

## Absolute Maximum Ratings (@T<sub>A</sub>=25°C, unless otherwise specified. Note 1)

| Symbol            | Parameter                                | Rating     | Unit |
|-------------------|------------------------------------------|------------|------|
| V <sub>CC</sub>   | Power Supply Voltage                     | 6          | V    |
| T <sub>J</sub>    | Operation Junction Temperature           | 150        | °C   |
| T <sub>STG</sub>  | Storage Temperature Range                | -65 to 150 | °C   |
| T <sub>LEAD</sub> | Lead Temperature (Soldering, 10 seconds) | 260        | °C   |
| —                 | ESD (Machine Model)                      | 200        | V    |
| —                 | ESD (Human Body Model)                   | 2000       | V    |

Note 1: Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

## Recommended Operating Conditions

| Symbol          | Parameter                           | Min | Max | Unit |
|-----------------|-------------------------------------|-----|-----|------|
| V <sub>CC</sub> | Supply Voltage                      | 2.7 | 5.5 | V    |
| T <sub>A</sub>  | Ambient Operating Temperature Range | -40 | 85  | °C   |

## 2.7V Electrical Characteristics (@T<sub>A</sub>=25°C, **bold** typeface applies over T<sub>A</sub>=-40°C to 85°C, V<sub>CC</sub>=2.7V, V<sub>EE</sub>=0V, V<sub>CM</sub>=1.0V, V<sub>O</sub>=V<sub>CC</sub>/2 and R<sub>L</sub>>1MΩ, unless otherwise specified. Note 2)

| Symbol              | Parameter                       | Conditions                                                       | Min  | Typ  | Max        | Unit |
|---------------------|---------------------------------|------------------------------------------------------------------|------|------|------------|------|
| V <sub>IO</sub>     | Input Offset Voltage            | —                                                                | —    | 1.7  | 7          | mV   |
|                     |                                 | —                                                                | —    | —    | <b>9</b>   |      |
| I <sub>B</sub>      | Input Bias Current              | —                                                                | —    | 11   | 250        | nA   |
|                     |                                 | —                                                                | —    | —    | <b>500</b> |      |
| I <sub>IO</sub>     | Input Offset Current            | —                                                                | —    | 5    | 50         | nA   |
|                     |                                 | —                                                                | —    | —    | <b>150</b> |      |
| V <sub>CM</sub>     | Input Common Mode Voltage Range | for CMRR≥50dB                                                    | -0.1 | —    | 1.9        | V    |
| I <sub>CC</sub>     | Supply Current                  | V <sub>O</sub> =V <sub>CC</sub> /2, A <sub>VCL</sub> =1, No load | —    | 140  | 340        | μA   |
|                     |                                 |                                                                  | —    | —    | <b>420</b> |      |
| CMRR                | Common Mode Rejection Ratio     | 0≤V <sub>CM</sub> ≤1.7V                                          | 50   | 63   | —          | dB   |
| PSRR                | Power Supply Rejection Ratio    | 2.7V≤V <sub>CC</sub> ≤5V, V <sub>O</sub> =1V                     | 50   | 60   | —          | dB   |
| I <sub>SOURCE</sub> | Output Short Circuit Current    | V <sub>O</sub> =0V                                               | 5    | 20   | —          | mA   |
| I <sub>SINK</sub>   |                                 | V <sub>O</sub> =2.7V                                             | 10   | 30   | —          | mA   |
| V <sub>OH</sub>     | Output Voltage Swing            | R <sub>L</sub> =10kΩ to 1.35V                                    | 2.60 | 2.69 | —          | V    |
| V <sub>OL</sub>     |                                 |                                                                  | —    | 60   | 180        | mV   |
| GBWP                | Gain Bandwidth Product          | C <sub>L</sub> =200pF                                            | —    | 1    | —          | MHz  |
| φ <sub>M</sub>      | Phase Margin                    | —                                                                | —    | 60   | —          | deg  |
| G <sub>M</sub>      | Gain Margin                     | —                                                                | —    | 10   | —          | dB   |

Note 2: Limits over the full temperature are guaranteed by design, but not tested in production.

## 5V Electrical Characteristics

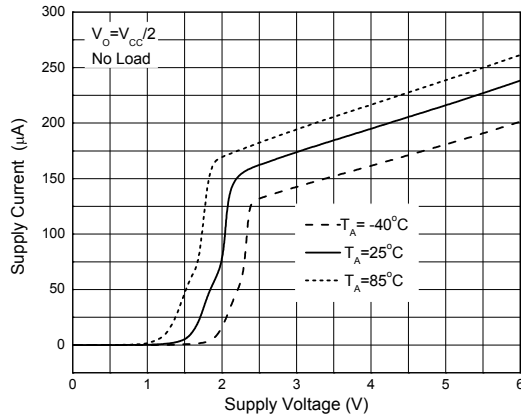
(@T<sub>A</sub>=25°C, **bold** typeface applies over T<sub>A</sub>=-40°C to 85°C, V<sub>CC</sub>=5V, V<sub>EE</sub>=0V, V<sub>CM</sub>=2.0V, V<sub>O</sub>=V<sub>CC</sub>/2 and R<sub>L</sub>>1MΩ, unless otherwise specified. Note 2)

