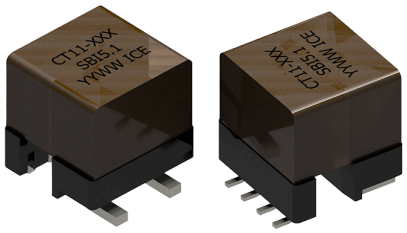
CT11 Series

High Isolation Current Sense Transformers



- Current rating [2] : Up to 30 A
- ET product [3] : Up to 1627 V-µs
- Frequency range [8] : 200 Hz to 1 MHz
- Isolation voltage : 3000 V_{AC}
- Turn ratios: 1:50 to 1:200
- Meets updated IEC insulation system
- Suitable for switching or line frequency applications

CUSTOM SOLUTIONS AVAILABLE

REACH COMPLIANT

RoHS COMPLIANT

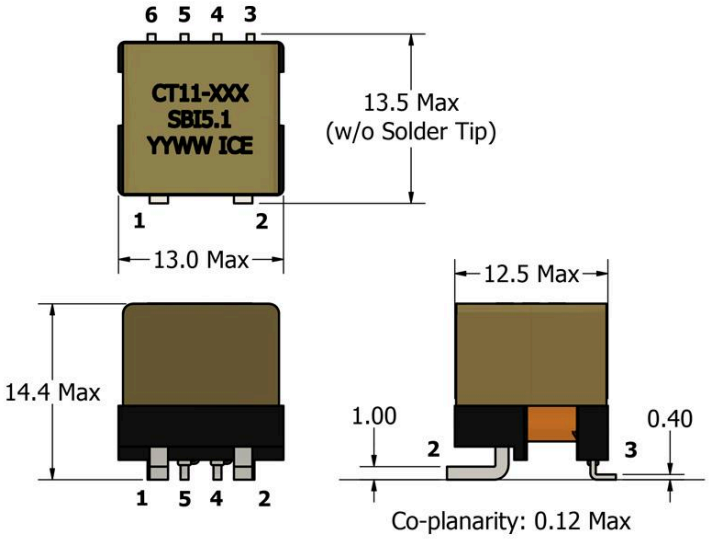
APPLICATIONS

- DC/DC & AC/DC converters
- Feedback & Control systems
- Point-of-Load (POL) regulation
- Overload protection, load-drop and power-fault monitoring

ELECTRICAL SPECIFICATIONS @ 25°C

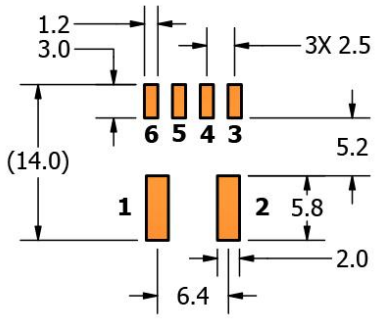
Part Number	Turns Ratio *(TR)*	Secondary Inductance [1] *(mH, Min)*	DCR (Pri : Sec) *(mΩ, Max)*	Current Rating *(A, Max)*	ET Product [2] *(V-µs, Max)*	Terminating Resistance [4] *(Ω, Ref)*	Accuracy Range [9] *(kHz, Ref)*	SRF [3] (5-4) *(kHz, Typ)*
CT11-050	1 : 50	2.0	0.500 : 400	30	407	0.8	3 — 300	1008
CT11-070	1 : 70	3.9	0.500 : 900	30	569	1.2	2 — 250	752
CT11-100	1 : 100	8.0	0.500 : 1500	30	813	1.7	1.5 — 150	511
CT11-125	1 : 125	12.5	0.500 : 2400	30	1017	2.1	1.25 — 125	424
CT11-200	1 : 200	32.0	0.500 : 6200	30	1627	3.3	1 — 80	254

MECHANICAL DRAWING

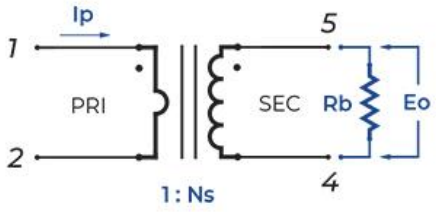


Note: All dimensions are in mm

RECOMMENDED PCB LAYOUT



SCHEMATIC



GENERAL DATA

Operating Temperature [5]	-40°C to +130°C	Isolation Voltage (Pri-Sec) [7]	3000 V_{AC}
Storage Temperature [6]	-20°C to +60°C	Frequency Range [8]	200 Hz to 1 MHz

Specifications subject to change without prior notice.

