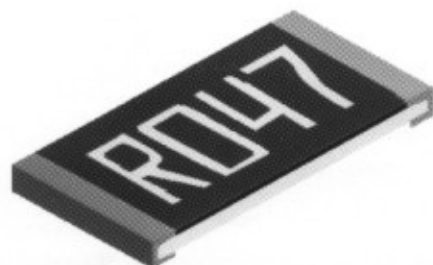
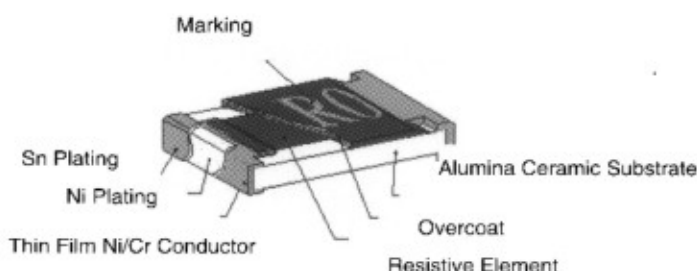
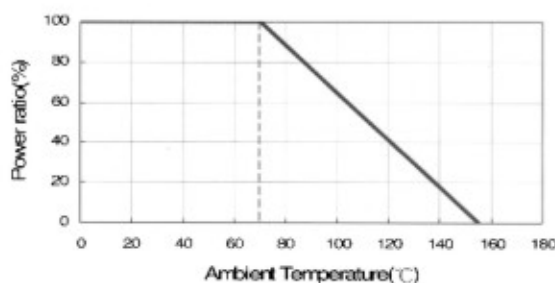
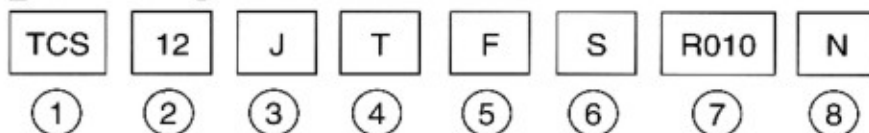


**THUNDER****Thin Film Current Sensing Chip Resistor-TCS Series****TCS****Applications**

- 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)

**Features**

- Thin Film Process
- Very Tight Tolerance from  $\pm 0.5\%$  - 1%
- Extremely Low TCR from  $\pm 50$  -  $\pm 200$  PPM/ $^{\circ}$ C
- Resistance Values from 50m to 999m ohms
- High Purity Alumina Substrate for High Power Dissipation
- Products with Pb-free Terminations Meet RoHS Requirements

**Construction****Derating Curve****Part Numbering****① Product Type**

Product Type	
TCS	Thin Film Current Sensing Chip Resistor

**② Dimensions (LxW)**

Codes	Dimensions (LxW)	
TCS03	1.60x0.80mm	0603
TCS05	2.00x1.25mm	0805
TCS06	3.10x1.55mm	1206
TCS10	5.00x2.50mm	2010
TCS12	6.30x3.10mm	2512

**③ Resistance Tolerance**

Codes	Resistance Tolerance
J	$\pm 5\%$
F	$\pm 1\%$
D	$\pm 0.5\%$

**④ Packaging**

Codes	Type
T	Taping Reel
B	Bulk

**⑤ TCR**

Codes	Type
D	$\pm 50$ PPM/ $^{\circ}$ C
E	$\pm 100$ PPM/ $^{\circ}$ C
F	$\pm 200$ PPM/ $^{\circ}$ C

**⑥ 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

**⑦ Resistance**

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

**⑧ Marking**

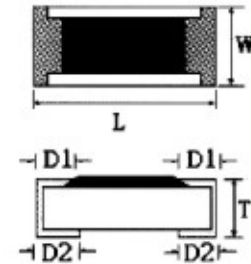
Codes	Type
	Standard Marking*
N	No Marking

\*Please consult with us.

**Dimensions**

Unit: mm

Codes	L	W	T	D1	D2
TCS03	1.60±0.10	0.80±0.10	0.45±0.10	0.30±0.20	0.30±0.20
TCS05	2.00±0.15	1.25±0.15	0.55±0.10	0.30±0.20	0.40±0.25
TCS06	3.05±0.15	1.55±0.15	0.55±0.10	0.50±0.30	0.40±0.25
TCS10	5.00±0.20	2.45±0.15	0.60±0.15	0.60±0.30	0.50±0.25
TCS12	6.35±0.20	3.15±0.15	0.60±0.10	0.60±0.30	0.55±0.25



**Standard Electrical Specifications**

Item Type	Power Rating at 70°C	Operating Temp. Range	Max. Operating Voltage	Max. Overloading Voltage	Resistance Tolerance	Resistance Range	TCR (PPM/°C)
TCS03 (0603)	1/10W	-55 ~ +155°C	100V	200V	±0.5%	200mΩ~300mΩ	±100
						301mΩ~999mΩ	±50
TCS05 (0805)	1/8W		150V	300V	±1.0%	200mΩ~300mΩ	±100
						301mΩ~999mΩ	±50
TCS06 (1206)	1/4W		200V	400V	±1.0%	50mΩ~100mΩ	±200
						101mΩ~300mΩ	±100
		301mΩ~999mΩ				±50	
TCS10 (2010)	3/4W	200V	400V	±0.5%	50mΩ~100mΩ	±200	
					101mΩ~300mΩ	±100	
					301mΩ~999mΩ	±50	
TCS12 (2512)	1W	200V	400V	±1.0%	50mΩ~100mΩ	±200	
					101mΩ~300mΩ	±100	
					301mΩ~999mΩ	±50	

Operating Current  $I = \sqrt{P/R}$ , Operating Voltage  $V = \sqrt{P \cdot R}$

\*Viking is capable of manufacturing the optional spec based on customer's requirement.