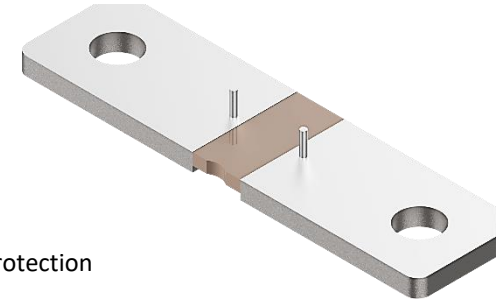
Shunt Sensor

VSPA6918SY-0M10J

Features / Applications

- High power rating is up to 36W
- Low inductance (< 5 nH)
- Low thermal EMF (< 3 μV/°C)
- Welding construction; excellent long-term stability
- RoHS compliant and AEC-Q200 qualified
- Automotive applications and current sensing for BMS
- Sn plating assists with PCB mounting and corrosion protection



Electrical Specifications

Characteristics	Feature
Power Rating*	36 W
Resistance Value	100 μΩ
Temperature Coefficient of Resistance	± 100 ppm/°C
Operation Temperature Range	-65°C ~ +170°C
Resistance Tolerance	± 5 % (J)
Maximum Working Voltage (V)	$(P*R)^{1/2}$

*Note :
For sensors operated at terminal temperature in excess of 140°C, the maximum load shall be derated in accordance with the following curve.

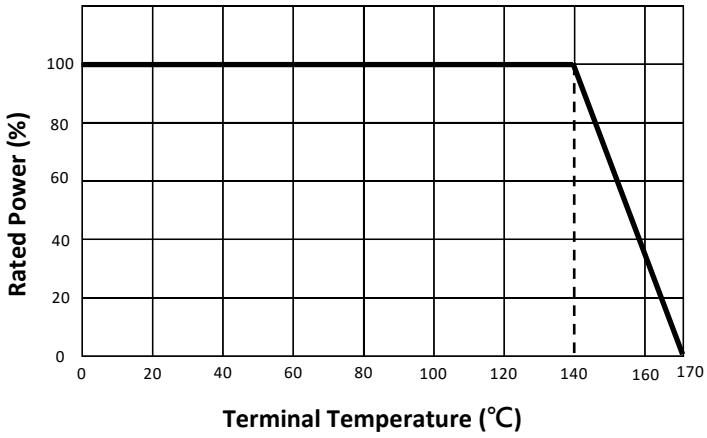
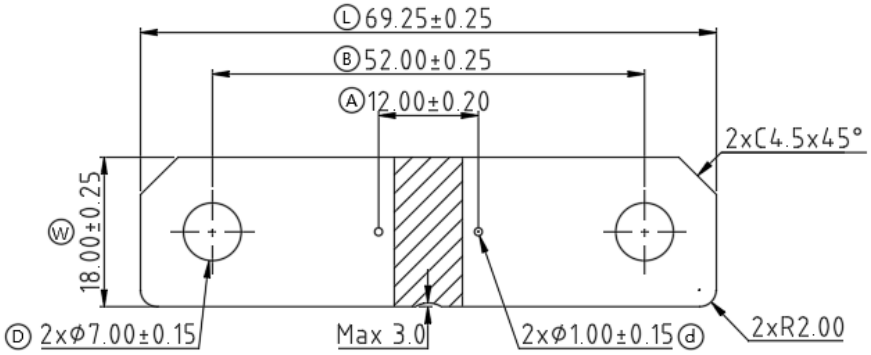