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1. **Secondary Inductance**: Tested at 10kHz, 1 V_{RMS}
2. **Current Rating:** Peak current (50% duty cycle) through primary (1-2) to cause 40°C temperature rise at 25°C ambient.
3. **ET Product:** The maximum ET is based upon a flux density of 3700 Gauss at 25°C. Suitable for bipolar applications only.

$$ET = E_O/2f; \quad E_O = I_P R_B/TR$$

Where: E_O = Output Voltage (V), f = Frequency (Hz), I_P = Primary Current (A), R_B = Terminating Resistor (Ω), TR = Turns Ratio

4. **Terminating Resistor (R_B):** Based on 0.5 V output voltage with 30 A current flowing through the primary. Varying terminating resistance increases or decreases output Voltage/Ampere.
5. **Operating Temperature:** The combination of ambient temperature and temperature rise.
6. **Storage Temperature:** Applies to parts removed from original packaging.
7. **Hi-Pot Rating**: Tested @ 60Hz, 1mA, 1 min.
8. **Usable Frequency Range:** Effective detection bandwidth, extending beyond the SRF when appropriately burdened.
9. **Accuracy Range:** Optimized for precision current detection within the defined usable bandwidth, from (Min. Frequency x 5) to (30% SRF). Contact ICE for specific questions about frequency ranges.

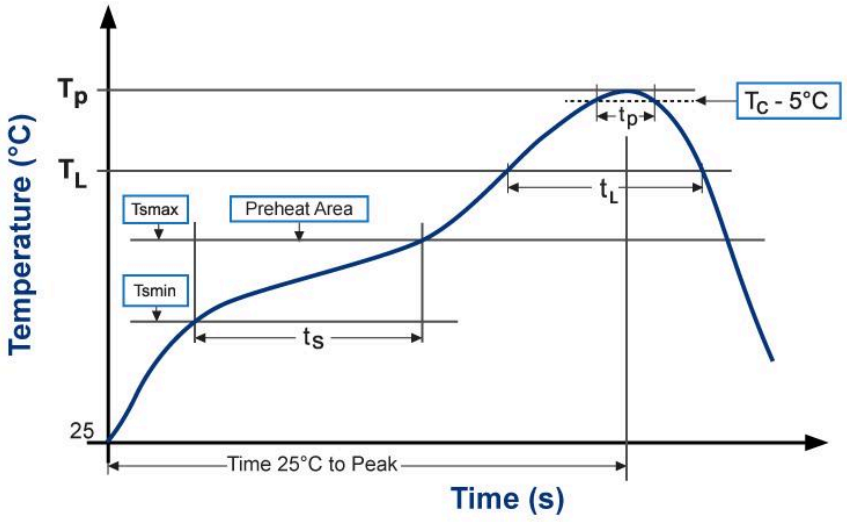
COMPLIANCE			
Creepage Distance	5.3 mm	Insulation System	SBI5.1(Class F)
Clearance Distance	- - -	Environmental & Safety	REACH, RoHS
Material Group (CTI)	CTI IIIa (175V ≤ CTI < 400V)	Flammability Rating	UL-94 V-0

Standard		*Condition*
Designed to comply with	**IEC 61558-1**	For a working voltage of up to **530 V_{RMS}** for **Basic Insulation** and **265 V_{RMS}** for **Reinforced insulation**; with Creepage 5.3 mm, Overvoltage Category II, Pollution Degree 2, and Material Group IIIa.
	IEC 62368-1	For a working voltage of up to **530 V_{RMS} (2.31 kV_{PEAK})** for Basic Insulation and **265 V_{RMS} (1.88 kV_{PEAK})** for Reinforced insulation; with Creepage 5.3 mm, Overvoltage Category II, Pollution Degree 2, and Material Group IIIa.

Note: *For working voltages over 750 V peak, partial discharge testing may be required.*

RELIABILITY TESTING	
ICE Reliability Standard; Dry Heat Test, Low Temp Test, Damp Heat Test, High Temp Operational Life, Thermal Shock, Solderability, and Resistance to Soldering Heat	**Passed All Tests**

REFLOW SOLDERING PROFILE (Lead-Free)	
Preheat/Soak: Temperature Min (T_{SMIN}) Temperature Max (T_{SMAX}) Time (t_S) from T_{SMIN} to T_{SMAX}	 150 °C 200 °C 60 - 120 sec
Ramp-Up Rate (T_L to T_P)	3 °C/sec max
Liquidous Temperature (T_L)	217°C
Time (t_L) maintained above T_L	60 - 150 sec
Peak Package Body Temp (T_P)	245°C
Time (t_P) within 5°C of the specified classification temperature (T_C)	< 30 sec
Ramp-Down Rate (T_P to T_L)	6 °C/sec max
Time 25°C to peak temperature	8 min max



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PACKAGING		COMPONENT LIBRARY	
Reel Diameter	330 mm	AutoCAD 3D Model	SPICE Parameters
Reel Width	32 mm	LTSpice	PSpice
Pieces/Reel	150	Altium	Cadence
Reel/Carton	8	EagleCAD	
Pieces/Carton	1200		
PCB Washing	See ICE Washability Information.		
App Note	See Applying Current Sense Transformers in Isolated DC-DC Converters		
Webpage	See https://www.icecomponents.com/product/ct11-series/		

For questions or additional information, contact ICE Components.

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