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Texas Instruments Incorporated
Operational Amplifiers, Comparators and Building Block
Macromodels: Level 1 and Level 2

The macromodels on this diskette were generated using
MicroSim Corporation's PSpice Parts simulation software.
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While simulation of analog and mixed-mode systems is becoming more common, one major impediment to widespread analog simulation has been the significant amount of computing time necessary for transistor-level simulations of the analog components. Although the computing power available at engineers' workstations has increased, this advance has been overshadowed by the need to simulate more complex systems.

While allowing more efficient simulation, macromodels are limited in their ability to accurately model circuit behavior, especially under less than optimal conditions. They are useful for engineers to validate initial design assumptions and can help narrow the search for the best op amp or comparator for a new design. They are not intended to model critical behavioral characteristics over temperature or at parametric boundaries, and should not replace or eliminate prototyping and careful evaluation of actual devices in actual circuits.

Two levels of macromodels are available. Level 1 macromodels are simpler and allow quicker simulation. This simplicity trades off the ability to model parameters such as input offset voltage, input offset current, common-mode input voltage range, and equivalent input noise voltage. Level 2 macromodels add complexity to the simulation, modeling these parameters and others, including power supply rejection ratio, power supply ripple rejection ratio, and supply current. The

parameters modeled reflect typical performance at room temperature under conditions specified in device data sheets.

Level 1 models are available for most listed op amps and comparators; level 2 models are offered only for the higher performance products.

### III. Applications Literature

A more detailed discussion of the macromodel subcircuits, their features and limitations, is available from Texas Instruments. Write to:

Texas Instruments Incorporated  
P.O. Box 172228  
Denver, Colorado 80217-9271

And request the Macromodels Data Book, publication #SLOS047B.

### IV. PSpice Software Support

The macromodels on this diskette were generated using MicroSim Corporation's PSpice Parts simulation software. Other simulation software vendors may also offer versions of the macromodels that are compatible with their simulators. TI does not directly support PSpice or any other simulation software; questions regarding circuit emulation should be referred to the software vendor.

### V. Filename Convention

A listing of the models and filenames included in this release is in the catalog below. The file naming convention is straightforward: the FILENAME is same as the DEVICE NAME, with a three-character EXTENSION that indicates the supply voltage and macromodel level.

The first 2 characters of the EXTENSION designate supply voltage, as follows:

1\_ ..... 1.4 V  
3\_ ..... 3 V  
5\_ ..... 5 V  
10 ..... 10 V (or +-5 V)  
30 ..... 30 V (or +-15 V)  
40 ..... 40 V (or +-20 V)

The third character of the EXTENSION is either "1" or "2" for Level 1 or Level 2, respectively. For example, a 5 V Level 2 macromodel for the TLC2272 op amp is located in the file "TLC2272.5\_2".

The HEADER in each file also DESCRIBES the DEVICE and states what SUPPLY VOLTAGE was used for the model.

### VI. Macromodels Catalog

#### 1) Operational Amplifiers (252 models)

<u>Device</u>	<u>Supply Voltage</u>	<u>Model Level</u>	<u>File</u>	<u>Description</u>
TL031	10	1	TL031.101	Single, low power, biFET
TL031	30	1	TL031.301	Single, low power, biFET
TL032	10	1	TL032.101	Dual, low-power, biFET

