TBC-DSR5 Series Multi-range Closed Loop Mode Hall Effect Current Sensor

TBC-DSR5 series multi-range current sensor is a closed loop device based on the measuring principle of the hall effect and null balance method, with a galvanic isolation between primary and secondary circuit. It provides accurate electronic measurement of DC, AC or pulsed currents.

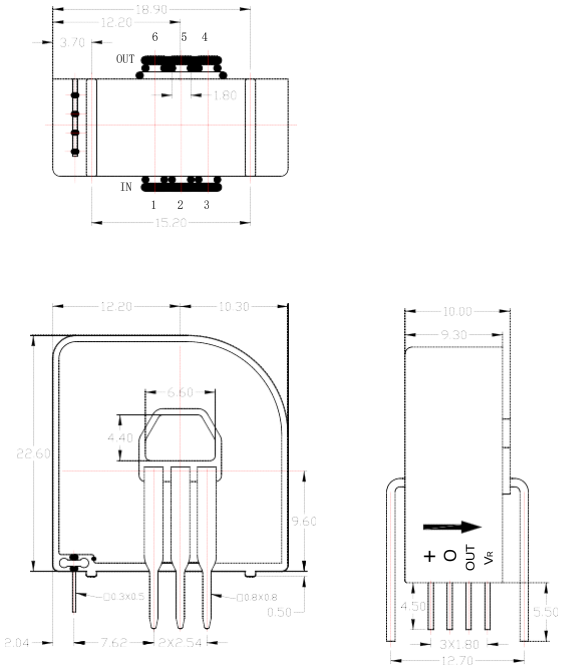
Electrical data (Ta=25℃±5℃)

Type / Parameter	TBC06DSR5	TBC15DSR5	TBC25DSR5	TBC50DSR5	Unit
Rated input (Ipn)	±6	±15	±25	±50	A
Measure range (Ip)	±18	±45	±75	±150	A
Secondary turns (Ns)	960±1	960±1	960±1	960±1	T
Internal resister	25±0.1%	10±0.1%	6±0.1%	3±0.1%	Ω
Rated output	±Ip=±Ipn	±0.625±0.5%			V
Supply voltage	+5±5%				V
Power consumption	≤15+Ip/Ns				mA
Reference voltage	+2.5±0.4%(Output)				V
Vref internal resistor	200				Ω
Vref external range	2.0-2.8(Input)				V
Zero voltage	@ Ip=0	2.5±0.4%			V
Zero voltage drift	≤±0.05 (Typ) ,≤±0.075 (Max)				mV/℃
output drift	≤±0.05 (Typ) ,≤±0.1 (Max)				mV/℃
Linearity	@ Ip=0-±Ipn	≤0.1			%FS
Total precision	≤±0.7				%
di/dt accurately followed	> 50				A/μS
Response time	@ Ip=Ipn, 50 A/μS ,10%-90%	< 500			nS
Bandwidth	@-3dB	DC-200			KHz
Galvanic isolation	@ 50HZ, AC,1min	3.0			KV

Applications

- AC variable speed drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power supplies for welding applications
- Solar inverters

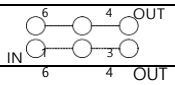
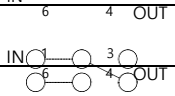
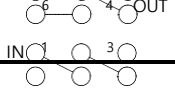
Mechanical dimension (for reference only)



Remarks:

1. All dimensions are in mm.
2. General tolerance ±1mm.

Pin connections

Turns	IPN (A) Primary rated current	Vout (V) Rated output	[mΩ] Primary impedanc	[uH] Primary inductance	Connected points
1	±6 (±15, ±25,±50)	2.5±0.625	0.18	0.013	
2	±3 (±7.5, ±12.5,±25)	2.5±0.625	0.81	0.05	
3	±2 (±5, ±8.3,±16.6)	2.5±0.625	1.62	0.12	

Directions for use

1. When the current will be measured goes through a sensor, the voltage will be measured at the output end. (Note: The false wiring may result in the damage of the sensor)
2. Custom design in the different rated input current and the output voltage are available.

Standards

UL94-V0.

EN60947-1:2004

IEC60950-1:2001

EN50178:1998

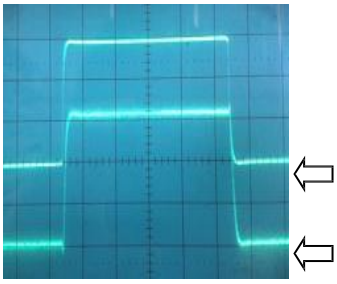
SJ 20790-2000

General date

	Value	Unit	Symbol
Operating temperature	-40 to +105	ºC	TA
Storage temperature	-40 to +125	ºC	TS
Mass(approx)	10	g	M

Characteristics chart

Pulse current signal response characteristic



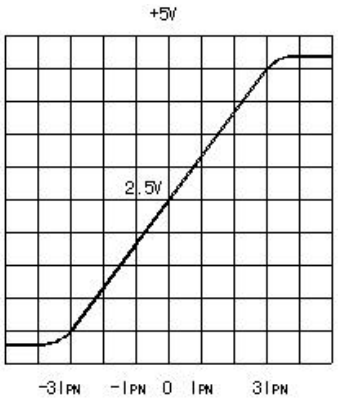
(Input signal)

(Output signal)

Effects of impulse noise

(Output voltage)

Input current-Output Voltage characteristic



Operation Principle