



TAOGLAS®



Datasheet

Common Mode Choke

Part No:
TCMC7FNT101-RD

Description:
Common Mode Choke, 100 Base-T1, PoDL
1 Channel
1812 size

Features:
100mA
60VDC
Automotive Grade
Meets AEC-Q200 standard

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1. Specifications

Electrical Performance	
Inductance (uH)Typ. [0.1V/100KHz]	100
Current Rating	100 (mA) Max
Voltage Rating	60 V DC Max
DCR	4.20 (Ω) Max
Turns Ratio (±2%)	1:1
Insertion loss (Sdd21)	-1.0 dB Max @ 10-100MHz
	-1.7 dB Max @ 100-400MHz
Return Loss (Z OUT=100Ω ±1%) (Sdd11)	-22 dB Min @ 30-80MHz
	-17 dB Min @ 200MHz
	-15 dB Min @ 400MHz
Common To Common Mode Rejection (Scc21)	-45 dB Min @ 30-80MHz:
	-35 dB Min @ 200MHz
	-32 dB Min @ 400MHz
	-25 dB Min @ 1000MHz
Common To Differential Mode Rejection (Sds21)	-60 dB Min @10-30MHz
	-47 dB Min @ 100MHz
	-40 dB Min @ 200MHz
	-38 dB Min @1000MHz

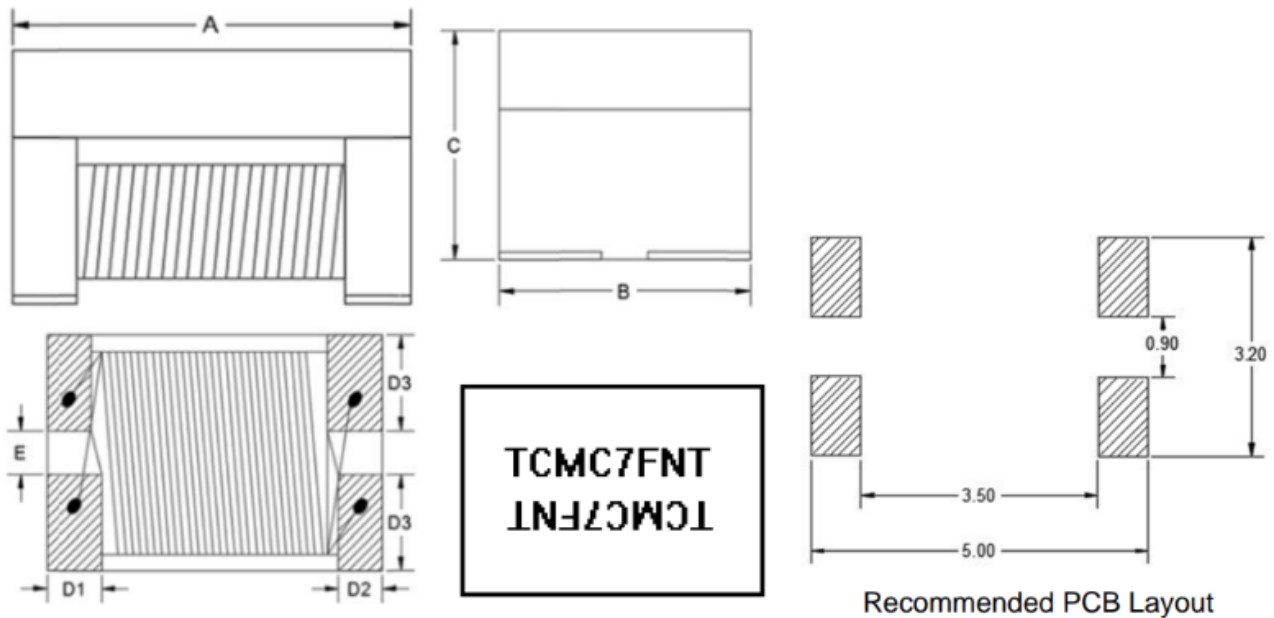
Environmental Specifications	
Operating Temperature	-40°C to +125°C (including self-temperature rise)
	All test data referenced to 25°C ambient. Heat Rated Current (I _{rms}) will cause the coil temperature rise approximately ΔT of 40°C Max

