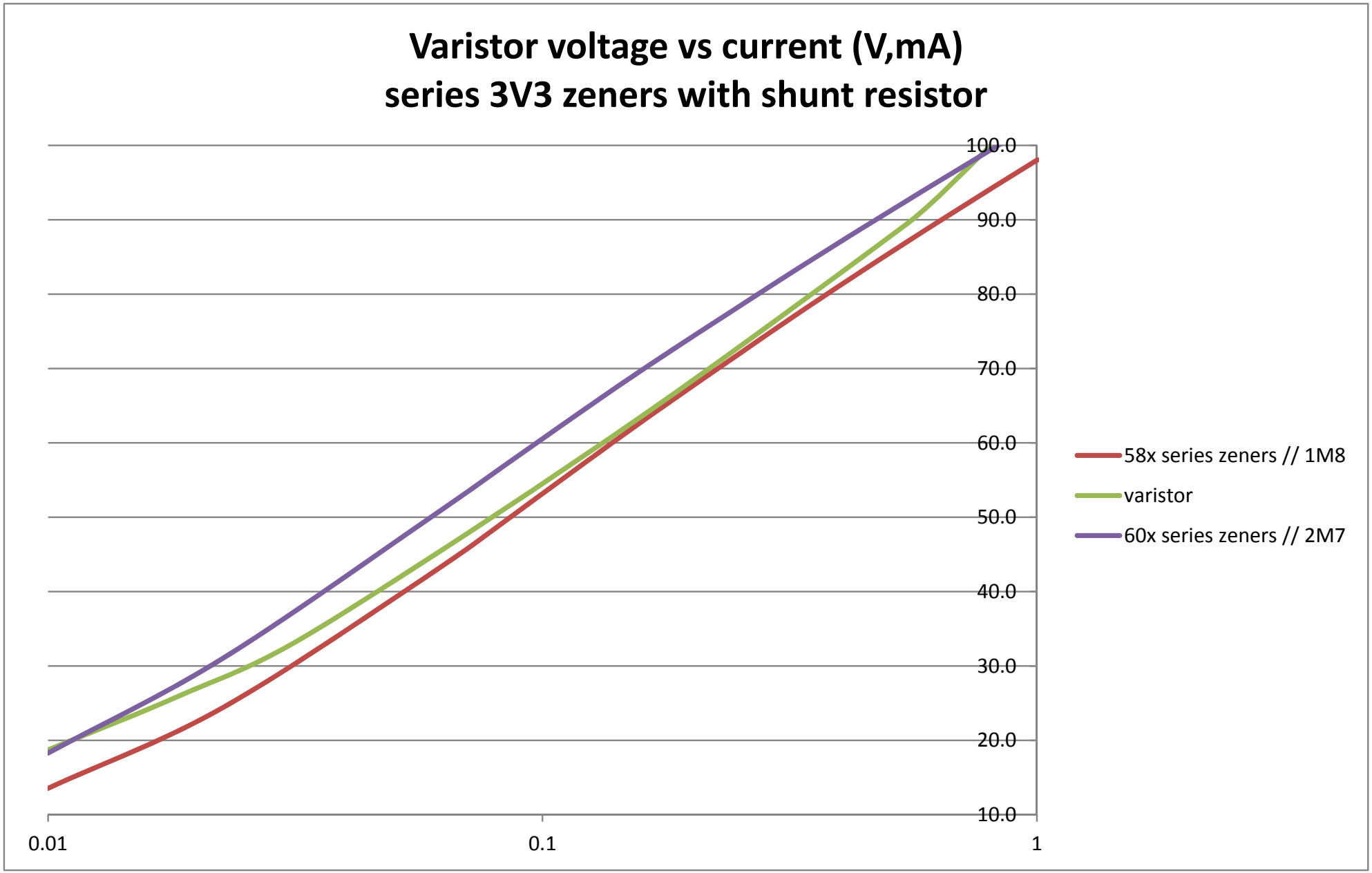
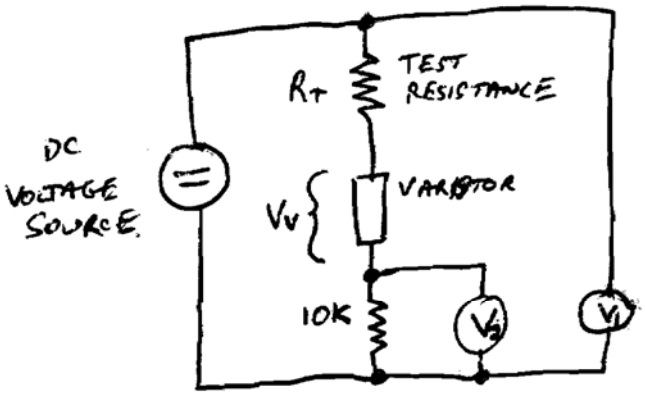

