

## Bulk Metal® Technology Precision, Power Shunt Resistors, Surface Mount, Metal Strip Resistors

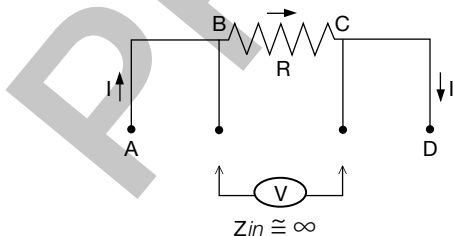
### FEATURES

- Temperature coefficient of resistance to  $\pm 20$  ppm/°C max. ( $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$ ,  $+25^{\circ}\text{C}$  ref.)
- Power rating: to 7 W
- Resistance tolerance: to  $\pm 1\%$
- Resistance range:  $0.3\text{m}\Omega$  to  $3\text{m}\Omega$
- Short time overload:  $\pm 0.5\%$
- Maximum current: up to 100 A
- **AEC-Q200 qualified**
- Proprietary processing techniques produce low resistance values and improved TCR
- Solderable terminations
- Quick prototype quantities available, please contact: [foil@vpgsensors.com](mailto:foil@vpgsensors.com)

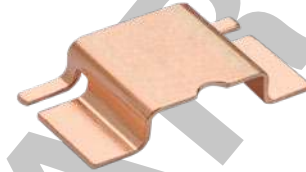
### Key Applications

Applications requiring accuracy and repeatability under stress conditions such as the following:

- Switching and linear power supplies
- Precision current-sensing
- Power management systems
- Feedback circuits
- Power amplifiers
- Measurement instrumentation
- Precision instrumentation amplifiers
- Medical and automatic test equipment
- Frequency converters
- Communication systems
- High current applications for the automotive market

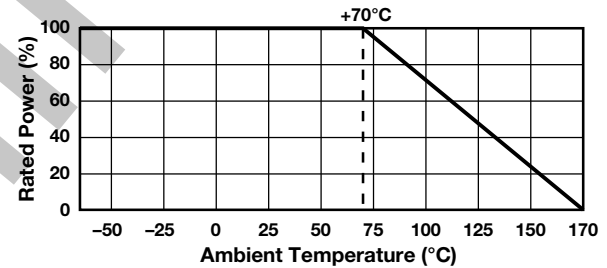


Four terminal (Kelvin) design: allows for precise and accurate measurements.



RoHS\*  
COMPLIANT

**Figure 1 – Power Derating Curve**



**Table 1 – Specifications**

PARAMETER	CSM4026Y
Resistance Range	0.3 mΩ to 3 mΩ
Power Rating at 70°C <sup>(1)</sup>	5 W (0.3 - 2mΩ) 4 W (3mΩ)
Maximum Current <sup>(2)</sup>	100 A
Tolerance	to $\pm 1\%$
Temperature Coefficient Max. ( $-55^{\circ}\text{C}$ to $+125^{\circ}\text{C}$ , $+25^{\circ}\text{C}$ Ref.)	$\pm 40$ ppm/°C, (2 - 3 mΩ) $\pm 70$ ppm/°C, (0.3 - 1 mΩ)
Operating Temperature Range	$-65^{\circ}\text{C}$ to $+170^{\circ}\text{C}$
Maximum Working Voltage	$(P \times R)^{1/2}$
Weight (Maximum)	0.82 g

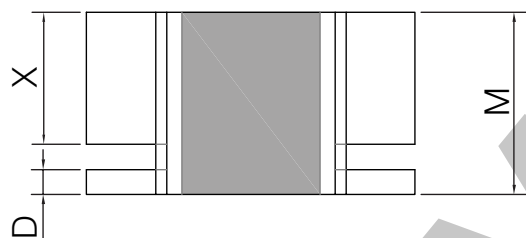
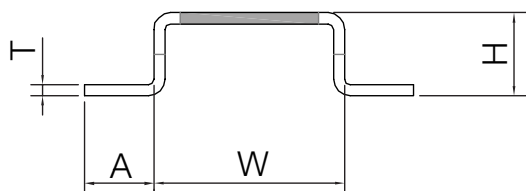
#### Notes

<sup>(1)</sup> Nominal power of 7 W is available for special values

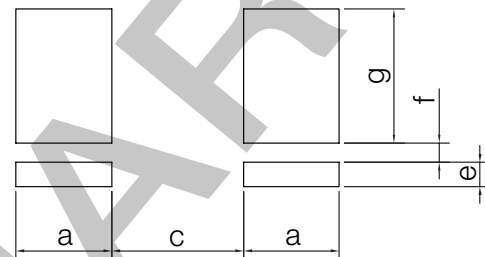
<sup>(2)</sup> Maximum current for a given resistance value is calculated using  $I = \sqrt{P/R}$

