PCBA Type Shunt

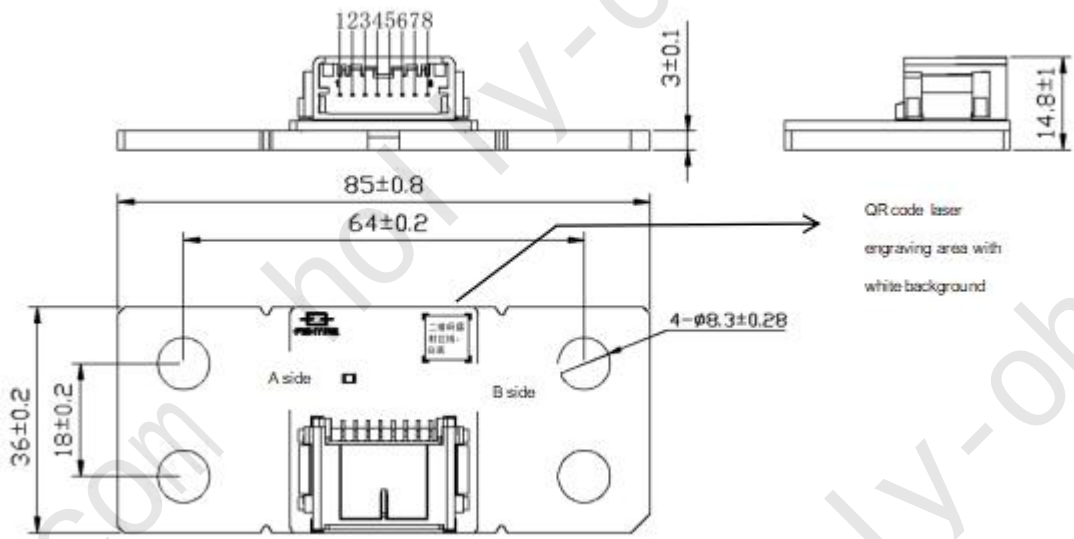
For high current signal sampling，ultra-low resistance value，high power shunt

AEC-Q200 qualified，high stability，ultra-low thermal EMF and TCR

Features:

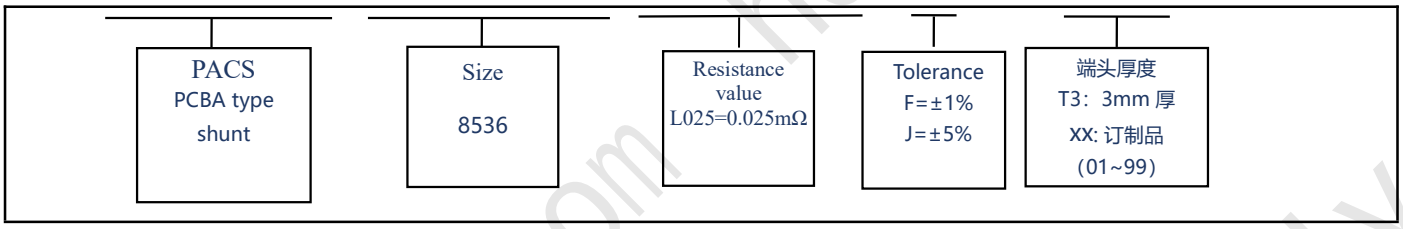
- PCBA type shunt resistor with high temperature resistance automotive-grade connector for voltage sampling
- built-in NTC Temperature Sensor ,real-time temperature output,can be used for temperature control or thermal drift compensation
- continuous power up to 50 watts
- the shunt's copper terminals plates with nickel and tin,which prevents oxidation and ensures better electrical connections.
- RoHS compliant
- customization

