

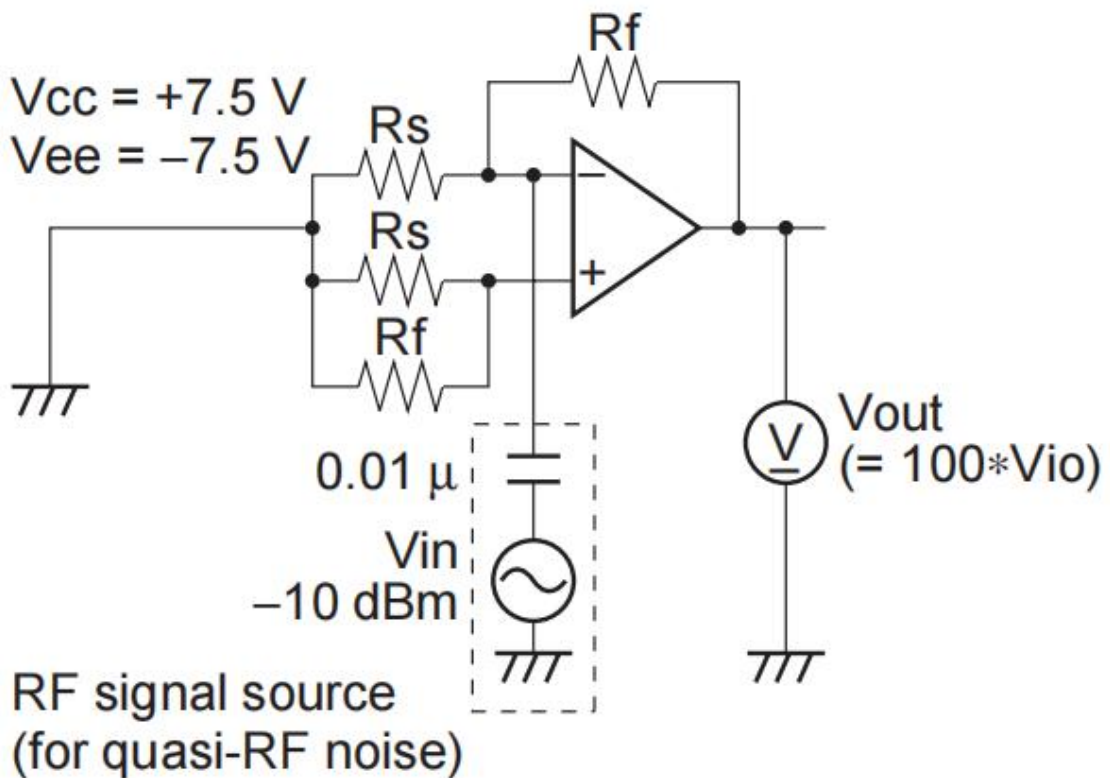
1. DESCRIPTION

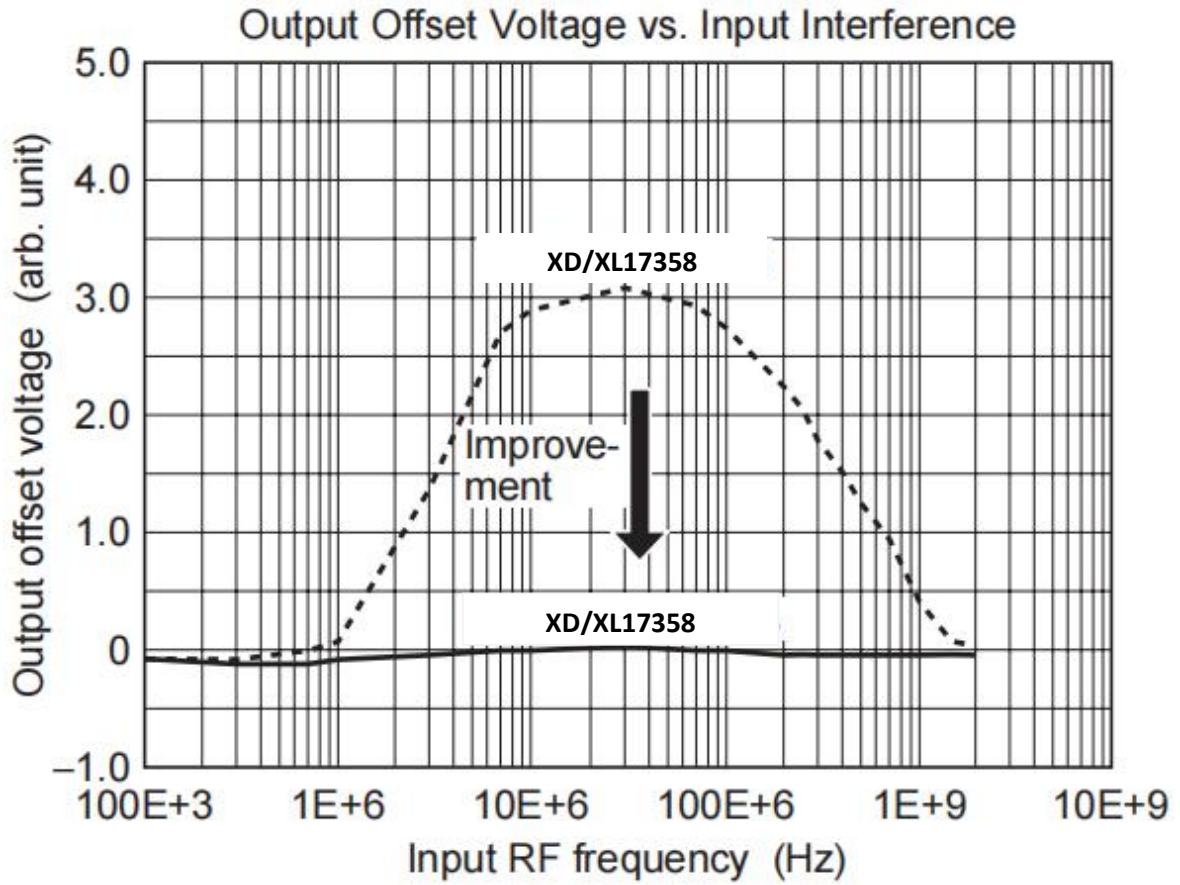
XD/XL17358 are dual operational amplifier that provide high gain and internal phase compensation, with single power supply. They can be widely applied to control equipments and to general use.

2. FEATURES

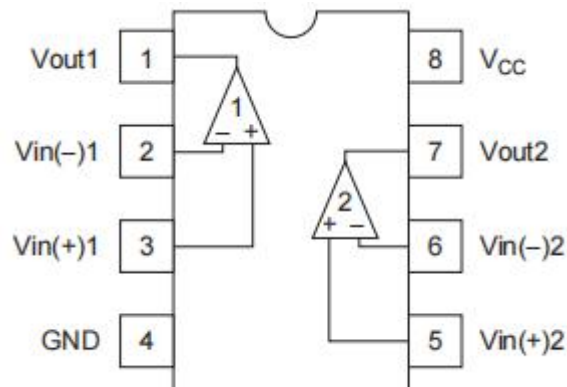
- Wide range of supply voltage, and single power supply used
- Wide range of common mode voltage, and possible to operate with an input about 0 V, and output around 0 V is available
- Frequency characteristics and input bias current are temperature compensated
- Low electro-magnetic susceptibility level

