



# CSU Series Datasheet

Through hole shunt resistor  
Precision Resistor

## APPLICATIONS



Automotive



Industrial



Power & Energy

## FEATURES

Constant Current up to 100 amps (0.3mΩ)

High Conductivity Copper Connectors

Excellent Long-term Stability

Max. Solder Temperature up to 350°C / 30s.

AEC-Q200 qualified

RoHS and REACH Compliant

## ORDERING CODE - Example

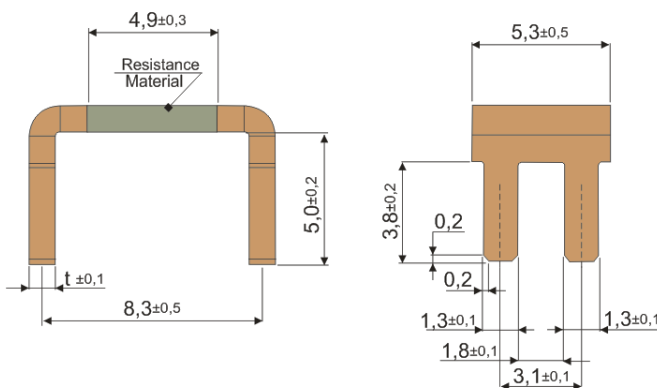
CSU	382	J	V	-	AX-	L5	AA
Type	Size	Tol.	Pack-Code	TC	Forming type	* R Value	Special
	382=3820	F = ±1% H = ±3% J = ±5%	V = Vacuum packed in plastic bags.	Base on spec.		L = mΩ	AA = Standard

\*0.05 mΩ to 5 mΩ there are 3~4 digits indicated the resistance value. Letter R/L is decimal point (0L05 = 0.05mΩ, 0R001 = 1mΩ)

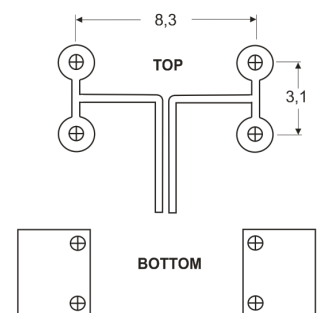
## TECHNICAL DATA

Type / Size		CSU382
Nominal Power Rating	P <sub>70</sub> P <sub>100</sub>	[W] See "ELECTRICAL CHARACTERISTICS" table on page 2
Resistance Range (Preferred values. Other's upon request)	[Ω]	R0003, R0005, R001, R002
Tolerances	±[%]	F = 1% ; H = 3% ; J = 5%
Temperature Coefficient	[ppm/°C]	<±10 (copper manganese alloys) <-25 (Aluchrom alloy)
Temperature Range	[°C]	-55 ... +170
Inductance	[nH]	< 3
Max. working voltage	[V] <sub>RMS</sub>	$\sqrt{P_{70} \times R}$

## DIMENSIONS [mm]



### SOLDER PAD DIMENSIONS



Type	Value [mΩ]	Resistance values	T (±0.1) (thickness)
CSU382	0.3	L3	0,85
	0.5	L5	0,86
	1.0	R001	1,36
	2.0	R002	0,68

