ABSOLUTE MAXIMUM RATINGS are limiting values of operation and should not be exceeded under the worst conditions. These values are chosen to provide acceptable serviceability of the device. The equipment manufacturer should design so that initially, and throughout life, no absolute maximum value is exceeded. If exceeded, even if the device continues to operate, its life may be considerably shortened.

The absolute maximum output current ratings are the maximum allowable under any condition. In application, the allowable output current will be limited by number of outputs conducting, duty cycle and timing, ambient temperature, heat sinking and/or forced cooling, and other heat sources.

In those devices that include internal current limiting, fault conditions that produce excessive output current will activate device current-limiting circuitry. In this mode, some device outputs will come out of saturation and dissipate an increased amount of power and the junction temperature will increase. Overcurrent limiting is intended to protect the device against transient overloads and should not imply short-circuit protection.

Under any set of conditions, the specified maximum junction temperature (usually +150°C) should not be exceeded. In those devices that include an internal thermal shutdown, fault conditions that produce excessive junction temperature will activate device thermal shutdown circuitry. These conditions can be tolerated, but should be avoided.

TYPICAL VALUES and **TYPICAL CHARACTERIS-TIC CURVES** are given for circuit or system baseline design only and are usually at the nominal operating voltage and an ambient temperature of +25°C rather than over operating ranges. Although these values are indicative of the peak distribution (mode) for a large number of production lots, they should not be expected for any particular device or single production lot. They are representative values, rather than actual values, that are characteristic of the values that are expected to occur the most frequently under normal operating conditions.

Where the typical value is intended to describe a range of observed values, the typical value corresponds to the statistical mode, that is, the value that occurs most frequently for a large number of production lots, or predominantly intended to be achieved. Where there is more than one mode, the typical value is undefined.

Note that a statistical typical value does not imply the shape of the underlying distribution of actual values. Distributions may contain maverick values, outliers, or a well-formed normal distribution while having the same typical value. System performance must allow for *any* device performing within the specified limits.
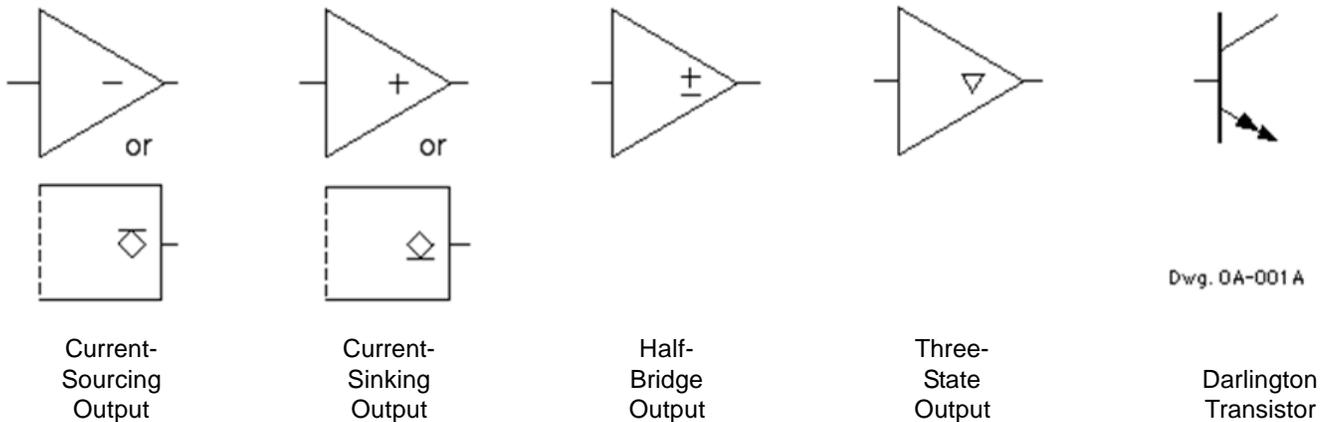
CHARACTERISTICS LIMITS are those values that are warranted only under the test conditions shown. System *requirements* are often given with device parameters, for example, logic input voltage (but not input current) and maximum clock frequency.

The absolute magnitude convention is used for **electrical characteristics limits** where the limits are defined as:

> Maximum [minimum] limit: the greater [smaller] magnitude limit of a range of like-signed values; if the range includes both positive and negative values, both limiting values are maximums (the minimum is implicitly zero).

The algebraic convention is used for **magnetic characteristics limits** where negative flux densities are defined as less than zero (-50 G is less than +10 G). The minimum value is therefore the most negative value, the maximum value is the most positive value, and zero has no special significance.

SPECIAL SYMBOLS are sometimes used by Allegro MicroSystems to simplify circuit drawings.

Dwg. OA-001A

| Current-Sourcing Output | Current-Sinking Output | Half-Bridge Output | Three-State Output | Darlington Transistor |

NOTE — See Allegro Publication 26005 for complete terms and definitions for IC Outputs.

RECOMMENDED OPERATING CONDITIONS are given for optimum device performance. Operation outside these conditions is permitted (within the Absolute Maximum Ratings) without any implied level of performance.

It is recommended that equipment manufacturers consult their local sales office whenever device applications involve unusual electrical, mechanical, or environmental operating conditions.

PRODUCT PREVIEW is used to advise customers of *proposed* additions to the product line. The specifications given are target or goal specifications and may, therefore, change without notice. Allegro MicroSystems, Inc. reserves the right to not manufacture proposed devices that have been announced as "product preview"; samples may not be available yet. It is imperative that you contact your local sales office for details of current status and latest specifications prior to making any circuit design commitments.

ADVANCE INFORMATION (engineering prototypes, meaning limited sample availability) or **PRELIMINARY INFORMATION** (preproduction or first production) are used to advise customers of additions to the product line that, nevertheless, still have "preproduction" status. Details may, therefore, change without notice although it is expected that preliminary performance data is representative of "full production" status. Contact your local sales office for details of current status and latest specifications.

INTERIM DATA is used to describe a *publication* that is incomplete. The status of the *products* described may be advance, preliminary, or production. It is intended that a more complete description will follow.

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