

CURRENT SENSE TRANSFORMER ACST-XXXX

FEATURES:

- Conform to Class B insulation System
- Dielectric Strength 3000vrms
- Split Bobbin Design
- Small Physical Package For Tight Configurations
- UL approved Class B Insulation System
- Cost Effective

OPTIONS:

- Bulk packaging is standard
- Custom design available

COMMON APPLICATIONS:

- Protection current transformer
- Testing protection system
- Electronical monitoring system

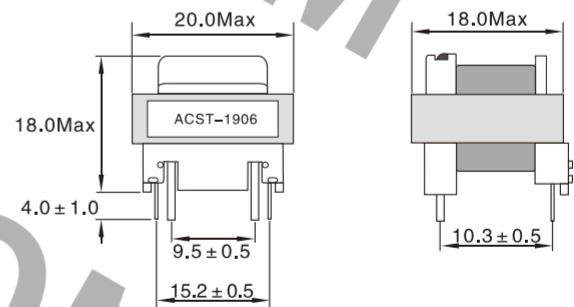
ELECTRICAL CHARACTERISTICS

Part No	Turns Ratio	Current Range	Typical Output (mv/A)	Primary Resistance (μ Ohms)max	Sense Resistance (Ohms) $\pm 10\%$	Sense Inductance (H) $\pm 30\%$	Primary Sense Frequency (Hz)
ACST-1901	1/50	1-30A	32	800	0.198	0.008	50-200
ACST-1902	1/100	1-30A	64	800	0.785	0.025	50-200
ACST-1903	1/150	1-30A	90	800	1.7	0.06	50-200
ACST-1904	1/200	1-30A	120	800	3.2	0.12	50-200
ACST-1905	1/300	1-30A	140	800	7.4	0.27	50-200
ACST-1906	1/500	1-30A	110	800	20	0.73	50-200
ACST-1907	1/1000	1-30A	60	800	79	2.4	50-200
ACST-1908	1/1500	1-30A	45	800	220	5.2	50-200

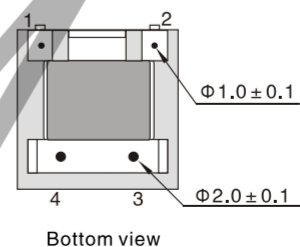
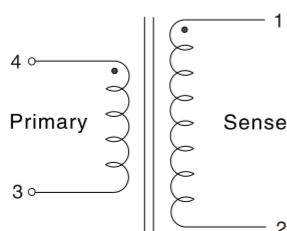
TECHNICAL INFORMATION

- Terminal Leads (1A,2A)Strip Enamel Coating
- Typical Output Test Condition: Input 10A/50Hz,60Ohm Load
- Sense inductance Test Condition:100Hz/1V
- Creepage Distance Between Primary And Sense is More Than 5mm,But The Creepage Distance Can Be Changed To 8mm For Special Requirement
- Operating temperature: Primary Current 0.4 to 30A -40°C to 70°C , Primary Current Range 0.4 to 20A -40°C to 85°C
- Storage temperature: -40°C to 85°C

