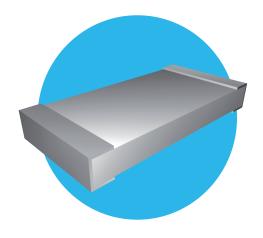
Resistors

Pulse Withstanding Chip Resistors

PWC Series

- Excellent pulse withstand performance
- Improved working voltage
- Improved power rating
- Standard chip sizes (0805 to 2512)
- Custom designs available
- Anti-sulphur version available







All Pb-free parts comply with EU Directive 2011/65/EU (RoHS2)

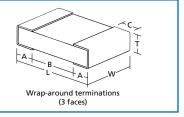
Electrical Data

Size		0805	12	1206		2010		2512	
Power @70°C	w	0.25	0.33	0.5	0.75	1	1.5	2	
Resistance range	Ohms	1R0 to 10M							
Tolerance	%	10R to 1M: 0.5, All values: 1, 5							
LEV	V	150			400		500		
TCR	ppm/°C	<10R:200 ≥10R:100							
Operating temperature	°C	-55 to +155							
Thermal Impedance	°C/W	220	160	145	80	70	55	40	
Pad / trace area *	mm²	40	50	125	60	250	100	500	
Values		E96 preferred - other values to special order							
Pulse Capability		See graphs – full application note available on request							

^{*}Recommended minimum pad & adjacent trace area for each termination for rated power dissipation on FR4 PCB

Physical Data

Dimensions of PWC resistors are given below in mm and weight in g								
	L	W	T max	Α	В	С	Wt.	
0805	2.0±0.3	1.25±0.2	0.6	0.3±0.15	0.9 min	0.3±0.1	0.009	
1206	3.2±0.4	1.6±0.2	0.7	0.4±0.2	1.7 min	0.4±0.15	0.020	
2010	5.1±0.3	2.5±0.2	0.8	0.6±0.3	3.0 min	0.6±0.25	0.036	
2512	6.5±0.3	3.2±0.2	0.8	0.6±0.3	4.4 min	0.6±0.25	0.055	



Construction

Thick film resistor material, overglaze and organic protection are screen printed on a 96% alumina substrate. Wrap-around terminations have an electroplated nickel barrier and solder coating, this ensures excellent 'leach' resistance properties and solderability.

Note that anti-sulphur version parts below 100R are produced in flip-chip format with the resistor element on the underside.

Marking

Components are not marked. Reels are marked with type, value, tolerance, date code and quantity.

Solvent Resistance

The body protection is resistant to all normal industrial cleaning solvents suitable for printed circuits.

General Note





Pulse Withstanding Chip Resistors

PWC Series



Performance Data

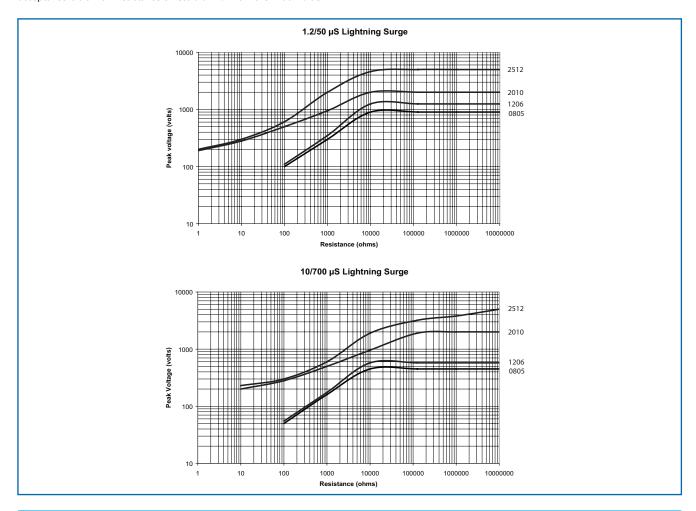
Size		Maximum	Typical	
Load at rated power: 1000 hours at 70°C	ΔR%	1	0.25	
Shelf life test: 12 months at room temperature	ΔR%	0.1	0.02	
Derating from rated power at 70°C	Zero at 155°C			
Overload: 6.25 x rated power for 2 seconds	ΔR%	1	0.1	
Dry heat: 1000 hours at 155°C	ΔR%	1	0.2	
Long term damp heat	ΔR%	1	0.25	
Temperature rapid change	ΔR%	0.25	0.05	
Resistance to solder heat	ΔR%	0.25	0.05	
Resistance to sulphur-bearing gas (AS version only): ASTM-E	3-809	0.25	0.05	
Voltage proof	Volts	500)	

Note: A 0.01 Ohm addition to be added to the performance of all resistors <10 Ohms.

