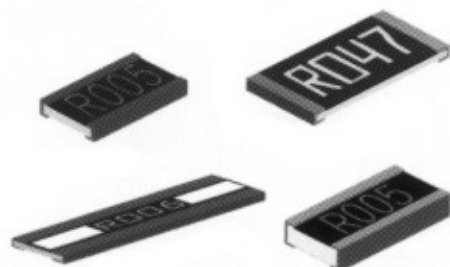


## Current Sensing Chip Resistor-CS Series

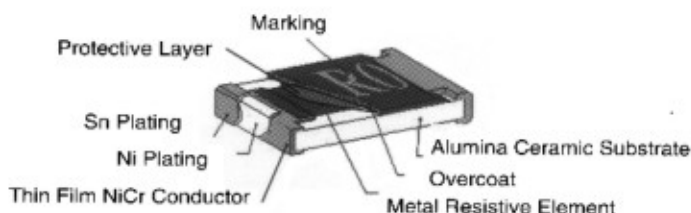
# CS



### Features

- 3W Rating in 1W size, 1225 Package
- Low TCR from  $\pm 100$  PPM  $\rightarrow$   $\pm 600$  PPM/ $^{\circ}$ C
- Resistance Values from 1 to 1000 m ohms
- High Purity Alumina Substrate for High Power Dissipation

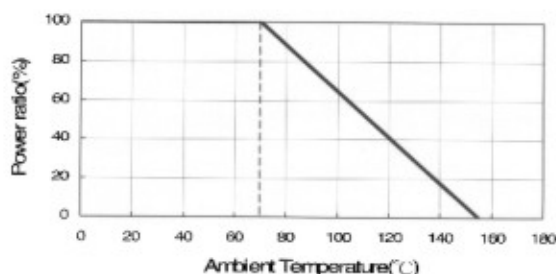
### Construction



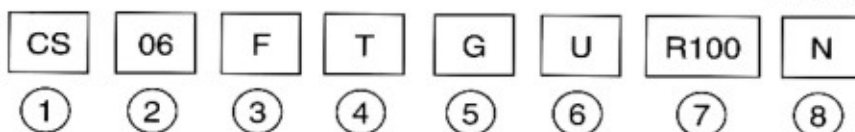
### Applications

- 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
- Portable Devices (PDA, Cell phone)

### Derating Curve



### Part Numbering



#### ① Product Type

Product Type	Description
CS	Current Sensing Chip Resistor

#### ② Dimensions (LxW)

Codes	Dimensions (LxW)	Part No.
CS02	1.00x0.50mm	0402
CS03	1.60x0.80mm	0603
CS05	2.00x1.25mm	0805
CS06	3.10x1.55mm	1206
CS10	5.00x2.50mm	2010
CS12	6.30x3.10mm	2512
CS25	3.10x6.30mm	1225
CS37	3.75x2.00mm	3720
CS75	7.50x2.00mm	7520

#### ③ Resistance Tolerance

Codes	Resistance Tolerance
J	$\pm 5\%$
H	$\pm 3\%$
G	$\pm 2\%$
F	$\pm 1\%$

#### ④ Packaging

Codes	Type
T	Taping Reel
B	Bulk

#### ⑤ Marking

Codes	Type
	Standard*
N	No Marking

\* Please consult with us.

#### ⑥ TCR

Codes	Type
E	$\pm 100$ PPM/ $^{\circ}$ C
K	$\pm 150$ PPM/ $^{\circ}$ C
F	$\pm 200$ PPM/ $^{\circ}$ C
G	$\pm 300$ PPM/ $^{\circ}$ C
H	$\pm 400$ PPM/ $^{\circ}$ C
I	$\pm 500$ PPM/ $^{\circ}$ C
J	$\pm 600$ PPM/ $^{\circ}$ C

#### ⑦ Power Rating

Codes	Type
	Standard
R	3W
S	2W
A	1.5W
T	1W
Q	3/4W
U	1/2W
V	1/4W
W	1/8W
X	1/10W
Y	1/16W
Z	1/32W