Dimensions

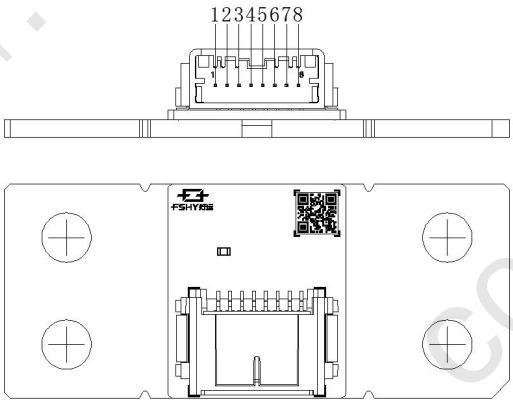


Type Designation(example)： PACS8536 L025Jt3　　PACS8536 0.025mohm 5% 3mm thick copper terminal

P	A	C	S	8	5	3	6	L	0	2	5	J	t	3

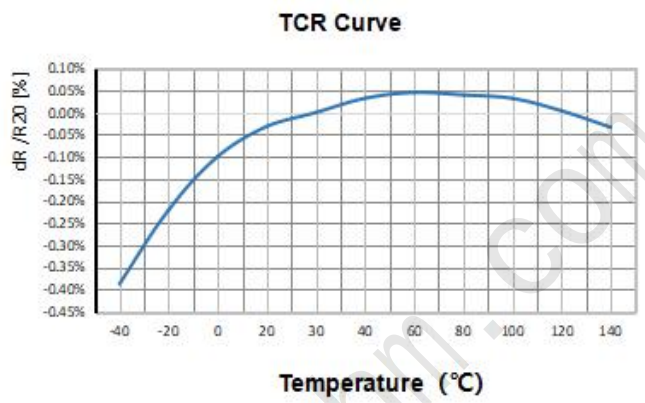


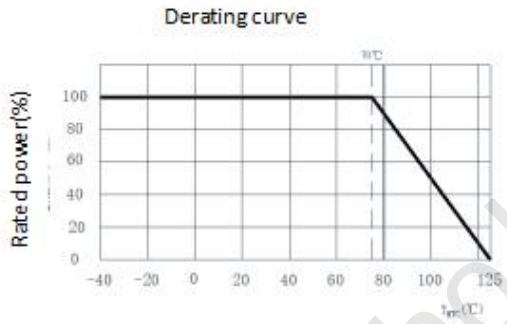
definition of pin for pcba type shunt



Pin	Definition
1	connect Pin 1 with NTC, used for temperature detection
2	connect Pin 2 with NTC, used for temperature detection
3	connect Pin 3 with A side CS1, used for current detectionPin (Pin 3 is interconnected with Pin 4)
4	connect Pin 4 with A side CS1, used for current detection (Pin 3 is interconnected with Pin 4)
5	connect Pin 5 with B side CS1, used for current detection (Pin 5 is interconnected with Pin 6)
6	connect Pin 6 with B side CS1, used for current detection (Pin 5 is interconnected with Pin 6)
7	Pin7 is free pin
8	Pin8 is free pin
Conformal Coating	Dymax 9483
NTC thermistor_R1	NTC Thermistor: VISHAY_NTCS0805E3103HMT_automotive-grade(alternative: TCT6G_H103H357V)
Connector	plug-in connector model: Molex_34912-8080(Mini50)female connector, 34791-0080male connector

TCR curve:	Derating Curve:



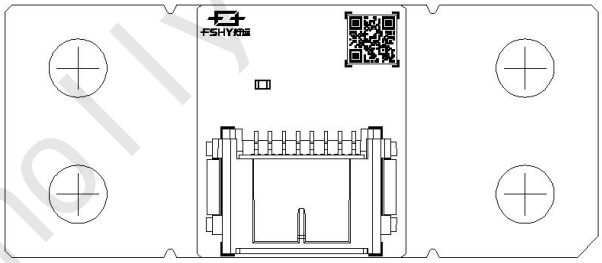


parameter	Value and units
shunt	
resistance value (at 20℃)	25 μΩ
tolerance	5%
TCR	±150ppm
temperature range	-40℃ to+125℃
rated power P140°	50W
internal heat resistance (Rthi)	2K/W
thermal EMF(EMF)	<1μV/K
inductance	<5nH
NTC (automotive-grade)	
resistance value for NTC at 25° C	10kΩ
tolerance for R25	3%
B25/85 (constant term coefficient of material) 25℃-85℃	3570K
tolerance for B25/85(tolerance for constant term coefficient of material)	3%
operating temperature range	-40℃ to +150℃