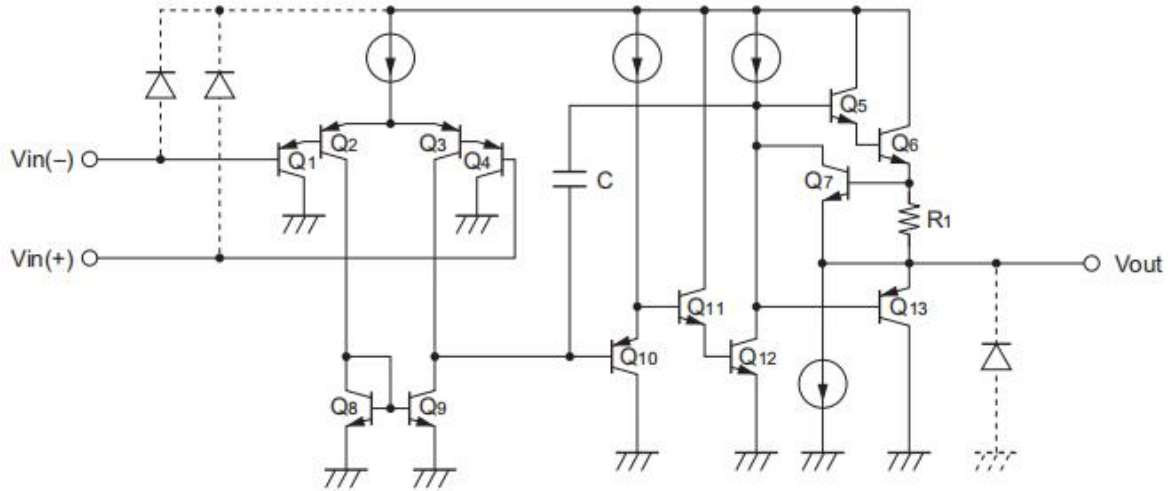
3. MEASUREMENT CONDITON





4. PIN ARRANGEMENT





Note: If Input/Output terminals voltage over the absolute maximum ratings, there is possibility of mis-operation, characteristics deterioration and destruction, because of the current's flowing to parasitic diode in IC. The Input/Output terminals are recommended to be protected with the clamp circuit which using the diode with low forward voltage (like schottky barrier diode) when there is a possibility for the Input/Output terminals voltage exceeds the absolute maximum ratings.

5. ABSOLUTE MAXIMUM RATINGS

($T_a = 25^\circ\text{C}$)

| Item | Symbol | Ratings | Unit |
|-----------------------------|----------------|-------------------|------------------|
| Power supply voltage | V_{CC} | 32 | V |
| Output sink current | I_{osink} | 50 | mA |
| Common mode input voltage | V_{CM} | -0.3 to $+V_{CC}$ | V |
| Differential input voltage | $V_{IN(diff)}$ | $\pm V_{CC}$ | V |
| Output voltage | V_{out} | -0.3 to $+V_{CC}$ | V |
| Allowable power dissipation | DIP | P_T | mW |
| | SOP | | |
| Operating temperature | T_{opr} | -40 to +85 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 to +125 | $^\circ\text{C}$ |

Notes:1. XD17358:

This is the allowable values up to $T_a = 50^\circ\text{C}$. Derate by $8.3\text{ mW}/^\circ\text{C}$.

Notes:2. XL17358:

These are the allowable values up to $T_a = 25^\circ\text{C}$ mounting in air.

When it is mounted on glass epoxy board of $40\text{ mm} \times 40\text{ mm} \times 1.5\text{ mm}$ with 30% wiring density, the allowable value is 570 mW up to $T_a = 45^\circ\text{C}$. If $T_a > 45^\circ\text{C}$, derate by $7.14\text{ mW}/^\circ\text{C}$.