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## PERFORMANCE DATA

Type		CSU382
Biased Humidity <i>MIL-STD-202 Method 103</i> <i>(85[°C], 85[%RH] 1.000[h], 10% rated power)</i>	±[%]	0,5
Operational Life <i>Mil-STD-202 Method 108</i> <i>125[°C] at rated power, 1000[H]</i>	±[%]	1,0
Mechanical Shock <i>Mil-STD-202 Method 213</i> <i>(100 [G] for 6[ms], Half sine)</i>	±[%]	0,2
Vibrations <i>Mil-STD-202 Method 204</i> <i>(10 to 2000 [Hz], 5 [G] for 20 [min], 12 cycles, each of 3 orientation)</i>	±[%]	0,2
Resistance to Soldering Heat <i>IEC60115-1 clause 4.18 and Mil-STD-202 Method 210</i> <i>(260[°C], 10[s])</i>		0,5
Short Time Overload <i>(U=5 * √P<sub>70</sub> * R, 5[s])</i>	±[%]	1,0
Low Temperature Storage <i>-65[°C] 24[H]</i>	±[%]	0,5
Solderability <i>IEC60068-2-20 and J-STD-002</i>		Solder bath method (> 95% coverage)
Rapid change of temperature <i>IEC60115-1 clause 4.19 and IEC60068-2-14</i> <i>(30 [min] -55 [°C] and 30 [min] +150 [°C], 1000 Cycles)</i>	±[%]	0,5
High Temperature Exposure <i>Mil-STD-202 Method 108</i> <i>+170[°C] 1000[H]</i>	±[%]	1,0
Marking <i>IEC60062</i>		Value imprinted

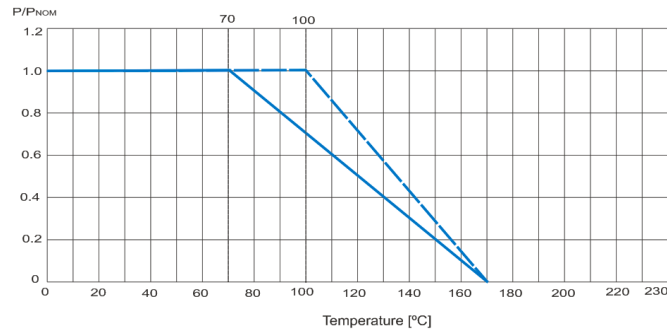
## ELECTRICAL SPECIFICATIONS

Size	Value [mΩ]	Resistance values	TCR [ppm/°C]	Material	Power Rating		Resistive alloy TCR [ppm]
					P <sub>70</sub> [W]	P <sub>100</sub> [W]	
CSU382	0.3	L3	< 300	Copper Manganese Alloy	10	5	<±10
	0.5	L5		Copper Manganese Alloy	9	5	
	1.0	R001	< 100	Aluchrom Alloy	8	5	<-25
	2.0	R002		Aluchrom Alloy	6	4	

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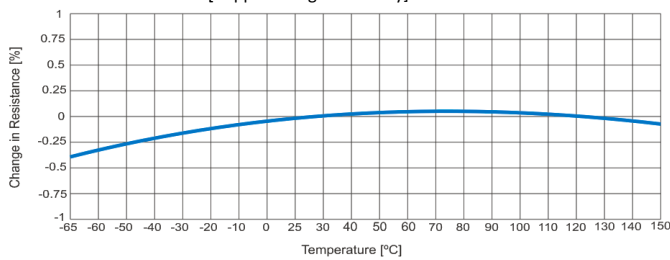
## PERFORMANCE GRAPHS

**Power Derating Curve**



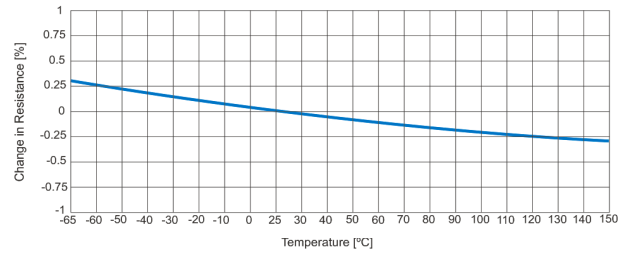
**Resistance Change vs Temperature**

[Copper Manganese Alloy]



**Resistance Change vs Temperature**

[Aluchrom A1 Alloy]



## RECOMMENDED SOLDER PROFILE

Below table shows the recommended reflow, IR-soldering solder parameters for CSU series.

TEMPERATURE [°C]	260	255	217
TIME [S]	Peak	40	90

## PACKAGING

The standard packaging for CSU dimensions below.

Size	Packaging	SPQ	Pack Code
CSU382	vacuum packed in plastic bags	3000	V
Customized packing available on request			