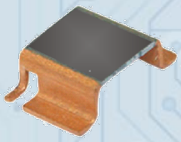


CSC Series Datasheet

SMD Power Shunt Resistor
Current Sensor Open Frame

APPLICATIONS

- Automotive
- Industrial
- Power & Energy

FEATURES

- Constant Current up to 160 amps (0.2mΩ)
- AEC-Q200 qualified
- Heavy copper connection
- 4 - Terminals Connection
- Excellent Long-term Stability
- Max. Solder Temperature up to 350ºC / 30s.
- RoHS REACH Compliant

ORDERING CODE - Example

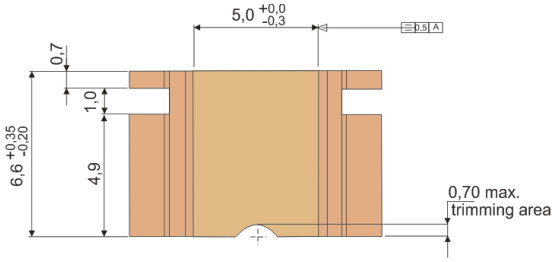
New SAP Part Nr.:

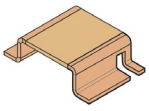
CSC	402	F	K	-	13-	L2	AA
Serie	* Power rating	Tol.	Pack-Code	TCR	Forming type	*R Value	Special
	402 = 4026	**F** = ±1% **H** = ±3% **J** = ±5%	Blister Tape	- Base on spec.	13 inch	**L** = mΩ	**AA** = Standard

TECHNICAL DATA

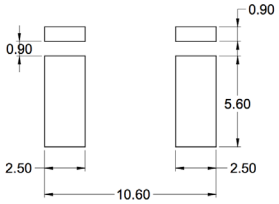
Type / Size			**CSC402**
Nominal Power Rating (For details information check table below)	P_{70}	[W]	Up to 12
	P_{100}		Up to 5
Resistance Range (Preferred values)		[Ω]	R0002, R0003, R0005, R0007, R001, R002, R003, R004, R005
Tolerances		±[%]	F = 1% ; H = 3% ; J = 5%
Temperature Coefficient		[ppm/ºC]	See table
Operating Temperature Range		[ºC]	-55 ... +170
Load Capacity			See next page
Inductance		[nH]	< 3
Max. working voltage		$[V]_{RMS}$	$\sqrt{P_{70} \times R}$

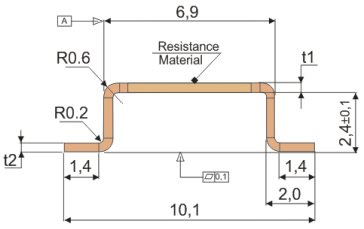
DIMENSIONS [mm]





SOLDER PAD DIMENSIONS





Type	Value [mΩ]	Resistance values	Thickness t1	Thickness t2
CSC402	0.2	L2	1,20	0,40
	0.3	L3	0,99	0,40
	0.5	L5	0,65	0,40
	0.7	L7	0,47	0,40
	1.0	R001	0,35	0,40
	2.0	R002	0,50	0,40
	3.0	R003	0,34	0,40
	4.0	R004	0,34	0,40
	5.0	R005	0,34	0,40

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CSC Series Datasheet

PERFORMANCE DATA

Type		CSC402
Derating Linear	[ºC]	70…170 (0W)
Endurance *IEC60115-1 clause 4.25* *(P_{70} @ 70[°C], 1000[h])*	±[%]	1,0
Resistance to Soldering Heat *IEC60115-1 clause 4.18* *($260^{\pm5}$[°C], $3,5^{\pm1}$[s])*	±[%]	N.A.
Low Temperature Exposure *-65[ºC] 24[H]*	±[%]	0,1
High Temperature Exposure *+170[ºC] 1000[H]*	±[%]	1
Rapid change of temperature *IEC60115-1 clause 4.19 and IEC60068-2-14* *(30 [min] -55 [ºC] and 30 [min] +150 [ºC])*	±[%]	0,5
Biased Humidity *MIL-STD-202 Method 103* *(85[ºC], 85[%RH] 1.000[h])*	±[%]	0,5
Vibrations *Mil-STD-202 Method 204* *(10 to 2000 [Hz], 5 [G] for 20 [min], 12 cycles, each of 3 orientation*	±[%]	0,2
Mechanical Shock *Mil-STD-202 Method 213* *(Method C, peak value 100 [G], Half sine)*	±[%]	0,2
Solderability *IEC60068-2-20* *($245^{\pm5}$[ºC] $3^{\pm0,5}$[s])*		Solder bath method (> 95% coverage)
Stability deviation ** Tt = Terminal Temperature*	±[%]	< 0.5 after 2000 Hours * T_t = 110ºC < 1.0 after 2000 Hours * T_t = 140ºC
Marking *IEC60062*		Value imprinted