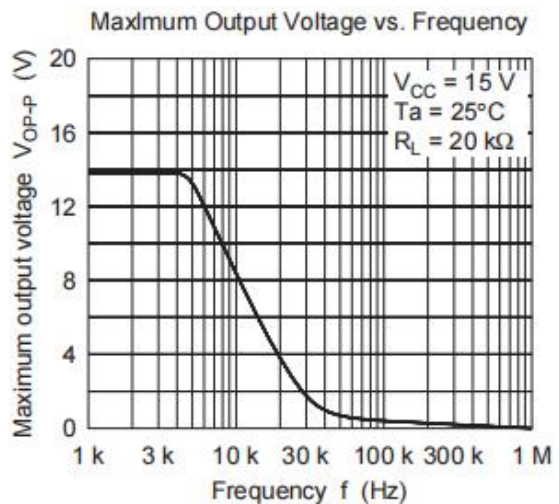
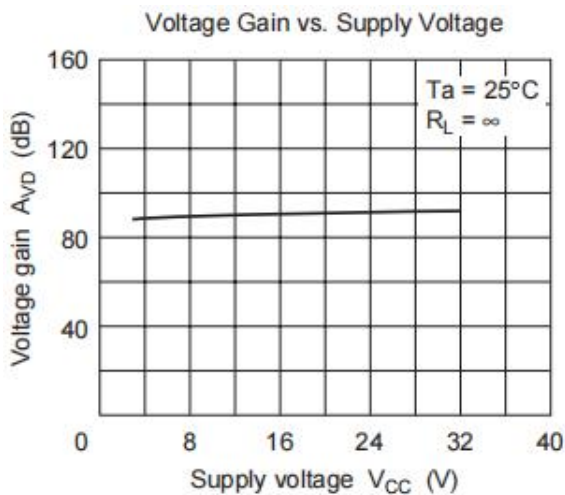
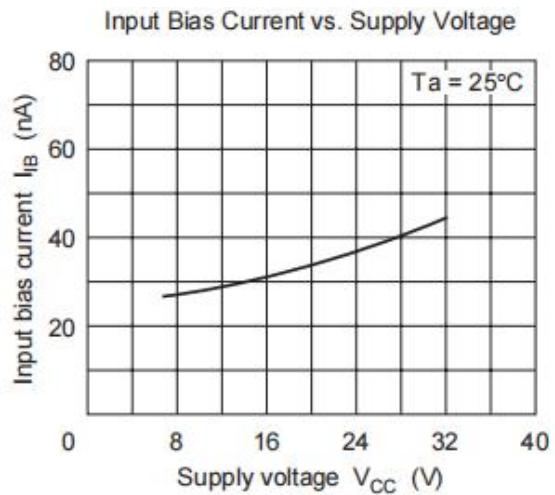
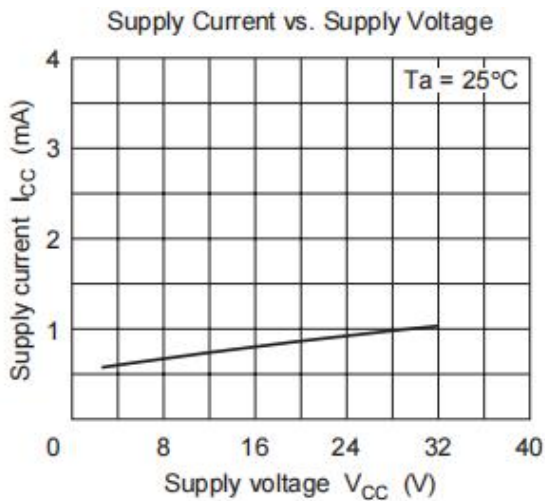
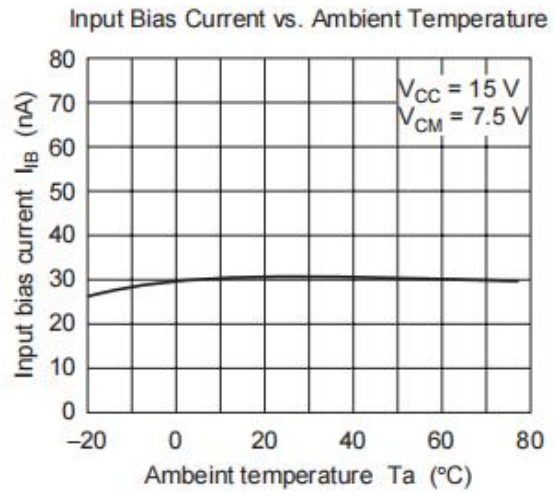
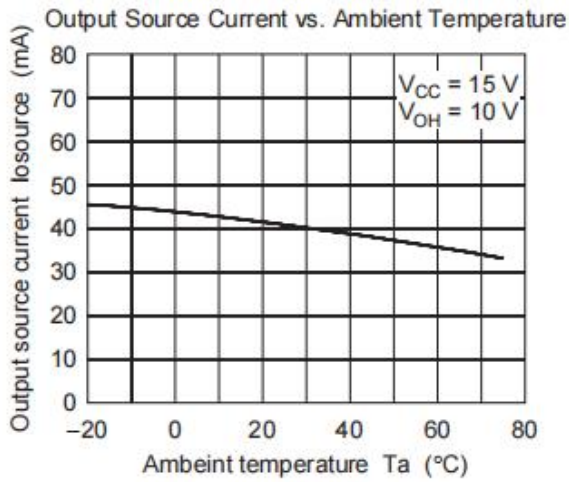
6. ELECTRICAL CHARACTERISTICS