TL032	30	1	TL032.301	Dual, low-power, biFET
TL034	10	1	TL034.101	Quad, low-power, biFET
TL034	30	1	TL034.301	Quad, low-power, biFET
TL051	10	1	TL051.101	Single, high speed, biFET
TL051	30	1	TL051.301	Single, high speed, biFET
TL052	10	1	TL052.101	Dual, high speed, biFET
TL052	30	1	TL052.301	Dual, high speed, biFET
TL054	10	1	TL054.101	Quad, high speed, biFET
TL054	30	1	TL054.301	Quad, high speed, biFET
TL061	30	1	TL061.301	Single, low power, biFET
TL062	30	1	TL062.301	Dual, low power, biFET
TL064	30	1	TL064.301	Quad, low power, biFET
TL071	30	1	TL071.301	Single, high speed, biFET
TL072	30	1	TL072.301	Dual, high speed, biFET
TL074	30	1	TL074.301	Quad, high speed, biFET
TL081	30	1	TL081.301	Single, high speed, biFET
TL082	30	1	TL082.301	Dual, high speed, biFET
TL084	30	1	TL084.301	Quad, high speed, biFET
TLC1078	5	1	TLC1078.5_1	Dual, micropower, CMOS
TLC1078	5	2	TLC1078.5_2	Dual, micropower, CMOS
TLC1078	10	1	TLC1078.101	Dual, micropower, CMOS
TLC1078	10	2	TLC1078.102	Dual, micropower, CMOS
TLC1079	5	1	TLC1079.5_1	Quad, micropower, CMOS
TLC1079	5	2	TLC1079.5_2	Quad, micropower, CMOS
TLC1079	10	1	TLC1079.101	Quad, micropower, CMOS
TLC1079	10	2	TLC1079.102	Quad, micropower, CMOS
TLC2201	5	1	TLC2201.5_1	Single, low noise, CMOS
TLC2201	5	2	TLC2201.5_2	Single, low noise, CMOS
TLC2201	10	1	TLC2201.101	Dual, low noise, CMOS
TLC2201	10	2	TLC2201.102	Dual, low noise, CMOS
TLC2252	5	1	TLC2252.5_1	Dual, ultra low power, rail-to-rail o/p
TLC2252	5	2	TLC2252.5_2	Dual, ultra low power, rail-to-rail o/p
TLC2252	10	1	TLC2252.101	Dual, ultra low power, rail-to-rail o/p
TLC2252	10	2	TLC2252.102	Dual, ultra low power, rail-to-rail o/p
TLC2254	5	1	TLC2254.5_1	Quad, ultra low power, rail-to-rail o/p
TLC2254	5	2	TLC2254.5_2	Quad, ultra low power, rail-to-rail o/p
TLC2254	10	1	TLC2254.101	Quad, ultra low power, rail-to-rail o/p
TLC2254	10	2	TLC2254.102	Quad, ultra low power, rail-to-rail o/p
TLC2262	5	1	TLC2262.5_1	Dual, low noise, micropower, CMOS
TLC2262	5	2	TLC2262.5_2	Dual, low noise, micropower, CMOS
TLC2262	10	1	TLC2262.101	Dual, low noise, micropower, CMOS
TLC2262	10	2	TLC2262.102	Dual, low noise, micropower, CMOS
TLC2264	5	1	TLC2264.5_1	Quad, low noise, micropower, CMOS
TLC2264	5	2	TLC2264.5_2	Quad, low noise, micropower, CMOS
TLC2264	10	1	TLC2264.101	Quad, low noise, micropower, CMOS
TLC2264	10	2	TLC2264.102	Quad, low noise, micropower, CMOS
TLC2272	5	1	TLC2272.5_1	Dual, low noise, CMOS
TLC2272	5	2	TLC2272.5_2	Dual, low noise, CMOS
TLC2272	10	1	TLC2272.101	Dual, low noise, CMOS