| Symbol              | Parameter                       | Conditions                                                        | Min        | Typ  | Max        | Unit |
|---------------------|---------------------------------|-------------------------------------------------------------------|------------|------|------------|------|
| V <sub>IO</sub>     | Input Offset Voltage            | —                                                                 | —          | 1.7  | 7          | mV   |
|                     |                                 | —                                                                 | —          | —    | <b>9</b>   |      |
| I <sub>B</sub>      | Input Bias Current              | —                                                                 | —          | 15   | 250        | nA   |
|                     |                                 | —                                                                 | —          | —    | <b>500</b> |      |
| I <sub>IO</sub>     | Input Offset Current            | —                                                                 | —          | 5    | 50         | nA   |
|                     |                                 | —                                                                 | —          | —    | <b>150</b> |      |
| V <sub>CM</sub>     | Input Common Mode Voltage Range | for CMRR≥50dB                                                     | -0.1       | —    | 4.2        | V    |
| I <sub>CC</sub>     | Supply Current                  | V <sub>O</sub> =V <sub>CC</sub> /2, A <sub>VCL</sub> =1, No load  | —          | 210  | 440        | μA   |
|                     |                                 |                                                                   | —          | —    | <b>615</b> |      |
| G <sub>V</sub>      | Large Signal Voltage Gain       | R <sub>L</sub> =2kΩ                                               | 84         | 100  | —          | dB   |
|                     |                                 |                                                                   | <b>80</b>  | —    | —          |      |
| CMRR                | Common Mode Rejection Ratio     | 0≤V <sub>CM</sub> ≤4V                                             | 50         | 63   | —          | dB   |
| PSRR                | Power Supply Rejection Ratio    | 2.7V≤V <sub>CC</sub> ≤5V, V <sub>O</sub> =1V, V <sub>CM</sub> =1V | 50         | 60   | —          | dB   |
| I <sub>SOURCE</sub> | Output Short Circuit Current    | V <sub>O</sub> =0V                                                | 5          | 60   | —          | mA   |
| I <sub>SINK</sub>   |                                 | V <sub>O</sub> =5V                                                | 10         | 160  | —          | mA   |
| V <sub>OH</sub>     | Output Voltage Swing            | R <sub>L</sub> =2kΩ to 2.5V                                       | 4.7        | 4.96 | —          | V    |
|                     |                                 |                                                                   | <b>4.6</b> | —    | —          |      |
|                     |                                 | R <sub>L</sub> =10kΩ to 2.5V                                      | 4.9        | 4.99 | —          |      |
|                     |                                 |                                                                   | <b>4.8</b> | —    | —          |      |
| V <sub>OL</sub>     |                                 | R <sub>L</sub> =2kΩ to 2.5V                                       | —          | 120  | 300        | mV   |
|                     |                                 |                                                                   | —          | —    | <b>400</b> |      |
|                     |                                 | R <sub>L</sub> =10kΩ to 2.5V                                      | —          | 65   | 180        |      |
|                     |                                 |                                                                   | —          | —    | <b>280</b> |      |
| SR                  | Slew Rate                       | —                                                                 | —          | 1    | —          | V/μs |
| GBWP                | Gain Bandwidth Product          | C <sub>L</sub> =200pF                                             | —          | 1    | —          | MHz  |
| ϕ <sub>M</sub>      | Phase Margin                    | —                                                                 | —          | 60   | —          | deg  |
| G <sub>M</sub>      | Gain Margin                     | —                                                                 | —          | 10   | —          | dB   |

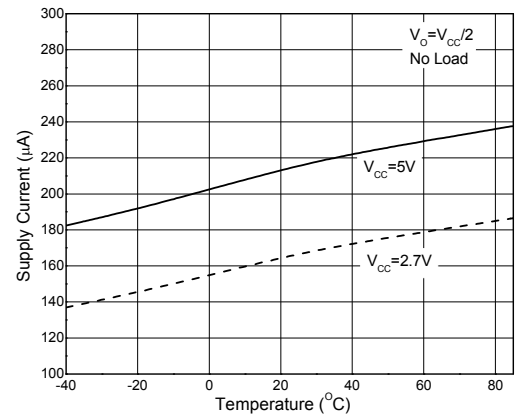
Note 2: Limits over the full temperature are guaranteed by design, but not tested in production.