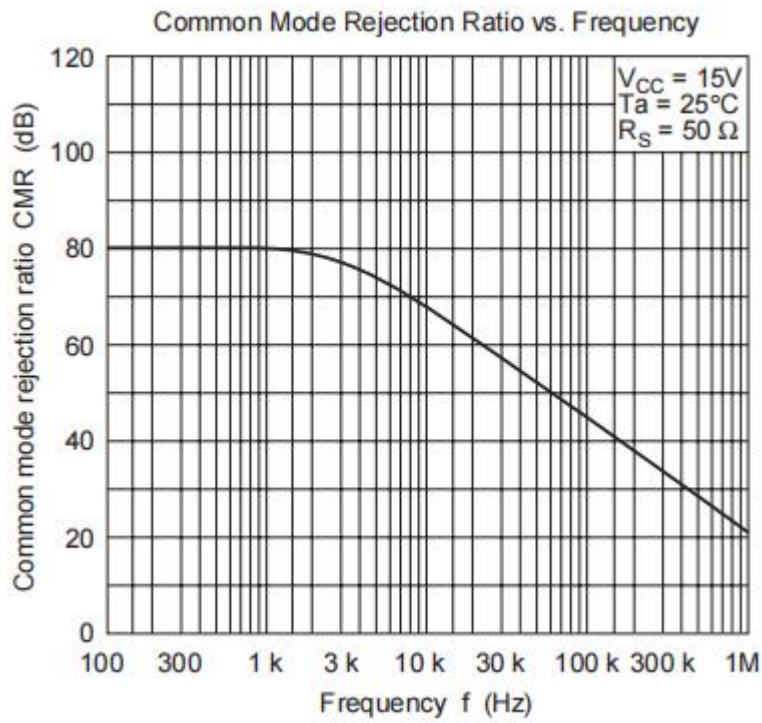
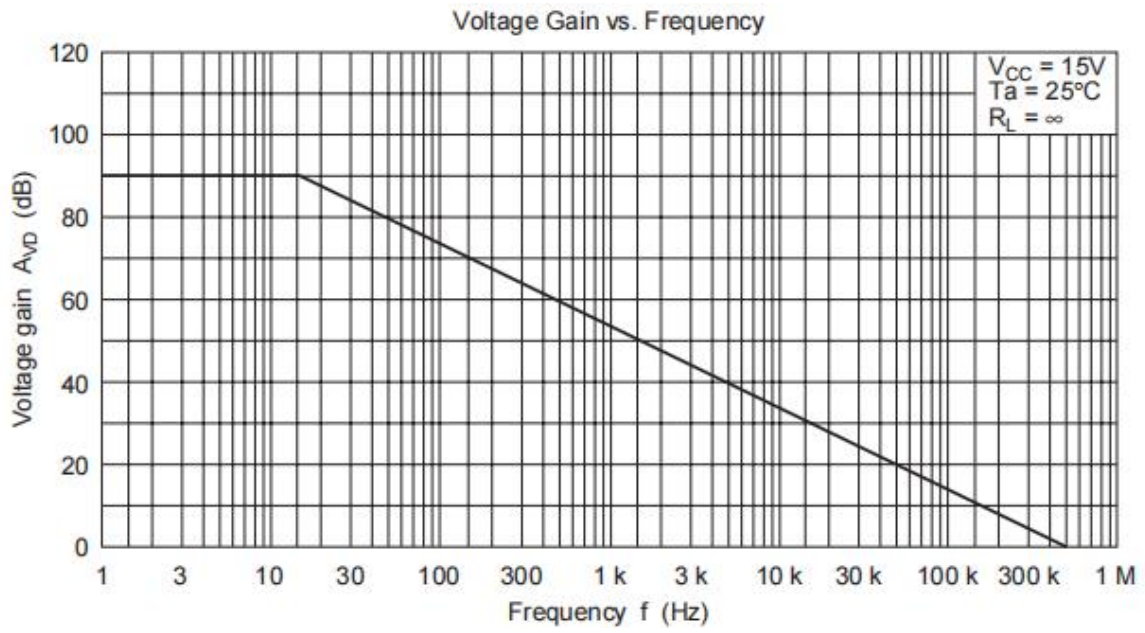
($V_{CC} = +15\text{ V}$, $T_a = 25^\circ\text{C}$)

