

Wideband Pre-amplifier

Description

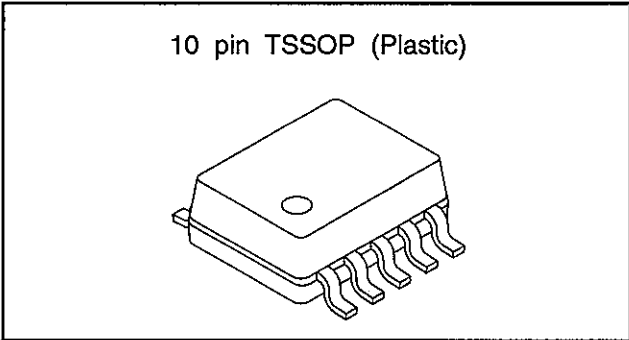
The CXA3299TN is a wideband Pre-amplifier for VTR head.

Features

- Operate on single +3.3 V power supply
- Low power consumption
 Read : 58 mW
- Ultra small package
- Wideband (-3 dB) : 160 MHz (typ)
- Read amplifier emitter follower output featuring 380 times gain (typ).
- Low input capacitance : 3.0 pF
- Low input noise : 0.65 nV / $\sqrt{\text{Hz}}$

Structure

Bipolar silicon monolithic IC



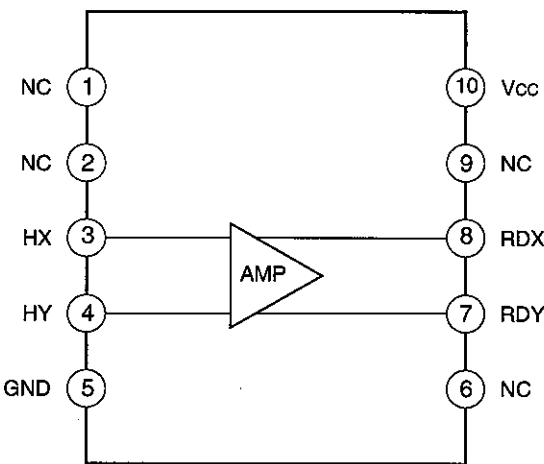
Absolute Maximum Ratings (Ta=25 °C)

| | | | |
|--|-----------------|-------------|----|
| • Supply voltage | V _{cc} | 6 | V |
| • Operating temperature | Topr | -20 to +70 | °C |
| • Storage temperature | Tstg | -55 to +150 | °C |
| • Allowable power dissipation (on board) | P _D | 1000 | mW |

Operating Conditions

| | | | |
|----------------|-----------------|------------|---|
| Supply voltage | V _{cc} | 3.2 to 5.5 | V |
|----------------|-----------------|------------|---|

Block Diagram and Pin Configuration



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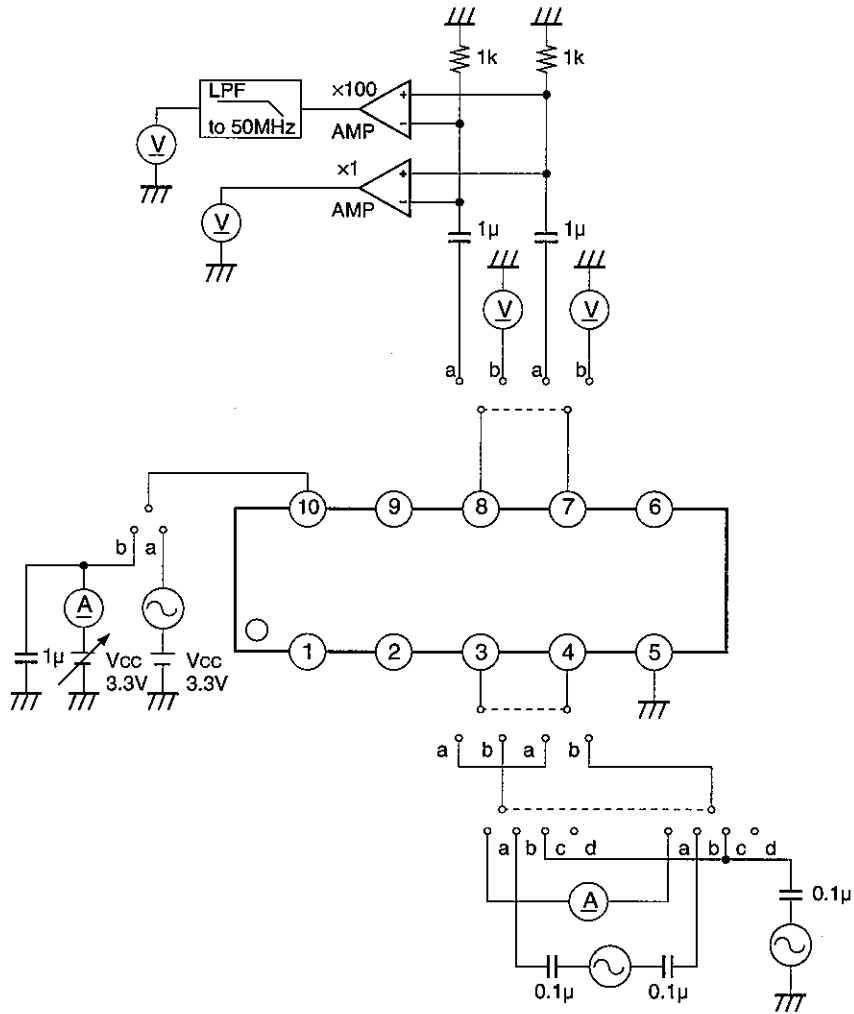
Electrical Characteristics

