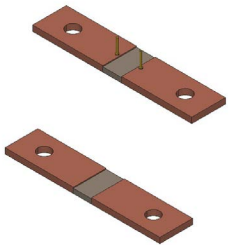
CSSA8518

Automotive current sensing shunt resistor-high current



Applications

- Battery management systems (BMS)
- Power distribution units (PDUs)
- Electronic battery management (EBM) in automobiles, trucks, forklifts, hybrid and electric vehicles
- Junction boxes
- Bus bars
- Welding equipment

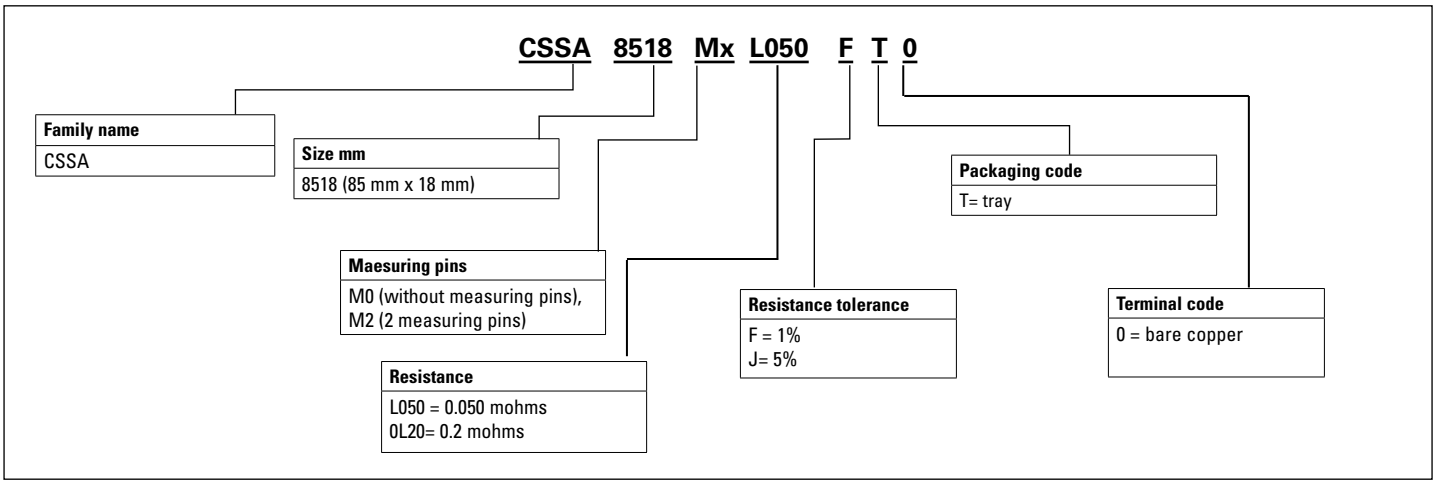
Product features

- AEC-Q200
- Resistance from 0.05 mΩ to 0.2 mΩ
- Low thermal EMF
- Low TCR
- 85.3 mm x 18.3 mm x 3.1 mm package 60 mm pitch
- High power ratings: up to 36 W
- Available with optional measuring pins