TLC2272	10	2	TLC2272.102	Dual, low noise, CMOS
TLC2274	5	1	TLC2274.5_1	Quad, low noise, CMOS
TLC2274	5	2	TLC2274.5_2	Quad, low noise, CMOS
TLC2274	10	1	TLC2274.101	Quad, low noise, CMOS
TLC2274	10	2	TLC2274.102	Quad, low noise, CMOS
TLC251H	1	1	TLC251H.1_1	Single, low voltage, CMOS
TLC251H	1	2	TLC251H.1_2	Single, low voltage, CMOS
TLC251H	10	1	TLC251H.101	Single, low voltage, CMOS
TLC251H	10	2	TLC251H.102	Single, low voltage, CMOS
TLC251L	1	1	TLC251L.1_1	Single, low voltage, CMOS
TLC251L	1	2	TLC251L.1_2	Single, low voltage, CMOS
TLC251L	10	1	TLC251L.101	Single, low voltage, CMOS
TLC251L	10	2	TLC251L.102	Single, low voltage, CMOS
TLC251M	10	1	TLC251M.101	Single, low voltage, CMOS
TLC251M	10	2	TLC251M.102	Single, low voltage, CMOS
TLC252C	1	1	TLC252C.1_1	Dual, low voltage, CMOS
TLC252C	1	2	TLC252C.1_2	Dual, low voltage, CMOS
TLC252C	10	1	TLC252C.101	Dual, low voltage, CMOS
TLC252C	10	2	TLC252C.102	Dual, low voltage, CMOS
TLC254C	1	1	TLC254C.1_1	Quad, low voltage, CMOS
TLC254C	1	2	TLC254C.1_2	Quad, low voltage, CMOS
TLC254C	10	1	TLC254C.101	Quad, low voltage, CMOS
TLC254C	10	2	TLC254C.102	Quad, low voltage, CMOS
TLC25L2C	1	1	TLC25L2C.1_1	Dual, low voltage, micropower, CMOS
TLC25L2C	1	2	TLC25L2C.1_2	Dual, low voltage, micropower, CMOS
TLC25L2C	10	1	TLC25L2C.101	Dual, low voltage, micropower, CMOS
TLC25L2C	10	2	TLC25L2C.102	Dual, low voltage, micropower, CMOS
TLC25L4C	1	1	TLC25L4C.1_1	Quad, low voltage, micropower, CMOS
TLC25L4C	1	2	TLC25L4C.1_2	Quad, low voltage, micropower, CMOS
TLC25L4C	10	1	TLC25L4C.101	Quad, low voltage, micropower, CMOS
TLC25L4C	10	2	TLC25L4C.102	Quad, low voltage, micropower, CMOS
TLC25M2C	1	1	TLC25M2C.1_1	Dual, low voltage, CMOS
TLC25M2C	1	2	TLC25M2C.1_2	Dual, low voltage, CMOS
TLC25M2C	10	1	TLC25M2C.101	Dual, low voltage, CMOS
TLC25M2C	10	2	TLC25M2C.102	Dual, low voltage, CMOS
TLC25M4C	1	1	TLC25M4C.1_1	Quad, low voltage, CMOS
TLC25M4C	1	2	TLC25M4C.1_2	Quad, low voltage, CMOS
TLC25M4C	10	1	TLC25M4C.101	Quad, low voltage, CMOS
TLC25M4C	10	2	TLC25M4C.102	Quad, low voltage, CMOS
TLC2652	10	1	TLC2652.101	Chopper stabilized
TLC2652	10	2	TLC2652.102	Chopper stabilized
TLC2654	10	1	TLC2654.101	Chopper stabilized
TLC2654	10	2	TLC2654.102	Chopper stabilized
TLC271H	5	1	TLC271H.5_1	Single, general purpose, CMOS
TLC271H	5	2	TLC271H.5_2	Single, general purpose, CMOS
TLC271H	10	1	TLC271H.101	Single, general purpose, CMOS
TLC271H	10	2	TLC271H.102	Single, general purpose, CMOS
TLC271L	5	1	TLC271L.5_1	Single, general purpose, CMOS
TLC271L	5	2	TLC271L.5_2	Single, general purpose, CMOS
TLC271L	10	1	TLC271L.101	Single, general purpose, CMOS
TLC271L	10	2	TLC271L.102	Single, general purpose, CMOS
TLC271M	5	1	TLC271M.5_1	Single, general purpose, CMOS
TLC271M	5	2	TLC271M.5_2	Single, general purpose, CMOS
TLC271M	10	1	TLC271M.101	Single, general purpose, CMOS
TLC271M	10	2	TLC271M.102	Single, general purpose, CMOS
TLC272	5	1	TLC272.5_1	Dual, general purpose, CMOS
TLC272	5	2	TLC272.5_2	Dual, general purpose, CMOS