| Item | Symbol | MIN | TYP | MAX | UNIT | Test Conditions |
|-----------------------------------|---------------|------|-------|------|------------------------|---|
| Input offset voltage | V_{IO} | - | 3 | 7 | mV | $V_{CM} = 7.5\text{V}$, $R_S = 50\Omega$, $R_f = 50\text{k}\Omega$ |
| Input offset current | I_{IO} | - | 5 | 50 | nA | $V_{CM} = 7.5\text{V}$, $I_{IO} = I_{I(+)} - I_{I(-)} $ |
| Input bias current | I_{IB} | - | 30 | 250 | nA | $V_{CM} = 7.5\text{V}$ |
| Power source rejection ratio | PSRR | - | 93 | - | dB | $R_S = 1\text{k}\Omega$, $R_f = 100\text{k}\Omega$ |
| Voltage gain | A_{VD} | 75 | 90 | - | dB | $R_L = \infty$, $R_S = 1\text{k}\Omega$, $R_f = 100\text{k}\Omega$ |
| Common mode rejection ratio | CMR | - | 80 | - | dB | $R_S = 50\Omega$, $R_f = 5\text{k}\Omega$ |
| Common mode input voltage rang | $V_{CM(+)}$ | 13.5 | - | - | V | $R_S = 1\text{k}\Omega$, $R_f = 100\text{k}\Omega$ |
| | $V_{CM(-)}$ | - | - | -0.3 | V | $R_S = 1\text{k}\Omega$, $R_f = 100\text{k}\Omega$ |
| Peak-to-peak output voltage | V_{OP-P} | - | 13.6 | - | V | $f = 100\text{Hz}$, $R_L = 20\text{k}\Omega$, $R_S = 1\text{k}\Omega$, $R_f = 100\text{k}\Omega$ |
| Output source current | $I_{OSOURCE}$ | 20 | 40 | - | mA | $V_{IN^+} = 1\text{V}$, $V_{IN^-} = 0\text{V}$, $V_{OH} = 10\text{V}$ |
| Output sink current | I_{OSINK} | 10 | 20 | - | mA | $V_{IN^-} = 1\text{V}$, $V_{IN^+} = 0\text{V}$, $V_{OL} = 2.5\text{V}$ |
| | | 15 | 50 | - | μA | $V_{IN^-} = 1\text{V}$, $V_{IN^+} = 0\text{V}$, $V_{out} = 200\text{mV}$ |
| Supply current | I_{CC} | - | 0.8 | 2 | μA | $V_{IN} = \text{GND}$, $R_L = \infty$ |
| Slew rate | SR | - | 0.2 | - | $\text{V}/\mu\text{s}$ | $R_L = \infty$, $V_{CM} = 7.5\text{V}$, $f = 1.5\text{kHz}$ |
| Channel separation ⁽¹⁾ | CS | - | (120) | - | dB | $f = 1\text{kHz}$ |

Note 1: Design spec.