MECHANICAL DIMENSIONS

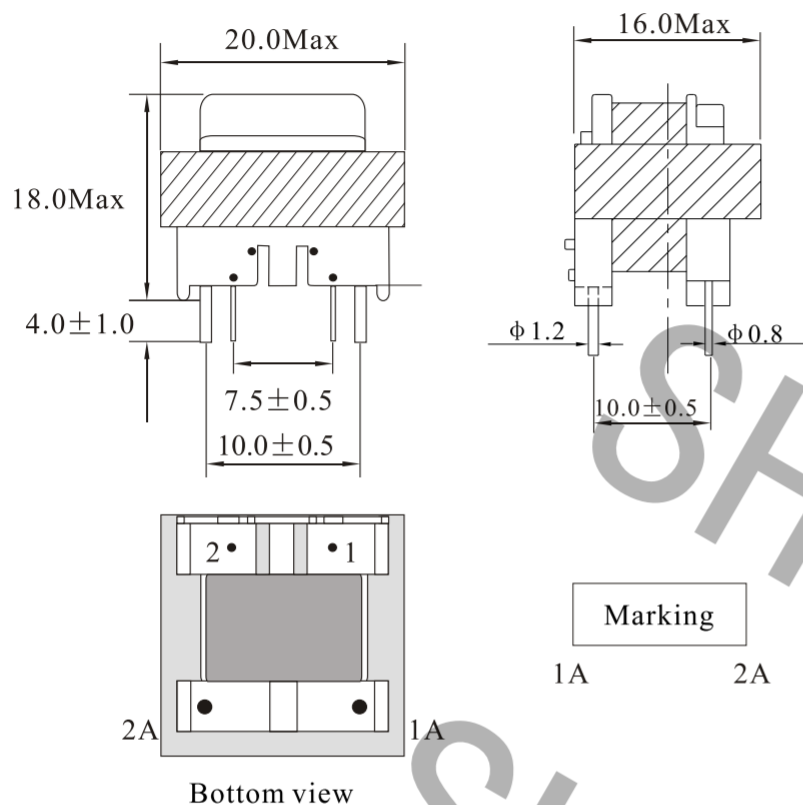


POLARITY INDICATION

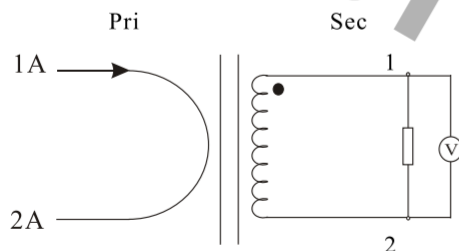


Note: All dimensions in mm
Unless otherwise specified all tolerances are $\pm 0.3\text{mm}$.

1. PHYSICAL CHARACTERISTICS (mm)



2. ELECTRICAL SCHEMATIC



NOTES:

Temp 20°C 48%RH
RoHS Compliant

3. ELECTRICAL SPECIFICATIONS

Model Number	Current ratio	Accuracy	Linearity	Output @ 50/60Hz
ACST014-681	680:1	±2%	<1%	2.2Vrms
ACST014-102	1000:1	±2%	<1%	3.2Vrms
ACST014-152	1500:1	±2%	<1%	4.7Vrms
ACST014-252	2500:1	±2%	<1%	7.9Vrms
ACST014A-681	680:1	±5%	<5%	2.2Vrms
ACST014A-102	1000:1	±5%	<5%	3.2Vrms
ACST014A-152	1500:1	±5%	<5%	4.7Vrms
ACST014A-252	2500:1	±5%	<5%	7.9Vrms

Hi-Pot: 2.5kVrms, 50/60Hz, 10S Winding to Winding

Hi-Pot: 1.25kVrms, 50/60Hz, 10S Winding to Core

Operating Temperature: -30~95°C

Storage Temperature: -50~125°C

NAME:	Current Sensor			
CUSTOMER P/N:		DATE:	2013-01-08	
SHINHOM P/N:	ACST014 Series	REV:	A0	PAGE
DRAWN BY	CHECKED BY		APPROVE BY	

CURRENT SENSE TRANSFORMERS

ACST02 SERIES

FEATURES:

- Fully encapsulated for optimal PC board mounting
- Frequency range from 20KHz to 200KHz
- Primary current rating to 30 Amps
- Primary to secondary isolated to 2500 or 4000VAC
- Meets VDE norms
- Optimum performance over designated current and frequency range
- Competitive pricing due to high volume production
- Manufactured in an ISO 9001:2015 and ISO 14001:2015 certified Talema facility
- Fully RoHS & REACH Compliant

APPLICATIONS:

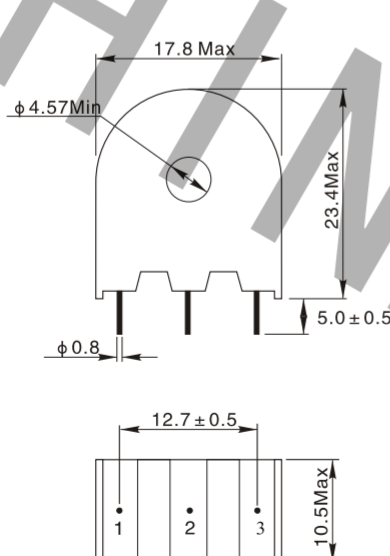
- Isolated current feed-back signal in Switch Mode Power Supplies
- Motor current load/overload
- Lighting
- Switch Controls Ultra-sound current
- High resolution sonar current
- Isolated bi-directional current sensor with full wave bridge rectifier



ELECTRICAL CHARACTERISTICS@25°C

Part Number	Turns ratio	Sec inductance (mH)Min.	Sec DCR (Ω)Max	Isec Max ^①	Volt uS Max ^②	winding
ACST02-500	1:50	5	0.6	300mA	175	A
ACST02-101	1:100	22	1.1	150mA	350	A
ACST02-201	1:200	89	4.5	75mA	700	A
ACST02-301	1:300	200	10.0	50mA	900	A
ACST02-501	1:500	560	25.0	30mA	1500	A
ACST02-751	1:750	1260	43.0	40mA	3750	A
ACST02-500CT	1:50CT	5	0.3/0.3	300mA	175	B
ACST02-101CT	1:100CT	22	0.55/0.55	150mA	350	B
ACST02-201CT	1:200CT	89	2.25/2.25	75mA	700	B
ACST02-301CT	1:300CT	200	10.0/5.0	50mA	900	B
ACST02-501CT	1:500CT	560	12.5/12.5	30mA	1500	B
ACST02-751CT	1:750CT	1260	21.5/21.5	40mA	3750	B

