

# ULTRA PRECISION WIREWOUND RESISTORS

## SA, MA, PC, & Q SERIES



RESISTORS • CAPACITORS • COILS • DELAY LINES

- Industry's widest range: 0.1Ω to 25MΩ, tolerances to ±0.005%, TC's to 2PPM
- All-welded, negligible noise, low thermal emf
- Available on RCD's exclusive **SWIFT™** delivery program!



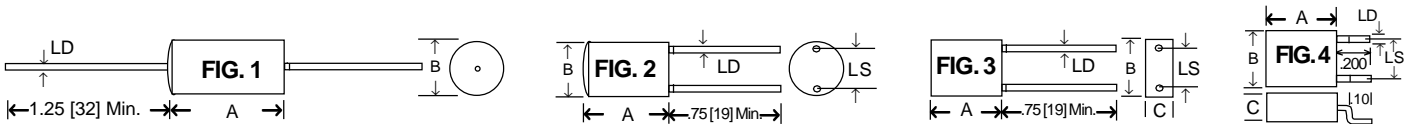
Term. W is RoHS compliant & 260°C compatible

### OPTIONS

- Option P: Increased pulse/overload capability
- Option M: Low reactance NiCr film design
- Option HS: High speed/fast rise time
- Option ER: 100-hr stabilization burn-in<sup>4</sup>
- Matched tolerances, T.C. tracking to 1ppm/°C
- Dozens of additional modifications are available... special marking, positive TC, hermetic seal, 4-terminal, low inductance, etc. Custom designs are RCD's specialty!

Series SA (standard), MA (mini), PC (radial), and Q (economy) are designed for precision circuits (DC<sup>5</sup> and low frequency AC). The standard construction features well-proven wirewound technology. Customized WW and NiCr film designs are available for high-frequency operation. All models are preconditioned thereby enabling excellent stability/reliability.

Performance (Opt ER, typ)	SA/MA/PC	Q Series
Load Life	±.03%	±.05%
Short Time Overload	±.005%	±.02%
High Temp Exposure	±.05%	±.1%
Moisture	±.02%	±.03%
Operating Temp	-55 to +145°C	-55 to +160°C
Shelf Life Stability	±.002%/year	±.004%/year
Temp Coef ≥10Ω	20ppm (2,3,5,10 avail)	20ppm (2,3,5,10 avail)
1 - 9.9Ω	30ppm (5,10,20 avail)	30ppm (5,10,20 avail)
<1Ω	90ppm (10,20,30 avail)	90ppm (10,20,30avail)



