

App Note J0413: R1 and R2 Selection Chart

Vin*	R1**	R1***	RECOMMENDED SOURCES			
DCV	OHMS	WATTS				
35V	680	1W				
40V	1k	1W				
50V	1.6k	2W				
60V	2.2k	2W				
70V	2.7k	3W				
80V	3.3k	3W				
90V	3.9k	3W				
100V	4.7k	5W				
110V	5.1k	5W				
120V	5.6k	5W				
130V	6.2k	8W				
140V	6.8k	8W				
150V	7.5k	8W				
160V	8.2k	8W				
170V	8.5k	8W				
180V	9.1k	10W				
190V	10k	10W				
200V	11k	10W				
210V	11k	12W				
220V	12k	12W				
230V	12.5k	12W				
240V	13k	20W				
250V	13.5k	20W				
260V	15k	20W				
270V	15k	20W				
280V	16k	20W				
290V	16k	20W				
300V	8.2k	10W	+	8.2k	10W	
310V	8.5k	10W	+	8.5k	10W	
320V	9k	10W	+	9k	10W	
330V	9.1k	12W	+	9.1k	12W	
340V	10k	12W	+	9.1k	12W	
350V	10k	12W	+	10k	12W	
360V	10k	12W	+	10k	12W	
370V	10k	12W	+	10k	12W	
380V	10k	12W	+	11k	12W	
390V	11k	20W	+	11k	20W	
400V	11k	20W	+	11k	20W	
410V	11k	20W	+	12k	20W	
420V	12k	20W	+	12k	20W	
430V	12k	20W	+	12k	20W	
440V	12k	20W	+	13k	20W	
450V	13k	20W	+	13k	20W	
460V	13k	20W	+	13k	20W	
470V	13k	20W	+	13.5k	20W	
480V	13k	20W	+	13.5k	20W	
490V	13k	20W	+	15k	20W	
500V	13k	20W	+	15k	20W	
510V	15k	20W	+	15k	20W	
520V	15k	20W	+	15k	20W	
530V	15k	20W	+	15k	20W	
540V	15k	20W	+	16k	20W	
550V	16k	20W	+	16k	20W	

Audiophile quality power resistors are available from:
<http://www.percyaudio.com/Catalog.pdf>
http://www.partsconnexion.com/resistors_mills_mra5.html

Industrial quality power resistors are listed below:
 For power resistors up to 3W:
<http://www.vishay.com/docs/28729/28729.pdf>

For power resistors up to 5W:
<http://www.koaspeer.com/products/resistors/leaded-resistors/mos/>
<http://www.mouser.com/catalog/specsheets/XC-600044.pdf>

For power resistors up to 20W:
http://www.ohmite.com/catalog/pdf/200_series.pdf

For vertical mounting types:
http://www.ohmite.com/catalog/pdf/tww_twm_series.pdf

The above parts are available from:
<http://www.mouser.com>
<http://www.digikey.com>
<http://www.masterdistributors.com>

R2**	R2***	FOOTNOTES
OHMS	WATTS	

* For in-between voltage values select closest resistor value corresponding to your rail voltage (Vin).

** When R2 is called out it must be placed in series with R1.

DERATING NOTES

*** Resistors are conservatively derated for several reasons:

- 1) Heat radiation to adjacent parts is minimized.
- 2) Power resistors can generate prodigious heat into solder joints. Thermal cycling causes solder joints to alternately heat and cool over time. This cycle can soften the solder joint and make it friable if heat is excessive.
- 3) PC boards can discolor due to excessive heat.
- 4) Resistors themselves require derating due to ambient heat.