PHYSICAL CHARACTERISTICS & WINDING



Notes

1. For Prim./Sec. Ratios of 1:50 through 1:500, the Isec value corresponds to a maximum primary current of 15 Amp-turns rms while the Isec value for the ratio of 1:750 corresponds to a max. primary current of 30 Amp-turns rms.
2. $V_uS = R_t \times I_s \times 1/2F$
 R_t (Ohms) : Recommended Terminating Resistance
 I_s (A) : Secondary Current
 F (Hz) : Frequency
3. Secondary inductance tested at 10KHz and 10mV for 1:50 through 1:500 Prim./Sec. Ratios and 1KHz/10mV for Prim./Sec. ratio of 1:750
4. Ambient temperature range: -40°C to +120°C.
5. Electrical specifications at 25°C.
6. Pin# 2 is on Center-Tapped (CT) versions only

CURRENT TRANSFORMERS

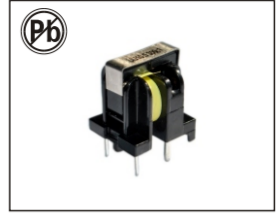
ACST11 SERIES

FEATURES:

- Conform to Class B insulation System
- Dielectric Strength 3000vrms
- Split Bobbin Design
- Small Physical Package For Tight Configurations
- UL approved Class B Insulation System
- Cost Effective

APPLICATIONS:

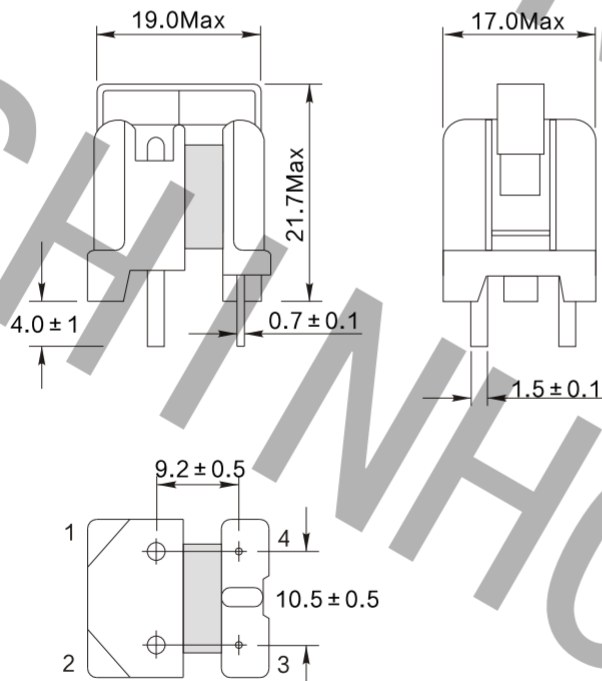
- Protection current transformer
- Testing protection system
- Electronical monitoring system



ELECTRICAL CHARACTERISTICS@25°C

Part Number	Turns	Sec inductance Ls (mH)Ref	DCR Rs (Ω)Max	Pri current (A)	Sec wire diameter (mm)
ACST11-101	100	40.0	1.1	30	0.25
ACST11-151	150	90	2.0	28	0.23
ACST11-201	200	160	3.5	27	0.20
ACST11-301	300	360	7.5	25	0.17
ACST11-501	500	750	19	19	0.14
ACST11-701	700	1500	47	13	0.1
ACST11-102	1000	3000	104	12	0.08
ACST11-152	1500	6800	230	10	0.06

PHYSICAL CHARACTERISTICS & WINDING



- Operating temperature : -0°C to 85°C
- Storage temperature Component: -25°C to +85°C
- Secondary inductance test at 10kHz, 0.1 Vrms
- Measuring frequency at 10KHz to 1MHz
- Electrical specifications at 25°C

Note:All specifications subject to change without notice.

CURRENT SENSE TRANSFORMERS

ACST19 SERIES

FEATURES:

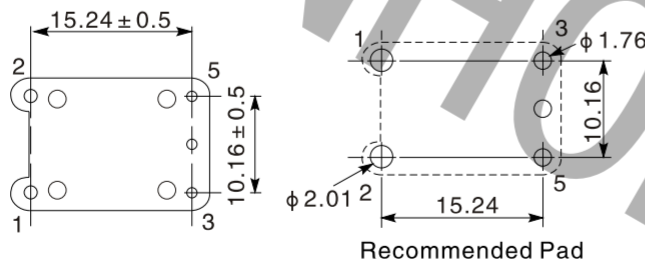
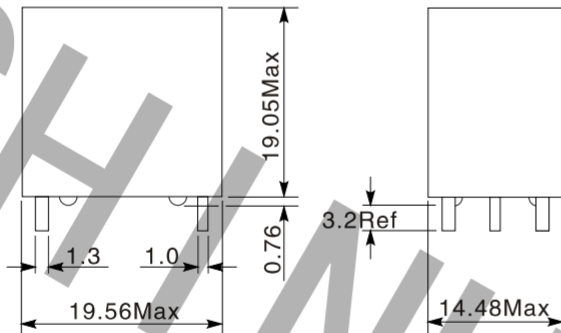
- Meets requirements of IEC 950 and VDE norms
UL94V-0 recognized materials
- Operating frequency range from 20KHz to 200KHz
- Epoxy encapsulated construction