Environmental compliance

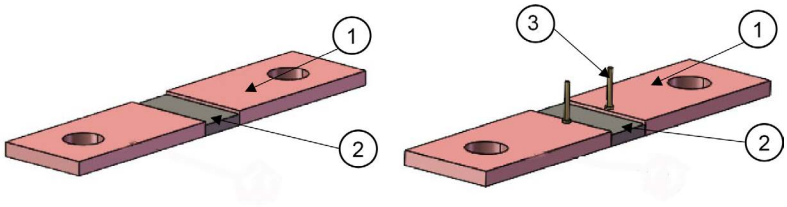
Pb RoHS HALOGEN HF FREE

Table 1. Part numbering



Powering Business Worldwide

Construction

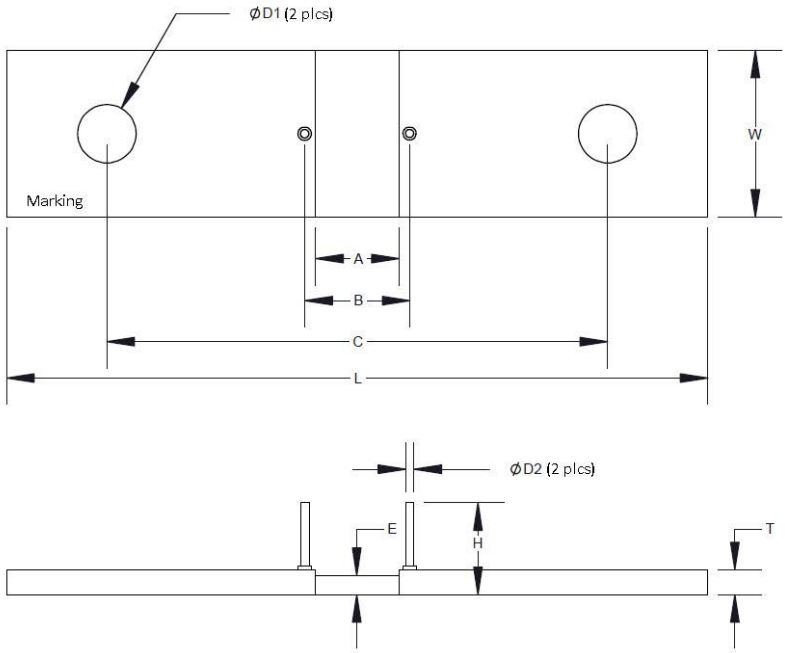


Without measuring pins

With measuring pins

Number	Materials
1	Copper electrode
2	MnCu
3	Measuring pin: tin plated copper

Dimensions-mm



For measuring pins only

Family name and size	Resistance (mOhm)	L (mm)	W (mm)	A (mm)	C (mm)	D1 (mm)	E (mm)	T (mm)	B (mm)	D2 (mm)	H (mm)
CSSA8518	0.05	85.0 ± 0.3	18.0 ± 0.3	5.2 ± 0.3	60.0 ± 0.3	7.0 ± 0.3	2.6 ± 0.1	3.0 ± 0.1	8.0 ± 0.3	1.0 ± 0.1	11.0 ± 0.3
CSSA8518	0.1	85.0 ± 0.3	18.0 ± 0.3	10.0 ± 0.3	60.0 ± 0.3	7.0 ± 0.3	2.6 ± 0.1	3.0 ± 0.1	12.6 ± 0.3	1.0 ± 0.1	11.0 ± 0.3
CSSA8518	0.2	85.0 ± 0.3	18.0 ± 0.3	21.0 ± 0.3	60.0 ± 0.3	7.0 ± 0.3	2.8 ± 0.1	3.0 ± 0.1	24.0 ± 0.3	1.0 ± 0.1	11.0 ± 0.3