Figure 1. Power derating curve at terminal temperature

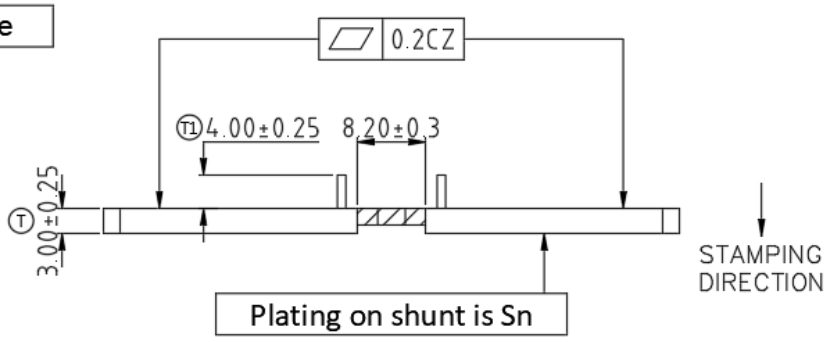
Outline Drawing

Dimension

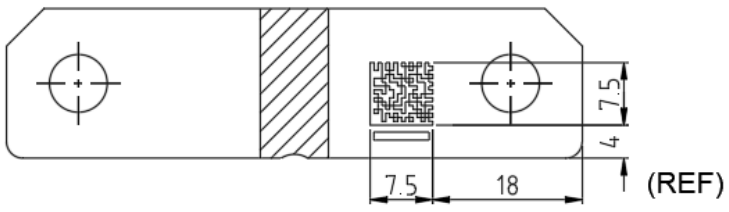
A Side



D Side



B Side



DIMENSIONAL TOLERANCES (UNIT=mm)			
0≦X<6	:±0.1	X ≧400	:±0.8
6≦X<30	:±0.2	ANGLES	:±1°
30≦X<120	:±0.3		
120≦X<400	:±0.5		

THIRD ANGLE PROJECTION

Type Designation

V S P A	6 9 1 8	S	Y	-	0 M 1 0	J
(1)	(2)	(3)	(4)	-	(5)	(6)

Note :

(1) Series number

(2) Size

(3) Terminal type: S = Short terminal

(4) Power Rating: Y = 36 W

(5) Resistance value: 0M10 = 100 μΩ

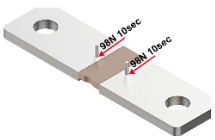
(6) Tolerance: J = ± 5 %

Characteristics

Electrical

Item	Specification and Requirement	Test Method
Temperature Coefficient (TCR)	As follow specification	JIS-C-5201 +25°C / +125°C
Short Time Overload	△R: ± 0.5 % Without damage by flashover, spark, arcing, burning or breakdown	JIS-C-5201-1 4.13 5 x rated power for 5 seconds
ESD	△R: ± 1 %	AEC-Q200-002 Human body, 8KV.

Mechanical

Item	Specification and Requirement	Test Method
Solderability	The surface of terminal immersed shall be minimum of 95 % covered with a new coating of solder	J-STD-002 245 ± 5°C for 20 ± 0.5 seconds
Resistance to Solder Heat	△R: ± 0.5 %	MIL-STD-202 Method 210 260 ± 5°C for 10 ± 1 seconds
Vibration	△R: ± 0.5 % Without distinct damage in appearance	MIL-STD-202 Method 204 5G's for 20 minutes, 12 cycles each of 3 orientations. Test from 10-2000Hz.
Mechanical Shock	△R: ± 0.5% Without distinct damage in appearance	MIL-STD-202 Method 213 100G's peak value, 6ms, Half-sine waveform, 12.3 ft/sec.
Pin Strength	Without damage and break from bottom of pin.	 Test height <1.6mm from bottom of pin.