Mechanical	
Product Weight	0.175g
Reliability Test	Meets AEC-Q200 standard

Storage requirements	
Storage Temperature	40°C to +125°C (on board)
Storage Condition (Component in its packaging)	Temperature: Less than 40°C Humidity Less than 60% RH

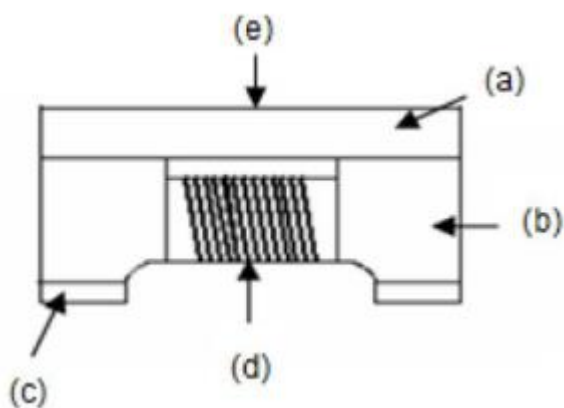
2. Mechanical

2.1 Mechanical Drawings



A	B	C	D1	D2	D3	E
4.60±0.20	3.20±0.20	2.90±0.15	0.75±0.20	0.60±0.20	1.30±0.20	0.60±0.20

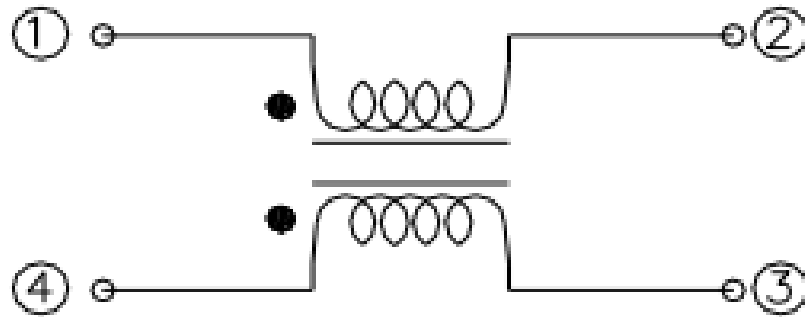
2.2 Material list



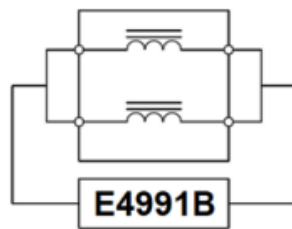
- (a) Upper Plate
- (b) Core
- (c) Termination
- (d) Wire
- (e) Mark

3. Electrical

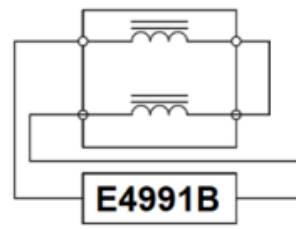
3.1 Schematic



Common mode



Differential mode



3.2 IR Solder Reflow

Mildly activated rosin fluxes are preferred. Our terminations are suitable for re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

IR Soldering Reflow

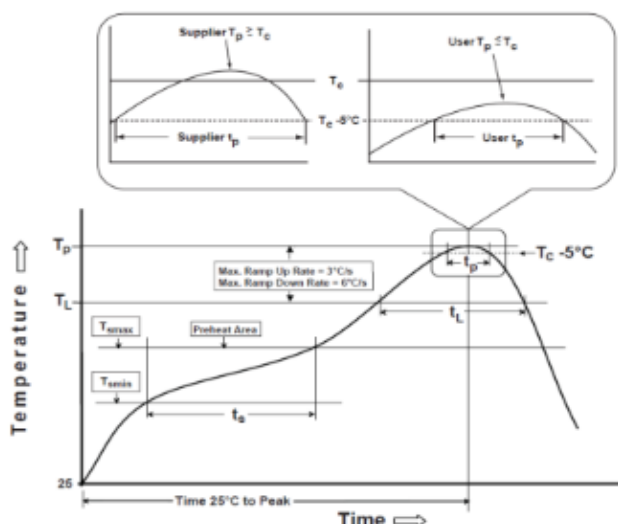
Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020E).

Iron Reflow

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended (Figure 2).