Recommended Torque Force

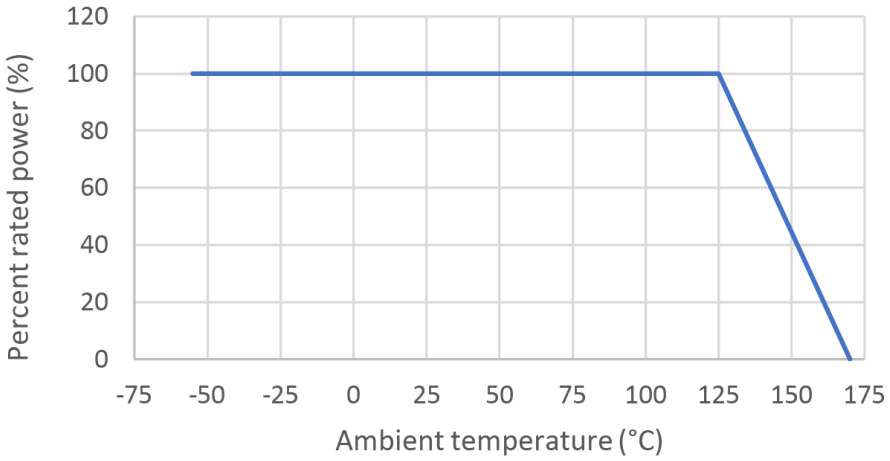
12N-m for M6

Electrical specifications

Eaton PN	Power rating @ +125 °C (W)	Resistance[b] (mΩ)	Resistance tolerance	TCR[a] (ppm/°C)	Operating temperature	Measuring pins	Marking
CSSA8518M0L050FT0	36	0.05	±1%	±150	-55 °C to +170 °C	No	8518L050F
CSSA8518M00L10FT0	36	0.1	±1%	±150	-55 °C to +170 °C	No	85180L10F
CSSA8518M00L20FT0	24	0.2	±1%	±125	-55 °C to +170 °C	No	85180L20F
CSSA8518M2L050FT0	36	0.05	±1%	±150	-55 °C to +170 °C	2 Pins	8518L050F
CSSA8518M20L10FT0	36	0.1	±1%	±150	-55 °C to +170 °C	2 Pins	85180L10F
CSSA8518M20L20FT0	24	0.2	±1%	±125	-55 °C to +170 °C	2 Pins	85180L20F
CSSA8518M0L050JT0	36	0.05	±5%	±150	-55 °C to +170 °C	No	8518L050J
CSSA8518M00L10JT0	36	0.1	±5%	±150	-55 °C to +170 °C	No	85180L10J
CSSA8518M00L20JT0	24	0.2	±5%	±125	-55 °C to +170 °C	No	85180L20J
CSSA8518M2L050JT0	36	0.05	±5%	±150	-55 °C to +170 °C	2 Pins	8518L050J
CSSA8518M20L10JT0	36	0.1	±5%	±150	-55 °C to +170 °C	2 Pins	85180L10J
CSSA8518M20L20JT0	24	0.2	±5%	±125	-55 °C to +170 °C	2 Pins	85180L20J

a. Temperature coefficient of resistance tested at +25 °C to +125 °C
b. Resistance should be measured at +20 °C
Please contact Technical support if there is any special requirement for resistance testing

Power derating curve



Rated current and voltage

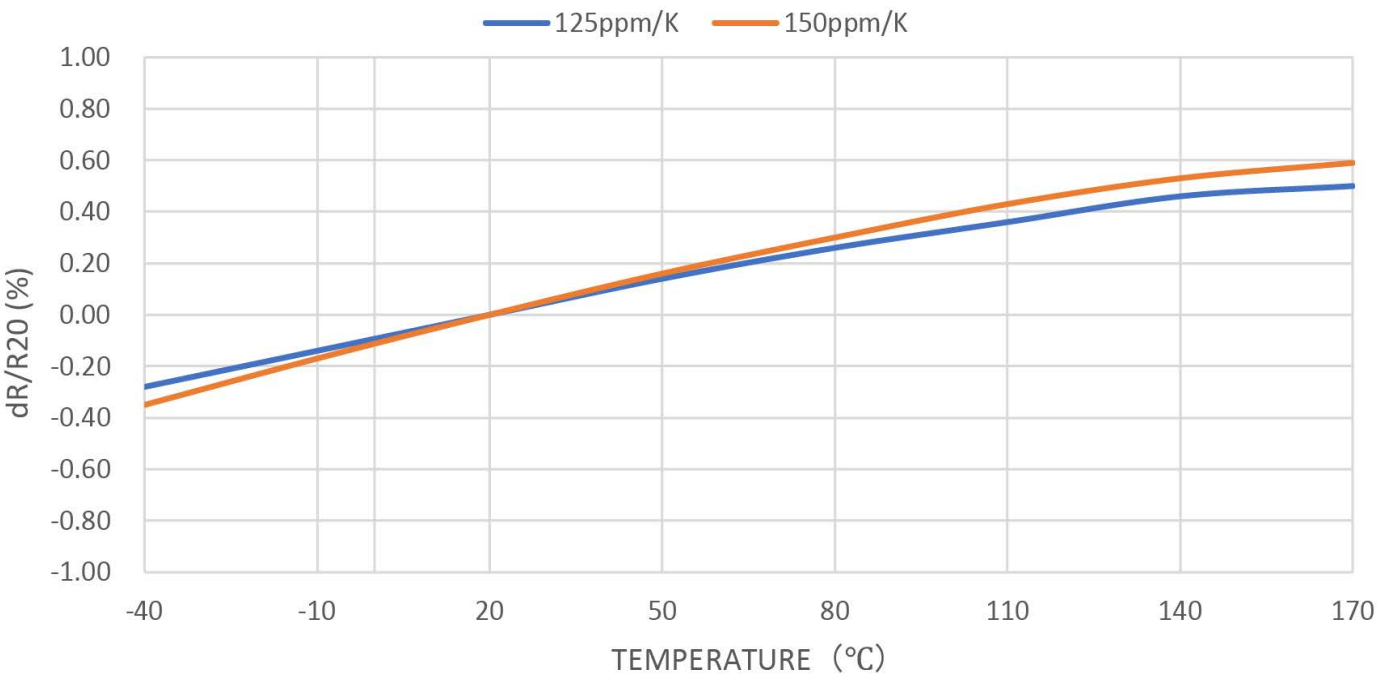
The rated current and voltage are calculated by the following formulas:

$$I=\sqrt{P \div R} \qquad V=\sqrt{P \times R}$$

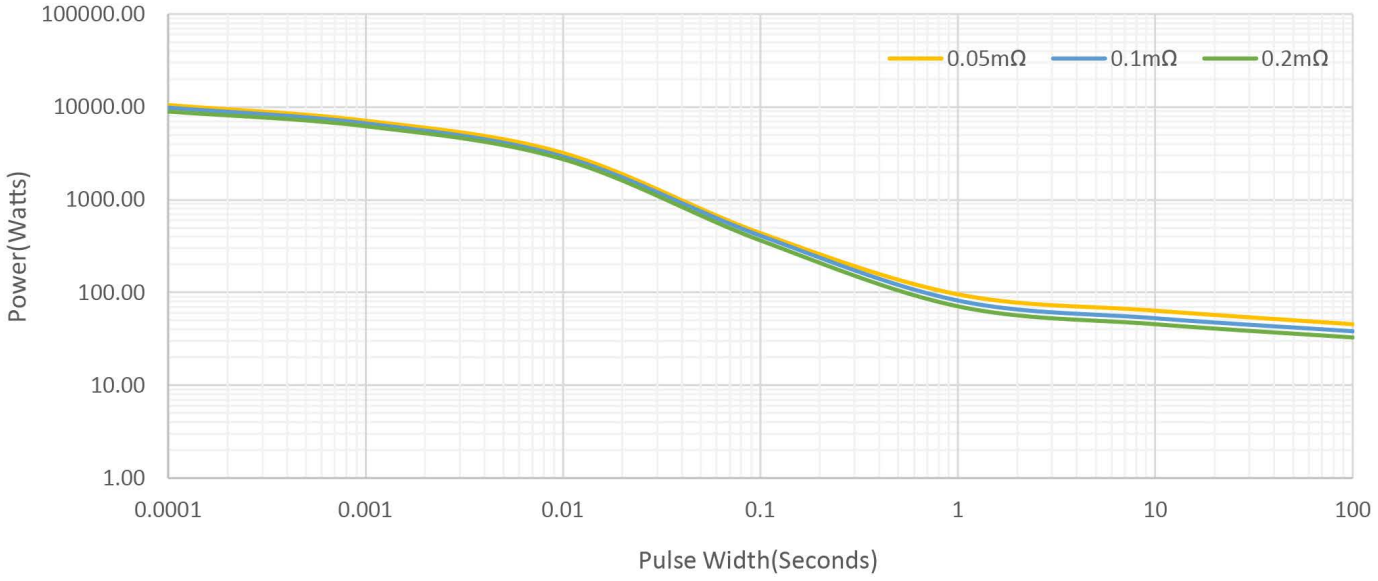
I: Rated current (A) V: Rated voltage (V)

P: Rated power (W) R: Resistance value (Ω)