Varistor voltage vs current (V,mA)
series 3V3 zeners with shunt resistor
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.01
0.1
1
58x series zeners // 1M8
varistor
60x series zeners // 2M7

**Magnatone varistor measurement info**

243VDC supply with a range of test resistors from 220kΩ to 24MΩ. Meter for V2 with 10MΩ input resistance. All test resistances and voltages within about 1% tolerance.




$$V_V = V_1 - (R_T + 10k)^* \frac{V_2}{10k}$$

$$I_V = \frac{V_2}{10k}$$

Varistor 1

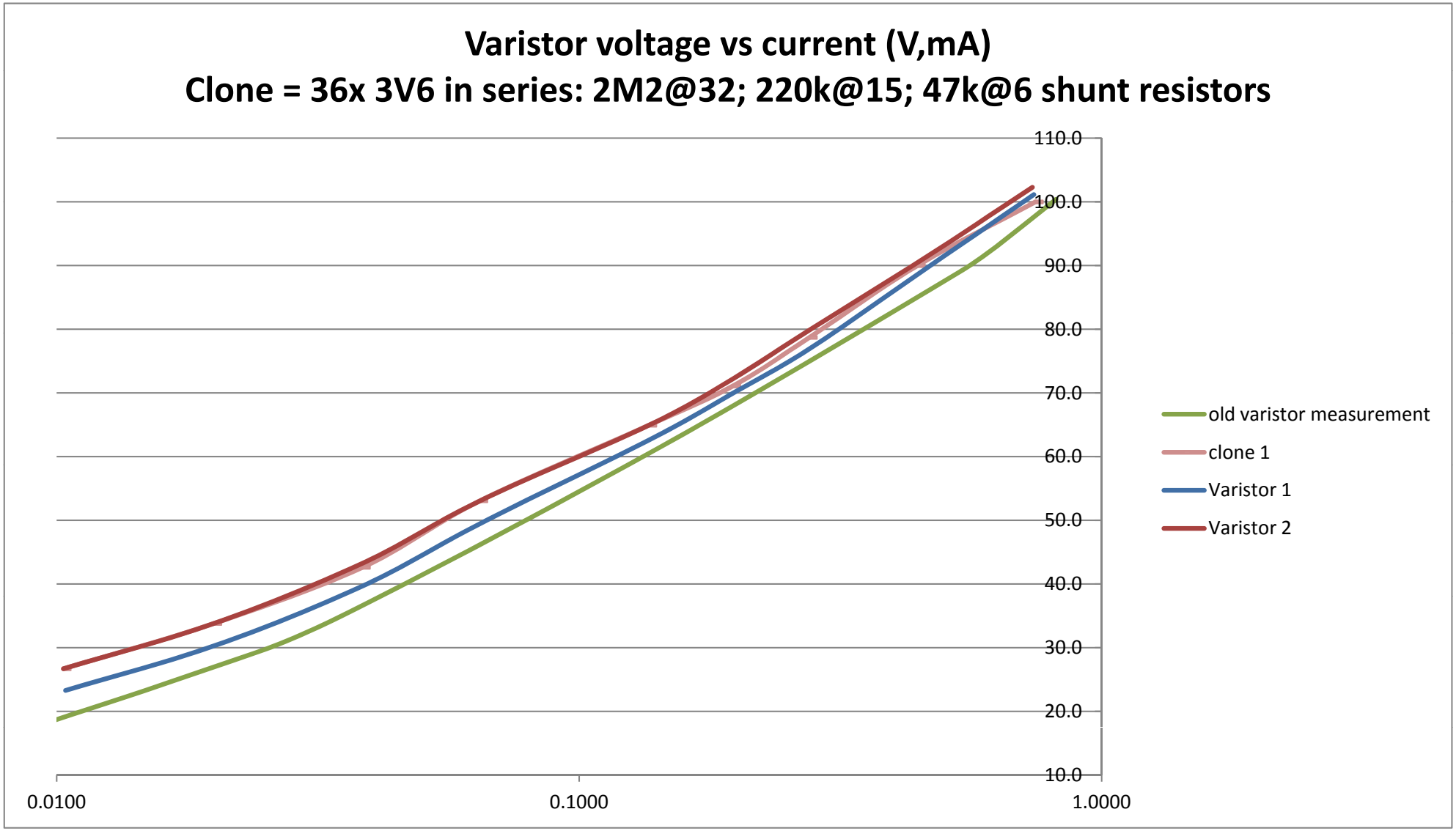
| RT (kΩ) | Iv (mA) | Vv (V) | kohm |
|---|---|---|---|
| 24000 | 0.0104 | 23.3 | 2240 |
| 12000 | 0.0202 | 30.4 | 1505 |
| 6000 | 0.0388 | 39.8 | 1026 |
| 3410 | 0.0653 | 49.7 | 761 |
| 1520 | 0.1374 | 62.8 | 457 |
| 1015 | 0.198 | 70.1 | 354 |
| 694 | 0.277 | 77.0 | 278 |
| 400 | 0.447 | 88.8 | 199 |
| 219 | 0.742 | 101.1 | 136 |