TLC272	10	1	TLC272.101	Dual, general purpose, CMOS
TLC272	10	2	TLC272.102	Dual, general purpose, CMOS
TLC274	5	1	TLC274.5_1	Quad, general purpose, CMOS
TLC274	5	2	TLC274.5_2	Quad, general purpose, CMOS
TLC274	10	1	TLC274.101	Quad, general purpose, CMOS
TLC274	10	2	TLC274.102	Quad, general purpose, CMOS
TLC277	5	1	TLC277.5_1	Dual, precision, CMOS
TLC277	5	2	TLC277.5_2	Dual, precision, CMOS
TLC277	10	1	TLC277.101	Dual, precision, CMOS
TLC277	10	2	TLC277.102	Dual, precision, CMOS
TLC279	5	1	TLC279.5_1	Quad, precision, CMOS
TLC279	5	2	TLC279.5_2	Quad, precision, CMOS
TLC279	10	1	TLC279.101	Quad, precision, CMOS
TLC279	10	2	TLC279.102	Quad, precision, CMOS
TLC27L2	5	1	TLC27L2.5_1	Dual, micropower, CMOS
TLC27L2	5	2	TLC27L2.5_2	Dual, micropower, CMOS
TLC27L2	10	1	TLC27L2.101	Dual, micropower, CMOS
TLC27L2	10	2	TLC27L2.102	Dual, micropower, CMOS
TLC27L4	5	1	TLC27L4.5_1	Quad, micropower, CMOS
TLC27L4	5	2	TLC27L4.5_2	Quad, micropower, CMOS
TLC27L4	10	1	TLC27L4.101	Quad, micropower, CMOS
TLC27L4	10	2	TLC27L4.102	Quad, micropower, CMOS
TLC27L7	5	1	TLC27L7.5_1	Dual, micropower, precision, CMOS
TLC27L7	5	2	TLC27L7.5_2	Dual, micropower, precision, CMOS
TLC27L7	10	1	TLC27L7.101	Dual, micropower, precision, CMOS
TLC27L7	10	2	TLC27L7.102	Dual, micropower, precision, CMOS
TLC27L9	5	1	TLC27L9.5_1	Quad, micropower, precision, CMOS
TLC27L9	5	2	TLC27L9.5_2	Quad, micropower, precision, CMOS
TLC27L9	10	1	TLC27L9.101	Quad, micropower, precision, CMOS
TLC27L9	10	2	TLC27L9.102	Quad, micropower, precision, CMOS
TLC27M2	5	1	TLC27M2.5_1	Dual, general purpose, CMOS
TLC27M2	5	2	TLC27M2.5_2	Dual, general purpose, CMOS
TLC27M2	10	1	TLC27M2.101	Dual, general purpose, CMOS
TLC27M2	10	2	TLC27M2.102	Dual, general purpose, CMOS
TLC27M4	5	1	TLC27M4.5_1	Quad, general purpose, CMOS
TLC27M4	5	2	TLC27M4.5_2	Quad, general purpose, CMOS
TLC27M4	10	1	TLC27M4.101	Quad, general purpose, CMOS
TLC27M4	10	2	TLC27M4.102	Quad, general purpose, CMOS
TLC27M7	5	1	TLC27M7.5_1	Dual, low power, precision, CMOS
TLC27M7	5	2	TLC27M7.5_2	Dual, low power, precision, CMOS
TLC27M7	10	1	TLC27M7.101	Dual, low power, precision, CMOS
TLC27M7	10	2	TLC27M7.102	Dual, low power, precision, CMOS
TLC27M9	5	1	TLC27M9.5_1	Quad, low power, precision, CMOS
TLC27M9	5	2	TLC27M9.5_2	Quad, low power, precision, CMOS
TLC27M9	10	1	TLC27M9.101	Quad, low power, precision, CMOS
TLC27M9	10	2	TLC27M9.102	Quad, low power, precision, CMOS
TLE2021	5	1	TLE2021.5_1	Single, precision, low power
TLE2021	5	2	TLE2021.5_2	Single, precision, low power
TLE2021	30	1	TLE2021.301	Single, precision, low power
TLE2021	30	2	TLE2021.302	Single, precision, low power
TLE2022	5	1	TLE2022.5_1	Dual, precision, low power
TLE2022	5	2	TLE2022.5_2	Dual, precision, low power
TLE2022	30	1	TLE2022.301	Dual, precision, low power
TLE2022	30	2	TLE2022.302	Dual, precision, low power
TLE2024	5	1	TLE2024.5_1	Quad, precision, low power
TLE2024	5	2	TLE2024.5_2	Quad, precision, low power
TLE2024	30	1	TLE2024.301	Quad, precision, low power