7. CHARACTERISTIC CURVES



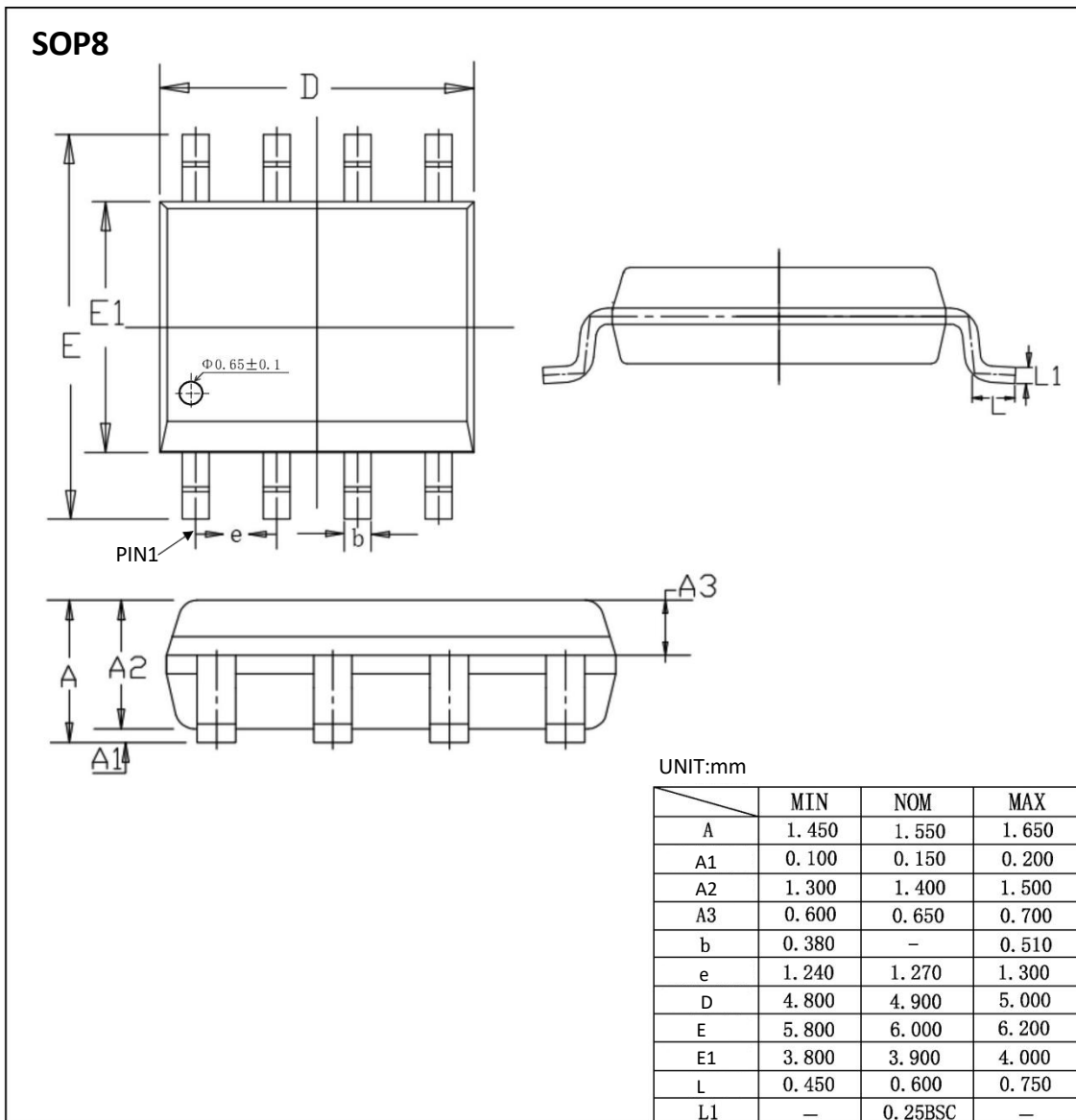


8. ORDERING INFORMATION

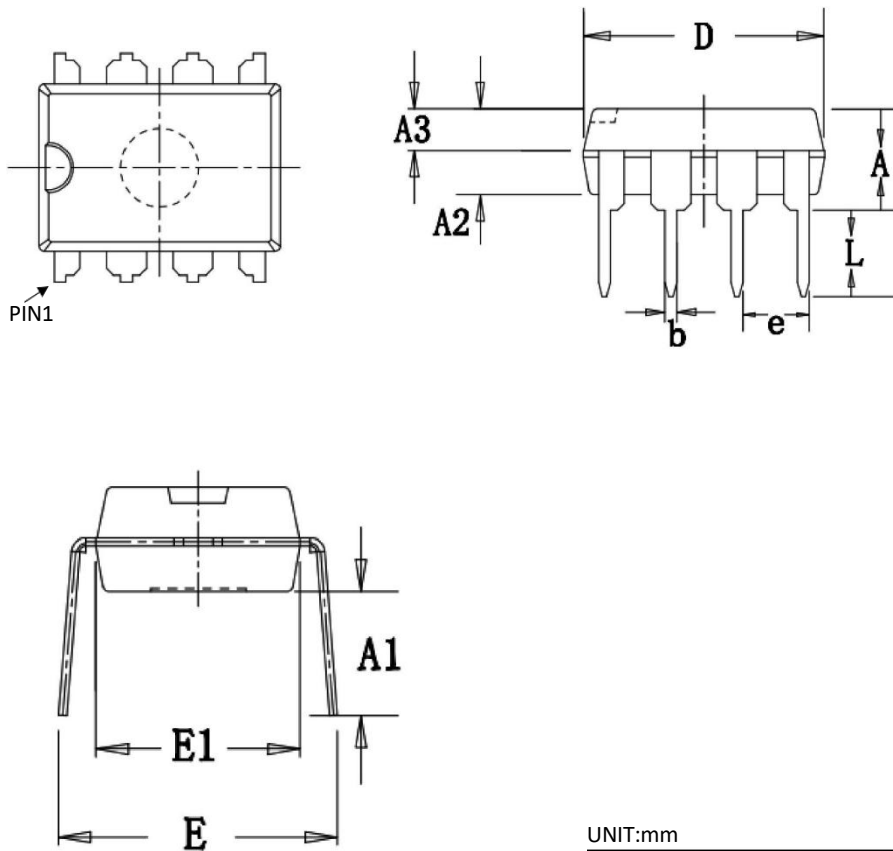
Ordering Information

| Part Number | Device Marking | Package Type | Body size (mm) | Temperature (°C) | MSL | Transport Media | Package Quantity |
|-------------|----------------|--------------|----------------|------------------|------|-----------------|------------------|
| XL17358 | XL17358 | SOP8 | 4.90 * 3.90 | - 40 to 85 | MSL3 | T&R | 2500 |
| XD17358 | XD17358 | DIP8 | 9.25 * 6.38 | - 40 to 85 | MSL3 | Tube 50 | 2000 |

9. DIMENSIONAL DRAWINGS



DIP8



UNIT:mm

| | MIN | NOM | MAX |
|----|-------|-------|-------|
| A | 3.600 | 3.800 | 4.000 |
| A1 | 3.786 | 3.886 | 3.986 |
| A2 | 3.200 | 3.300 | 3.400 |
| A3 | 1.550 | 1.600 | 1.650 |
| b | 0.440 | — | 0.490 |
| e | 2.510 | 2.540 | 2.570 |
| D | 9.150 | 9.250 | 9.350 |
| E | 7.800 | 8.500 | 9.200 |
| E1 | 6.280 | 6.380 | 6.480 |
| L | 3.000 | — | — |

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