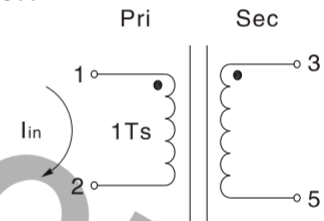
ELECTRICAL CHARACTERISTICS@25°C

Part Number	Turns ratio	Sec inductance (3-5) (mH)Min.	Sec DCR (3-5) (Ω)Max	Isec ① Max	Volt uS ② Max	winding
ACST19-500	1:50	5	0.65	300mA	175	A
ACST19-101	1:100	20	1.3	150mA	350	A
ACST19-201	1:200	80	4.5	75mA	700	A
ACST19-500CT	1:50CT	5	0.65	300mA	175	B
ACST19-101CT	1:100CT	20	1.3	150mA	350	B
ACST19-201CT	1:200CT	80	4.5	75mA	700	B

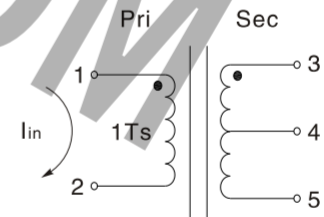
PHYSICAL CHARACTERISTICS & WINDING



Schematic A



Schematic B



Notes

1. Isec value corresponds to a maximum primary current of 15 Amp-turns rms
2. $VuS = R_t \times I_s \times \sqrt{2F}$
 R_t (Ohms) : Recommended Terminating Resistance
 I_s (A) : Secondary Current
 F (Hz) : Frequency
3. Secondary inductance tested at 10KHz and 10mV
4. Ambient temperature range: -40°C to +120°C.
5. Electrical specifications at 25°C.
6. Pin# 4 is on Center-Tapped (CT) versions only

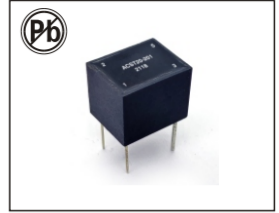
Note: All specifications subject to change without notice.

CURRENT SENSE TRANSFORMERS

ACST20 SERIES

FEATURES:

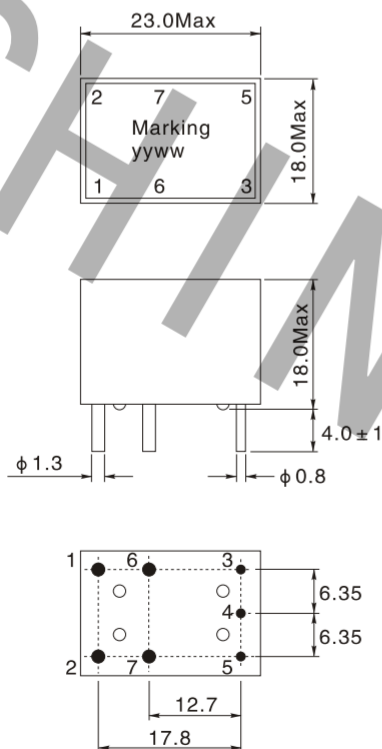
- Meets requirements of IEC 950 and VDE norms
UL94V-0 recognized materials
- Operating frequency range from 20KHz to 200KHz
- Epoxy encapsulated construction



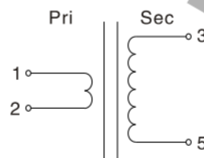
ELECTRICAL CHARACTERISTICS@25°C

Part Number	Turns ratio	Sec inductance (mH)Min.	Sec DCR (Ω)Max	Isec ① Max	Volt uS ② Max	winding
ACST20-500	1:50	5	0.65	300mA	175	A
ACST20-101	1:100	20	1.3	150mA	350	A
ACST20-201	1:200	80	4.5	75mA	700	A
ACST20-500CT	1:50CT	5	0.65	300mA	175	B
ACST20-101CT	1:100CT	20	1.3	150mA	350	B
ACST20-201CT	1:200CT	80	4.5	75mA	700	B
ACST20A-500	1:1:50	5	0.65	300mA	175	C
ACST20A-101	1:1:100	20	1.3	150mA	350	C
ACST20A-201	1:1:200	80	4.5	75mA	700	C
ACST20A-500CT	1:1:50CT	5	0.65	300mA	175	D
ACST20A-101CT	1:1:100CT	20	1.3	150mA	350	D
ACST20A-201CT	1:1:200CT	80	4.5	75mA	700	D