## Performance Characteristics

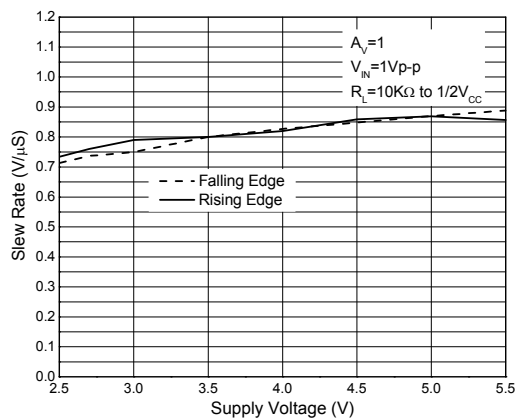
**Supply Current vs. Supply Voltage**



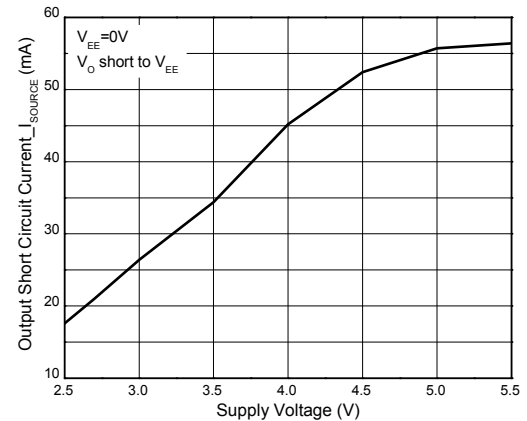
**Supply Current vs. Temperature**



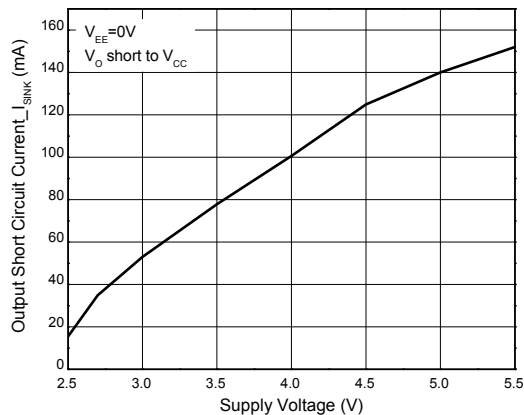
**Slew Rate vs. Supply Voltage**



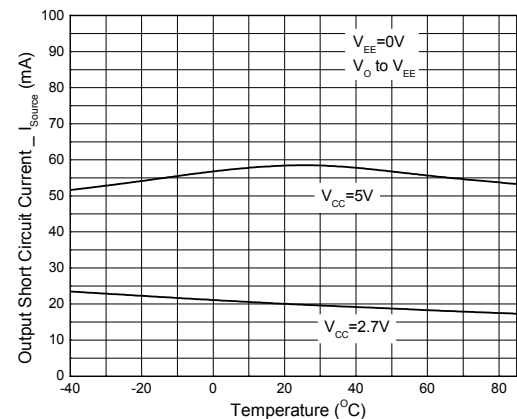
**Output Short Circuit Current vs. Supply Voltage**



**Output Short Circuit Current vs. Supply Voltage**

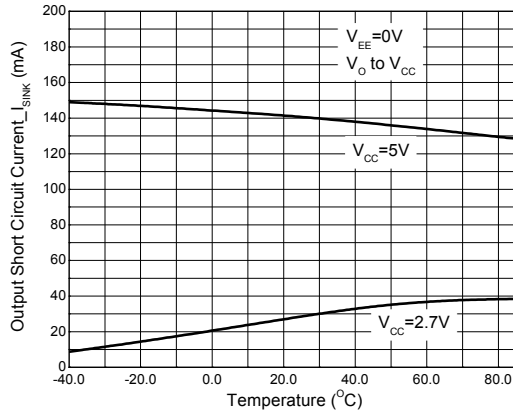


**Output Short Circuit Current vs. Temperature**

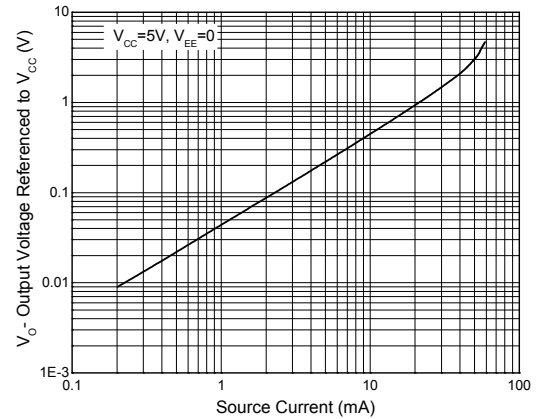


## Performance Characteristics (Cont.)

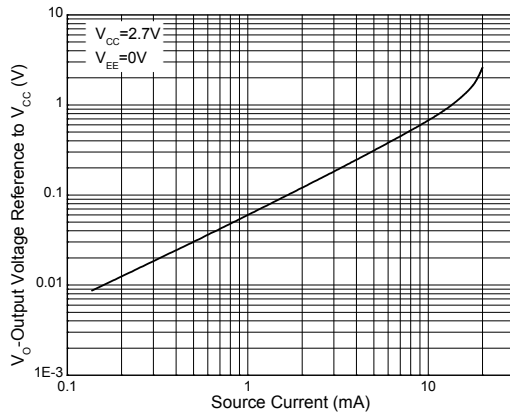
Output Short Circuit Current vs. Temperature



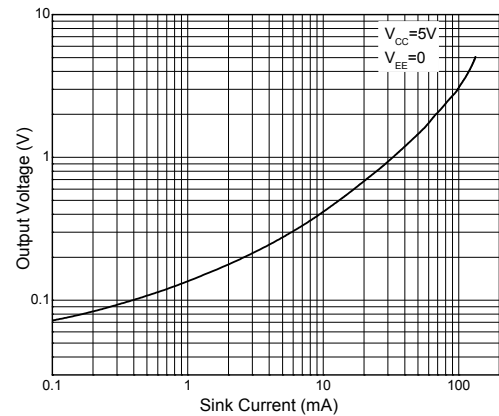
Output Voltage vs. Output Source Current