Performance:		
Test Item	**standard**	**Test method**
TCR	Within specified TCR	IEC60115-1 4.8, measured point-40°C~+140°C, reference point+20°C
Resistance to soldering heat	No visible damage △R±0.5% Maximum	IEC60115-1 4.18, 260°C tin bath, 10s
load life	No visible damage △R±1.0% Maximum	IEC 60115-1 4.25.1, 1000hrs., 70℃±2℃, rated current, or the maximum current rating of the component (whichever is lower) is applied for 1.5 hours/0.5 hour interruption

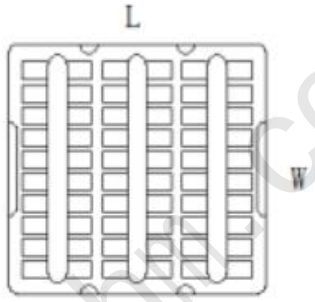
High temp. & high humidity	No visible damage △R±1% Maximum	Applying 10% of the rated power (current) or the limiting current of the component (whichever is lower) for a duration of 1000 hours in a temperature of 85°C and a humidity of 85% according to MIL-STD-202 method 103
temperature cycle	No visible damage △R±1% Maximum	IEC60115-1 4.19, -55°C@30mins～+125°C@30mins; 1000cycles
High temperature storage	No visible damage △R±1% Maximum	IEC60115-1 4.25.3, 1000小时@125°C, without loading current and voltage
Low temperature load	No visible damage △R±0.5%Maximum	IEC60115-1 4.36, cooled from room temperature to -55°C ,no load for 1.5 hours,applying rated power,continuously flowing for 45 minutes,cool for 15 minutes, then recover to room temperature for testing again.
vibration	No visible damage △R≤±0.5% Maximum	MIL-STD-202 Method 204, peak acceleration: 5g (gravity acceleration), frequency varied: (10~2000Hz) test direction: X、Y、Z direction, 12 cycles in each direction , , each cycle 20min, total about 12h
Impact test	No visible damage △R≤±0.5% Maximum	MIL-STD-202 Method 213 Impact acceleration: 100g(gravity acceleration) Impact pulse width: 6ms Impact waveform: half sine wave Impact direction: ±X, ±Y, and ±Z directions each 3 times

QR code rule:

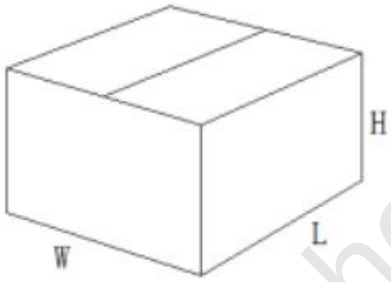


QR code content	year	month	date	series no.	resistance value R25	second-order coefficient	first-order coefficient	constant term coefficient
	YYYY	MM	DD	xxxxx	Rxxxxxn	±X.XXXXXXXXX	±X.XXXXXXXXX	±X.XXXXXXXXX
example	2023	06	14	00001	R25123n	-0.000000323	+0.000053690	+0.998684582
	20230614000001R25123n-0.000000323+0.000053690+0.998684582							
remark	R25 is resistance value of shunt at 25 ℃ (units: nΩ)							

Specifications and measurements of the packaging(units:mm)



tray



carton

specification	pieces/layers	L (mm)	W (mm)	H (mm)
tray	18pcs	350	350	15
carton	9 layers	360	360	150

version update record

Version NO.	update record	person in charge	Issue date
A0	Initial version release	Fameng Hong	16May2022
A1	delete Pin7、Pin8 NTC，keep space	Fameng Hong	20Jul2022
A2	add QR code for resistance value of shun	Fameng Hong	23Mar2023
A3	update performance indicator	Fameng Hong	07Oct2023