

Wide-Band Active Common-mode Canceller for RJ-45 and Pulse-transformer module

Active Common-mode Noise Canceller IC for 100Base, 1000Base

General Description

HTT2803 using 0.35 μ CMOS process is active common mode cancellation IC with 5.0V power supply. This IC will be able to ensure more than 30dB CMRR of the up to 1000MHz from 100 KHz by built-in broadband common-mode canceller.

It is possible to reduce the in-phase component at all frequencies, which conventional passive CMF cannot achieve it. This IC will make it easy to design of Pulse-Transformers and EMC-designing and make Pulse-Transformer package and RJ-45 modular more small. Because, the need of choke-coil disappears by broadband common-mode canceller built-in this IC.

Bidirectional driver is built in this IC and it is free for drive-impedance. So, this IC is prepared for 50 Ω , 60 Ω and other Impedance.

Input-Bias & Output-Bias are automatically 2.5V by feed-back DC loop built in this IC. So, center tap of Pulse-Transformer is not required.

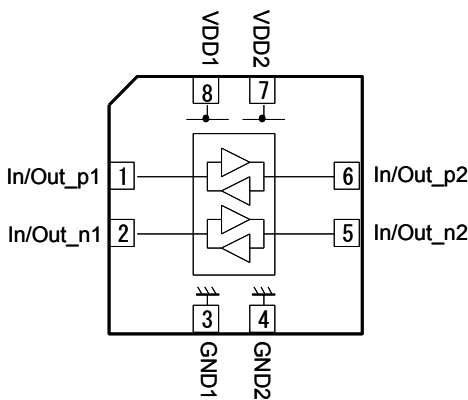
For this IC, a cascade architecture is suitable. So, if it is A[dB] in CMRR per one IC, you can get 2*A[dB] in CMRR by the cascade of the 2 steps.

Achieved: HBM > 6000V

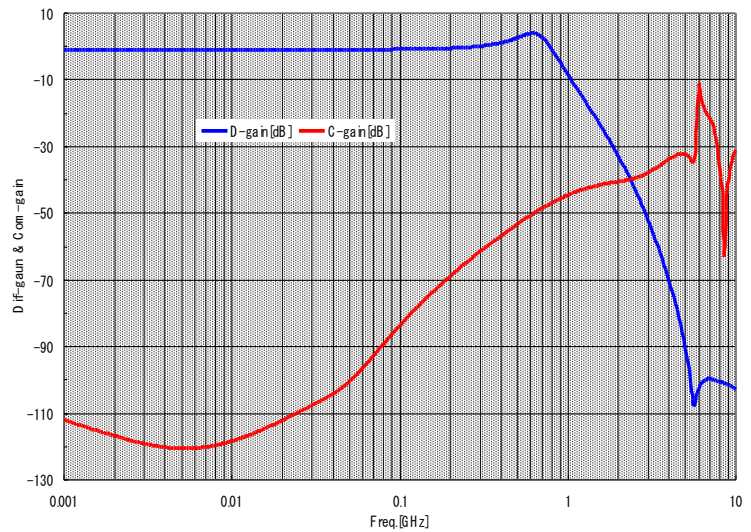
Features

- power consumption 325mW (TYP.) ($V_{DD}=5.0V, I_{DD}=65.0mA, @T_a=50^{\circ}C$)
- Operating temperature range : $-40^{\circ}C \sim +125^{\circ}C$, Storage temperature range : $-55^{\circ}C \sim +125^{\circ}C$
- Output & Input impedance : free
- input & output return loss : >20dB (@ 300MHz)
- 3dB point : 800MHz
- CMRR : > 30 dB (100KHz~ 1000 MHz)
- Output level : > 1.8Vpp (@ $R_{in}=R_{out}=50\Omega$, @ $V_{DD}=5.0V$)
- HBM : > 6000V
- PKG : QFN08

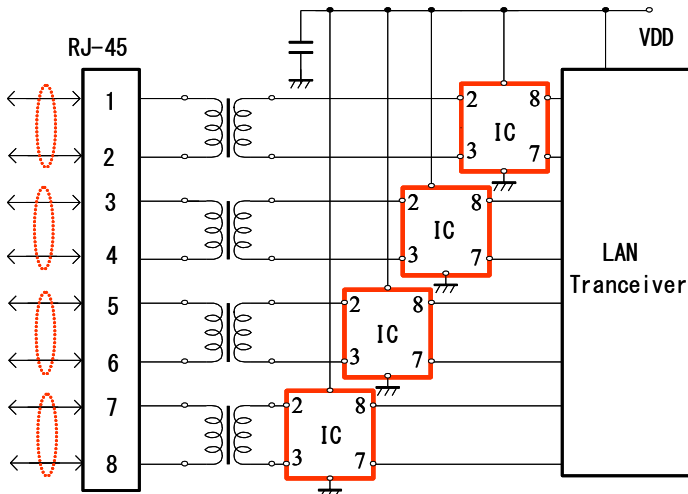
Pin & name



Frequency characteristics



Application Note



※Left-figure shows the circuit for a 1000Base-T. Choke-Coil and Center-Tap of the pulse-transformer are not required. So, it will make the pulse-transformer and RJ-45 module very simple and very small.