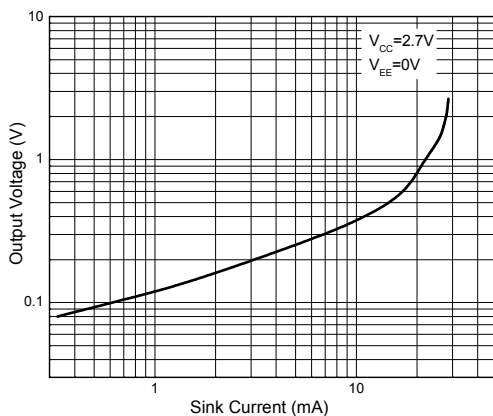
Output Voltage vs. Output Source Current



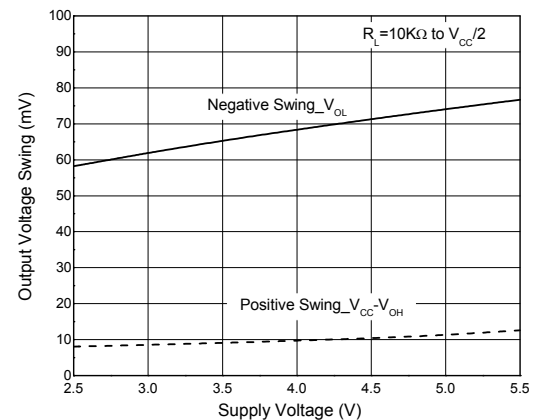
Output Voltage vs. Output Sink Current



Output Voltage vs. Output Sink Current

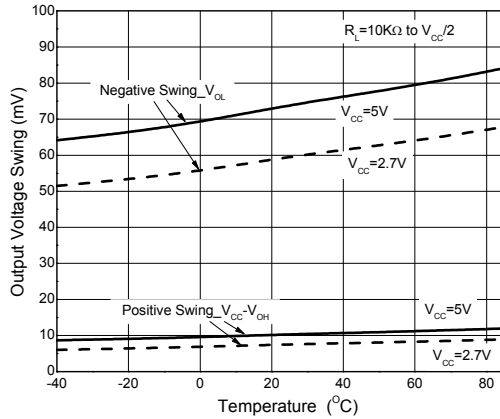


Output Voltage Swing vs. Supply Voltage

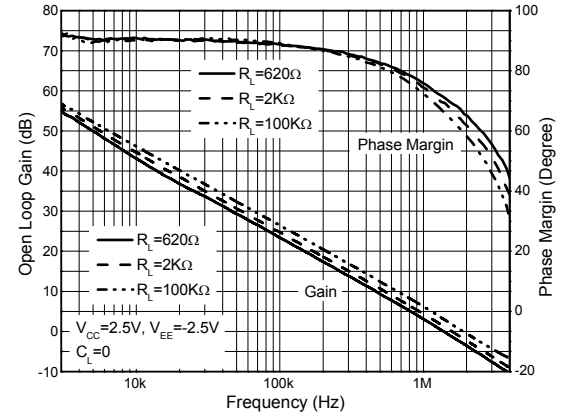


## Performance Characteristics (Cont.)

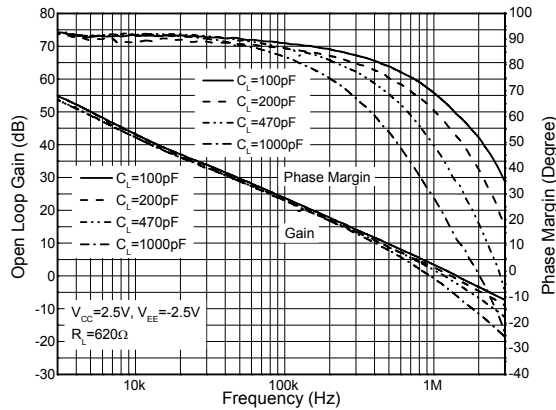
Output Voltage Swing vs. Temperature



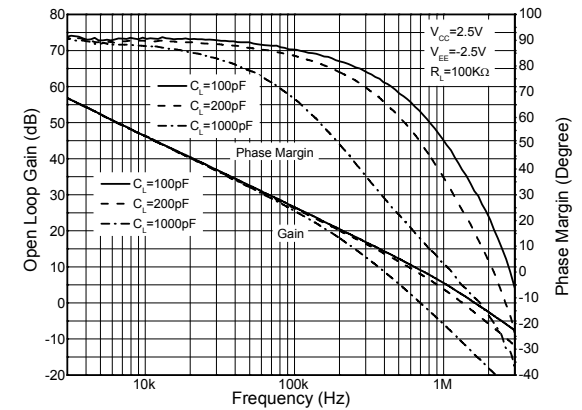
Gain and Phase vs. Frequency and Resistive Load