TLE2024	30	2	TLE2024.302	Quad, precision, low power
TLE2027	30	1	TLE2027.301	Single, low noise, precision
TLE2027	30	2	TLE2027.302	Single, low noise, precision
TLE2037	30	1	TLE2037.301	Single, low noise, precision
TLE2037	30	2	TLE2037.302	Single, low noise, precision
TLE2061	10	1	TLE2061.101	Single, low power, biFET
TLE2061	10	2	TLE2061.102	Single, low power, biFET
TLE2061	30	1	TLE2061.301	Single, low power, biFET
TLE2061	30	2	TLE2061.302	Single, low power, biFET
TLE2061	40	1	TLE2061.401	Single, low power, biFET
TLE2061	40	2	TLE2061.402	Single, low power, biFET
TLE2062	10	1	TLE2062.101	Dual, low power, biFET
TLE2062	10	2	TLE2062.102	Dual, low power, biFET
TLE2062	30	1	TLE2062.301	Dual, low power, biFET
TLE2062	30	2	TLE2062.302	Dual, low power, biFET
TLE2062	40	1	TLE2062.401	Dual, low power, biFET
TLE2062	40	2	TLE2062.402	Dual, low power, biFET
TLE2064	10	1	TLE2064.101	Quad, low power, biFET
TLE2064	10	2	TLE2064.102	Quad, low power, biFET
TLE2064	30	1	TLE2064.301	Quad, low power, biFET
TLE2064	30	2	TLE2064.302	Quad, low power, biFET
TLE2064	40	1	TLE2064.401	Quad, low power, biFET
TLE2064	40	2	TLE2064.402	Quad, low power, biFET
TLE2071	30	1	TLE2071.301	Single, high speed, biFET
TLE2071	30	2	TLE2071.302	Single, high speed, biFET
TLE2072	30	1	TLE2072.301	Dual, high speed, biFET
TLE2072	30	2	TLE2072.302	Dual, high speed, biFET
TLE2074	30	1	TLE2074.301	Quad, high speed, biFET
TLE2074	30	2	TLE2074.302	Quad, high speed, biFET
TLE2081	30	1	TLE2081.301	Single, high speed, biFET
TLE2081	30	2	TLE2081.302	Single, high speed, biFET
TLE2082	10	1	TLE2082.101	Dual, high speed, biFET
TLE2082	30	1	TLE2082.301	Dual, high speed, biFET
TLE2082	30	2	TLE2082.302	Dual, high speed, biFET
TLE2084	30	1	TLE2084.301	Quad, high speed, biFET
TLE2084	30	2	TLE2084.302	Quad, high speed, biFET
TLE2141	5	1	TLE2141.5_1	Single, high speed, single-supply
TLE2141	5	2	TLE2141.5_2	Single, high speed, single-supply
TLE2141	30	1	TLE2141.301	Single, high speed, single-supply
TLE2141	30	2	TLE2141.302	Single, high speed, single-supply
TLE2142	5	1	TLE2142.5_1	Dual, high speed, single-supply
TLE2142	5	2	TLE2142.5_2	Dual, high speed, single-supply
TLE2142	30	1	TLE2142.301	Dual, high speed, single-supply
TLE2142	30	2	TLE2142.302	Dual, high speed, single-supply
TLE2144	5	1	TLE2144.5_1	Quad, high speed, single-supply
TLE2144	5	2	TLE2144.5_2	Quad, high speed, single-supply
TLE2144	30	1	TLE2144.301	Quad, high speed, single-supply
TLE2144	30	2	TLE2144.302	Quad, high speed, single-supply
TLE2161	10	1	TLE2161.101	Single, decompensated, biFET
TLE2161	10	2	TLE2161.102	Single, decompensated, biFET
TLE2161	30	1	TLE2161.301	Single, decompensated, biFET
TLE2161	30	2	TLE2161.302	Single, decompensated, biFET
TLE2161	40	1	TLE2161.401	Single, decompensated, biFET
TLE2161	40	2	TLE2161.402	Single, decompensated, biFET
TLE2227	30	1	TLE2227.301	Dual, low noise, precision
TLE2227	30	2	TLE2227.302	Dual, low noise, precision
TLE2237	30	1	TLE2237.301	Dual, low noise, precision