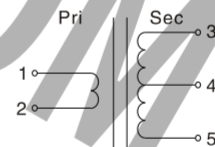
PHYSICAL CHARACTERISTICS & WINDING



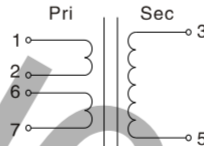
Schematic A



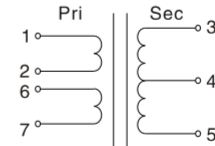
Schematic B



Schematic C



Schematic D



Notes

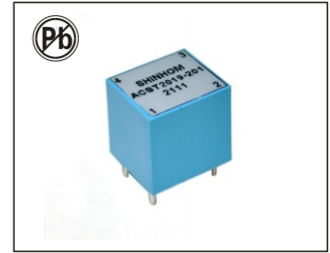
- 1.Isec value corresponds to a maximum primary current of 15 Amp-turns rms
- 2.VuS = $R_t \times I_s \times \sqrt{2F}$
 R_t (Ohms) : Recommended Terminating Resistance
 I_s (A) : Secondary Current
 F (Hz) : Frequency
- 3.Secondary inductance tested at 10KHz and 10mV
- 4.Ambient temperature range: -40°C to +120°C.
- 5.Electrical specifications at 25°C.
- 6.Pin# 4 is on Center-Tapped (CT) versions only
- 7.Pin#6,#7 is on ACST20A versions only

CURRENT SENSE TRANSFORMERS

ACST2019 SERIES

FEATURES:

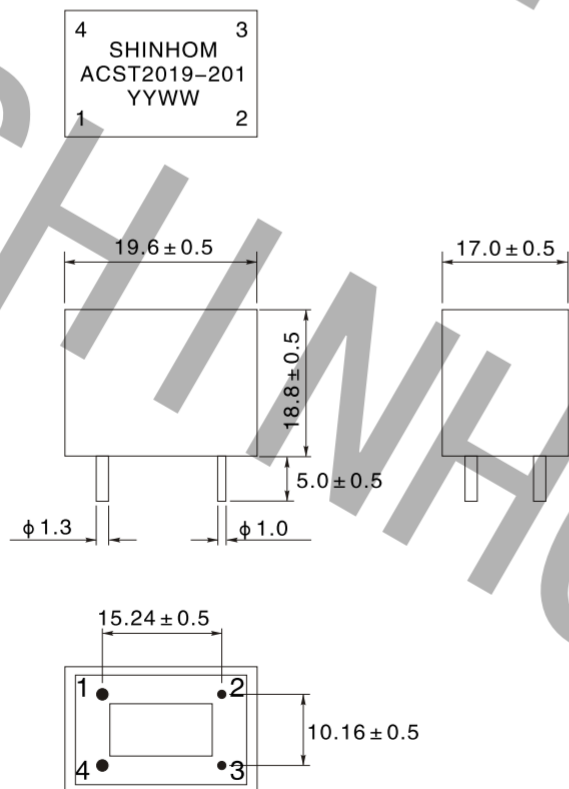
- 3750VDC insulation between winding to winding
- Frequency range: 10kHz to 1MHz
- Designed for use with switching power supplies
- This current sensing transformers are designed to meet UL/CSA/IEC 60950 Reinforced Insulation specification and provide 3 mm creepage/clearance between primary and secondary windings. Winding to winding
- Reinforced insulation per IEC 380
- Epoxy encapsulated construction
- Materials meet requirement of UL94V-0



ELECTRICAL CHARACTERISTICS@25°C

Part Number	Turns ratio	Sec inductance 15.75KHz,1V (mH)Min.	Sec DCR (Ω)Max	IPK (A)	Terminating resistance R_T (Ω)
ACST2019-500	1:50	5	0.7	35	50
ACST2019-101	1:100	20	1.4	37	100
ACST2019-201	1:200	80	4.5	38	200
ACST2019-301	1:300	180	11.0	37	300

PHYSICAL CHARACTERISTICS & WINDING



Notes

- Inductance is for the secondary, measured at 15.75 kHz, 1 Vrms.
- Volt-time product is for the secondary, based on 2000 Gauss.
- Terminating resistance (R_T) value is based on 1 Volt output with 35 Amps flowing through the primary. Varying terminating resistance increases or decreases output Voltage/Ampere according to the following equation: $R_T = V_{out} \times N_{sec} / I_{in}$.
- The maximum useable peak sense current (IPK) depends on temperature rise or core saturation, which should be evaluated for the operating conditions.
- Ambient temperature range: -40°C to +85°C.
- Electrical specifications at 25°C.

Note: All specifications subject to change without notice.

SHINHOM ELECTRONICS ENTERPRISE CO.,LTD. No.8,YanTa Northern Road Zip:710054 Tel:0086-29-87851838 Fax:0086-29-87851840

CURRENT SENSING TRANSFORMER

CT05 SETRIES

FEATURES:

- UL/C-UL recognized components
- 3000Vrms gate to drive winding test
- Useful operating frequency from 50kHz to 500kHz
- Most popular winding configurations