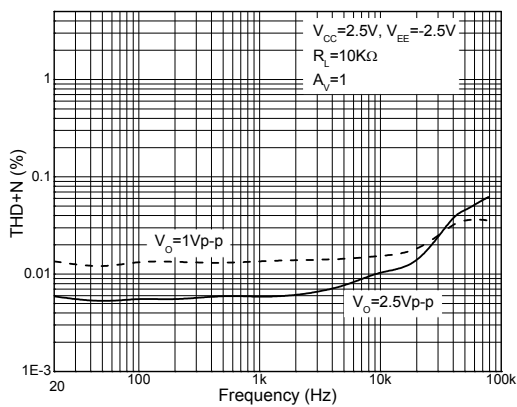
Gain and Phase vs. Frequency and Capacitive Load



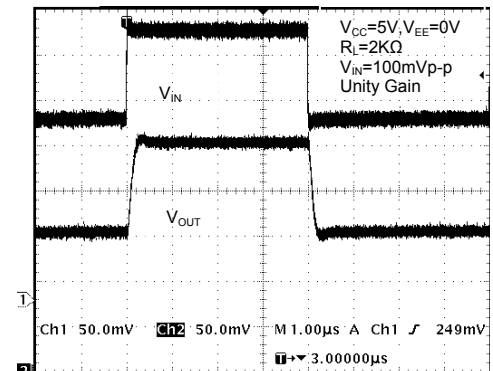
Gain and Phase vs. Frequency and Capacitive Load



THD+N vs. Frequency

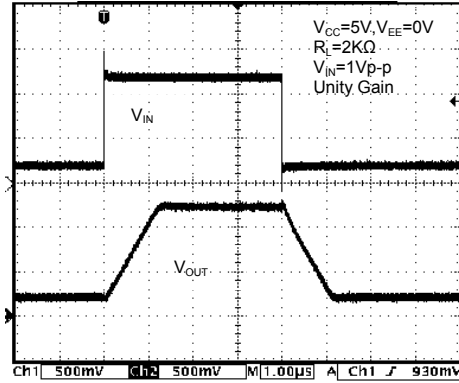


Non-Inverting Input Small Signal Pulse Response

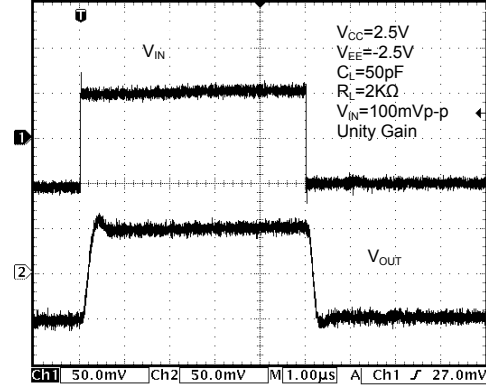


## Performance Characteristics (Cont.)

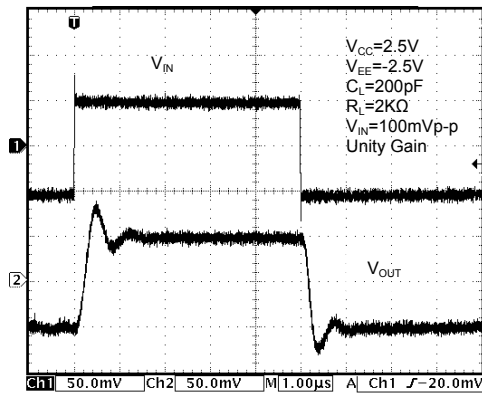
Non-Inverting Input Large Signal Pulse Response



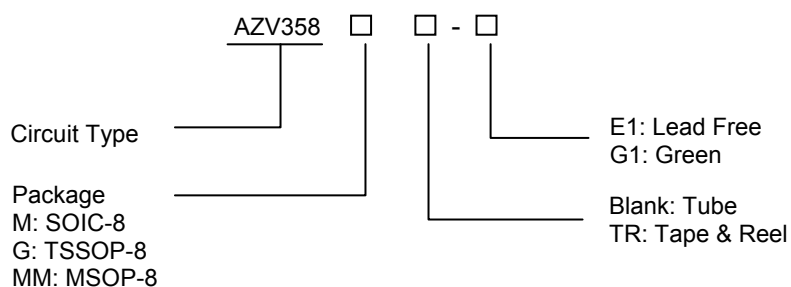
Non-Inverting Input Small Signal Response



