

Current Sensing Chip Resistor

CS Series

INTRON

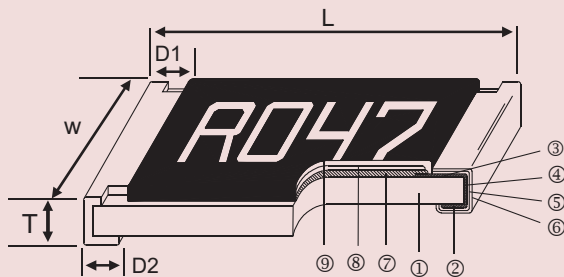
Features

- 3 Watts power rating in 1 Watt size, 1225 Package
- Low TCR of ± 100 PPM/°C
- Resistance value from 1m to 1 ohm.
- High Purity Alumina Substrate for High Power Dissipation
- Long side terminations with higher power rating.

Applications

- Power Management Applications
- Switching Power Supply
- Over Current Protection in Audio Application
- Voltage Regulation Module (VRM)
- DC-DC Converter, Battery Pack, Charger, Adaptor
- Automotive Engine Control
- Disk Driver

Construction



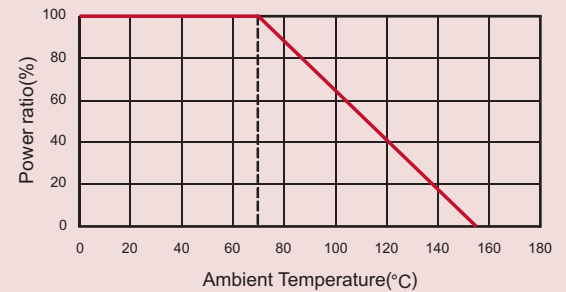
① Alumina Substrate	④ Edge Electrode (NiCr)	⑦ Resistor Layer (Ag/Pd)
② Bottom Electrode (Ag)	⑤ Barrier Layer (Ni)	⑧ Overcoat (Epoxy)
③ Top Electrode (Ag-Pd)	⑥ External Electrode (Sn)	⑨ Marking

Dimensions

Unit : mm

Type	Size (inch)	L	W	T	D1	D2
CS01	0201	0.60±0.03	0.30±0.03	0.23±0.05	0.12±0.05	0.15±0.05
CS02	0402	1.00±0.05	0.50±0.05	0.32±0.10	0.25±0.10	0.20±0.10
CS03	0603	1.60±0.10	0.80±0.10	0.45±0.10	0.30±0.20	0.30±0.20
CS05	0805	2.00±0.15	1.25±0.15	0.55±0.10	0.30±0.20	0.40±0.25
CS06	1206	3.05±0.15	1.55±0.15	0.55±0.10	0.50±0.30	0.40±0.25
CS13	1210	3.00±0.15	2.50±0.15	0.55±0.10	0.50±0.30	0.50±0.25
CS10	2010	5.00±0.20	2.45±0.15	0.60±0.15	0.60±0.30	0.50±0.25
CS12	2512	6.35±0.20	3.15±0.15	0.60±0.10	0.60±0.30	0.55±0.25
CS12 (2W)	2512 10 - 99mΩ	6.35±0.20	3.15±0.15	0.74±0.10	0.60±0.30	0.55±0.25
CS12 (2W)	2512 100 - 1000mΩ	6.35±0.20	3.15±0.15	0.74±0.10	0.60±0.30	2.70±0.10
CS25	1225	3.10±0.15	6.30±0.15	0.90±0.15	0.60±0.30	0.55±0.25
CS37	3720	2.00±0.20	3.75±0.20	0.60±0.10	0.40±0.20	0.40±0.20
CS75	7520	2.00±0.20	7.50±0.30	0.60±0.10	0.40±0.20	0.40±0.20
CS62	0612	1.55±0.10	3.10±0.15	0.55±0.10	0.30±0.15	0.45±0.15