Electrical Specifications @ 25 °C Operating Temperature -40 °C to 130 °C

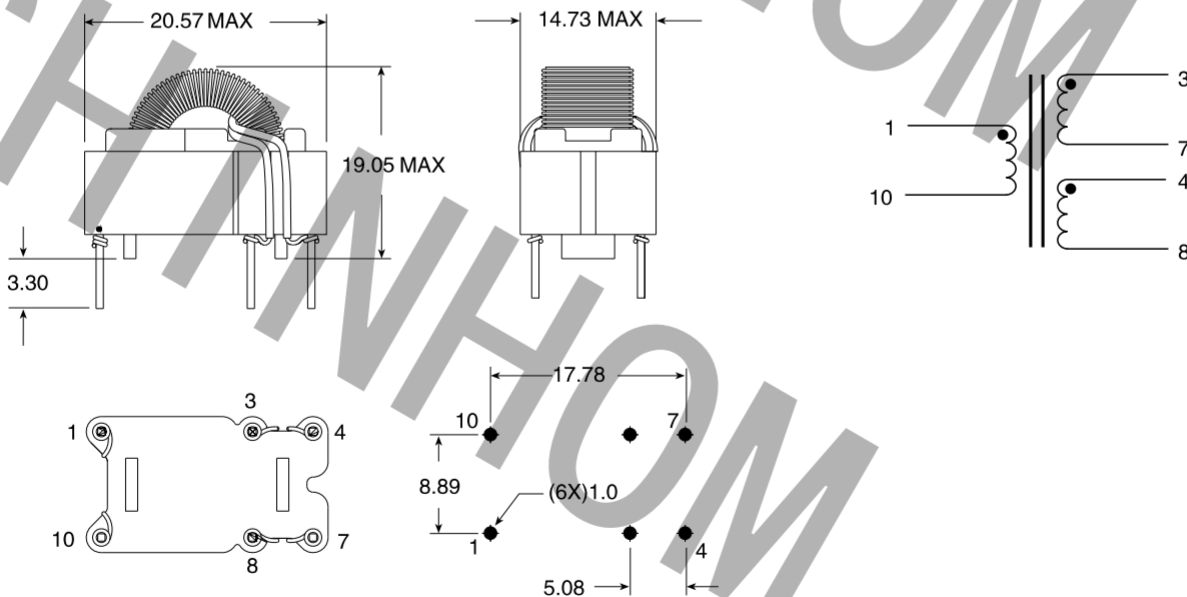
Part Number	Turns Ratio	Primary Inductance (1-10) (mH MIN)	DCR Pri (1-10)(Ω Max)	DCR Sec1 (3-7)(mΩ ± 15%)	DCR Sec2 (4-8)(mΩ ± 15%)	Hi-Pot (Pri-Sec) (Vrms)
CT 0581	200:1:1	76	2.8	1.7	1.7	3000
CT 0582	100:1:1	19	1.4	1.7	1.7	3000
CT 0583	50:1:1	5	0.7	1.7	1.7	3000

Additional Specifications

Part Number	Reference Data				Calculation Data	
	RT	Ipk (Amps)	Droop (%)	Max Flux Density	Kb	Req (mΩ)
CT 0581	200	34	1.00	2000	17.12	.9
CT 0582	100	35	1.98	2000	68.49	.8
CT 0583	15	36	1.19	2000	273.97	.75

- NOTES: 1. These current sense transformers have two one turn primaries that can be used in parallel. The listed current ratings are for parallel connection.
2. The reference values are for an application using the termination resistor (Rt) and operating with unipolar waveform at 100kHz, 40% duty cycle. The estimated temperature rise is 55 °C .
3. The peak flux density should remain below 2100 Gauss to ensure that the core does not saturate. Use the following formula to calculate the peak flux density: $B_{pk} = K_b * I_{pk} * R_t * \text{don} / (F_f * \text{Freq. in kHz})$ where: Rt is the terminating resistor in the application and Ff is 1 for unipolar waveform and 2 for bipolar waveform
4. To calculate the droop: $\text{Droop Exponent (D)} = R_t * \text{don} / (L_{pri} \text{ in mH} * \text{Freq. in kHz})$ %Droop = $(1 - e^{-D}) * 100$
5. The temperature rise of the component is calculated based on the total core loss and copper loss:
- A. To calculate total copper loss (W): $P_{cu} = I_{pk}^2 * R_{eq} * F_f * \text{don}$ where: Ff is 1 for unipolar waveform and 2 for bipolar waveform
- B. To calculate total core loss (W): $P_{core} = 0.000073 * (\text{Freq. in kHz})^{1.67} * (B_{op} \text{ in kG})^{2.532}$ where: $B_{op} \text{ in kG} = K_b * I_{pk} * R_t * \text{don} / (2000 * \text{Freq. in kHz})$
- C. To calculate temperature rise: Temperature Rise (C) = $60.18 * (\text{Core Loss(W)} + \text{Copper Loss (W)})^{.833}$

TECHNICAL INFORMATION & PHYSICAL CHARACTERISTICS



SUGGESTED PCB HOLE PATTERN

CURRENT SENSE TRANSFORMER

CT11XX SERIES



FEATURES:

- * Current sense transformers provide output feedback to the pulse control circuitry allowing low-cost regulation of switch-mode power supplies
- * 25A Rated primary current(40A Max)
- * 500kHz maximum frequency

APPLICATIONS:

- * switch-mode power supplies
- * lighting
- * switch controls

CONSTRUCTION:

- * Fully encapsulated construction

Electrical specification @ 25°C Operating temperature: -40°C to +125°C

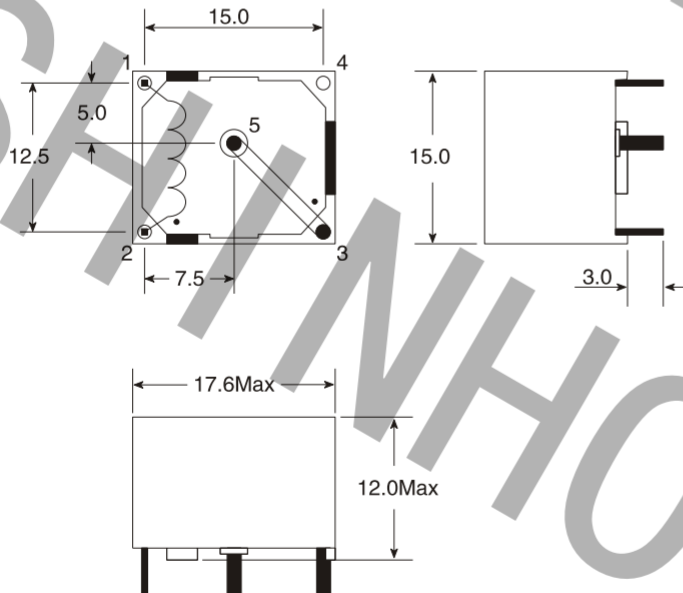
Part No.	Prim/Sec Ratio	Sec L (mH MIN)	Sec DCR (MAX)	V x T (MAX)
CT1151	1:50	4.7	0.5	175uVs
CT1152	1:100	18	2.0	350uVs
CT1153	1:200	76	4.5	700uVs
CT1154	1:500	470	16.0	1750uVs
CT1155	1:1000	1900	50.0	3500uVs

NOTES:

L: Inductance:(2-1)tested at 10KHz&10mV
 $V \times T : V = R_t \times I_s$ $T = 1/2F$

$R_t(\Omega)$: Recommended terminating resistance
 $I_s(A)$: Sec. current $F(Hz)$: Frequency

Mechanical



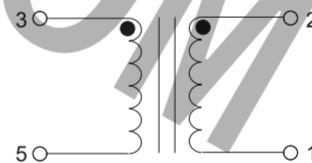
Pin3&5: ϕ 1.2mm

Pin1&2: ϕ 0.5mm

Unless otherwise specified,all tolerance are ± 0.5

Note:All specifications subject to change without notice.

Schematic



- Insulation resistance: 500V DC >100M Ω
- Hi-Pot : 4000V 1mA 60S
- Temperature range: -25°C to +85°C
- Storage Temperature: -40°C to +105°C
- Resistance to soldering heat:260°C for 10 seconds
- Marking: Part number and date code

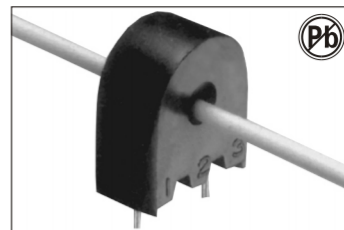
HIGH FREQUENCY CURRENT SENSING TRANSFORMER ACST SETRIES

FEATURES:

- Meets UL94-V0 Requirements
- Precise Current Sensing

COMMON APPLICATIONS:

- SMPS Control Circuits
- Current Sensing
- Switching power regulators
- Pulse current test



STANDARD SPECIFICATIONS @250C

Part Number	SCHEMATIC	TURNS ($\pm 1\%$ Max)	OCL (mH Min)	DCR (Ω Max)	ET (V- μ SEC-Min)
ACST-001	2A	50	5.0	0.7	150
ACST-002	2A	100	20.0	1.40	300
ACST-003	2A	200	80.0	4.50	600
ACST-004	2A	300	180.0	11.0	900
ACST-005	2B	50CT	5.0	0.7	150
ACST-006	2B	100CT	20.0	1.40	300
ACST-007	2B	200CT	80.0	4.50	600
ACST-008	2B	300CT	180.0	11.0	900

TECHNICAL INFORMATION & PHYSICAL CHARACTERISTICS

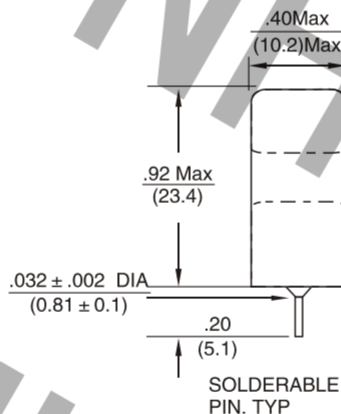
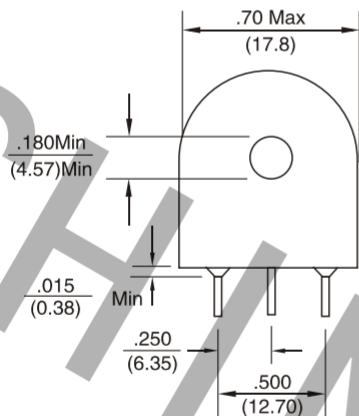