Non-Inverting Input Small Signal Response



## Ordering Information

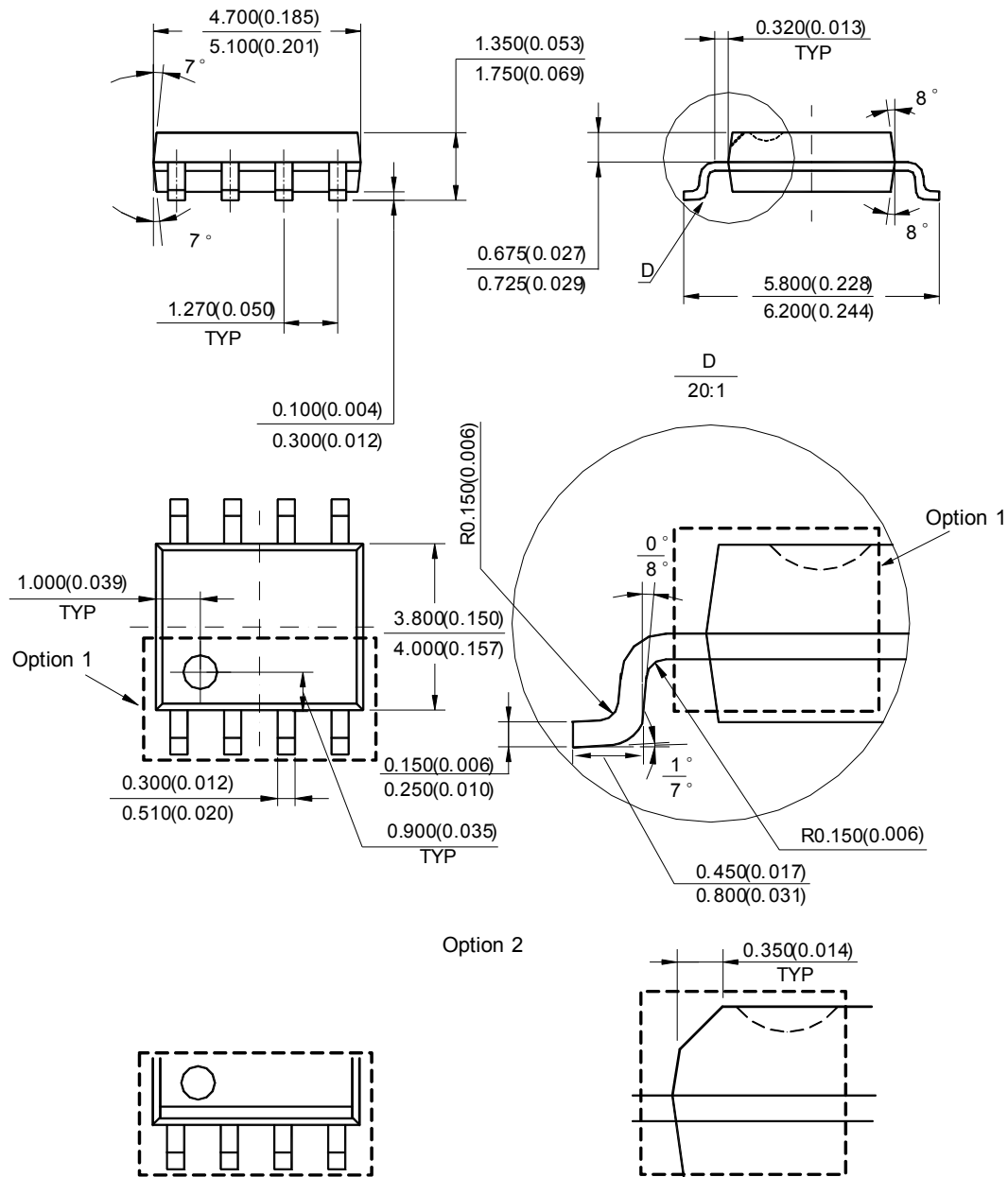


| Package | Temperature Range | Part Number   |               | Marking ID  |             | Packing Type |
|---------|-------------------|---------------|---------------|-------------|-------------|--------------|
|         |                   | Lead Free     | Green         | Lead Free   | Green       |              |
| SOIC-8  | -40 to 85°C       | AZV358M-E1    | AZV358M-G1    | AZV358M-E1  | AZV358M-G1  | Tube         |
|         |                   | AZV358MTR-E1  | AZV358MTR-G1  | AZV358M-E1  | AZV358M-G1  | Tape & Reel  |
| TSSOP-8 | -40 to 85°C       | AZV358G-E1    | AZV358G-G1    | EG3E        | GG3E        | Tube         |
|         |                   | AZV358GTR-E1  | AZV358GTR-G1  | EG3E        | GG3E        | Tape & Reel  |
| MSOP-8  | -40 to 85°C       | AZV358MM-E1   | AZV358MM-G1   | AZV358MM-E1 | AZV358MM-G1 | Tube         |
|         |                   | AZV358MMTR-E1 | AZV358MMTR-G1 | AZV358MM-E1 | AZV358MM-G1 | Tape & Reel  |

BCD Semiconductor's Pb-free products, as designated with "E1" suffix in the part number, are RoHS compliant. Products with "G1" suffix are available in green packages.