ELECTRICAL SPECIFICATIONS

Size	Value [mΩ]	Resistance values	TCR [ppm/ºC]	Material	Power Rating P_{70} [W]	Power Rating P_{100} [W]	Resistive alloy TCR [ppm]
CSC402	0.2	L2	< 50	Copper Manganese MC2Alloy	12	5	<±10
	0.3	L3		Copper Manganese 38 Alloy	10	5	
	0.5	L5		Copper Manganese 38 Alloy	9	5	
	0.7	L7		Copper Manganese 43 Alloy	8	5	
	1.0	R001		Copper Manganese 43 Alloy	7	4	
	2.0	R002		Aluchrom Alloy	7	4	<-25
	3.0	R003		Aluchrom Alloy	5	3	
	4.0	R004		Aluchrom Alloy	4	2	
	5.0	R005		Aluchrom Alloy	3	2	

Note: Please contact with sales offices, distributors and representatives in your region before ordering.

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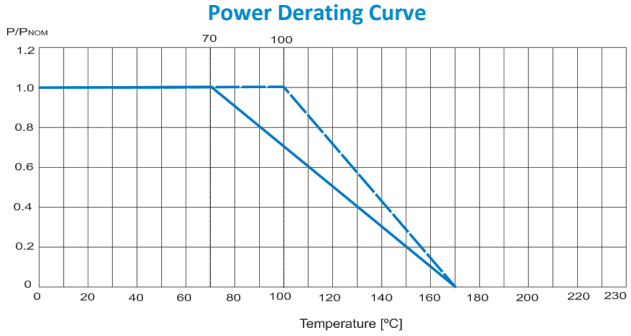
CSC Series Datasheet

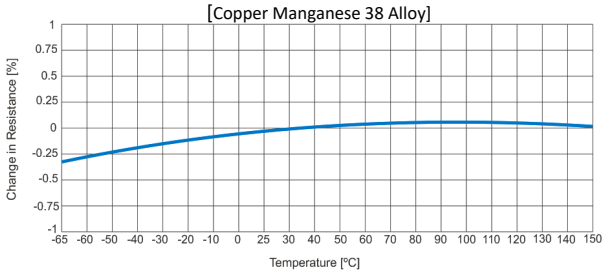
PERFORMANCE GRAPHS

Power Derating Curve



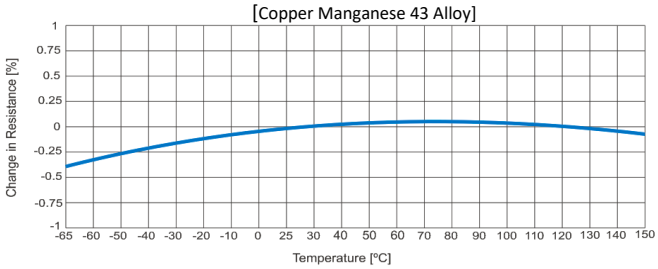
Resistance Change vs Temperature

[Copper Manganese 38 Alloy]



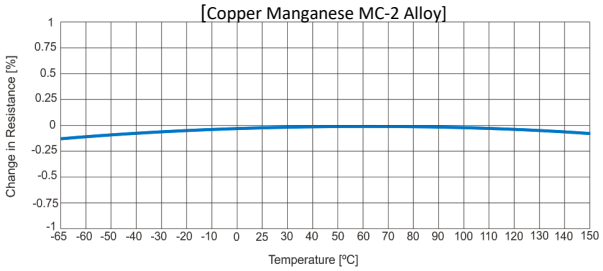
Resistance Change vs Temperature

[Copper Manganese 43 Alloy]



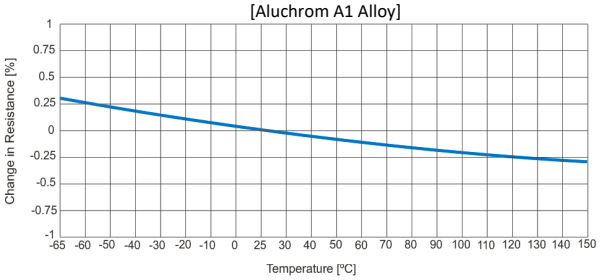
Resistance Change vs Temperature

[Copper Manganese MC-2 Alloy]



Resistance Change vs Temperature

[Aluchrom A1 Alloy]



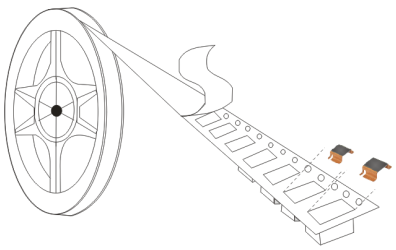
RECOMMENDED SOLDER PROFILE

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

TEMPERATURE [ºC]	260	255	217
TIME [S]	Peak	40	90

PACKAGING

The standard packaging for CSC dimensions below (blister tape [mm]).



Packing according to IEC60286-3

Size	Packaging	SPQ	Tape width	Pack Code
CSC402	Blister tape	1400	24	K

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