Derating Curve



Part Numbering

CS	06	F	T	G	U	R100	N
Product Type	Dimensions (L X W)	Resistance Tolerance	Packaging Code	TCR (PPM/°C)	Power Rating	Resistance	Marking Code
	01:0201 02:0402 03:0603 05:0805 06:1206 13:1210 10:2010 12:2512 25:1225 37:3720 75:7520 62:0612	F:±1% G:±2% J:±5%	T : Taping Reel B : Bulk	E : ±100 F : ±200 G : ±300 H : ±400 J : ±600 K : ±150 R : ±1000	: Standard S: 2W A: 1.5W T: 1W Q: 3/4W U: 1/2W V: 1/4W P: 1/5W W: 1/8W	R010 : 0.01Ω R100 : 0.1Ω 1R00 : 1Ω	: Standard N : No Marking W : Wide

Marking of 0603

Codes	Type
1R0	1.000 Ω
R10	0.100 Ω
R01	0.010 Ω
101	0.101 Ω
035	0.035 Ω

Standard Electrical Specifications

Type \ Item	Power Rating at 70°C	Operating Temp. Range	Max. Operating Current	Resistance Range (mΩ)			TCR (PPM/°C)
				±1%	±2%	±5%	
CS01 (0201)	1/20W	-55 ~ +155°C	0.70A	100-147 150-500 510 -1000			±1000 ±600 ±300
CS02 (0402)	1/16W		1.11A	50 - 100 102 - 500 510 - 1000			±400 ±300 ±200
CS03 (0603)	1/10W		2.23A	20 - 50 51 - 100 102 - 500 510 - 1000			±600 ±400 ±300 ±200
CS05 (0805)	1/8W		2.50A	20 - 50 51 - 100 102 - 196 200 - 1000			±600 ±400 ±300 ±200
CS06 (1206)	1/4W		5.00A	10 - 20			±600
CS13 (1210)	1/2W		7.07A	21 - 50			±400
CS10 (2010)	3/4W		8.66A	51 - 91			±300
CS12 (2512)	1W		10.0A	100 - 1000			±200
CS25 (1225)	3W		31.6A	3 - 5 6 - 20 21 - 30 33 - 8000			±300 ±200 ±150 ±100
CS37 (3720)	1W		10.0A	10 - 18 20 - 500			±300 ±150
CS75 (7520)	2W		44.7A	-	1 - 4		±300
CS62 (0612)	1W		10.0A	5 - 10 11 - 350			±200 ±150
					10 - 27 30 - 91 100 - 1000		

High Power Electrical Specifications

Type \ Item	Power Rating at 70°C	Operating Temp. Range	Max. Operating Current	Resistance Range (mΩ)			TCR (PPM/°C)
				±1%	±2%	±5%	
CS02 (0402)	1/8W	-55 ~ +155°C	1.56A	51 - 100			±400
CS03 (0603)	1/8W		1.98A	102 - 500			±300
CS05 (0805)	1/5W		1.98A	510 - 1000			±200
CS06 (1206)	1/4W		2.21A	10 - 20			±600
CS13 (1210)	1/2W		7.07A	21 - 50			±400
CS10 (2010)	3/4W		8.66A	51 - 91			±300
CS12 (2512)	1W		10.0A	100 - 1000			±200
CS12 (2512)	1.5W		12.2A				
CS12 (2512)	*2W		14.1A				

Low TCR Electrical Specifications

Type \ Item	Power Rating at 70°C	Operating Temp. Range	Max. Operating Current	Resistance Range (mΩ)			TCR (PPM/°C)
				±1%	±2%	±5%	
CS05 (0805)	1/8W	-55 ~ +155°C	1.11A	100 - 1000			±100
CS06 (1206)	1/4W		1.58A	100 - 1000			±100
CS13 (1210)	1/2W		2.58A	75 - 1000			±100
CS10 (2010)	3/4W		3.87A	50 - 1000			±100
CS12 (2512)	1W		7.07A	20 - 1000			±100
CS12 (2512)	*2W		6.32A	50 - 1000			±100
CS37 (3720)	1W		3.16A	100 - 500			±100
CS75 (7520)	2W		6.32A	50 - 350			±100

*: Ultra High Power

INTRON

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