**Package Outline Dimensions** (All dimensions in mm(inch).)

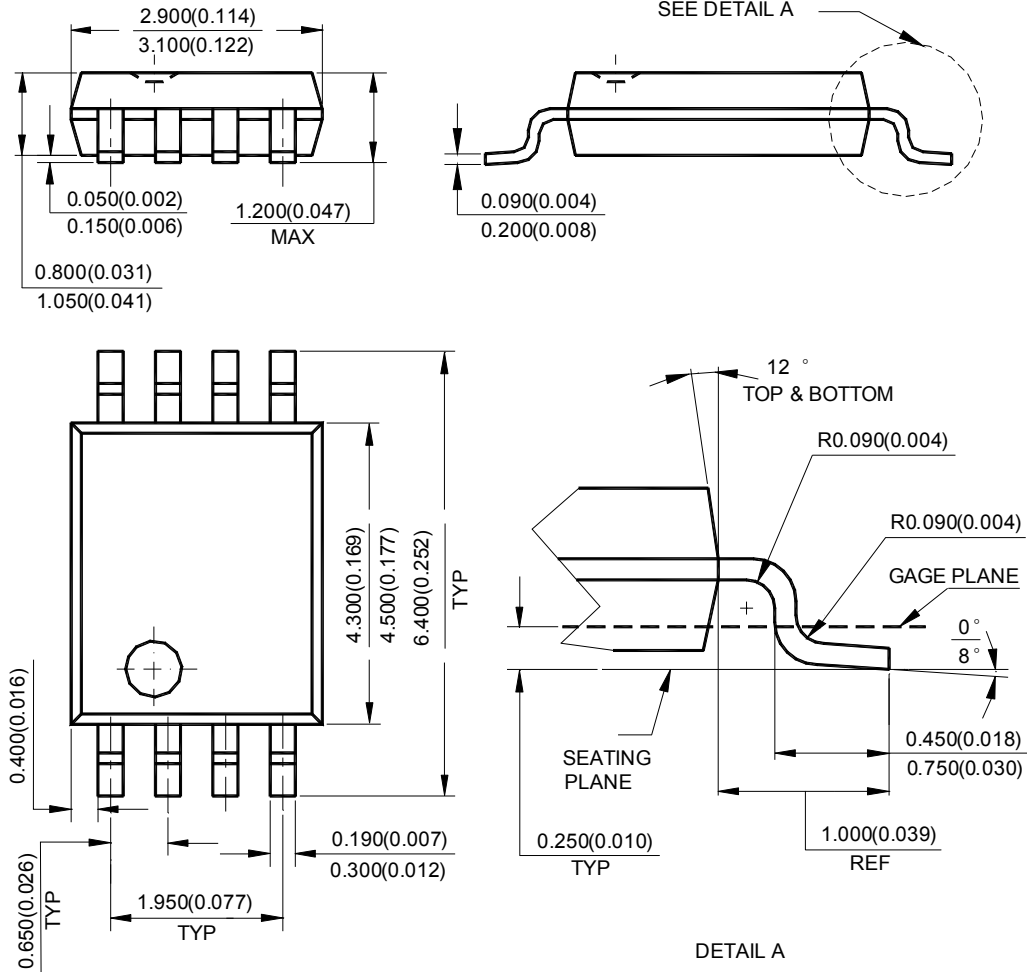
**SOIC-8**



Note: Eject hole, oriented hole and mold mark is optional.