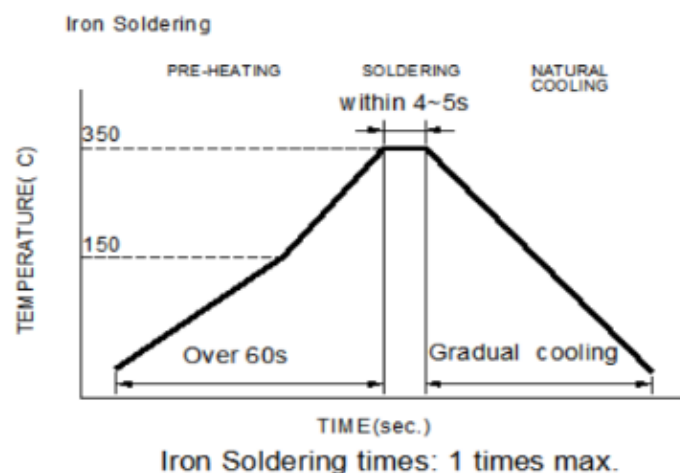
Note:

- Preheat circuit and products to 150°C.
- 355°C tip temperature (Max.)
- Never contact the ceramic with the iron tip
- 1.0mm tip diameter (Max.)
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- Limit soldering time to 4~5 sec.



Reflow times: 3 times Max

Figure 1: IR Soldering Reflow



Soldering iron method: 350±5°C Max

Figure 2: Iron soldering temperature profiles

3.3 Reflow Profiles

Table (1.1) Reflow Profiles

Profile Type:	Pb-Free Assembly
Preheat	
-Temperature Min (T_{smin})	150°C
-Temperature Max (T_{smax})	200°C
-Time (t_s) from (T_{smin} to T_{smax})	60-120seconds
Ramp-up rate (T_L to T_p)	3°C /second max.
Liquids temperature (T_L)	217°C
Time (t_L) maintained above T_L	60-150 seconds
Classification temperature (T_c)	See Table (1.2)
Time (t_p) at $T_c - 5^\circ\text{C}$ (T_p should be equal to or less than T_c .)	* < 30 seconds
Ramp-down rate (T_p to T_L)	6°C /second max.
Time 25°C to peak temperature	8 minutes max.

T_p : maximum peak package body temperature, **T_c** : the classification temperature.

For user (customer) **T_p** should be equal to or less than **T_c** .

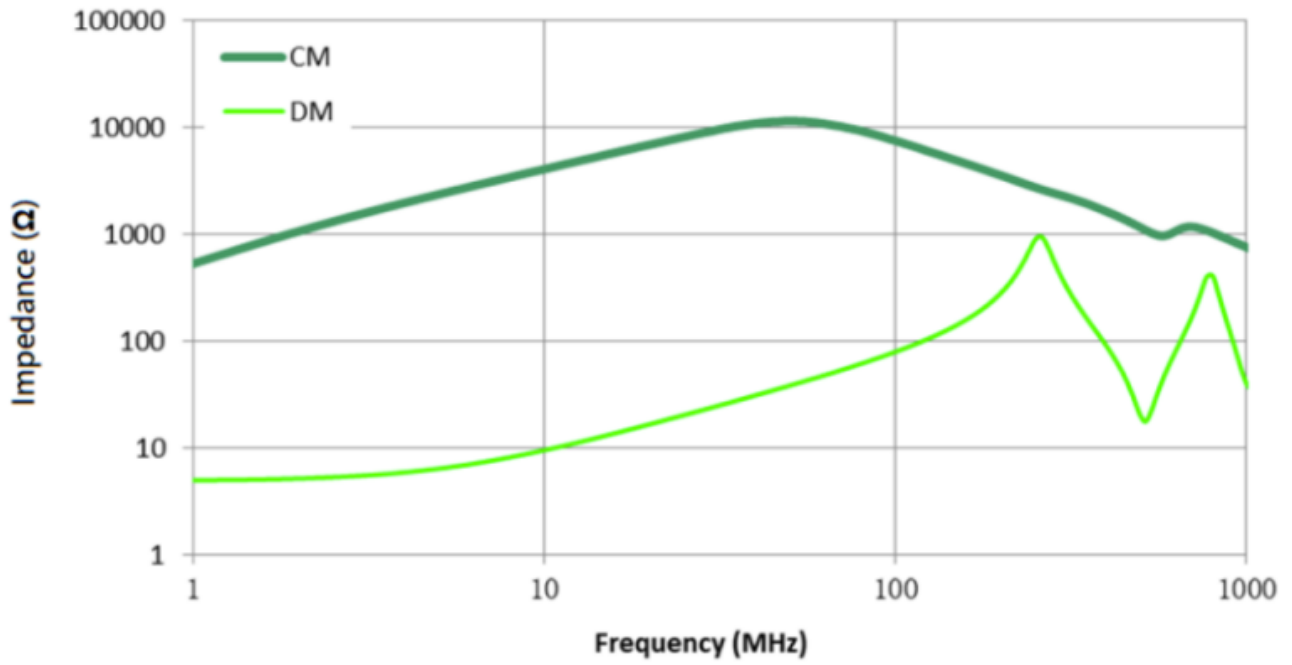
*Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	Package Thickness	Volume mm^3 <350	Volume mm^3 350-2000	Volume mm^3 >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	$\geq 2.5\text{mm}$	250°C	245°C	245°C

