Application Notes

This application note explains how additional devices circuit delivers protection levels of ±4kV ESD HBM*. It will help in the long-term reliability of the final product. (*Electrostatic discharge Human Body Model(HBM) Reference Document: ANSI/ESDA/JEDEC JS-001-2017)

For more detailed product specifications of the 8TR8218 / 8TR8219, please check the datasheet.
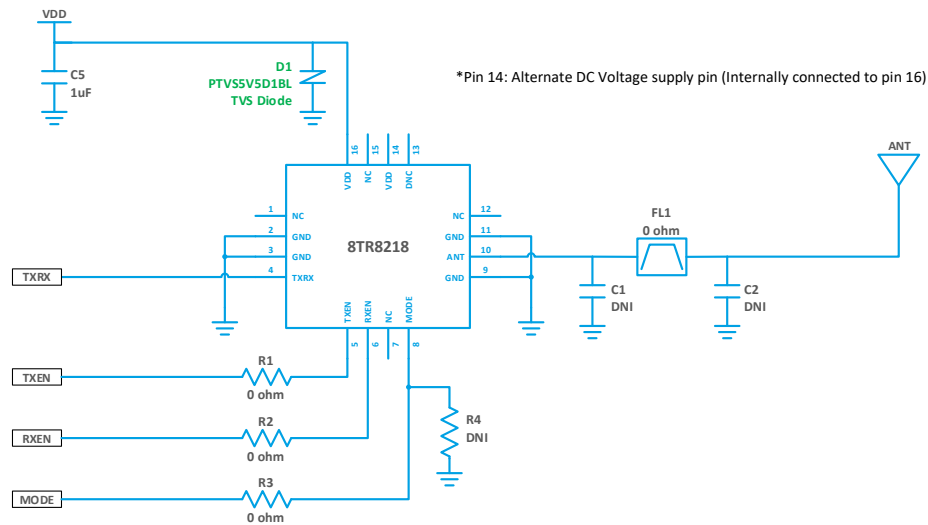
Additional devices

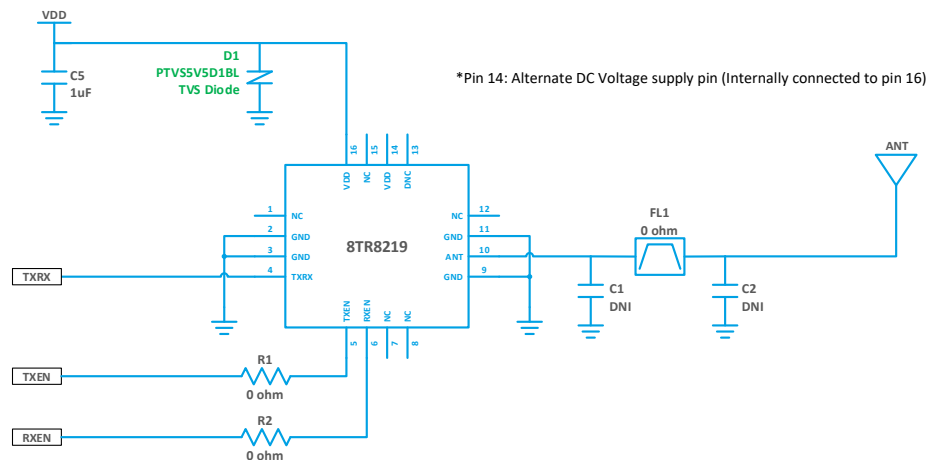The protection devices added in the circuit:
 - VDD Line: PTVS5V5D1BL, TVS Diode (Nexperia)

The part placement and orientation has little to no impact on the level of ESD protection.

Application Schematic - 8TR8218

Application Schematic - 8TR8219

Results & Recommendation

The VDD signal with TVS diode was subjected to ±4kV ESD HBM. Both TVS diode and RF IC show no physical damage as well as no degradation in the electrical performance.

For higher ESD HBM protection, aforementioned device (or one with the equivalent specification) is recommended.

*TVS Diode Electrical characteristics

Part No.	Reverse working voltage V_{RWM} T_{AMB} = 25 °C	Reverse breakdown voltage V_{BR} I_R=5mA	Reverse leakage current I_{RM} V_R=5.5V	Clamping voltage		Diode Capacitance C_d V_R=0V, f=1MHz
				I_{PP}=1A, t_P=8/20μs	I_{PPM}=35A, t_P=8/20μs	
	[V]	[V]	[nA]	[V]	[V]	[pF]
PTVS5V5D1BL	Max. 5.5	5.6 ~ 7.6	Max. 100	Typ. 5.7 / Max. 6.9	Typ. 10.3 / Max. 12.2	Typ. 70 / Max. 84

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