**Package Outline Dimensions** (Cont.) (All dimensions in mm(inch).)

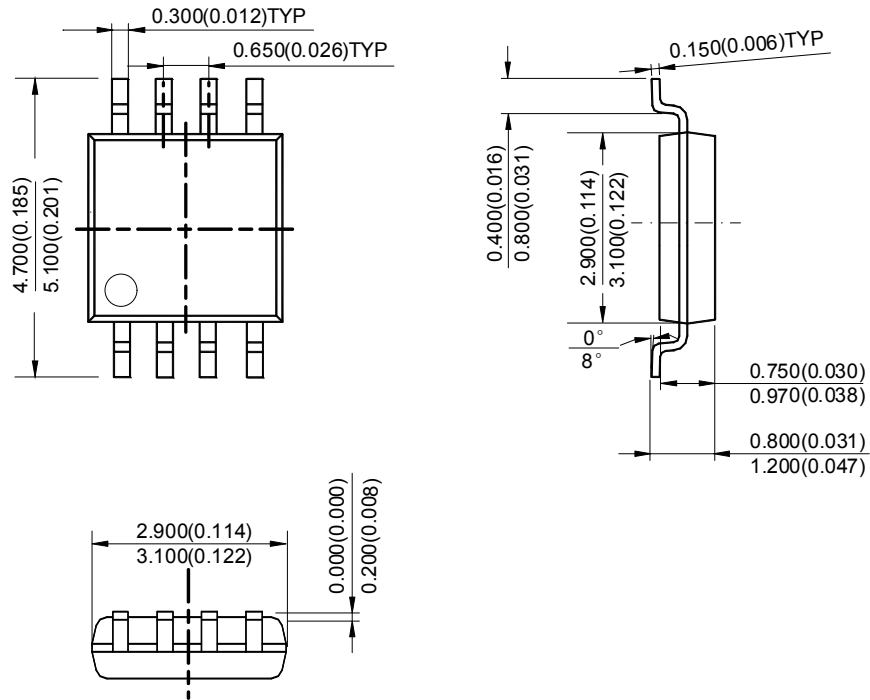
**TSSOP-8**



Note: Eject hole, oriented hole and mold mark is optional

**Package Outline Dimensions** (Cont.) (All dimensions in mm(inch).)

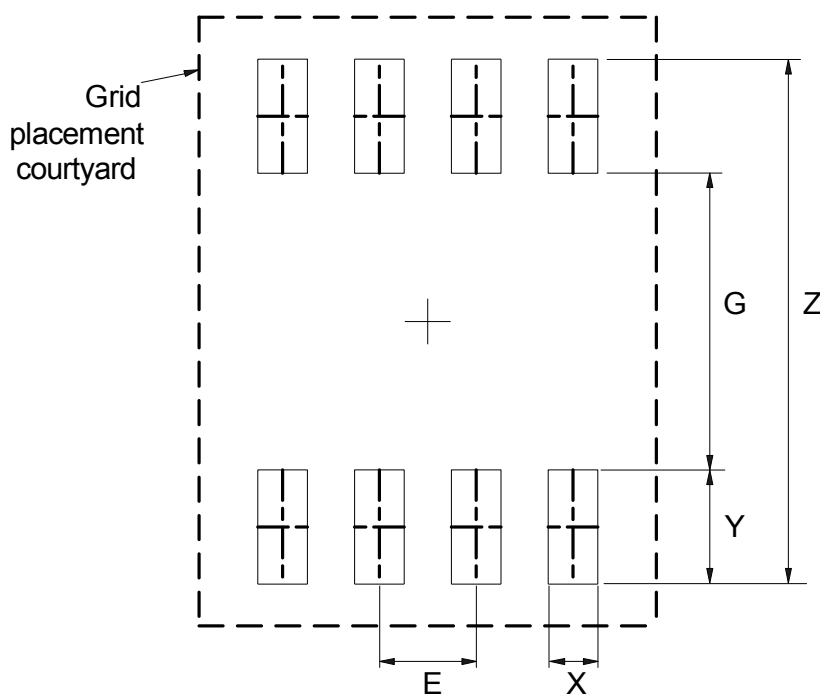
**MSOP-8**



Note: Eject hole, oriented hole and mold mark is optional

## Suggested Pad Layout

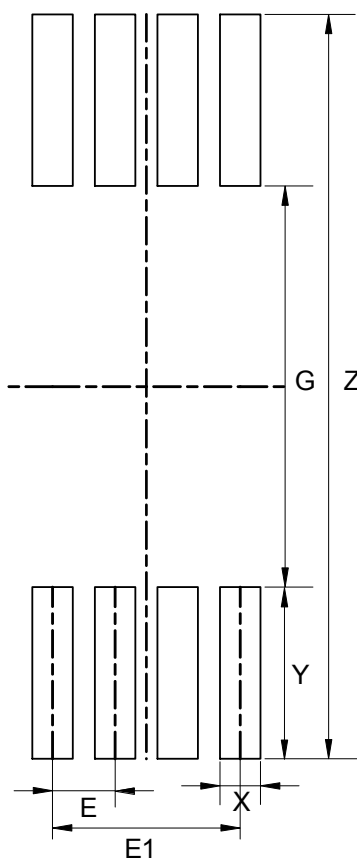
### SOIC-8



| Dimensions | Z<br>(mm)/(inch) | G<br>(mm)/(inch) | X<br>(mm)/(inch) | Y<br>(mm)/(inch) | E<br>(mm)/(inch) |
|------------|------------------|------------------|------------------|------------------|------------------|
| Value      | 6.900/0.272      | 3.900/0.154      | 0.650/0.026      | 1.500/0.059      | 1.270/0.050      |

## Suggested Pad Layout (Cont.)

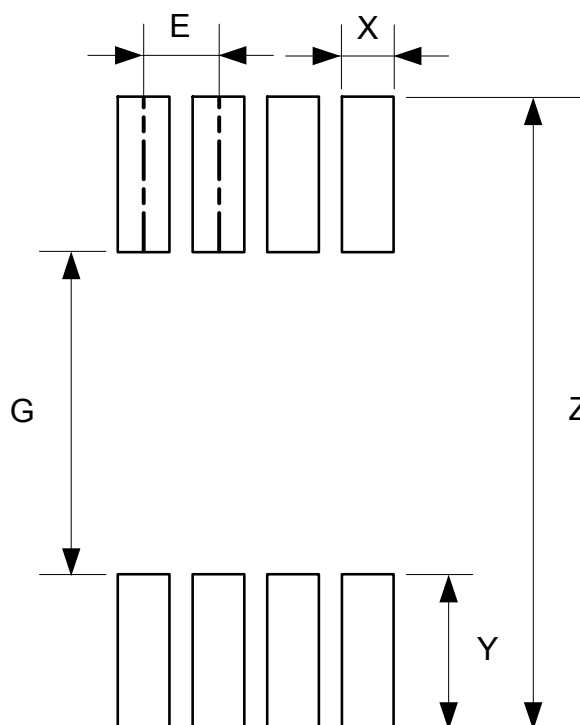
### TSSOP-8



| Dimensions | Z<br>(mm)/(inch) | G<br>(mm)/(inch) | X<br>(mm)/(inch) | Y<br>(mm)/(inch) | E<br>(mm)/(inch) | E1<br>(mm)/(inch) |
|------------|------------------|------------------|------------------|------------------|------------------|-------------------|
| Value      | 7.720/0.304      | 4.160/0.164      | 0.420/0.017      | 1.780/0.070      | 0.650/0.026      | 1.950/0.077       |

# Suggested Pad Layout (Cont.)

## MSOP-8



| Dimensions | Z<br>(mm)/(inch) | G<br>(mm)/(inch) | X<br>(mm)/(inch) | Y<br>(mm)/(inch) | E<br>(mm)/(inch) |
|------------|------------------|------------------|------------------|------------------|------------------|
| Value      | 5.500/0.217      | 2.800/0.110      | 0.450/0.018      | 1.350/0.053      | 0.650/0.026      |

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