Figure 2 – Dimensions and Imprinting in millimeters

CSM4026Y DIMENSIONS



CSM4026Y LAND PATTERN



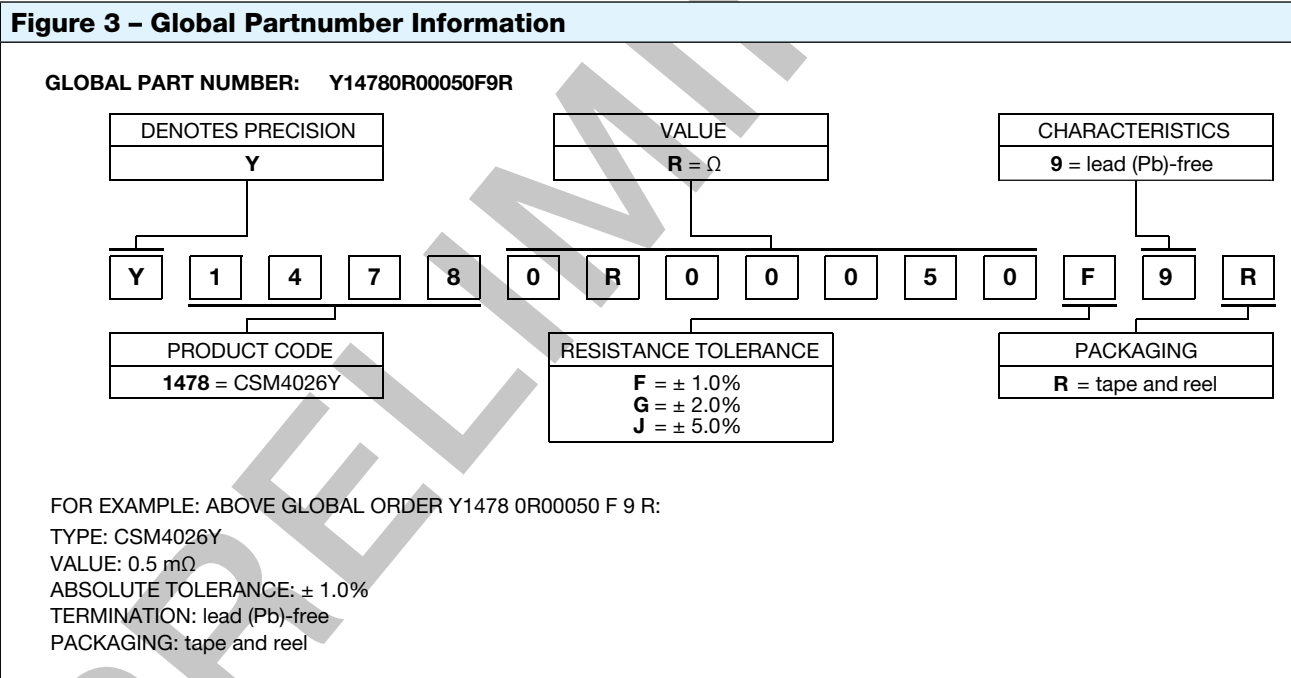
Dimensions

MODEL	RESISTANCE RANGE (mΩ)	M	H	W	T	A	X	D
CSM4026Y	0.3	6.6±0.3	3±0.5	6.9±0.3	1.06±0.1	2.5±0.2	4.8±0.4	0.9
	0.5	6.6±0.3	3±0.5	6.9±0.3	0.67±0.1	2.5±0.2	4.8±0.4	0.9
	1	6.6±0.3	3±0.5	6.9±0.3	0.33±0.1	2.5±0.2	4.8±0.4	0.9
	2	6.6±0.3	3±0.5	6.9±0.3	0.47±0.1	2.5±0.2	4.8±0.4	0.9
	3	6.6±0.3	3±0.5	6.9±0.3	0.34±0.1	2.5±0.2	4.8±0.4	0.9

Land Pattern Dimensions

MODEL	RESISTANCE RANGE (mΩ)	a	c	e	f	g
CSM4026Y	0.3 to 3	4	5.5	0.9	0.8	5.6

Table 2 – CSM4026Y Performance Specifications			
TEST	CONDITIONS	MIL-PRF-49465B ΔR LIMITS	CSM4026Y
			TYPICAL ΔR LIMITS
Temperature Cycling	1000 Cycles (-55°C to +125°C)	JESD22 Method JA-104	±0.5%
High Temperature Exposure	1000 hrs. @ +125°C, unpowered	±(0.5%+0.0005R) Method 108	±0.5%
Biased Humidity	1000 hrs 85°C/85%RH Specified conditions: 10% of operating power	MIL-STD-202 Method 103	±0.5%
Operational Life	Condition D Steady State TA=125°C at rated power	MIL-STD-202 Method 108	±1%
Solderability	245°C±5°C, 5s+0.5s/-0	J-STD-002C	95% Coverage Min
Resistance to Soldering Heat	260°C±5°C, 10s±1s	MIL-STD-202 Method 202	±0.5%
Short Time Overload	5×Rated power for 5 s	MIL-STD-202 Method 301	±0.5%





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