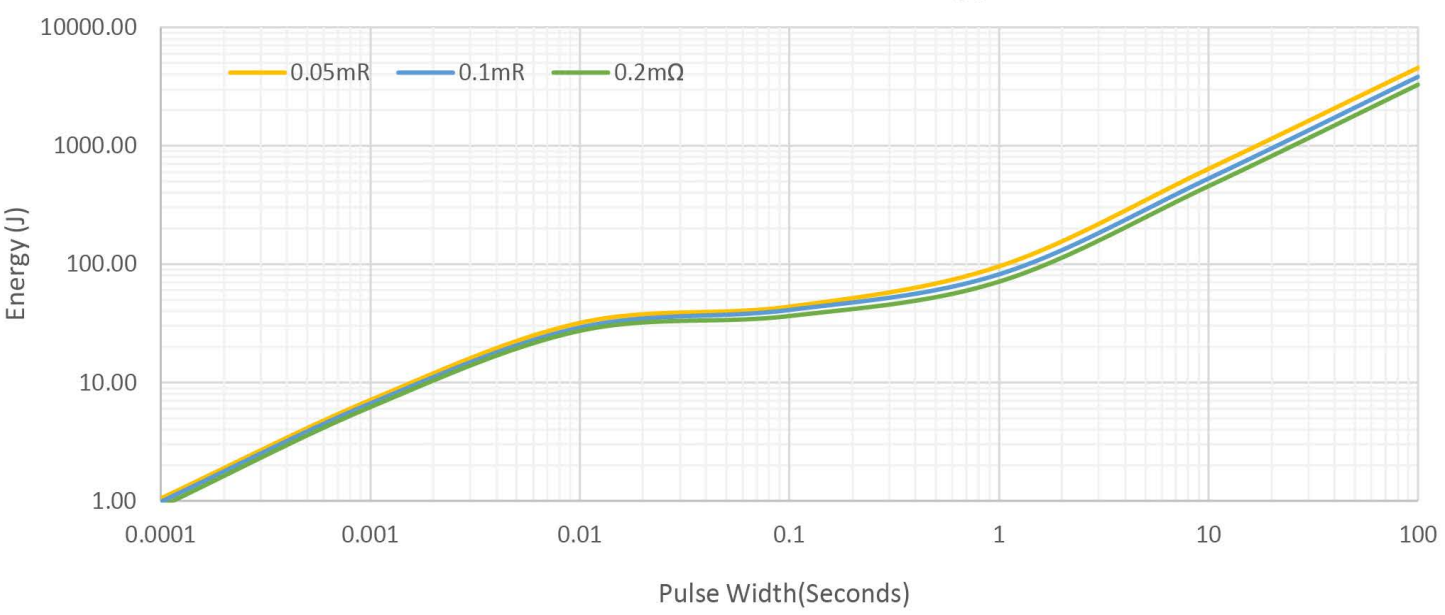
TCR curves



Maximum pulse power curve



Maximum pulse energy curve

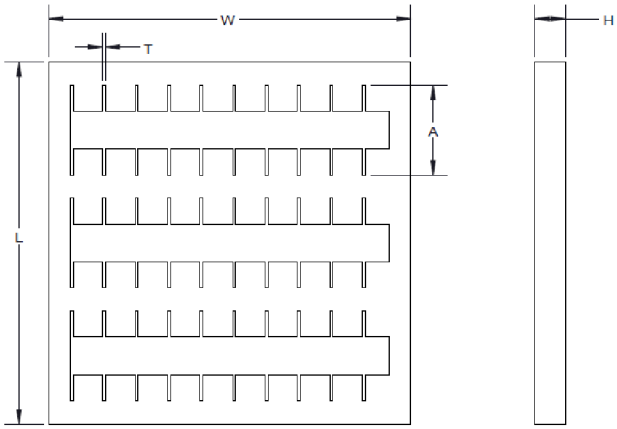


General specifications

Item	Reference standard	Condition
Temperature coefficient of resistance test	MIL-STD-202 Method 304	TCR = $(R-R_0)/R_0(T2-T1) \times 10^6$ Temperature: T1=+25 °C, T2= +125 °C
Short time overload	IEC 60115-1 4.13	5 times the rated power for 5 s, $\|\Delta R\| \leq 1.0\%$
Solderability	J-STD-002	Solder bath (+245 °C ± 5 °C) (10 s ± 2 s), 95% coverage minimum (2 measuring pins only)
High temperature storage test	MIL-STD-202 Method 108	+170 °C for 1000 hours, no power, $\|\Delta R\| \leq 1.0\%$
Temperature cycling	JESD22 Method JA-104	-55 °C (30 minutes) / +155 °C (30 minutes), 1000 cycles, $\|\Delta R\| \leq 1.0\%$
Temperature humidity bias test	MIL-STD-202 Method103	+85 °C, 85% RH, 10% bias, 1000 hours, $\|\Delta R\| \leq \pm 0.5\%$
Moisture resistance	MIL-STD-202 Method 106	No power, 7b not required, $\|\Delta R\| \leq 1.0\%$
Operational life	MIL-STD-202 Method 108	+125 °C ± 2 °C for 1000 hours at rated power, $\|\Delta R\| \leq 1.0\%$
Vibration	MIL-STD-202 Method 204	Frequency: 10 Hz to 2000 Hz, acceleration: 5 g's for 20 minutes, 12 cycles each of 3 orientations, $\|\Delta R\| \leq \pm 0.5\%$
Mechanical shock test	MIL-STD-202 Method 213	100 g's, 6 ms, 5 pulses, $\|\Delta R\| \leq \pm 0.5\%$
ESD	AEC-Q200-002 or ISO/DIS 10605	AEC-Q200-002, 25 kV, $\|\Delta R\| \leq 1.0\%$
Electrical characterization	User spec	Rated power at -65 °C, +25 °C and +125 °C
Storage condition and shelf life	-	Temperature and humidity conditions: +5 °C to +30 °C, 25% to 60% RH Shelf life is 2 years The products shall not be stored in areas where harmful gases containing sulfur or chlorine are present

Packaging information - mm

30 pieces per tray



L (mm)	W (mm)	A (mm)	T (mm)	H (mm)
335	335	83	2.6	28

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