Varistor 2

| RT (kΩ) | Iv (mA) | Vv (V) | kohm |
|---|---|---|---|
| 24000 | 0.0103 | 26.7 | 2592 |
| 12000 | 0.02 | 33.8 | 1690 |
| 6000 | 0.0384 | 43.2 | 1125 |
| 3410 | 0.0646 | 53.1 | 822 |
| 1520 | 0.136 | 64.9 | 477 |
| 1015 | 0.196 | 72.1 | 368 |
| 694 | 0.2745 | 79.8 | 291 |
| 400 | 0.443 | 90.4 | 204 |
| 219 | 0.737 | 102.3 | 139 |

Cloned varistor:
36 x 3V6 zeners in series.
2M2Ω in parallel with 32x zeners.
220kΩ in parallel with 15x zeners.
47kΩ in parallel with 6x zeners

| RT (kΩ) | Iv (mA) | Vv (V) | kohm |
|---|---|---|---|
| 24000 | 0.0103 | 26.7 | 2592 |
| 12000 | 0.02 | 33.8 | 1690 |
| 6000 | 0.0385 | 42.6 | 1107 |
| 3410 | 0.0646 | 53.1 | 822 |
| 1520 | 0.136 | 64.9 | 477 |
| 1015 | 0.197 | 71.1 | 361 |
| 694 | 0.276 | 78.7 | 285 |
| 400 | 0.444 | 90.0 | 203 |
| 219 | 0.747 | 100.0 | 134 |


Varistor voltage vs current (V,mA)
Clone = 36x 3V6 in series: 2M2@32; 220k@15; 47k@6 shunt resistors
110.0
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0100
0.1000
1.0000
old varistor measurement
clone 1
Varistor 1
Varistor 2