#### ⑧ Resistance

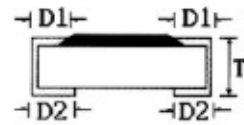
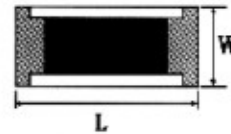
Codes	Type
R010	0.010 $\Omega$
R100	0.100 $\Omega$
1R00	1.000 $\Omega$

**Dimensions**

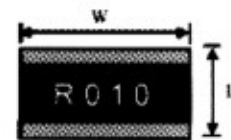
Unit: mm

Codes	L	W	T	D1	D2
CS02	1.00±0.05	0.50±0.05	0.32±0.10	0.25±0.10	0.20±0.10
CS03	1.60±0.10	0.80±0.10	0.45±0.10	0.30±0.20	0.30±0.20
CS05	2.00±0.15	1.25±0.15	0.55±0.10	0.30±0.20	0.40±0.25
CS06	3.05±0.15	1.55±0.15	0.55±0.10	0.50±0.30	0.40±0.25
CS10	5.00±0.20	2.45±0.15	0.60±0.15	0.60±0.30	0.50±0.25
CS12	6.35±0.20	3.15±0.15	0.60±0.10	0.60±0.30	0.55±0.25
CS25	3.10±0.15	6.30±0.15	0.90±0.15	0.60±0.30	0.55±0.25
CS37	2.00±0.20	3.75±0.20	0.60±0.10	0.40±0.20	0.40±0.20
CS75	2.00±0.20	7.50±0.30	0.60±0.10	0.40±0.20	0.40±0.20

0402/0603/0805/1206/2010/2512



1225/3720/7520



**Standard Electrical Specifications**

Item Type	Power Rating at 70°C	Operating Temp. Range	Resistance Tolerance	Resistance Range	TCR (PPM/°C)	
CS02 (0402)	1/16W	-55 ~ +155°C	±1%, ±2%, ±5%	50mΩ~100mΩ 101mΩ~500mΩ 501mΩ~1000mΩ	±400 ±300 ±200	
CS03 (0603)	1/10W			20mΩ~50mΩ 51mΩ~100mΩ 101mΩ~500mΩ 501mΩ~1000mΩ	±600 ±400 ±300 ±200	
CS05 (0805)	1/8W			20mΩ~50mΩ 51mΩ~100mΩ 101mΩ~500mΩ 501mΩ~1000mΩ	±600 ±400 ±300 ±200	
CS06 (1206)	1/4W			10mΩ~20mΩ 21mΩ~50mΩ	±600 ±400	
CS10 (2010)	3/4W			51mΩ~500mΩ	±300	
CS12 (2512)	1W			501mΩ~1000mΩ	±200	
CS25 (1225)	3W			3mΩ~5mΩ 6mΩ~20mΩ 21mΩ~30mΩ 31mΩ~200mΩ	±300 ±200 ±150 ±100	
CS37 (3720)	1W			10mΩ~19mΩ 20mΩ~500mΩ	±300 ±150	
CS75 (7520)	2W			±2%, ±5%	1mΩ~4mΩ	±300
				±1%, ±2%, ±5%	5mΩ~10mΩ 11mΩ~350mΩ	±200 ±150

**High Power Rating Electrical Specifications**

Type	Item	Power Rating at 70°C	Operating Temp. Range	Resistance Tolerance	Resistance Range
CS05	□TV□□□□	1/4W	-55 ~ +155°C	±1%, ±2%, ±5%	100mΩ~1000mΩ
CS06	□TU□□□□	1/2W			100mΩ~1000mΩ
CS10	□TT□□□□	1W			100mΩ~1000mΩ
CS12	□TA□□□□	1.5W			100mΩ~1000mΩ

**Low TCR Electrical Specifications**

Type	Item	Power Rating at 70°C	Operating Temp. Range	Resistance Tolerance	Resistance Range	TCR (PPM/°C)
CS06	□TE□□□□	1/4W	-55 ~ +155°C	±1% ±2% ±5%	100mΩ~1000mΩ	±100
CS10	□TE□□□□	3/4W			100mΩ~1000mΩ	±100
CS12	□TE□□□□	1W			100mΩ~1000mΩ	±100
CS75	□TE□□□□	2W			1mΩ~5mΩ	±100

Operating Current I=√(P/R), Operating Voltage V=√(P\*R)