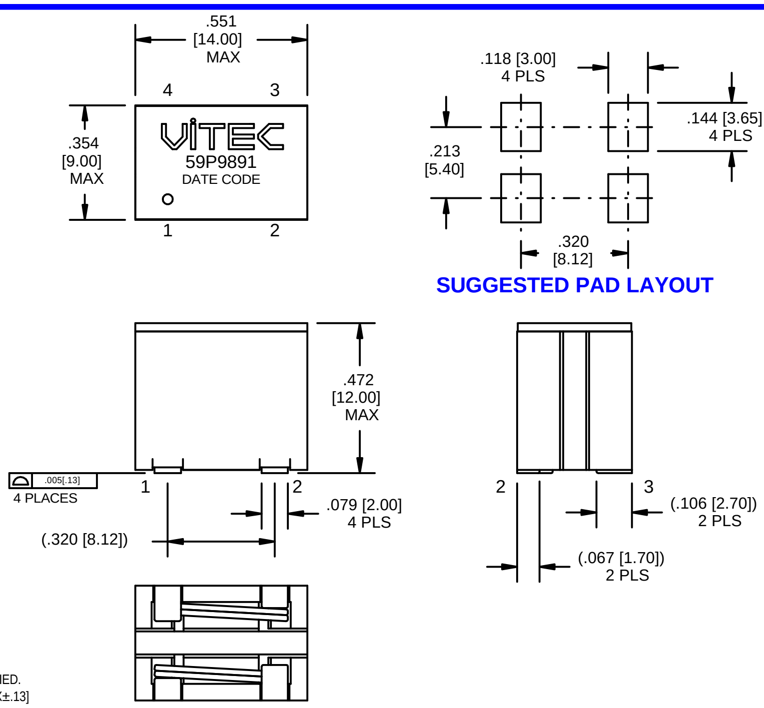
DUAL SMT INDUCTOR

59P9891

FEATURES

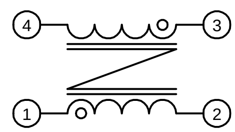
- High Current Handling Capability in the Smallest Footprint and Profile.
- Up to 2 MHz Operating Frequency.
- Extended Operating Temperature Range: -40°C to 125°C.
- Robust SMD Package Capable of Handling the Most Aggressive SMT Assembly Process.

DRAWING



ALL DIMENSIONS GIVEN IN INCHES [MM].
TOLERANCES UNLESS OTHERWISE SPECIFIED.
LINEAR: .XX±.01 [.X±.25] .XXX±.005 [.XX±.13]
ANGULAR: ±1°

SCHEMATIC



ELECTRICAL CHARACTERISTICS @ 25°C

Part Number		Inductance @ 0Adc[4]	Inductance @ Irated[4]	Irated[1]	DCR		MAX Saturation Current[2]			Temp. Rise Current[3]	Temp. Rise Factor[5]
Classic	RoHS	nH ± 15%	nH MIN	ADC MAX	mOhms TYP	mOhms MAX	ADC -40°C	ADC 25°C	ADC 125°C	ADC MAX	
59P9891	**59PR9891**	1000	680	27	1.6	1.8	28	27	21	21	0.06464

Add an "R" to the part number after "P" for the RoHS compliant version (i.e. 59PR9891 is the RoHS compliant version of 59P9891).

Notes:

1 - The rated current is the saturation current @ 25°C.
2 - The I(Saturation) is the current at which the inductance drops by 20% maximum of its value at 0ADC. This current is measured at the stated ambient environment and by applying a short duration pulse current to the component, minimizing the self-heating effects.
3 - The I(Temp. Rise) is the current at which the temperature of the part increases by a maximum of 50°C. This test is performed with the part mounted on a PCB with 0.250" wide, 0.004" thick copper traces and applying the DC current for a minimum of 30 minutes.
4 - Inductance is measured at 100 KHz and 1.0 Vrms.
5 - The additional Temperature Rise due to High ET (Voltage x Time) can be estimated using the following formula:

$$\text{Trise } (^{o}\text{C}) = \left(\frac{\text{Core Loss} + \text{DCR Loss}}{6.44}\right)^{0.833}$$

$$\text{DCR Loss} = \left(\text{Idc}^2 + \left(\frac{\triangle \text{I}}{2}\right)^2\right) \times 1.60$$

$$\text{Core Loss} = 0.005131 \times (\text{F})^{1.84} \times (\text{Temp. Rise Factor} \times \triangle \text{I})^{2.28}$$

$\triangle$ I = Delta I across the inductor

F = Switching Frequency (kHz)

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VITEC
6213 El Camino Real, Carlsbad, CA 92009
TEL: (760) 918-8831 FAX: (760) 918-8840