Reflow is referred to standard IPC/JEDEC J-STD-020E.

4. Characteristic Curve

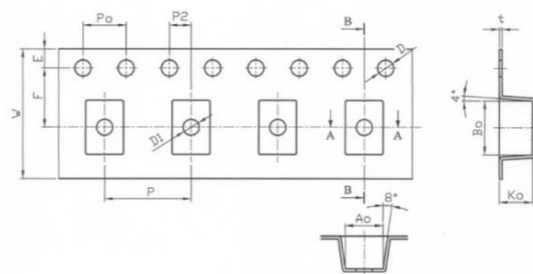
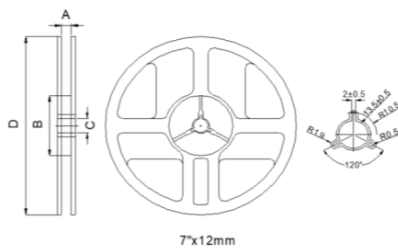


5. Packaging

5.1 SPQ

1 reel = 500 pcs

Weight: 145.2pcs



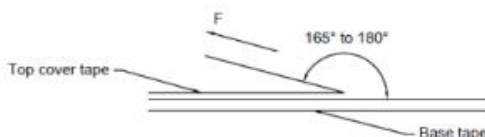
P	Po	P2	Bo	Ao	Ko
8.00±0.10	4.00±0.10	2.00±0.05	4.90±0.10	3.60±0.10	3.00±0.10
D	E	F	W	t	D1
1.50+0.10/-0.00	1.75±0.10	5.50±0.05	12.00±0.10	0.26±0.05	1.50±0.10

Type	A	B	C	D
7" x 12mm	13.5±0.5	60.0±2.0	13.5±0.5	178.0±2.0

9-3. Packaging Quantity (Unit: Pcs)

Packaging	Quantity (Pcs)	Weight (g)	Packaging Size (mm)
Chip/ Reel	500	145.2	7" x 12mm
Inner Box	2,000	642.2	184 x 89 x 190
Middle Box	10,000	3419.3	485 x 197 x 200
Carton	20,000	7608.1	503 x 412 x 227

9-4. Tearing Off Force



The force for tearing off cover tape is according to the follow table, in the arrow direction under the following conditions.

(Referenced ANSI/EIA-481-D-2008 of 4.11 standard)

Room Temp. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed (mm/min)
5~35	45~85	860~1060	300±10

Tape Size	8 mm	12 to 56 mm	72 mm or Wider
Tearing Off Force (grams)	10~100	10~130	10~150

5.2 Carton

1 Carton = 40 reels = 20000 pcs
 Carton dimensions: 503*412*227 mm
 Carton Weight: 7.608 kg



5.3 Label

Taoglas Limited	
P/N NO: XXXXXXXX	
QYT: XXX PCS	DC: XXXX
DATE: XXXX-XX-XX	

SPQ Label (8x4cm)

Taoglas Limited	
P/N NO: XXXXXXXX	
PO: XXXXXXXX	B/N: XXXXXXXX
QYT: XXX PCS	DC: XXXX
DATE: XXXX-XX-XX	

Carton Label (8x4cm)

Changelog

Changelog for the datasheet

SPE-23-8-332 – TCMCFNT101-RD-10

Revision: A (Original First Release)

Date:	2023-11-27
Notes:	
Author:	Javier Vasena

Previous Revisions



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