FIG.2A

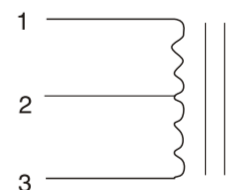


FIG.2B

- Working Frequency range:10KHz~1MHz
- Testing Frequency: 10 KHz 0.1VRMS
- Hipot:2000VAC,Primary to Secondary
- Maximum Sensing Current: 20A p-p
- All secondary measurements are in pins 1-3
- Soldering methods: Wave,Reflow
- Operating Temperature:0°C to 85°C
- Storage Temperature:-25°C to 85°C

Note:All specifications subject to change without notice

THROUGH-HOLE HIGH FREQUENCY CURRENT TRANSFORMER ACST010F/FH SERIES

FEATURES:

- Low profile, directly to PCB.
- PBT 94V0 Case
burn-resistant epoxy resin, stable.
- Ferrite core

COMMON APPLICATIONS:

- High frequency pulse current detection
- Switching power supply circuit protection



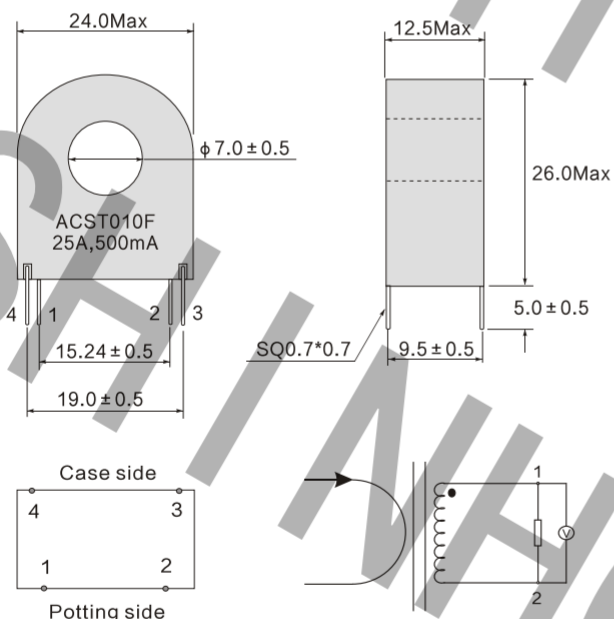
ELECTRICAL CHARACTERISTICS:

Part Number	Turns ratio	Rated input (A)	Rated output (mA)	Hi-Pot (Vdc)
ACST010F/FH-25A-500mA	1:50	25	500	3500
ACST010F/FH-30A-300mA	1:100	30	300	3500
ACST010F/FH-40A-200mA	1:200	40	200	3500
ACST010F/FH-50A-167mA	1:300	50	167	3500
ACST010F/FH-50A-125mA	1:400	50	125	3500
ACST010F/FH-50A-100mA	1:500	50	100	3500
ACST010F/FH-50A-25mA	1:2000	50	25	3500

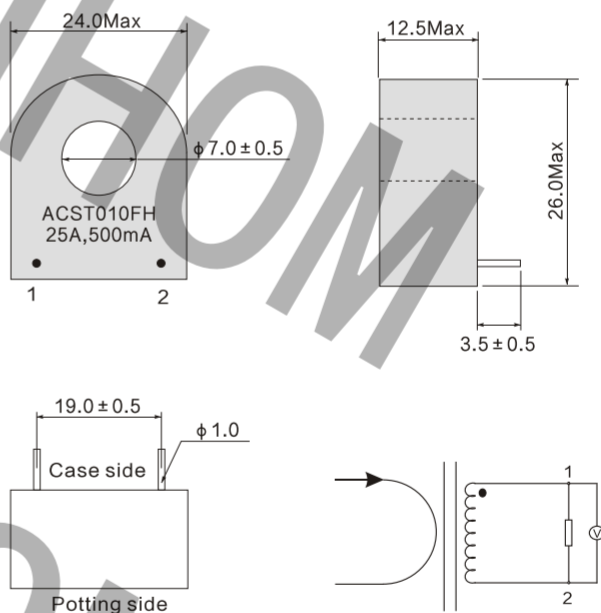
TECHNICAL INFORMATION & PHYSICAL CHARACTERISTICS:

DIMENSIONS IN:mm

ACST010F



ACST010FH



- Working Frequency range 2KHz~500KHz
- Hi-Pot : 3500V, 1mA, 60S
- Temperature range: -20°C to +70°C
- Storage Temperature: -30°C to +80°C

Note: All specifications subject to change without notice.