TLE2237	30	2	TLE2237.302	Dual, low noise, precision
TLV2252	3	1	TLV2252.3_1	Dual, ultra low power, rail-to-rail o/p
TLV2252	3	2	TLV2252.3_2	Dual, ultra low power, rail-to-rail o/p
TLV2252	5	1	TLV2252.5_1	Dual, ultra low power, rail-to-rail o/p
TLV2252	5	2	TLV2252.5_2	Dual, ultra low power, rail-to-rail o/p
TLV2254	3	1	TLV2254.3_1	Quad, ultra low power, rail-to-rail o/p
TLV2254	3	2	TLV2254.3_2	Quad, ultra low power, rail-to-rail o/p
TLV2254	5	1	TLV2254.5_1	Quad, ultra low power, rail-to-rail o/p
TLV2254	5	2	TLV2254.5_2	Quad, ultra low power, rail-to-rail o/p
TLV2262	3	1	TLV2262.3_1	Dual, low voltage, low noise, CMOS
TLV2264	3	1	TLV2264.3_1	Quad, low voltage, low noise, CMOS
TLV2322I	3	1	TLV2322I.3_1	Dual, low voltage, micropower, CMOS
TLV2322I	5	1	TLV2322I.5_1	Dual, low voltage, micropower, CMOS
TLV2324I	3	1	TLV2324I.3_1	Quad, low voltage, micropower, CMOS
TLV2324I	5	1	TLV2324I.5_1	Quad, low voltage, micropower, CMOS
TLV2332I	3	1	TLV2332I.3_1	Dual, low voltage, low power, CMOS
TLV2332I	5	1	TLV2332I.5_1	Dual, low voltage, low power, CMOS
TLV2334I	3	1	TLV2334I.3_1	Quad, low voltage, low power, CMOS
TLV2334I	5	1	TLV2334I.5_1	Quad, low voltage, low power, CMOS
TLV2341H	3	1	TLV2341H.3_1	Single, low voltage, CMOS
TLV2341H	5	1	TLV2341H.5_1	Single, low voltage, CMOS
TLV2341L	3	1	TLV2341L.3_1	Single, low voltage, CMOS
TLV2341L	5	1	TLV2341L.5_1	Single, low voltage, CMOS
TLV2341M	3	1	TLV2341M.3_1	Single, low voltage, CMOS
TLV2341M	5	1	TLV2341M.5_1	Single, low voltage, CMOS
TLV2342I	3	1	TLV2342I.3_1	Dual, low voltage, CMOS
TLV2342I	5	1	TLV2342I.5_1	Dual, low voltage, CMOS
TLV2344I	3	1	TLV2344I.3_1	Quad, low voltage, CMOS
TLV2344I	5	1	TLV2344I.5_1	Quad, low voltage, CMOS

## 2) Comparators (18 models)

<u>Device</u>	<u>Voltage</u>	<u>Supply Level</u>	<u>Model File</u>	<u>Description</u>
LP111	30	1	LP111.301	Single, micropower, strobed
LP211	30	1	LP211.301	Single, micropower, strobed
LP239	5	1	LP239.5_1	Quad, micropower
LP2901	5	1	LP2901.5_1	Quad, micropower
LP311	30	1	LP311.301	Single, micropower, strobed
LP339	5	1	LP339.5_1	Quad, micropower
TLC339	5	1	TLC339.5_1	Quad, micropower, CMOS
TLC352	5	1	TLC352.5_1	Dual, general purpose
TLC354	5	1	TLC354.5_1	Quad, general purpose
TLC3702	5	1	TLC3702.5_1	Dual, micropower, push-pull output
TLC3704	5	1	TLC3704.5_1	Quad, micropower, push-pull output
TLC372	5	1	TLC372.5_1	Dual, general purpose
TLC374	5	1	TLC374.5_1	Quad, general purpose
TLC393	5	1	TLC393.5_1	Dual, micropower, CMOS
TLV2352I	3	1	TLV2352I.3_1	Dual, low voltage, CMOS

TLV2352I	5	1	TLV2352I.5_1	Dual, low voltage, CMOS
TLV2354I	3	1	TLV2354I.3_1	Quad, low voltage, CMOS
TLV2354I	5	1	TLV2354I.5_1	Quad, low voltage, CMOS

### 3) Building Blocks (4 models)

Device	Supply Voltage	Model Level	File	Description
TLE2425	5	1	TLE2425.5_1	2.5 V virtual ground generator
TLE2425	5	2	TLE2425.5_2	2.5 V virtual ground generator
TLE2426	5	1	TLE2426.5_1	Rail-splitter virtual ground
TLE2426	5	2	TLE2426.5_2	Rail-splitter virtual ground

===== End of Macromodels Catalog =====

## **VII. IMPORTANT NOTICE**

### **IMPORTANT NOTICE**

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