K ohms (Refer to the table below)

E96 Marking for HRRH, 1%

Code	R Value														
01	100	13	133	25	178	37	237	49	316	61	422	73	562	85	750
02	102	14	137	26	182	38	243	50	324	62	432	74	576	86	768
03	105	15	140	27	187	39	249	51	332	63	442	75	590	87	787
04	107	16	143	28	191	40	255	52	340	64	453	76	604	88	806
05	110	17	147	29	196	41	261	53	348	65	464	77	619	89	825
06	113	18	150	30	200	42	267	54	357	66	475	78	634	90	845
07	115	19	154	31	205	43	274	55	365	67	487	79	649	91	866
08	118	20	158	32	210	44	280	56	374	68	499	80	665	92	887
09	121	21	162	33	215	45	287	57	383	69	511	81	681	93	909
10	124	22	165	34	221	46	294	58	392	70	532	82	698	94	931
11	127	23	169	35	226	47	301	59	402	71	536	83	715	95	953
12	130	24	174	36	232	48	309	60	412	72	549	84	732	96	976

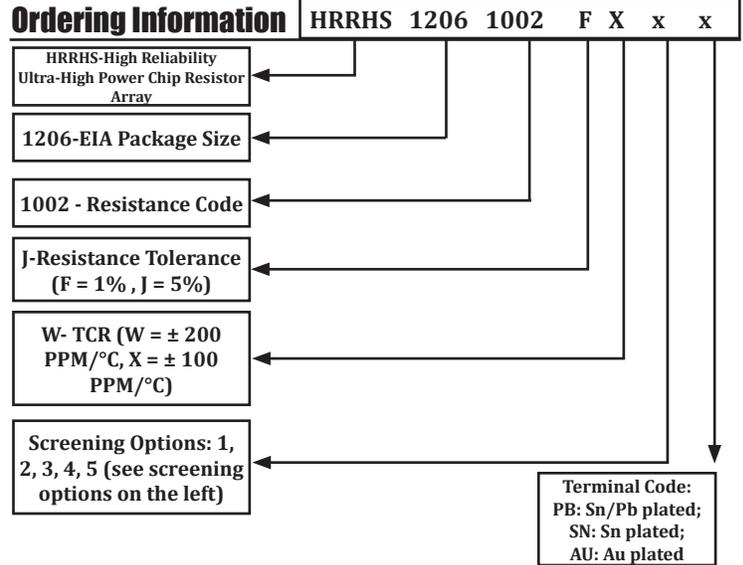
This table shows the first two digits for the three-digit E96 part marking scheme. The third character is a letter multiplier:
 A=100 B=101 C=102 D=103 E=104 X=10⁻¹

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Standard Screening Options

- Option 1: 100% visual inspection per MIL-PRF-55342, AS9102 FAIR, MIL-STD-1580 DPA.
- Option 2: Group A and B Screening per MIL-PRF-55342, AS9102 FAIR, MIL-STD-1580 DPA
- Option 3: Group A, B, and C Screening per MIL-PRF-55342, AS9102 FAIR, MIL-STD-1580 DPA.
- Option 4: Group A, B, and Qualification Screening per MIL-PRF-55342, AS9102 FAIR, MIL-STD-1580 DPA.
- Option 5: Customer Source Control Drawing (SCD) defined screening. AEM will customize screening based on customer requirements.
- Note: (see AEM Detail Specification for more details).

Ordering Information



AEM part numbers:

AEM Part No.	Package Size	Resistance Code	Resistance Value (Ohms)	Resistance Tolerance	Part No.	Package Size	Resistance Code	Resistance Value (Ohms)	Resistance Tolerance
HRRHS0603-1000FXxx	0603	1000	100	1%	HRRHS0603-47R0FXxx	0603	47R0	47	1%
HRRHS0603-1001FXxx	0603	1001	1K	1%	HRRHS0603-5101FXxx	0603	5101	5.1K	1%
HRRHS0603-1002FXxx	0603	1002	10K	1%	HRRHS0603-5601FXxx	0603	5601	5.6K	1%
HRRHS0603-1003FXxx	0603	1003	100K	1%	HRRHS0603-68R1FXxx	0603	68R1	68.1	1%
HRRHS0603-10R0FXxx	0603	10R0	10	1%	HRRHS0603-7500FXxx	0603	7500	750	1%
HRRHS0603-1200FXxx	0603	1200	120	1%	HRRHS0603-220JWxx	0603	220	22	5%
HRRHS0603-1500FXxx	0603	1500	150	1%	HRRHS0805-1000FXxx	0805	1000	100	1%
HRRHS0603-1501FXxx	0603	1501	1.5K	1%	HRRHS0805-1001FXxx	0805	1001	1K	1%
HRRHS0603-15R0FXxx	0603	15R0	15	1%	HRRHS0805-1002FXxx	0805	1002	10K	1%
HRRHS0603-2200FXxx	0603	2200	220	1%	HRRHS0805-1003FXxx	0805	1003	100K	1%
HRRHS0603-2201FXxx	0603	2201	2.2K	1%	HRRHS0805-10R0FXxx	0805	10R0	10	1%
HRRHS0603-2202FXxx	0603	2202	22K	1%	HRRHS0805-1200FXxx	0805	1200	120	1%
HRRHS0603-22R0FXxx	0603	22R0	22	1%	HRRHS0805-1500FXxx	0805	1500	150	1%
HRRHS0603-2700FXxx	0603	2700	270	1%	HRRHS0805-2200FXxx	0805	2200	220	1%
HRRHS0603-3300FXxx	0603	3300	330	1%	HRRHS0805-5600FXxx	0805	5600	560	1%
HRRHS0603-3301FXxx	0603	3301	3.3K	1%	HRRHS0805-100JWxx	0805	100	10	5%
HRRHS0603-3302FXxx	0603	3302	33K	1%	HRRHS0805-360JWxx	0805	360	36	5%
HRRHS0603-33R0FXxx	0603	33R0	33	1%	HRRHS0805-510JWxx	0805	510	51	5%
HRRHS0603-4700FXxx	0603	4700	470	1%	HRRHS1206-1000FXxx	1206	1000	100	1%
HRRHS0603-4701FXxx	0603	4701	4.7K	1%	HRRHS1206-1001FXxx	1206	1001	1K	1%



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AEM part numbers (Continue):

AEM Part No.	Package Size	Resistane Code	Resistance Value (Ohms)	Resistance Tolerance	AEM Part No.	Package Size	Resistane Code	Resistance Value (Ohms)	Resistance Tolerance
HRRHS1206-1002FXxx	1206	1002	10K	1%	HRRHS2512-1001FXxx	2512	1001	1K	1%
HRRHS1206-1003FXxx	1206	1003	100K	1%	HRRHS2512-1002FXxx	2512	1002	10K	1%
HRRHS1206-10R0FXxx	1206	10R0	10	1%	HRRHS2512-1003FXxx	2512	1003	100K	1%
HRRHS1206-2001FXxx	1206	2001	2K	1%	HRRHS2512-1004FXxx	2512	1004	1M	1%
HRRHS1206-4701FXxx	1206	4701	4.7K	1%	HRRHS2512-10R0FXxx	2512	10R0	10	1%
HRRHS1206-47R0FXxx	1206	47R0	47	1%	HRRHS2512-47R0FXxx	2512	47R0	47	1%
HRRHS1206-5101FXxx	1206	5101	5.1K	1%	HRRHS2512-4992FXxx	2512	4992	499K	1%
HRRHS1206-6803FXxx	1206	6803	680K	1%	HRRHS2512-5602FXxx	2512	5602	56K	1%
HRRHS1206-224JWxx	1206	224	220K	5%	HRRHS2512-270JWxx	2512	270	27	5%
HRRHS2512-1000FXxx	2512	1000	100	1%	Note: Last (xx) are screening and termination codes respectively. (From left to right)				

Note: Other resistor values maybe available within same size and tolerances. Contact AEM for info.