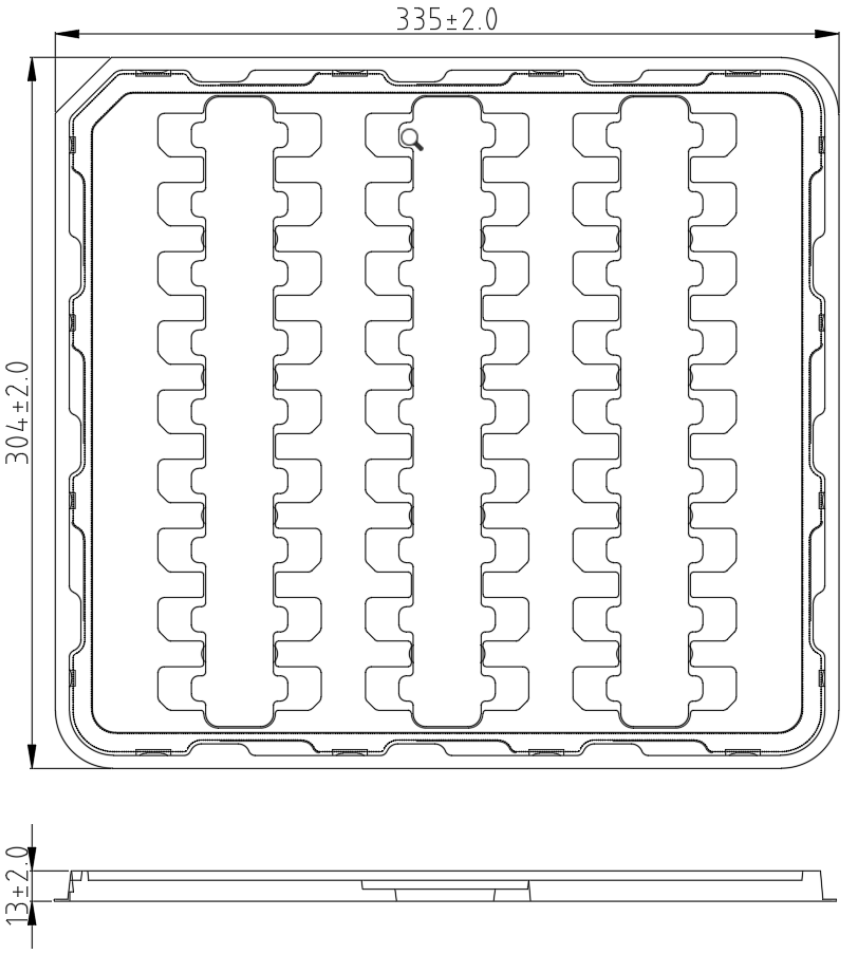
Endurance

Item	Specification and Requirement	Test Method
Temperature Cycling	△R: ± 0.5 %	JESD22 Method JA-104 1000 cycles, (-55°C ~ 155°C) 30 minutes maximum dwell time at each temperature
Biased Humidity	△R: ± 0.5 %	MIL-STD-202 Method 103 1000 hours, 85°C / 85% R.H, applied for 10 % rated power
Operational Life	△R: ± 1.0 %	MIL-STD-202 Method 108 100 % rate power for 1,000 hours at terminal temperature 140°C
High Temperature Store	△R: ± 1.0 %	MIL-STD-202 Method 108 170°C for 1,000 hours

Note : Measurement at 24 ± 4 hours after test conclusion for all reliability tests-parts.

Packaging

Tray packaging dimensions:



Label Marking:

The following items shall be marked on tray

(1) Description

(2) Quantity

(3) Part No.

(4) Tapping No.

Quantity:

27 Pcs / Tray

135 Pcs / Carton

Care Note

Care note for storage

(1) Shunt sensor shall be stored in a environment where temperature and humidity must be controlled (temperature 5 to 35℃, humidity < 60% RH) . However, the humidity should be maintained as low as possible.

(2) Shunt sensor shall not be stored under direct sunlight.

(3) Shunt sensor shall be stored in condition without moisture, dust, any material defect solderability, or hazardous gas (i.e. hydrogen chloride, sulfurous acid gas, and hydrogen sulfide)

(4) The sensor can be stored for two years under the condition mentioned above.

Care Note for Operating and Handling

(1) Protect the edge and coating of the sensors from mechanical stress.

(2) Avoid bending of printing circuit board (PCB) when cutting and fixing it on support body to reduce mechanical stress on sensors.

(3) Sensor should be used within the condition of specification.

Note: When a voltage higher than specified value is loaded to the sensor, this may damage the sensor material due to temperature rise.

(4) The loaded voltage should consult terminal temperature of the sensor according to the derating curve.

(5) When applying a high current exceeding suggested specification (pulse current, shock current) to the sensor, it is necessary to re-evaluate the operating condition before using it in the system.