Pulse Performance Data

Lightning Surge

lightning surge resistors are tested in accordance with IEC 60 115-1 using both $1.2/50\mu s$ and $10/700\mu s$ pulse shapes. 10 pulses are applied. The limit of acceptance is a shift in resistance of less than 1% from the initial value.



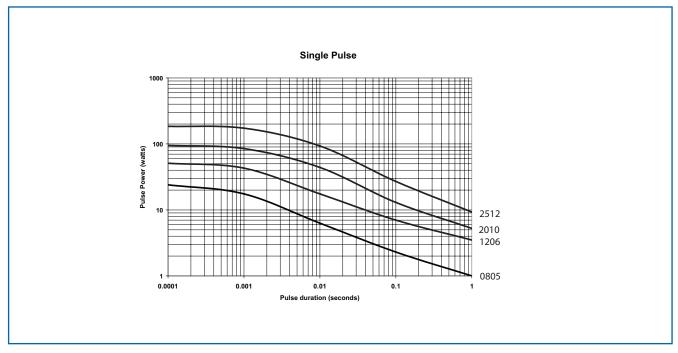
Pulse Withstanding Chip Resistors





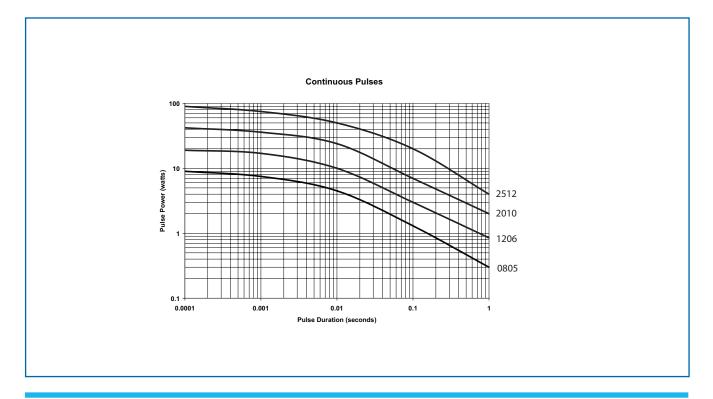
Single Impulse

The single impulse graph is the result of 50 impulses of rectangular shape applied at one minute intervals. The limit of acceptance was a shift in resistance of less than 1% from the initial value.



Continuous Load Due to Repetitive Pulses

The continuous load graph was obtained by applying repetitive rectangular pulses where the pulse period was adjusted so that the average power dissipated in the resistor was equal to its rated power at 70°C. Again the limit of acceptance was a shift in resistance of less than 1% from the initial value



General Note

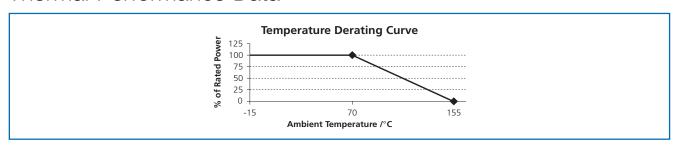


Pulse Withstanding Chip Resistors

PWC Series



Thermal Performance Data



Packaging

0805 and 1206 resistors are supplied on 8mm carrier tape and 2010 and 2512 resistors are supplied on 12mm carrier tape, all on 7 inch reels as per IEC 286-3.

Application Note

PWC resistors themselves can operate at a maximum temperature of 155°C. For soldered resistors, the joint temperature should not exceed 110°C. This condition is met when the stated power levels at 70°C and recommended pad and trace areas are used. Allowance should be made if smaller areas of copper are used.

A full Application Note on the PWC Series is available.

Ordering Procedure

This product has two valid part numbers:

European (Welwyn) Part Number: PWC2512-2K0JI (2512, 2 kilohms ±5%, Pb-free)



1	2	3	3 4		6	
Туре	Size	Anti-Sulphur	Value	Tolerance	Termination & Packing	
PWC	0805	Omit for standard	E24 = 3/4 characters	D = ±0.5%	I = RoHS & Standard, PB = SnPb & Standard	
	1206	AS = Anti-sulphur	E96 = 3/4 characters	F = ±1%	0805, 1206,	3000/reel
	2010		R = ohms	$J = \pm 5\%$	2010	
	2512		K = kilohms		2512	1800/reel
			M = megohms		T1 = RoHS &	
_				•	Non-Sta	ndard
					All sizes	1000/reel

USA (IRC) Part Number: PWC-PWC2512LF-2K00-J (2512, 2 kilohms ±5%, Pb-free)



1	2	3	4	5	6		
Family	Model	Size	Termination	Value	Tolerance	Pack	ing
PWC	PWC	0805	Omit for SnPb	3 digits + multiplier	$D = \pm 0.5\%$	ELT = Plastic tape	
		1206	LF = Pb-free	R = ohms for	F = ±1%	0805, 1206,	3000/reel
		2010		values <100 ohms	J = ±5%	2010	3000/1661
		2512]			2512	1800/reel