RCD TYPE	FIG.	MIL TYPE <sup>1</sup>	Wattage Rating		Maximum Voltage <sup>2,3</sup>	Res. Range 0.1Ω to ~	A	B	LD	LS	C (Max)
			RCD <sup>2,4</sup>	MIL <sup>4</sup>			±.062 [ 1.6]	±.025 [ .64]	±.003 [.08]	±.015 [.4]	
SA100	1	RB/RBR56	.25	.125	200	1.2 Meg	.350 [8.9]	.250 [6.35]	.032 [.81]	-	-
SA101	1	RB/RBR55	.33	.150	400	2.0 Meg	.500 [12.7]	.250 [6.35]	.032 [.81]	-	-
SA102	1	RB/RBR54	.50	.250	400	4.0 Meg	.750 [19.1]	.250 [6.35]	.032 [.81]	-	-
SA103	1	-	.75	-	500	5.0 Meg	1.00 [25.4]	.250 [6.35]	.032 [.81]	-	-
SA104	1	RB/RBR53	.60	.33	400	6.0 Meg	.750 [19.1]	.375 [9.52]	.032 [.81]	-	-
SA105	1	RB/RBR52	1.00	.50	600	10.0 Meg	1.00 [25.4]	.375 [9.52]	.032 [.81]	-	-
SA106	1	-	.60	-	400	6.0 Meg	.675 [17.1]	.437 [11.1]	.032 [.81]	-	-
SA107	1	-	1.25	-	700	12.0 Meg	1.00 [25.4]	.437 [11.1]	.032 [.81]	-	-
SA108	1	-	.60	-	400	7.0 Meg	.675 [17.1]	.500 [12.7]	.032 [.81]	-	-
SA109	1	RB/RBR57	1.25	.75	800	15.0 Meg	1.00 [25.4]	.500 [12.7]	.032 [.81]	-	-
SA110	1	RB/RBR58	1.50	1.00	900	20.0 Meg	1.50 [38.1]	.500 [12.7]	.032 [.81]	-	-
SA111	1	RB/RBR59	2.00	1.25	1000	25.0 Meg	2.00 [50.8]	.500 [12.7]	.032 [.81]	-	-
MA200	1	-	.05	-	100	200K	.250 [6.35]	.100 [2.54]	.020 [.51]	-	-
MA201	1	-	.05	-	100	250K	.300 [7.62]	.100 [2.54]	.020 [.51]	-	-
MA202	1	-	.10	-	100	300K	.250 [6.35]	.125 [3.18]	.023 [.58]	-	-
MA203	1	-	.10	-	100	400K	.312 [7.92]	.125 [3.18]	.023 [.58]	-	-
MA204	1	-	.12	-	150	800K	.380 [9.65]	.142 [3.61]	.023 [.58]	-	-
MA205	1	-	.125	-	200	900K	.500 [12.7]	.160 [4.06]	.023 [.58]	-	-
MA206	1	-	.15	-	200	900K	.380 [9.65]	.187 [4.75]	.025 [.64]	-	-
MA207	1	-	.2	-	200	1.2 Meg	.500 [12.7]	.187 [4.75]	.025 [.64]	-	-
Q55	1	RN/RNR55	.125	.125	200	100K	.250 [6.35]	.105 [2.67]	.023 [.58]	-	-
Q60	1	RN/RNR60	.250	.250	300	150K	.380 [9.65]	.142 [3.61]	.023 [.58]	-	-
Q65	1	RN/RNR65	.500	.500	350	200K	.520 [13.20]	.188 [4.78]	.025 [.64]	-	-
Q70	1	RN/RNR70	.750	.750	500	300K	.750 [19.10]	.250 [6.35]	.032 [.81]	-	-
Q75	1	RN/RNR75	1.00	1.00	600	500K	1.02 [25.9]	.375 [9.53]	.032 [.81]	-	-
PC400	2	-	.15	-	200	500K	.250 [6.35]	.250 [6.35]	.023 [.58]	.200 [5.08]	-
PC401	2	RB/RBR71	.25	.125	400	750K	.312 [7.29]	.250 [6.35]	.023 [.58]	.200 [5.08]	-
PC402	2	-	.25	-	400	1 Meg	.375 [9.52]	.250 [6.35]	.023 [.58]	.200 [5.08]	-
PC404	2	-	.30	-	400	1 Meg	.500 [12.7]	.250 [6.35]	.023 [.58]	.200 [5.08]	-
PC405	2	-	.33	-	400	1 Meg	.375 [9.52]	.375 [9.52]	.023 [.58]	.200 [5.08]	-
PC406	2	RB70	.33	.250	400	2 Meg	.500 [12.7]	.375 [9.52]	.032 [.81]	.200 [5.08]	-
PC407	2	-	.50	-	400	2 Meg	.500 [12.7]	.500 [12.7]	.032 [.81]	.300 [7.62]	-
PC408	2	-	.63	-	400	2 Meg	.625 [15.9]	.500 [12.7]	.032 [.81]	.300 [7.62]	-
PC451	3	RNC90	0.3	0.3	300	1 Meg	.336 [8.5] max	.320 [8.1] max	.023 [.58]	.150 [3.81]	.120
PC452	3	-	1.0	-	350	25K	.370 [9.4] max	.610 [15.5] max	.023 [.58]	.500 [12.7]	.135
PC454	3	-	2.0	-	500	100K	.390 [9.9] max	1.12 [28.4] max	.028 ±.004	.900 [22.9]	.260
PC451G	4	-	0.3	-	300	1 Meg	.336 [8.5] max	.320 [8.1] max	.023 [.58]	.150 [3.81]	.120

<sup>1</sup>Military p/n's are given for reference only and do not imply qualification or exact interchangeability. <sup>2</sup>Increased ratings avail. <sup>3</sup>Max. voltage determined by E=(PR)<sup>1/2</sup>. E not to exceed value listed. <sup>4</sup>Option ER burn-in is performed at Mil-power rating and 25°C ambient. Additional burn-in and Mil-screening options available. <sup>5</sup>Standard reactance levels are quite high limiting use to DC or AC circuits <50KHz typ. (depending on size and resistance value). Specialty designs available for use at high frequencies, consult factory.

**P/N DESIGNATION:** MA207 - 1003 - A B W

**RCD Type** MA207

**Options:** P, M, HS, ER (leave blank if standard)

**Resis. Code:** 3 digits & multiplier (R100= .1Ω, 1R00= 1Ω, 1000= 100Ω, 1001= 1KΩ, 1002= 10K, 1003= 100K, 1004= 1M)

**Tolerance Code:** F=1%, D=0.5%, C=0.25%, B=0.1%, A=0.05% Q=0.02%, T=0.01%, V=0.005%

**Packaging:** B = bulk, T = Tape & Reel

**Optional Temp. Coefficient** - leave blank for standard (2 = ±2ppm/°C, 3 = ±3ppm, 5 = ±5ppm, 10 = ±10ppm, 20 = ±20ppm)

**Termination:** W= Pb-free, Q= Sn/Pb (leave blank if either is acceptable)

**POWER DERATING:** Series SA/MA/PC40 resistors shall be derated according to Curve A; Series Q & PC45 per Curve B (resistors with 0.1% or tighter tolerance to be derated 50% per Mil-Std-199).