(Unless otherwise specified, $V_{CC}=3.3\text{ V}$, $T_a=25\text{ }^\circ\text{C}$)

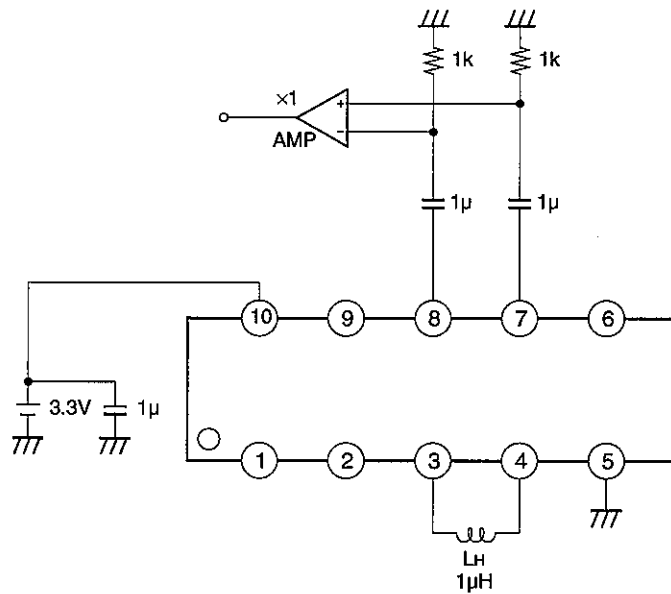
| Item | Symbol | Test condition | Min. | Typ. | Max. | Unit. |
|--|------------|---|------|------------------|-------|--------------------------------------|
| Current consumption for read | I_{CC} | | 13.5 | 17.5 | *22.5 | mA |
| Read amplifier differential voltage gain | A_v | Input voltage : 1 mVp-p, 300 kHz | 300 | 380 | 460 | V/V |
| Frequency band width (-3 dB) | B_w | Frequency at which A_v lower by 3 dB | 100 | 160 | | MHz |
| Input referred noise voltage | E_N | Head impedance : 0 Ω | | 0.65 | 0.8 | $\frac{\text{nV}}{\sqrt{\text{Hz}}}$ |
| Common mode rejection ratio | CMRR | Common input voltage : 100 mVp-p, 20 MHz | 50 | | | dB |
| Supply voltage rejection ratio | PSRR | Ripple voltage : 100 mVp-p, 20 MHz | 50 | | | dB |
| Read data output offset voltage for Read | V_{OFFR} | $V_{OFFR}=V_{RDx}-V_{RDy}$ | -300 | | 300 | mV |
| Differential input capacitance | C_{IN} | | | 3.0 | 4.5 | pF |
| Differential input resistance | R_{IN} | | 0.7 | 1.8 | 3.0 | k Ω |
| Output resistance | R_{RD} | | | 4 | 8 | Ω |
| Read data output sink current | I_{sink} | | 2.5 | 3.2 | 4.3 | mA |
| Read data output voltage | V_{RD} | | | V_{CC} -1.6 | | V |

* Guaranteed until $T_a=70\text{ }^\circ\text{C}$

Test Circuit 1



Test Circuit 2



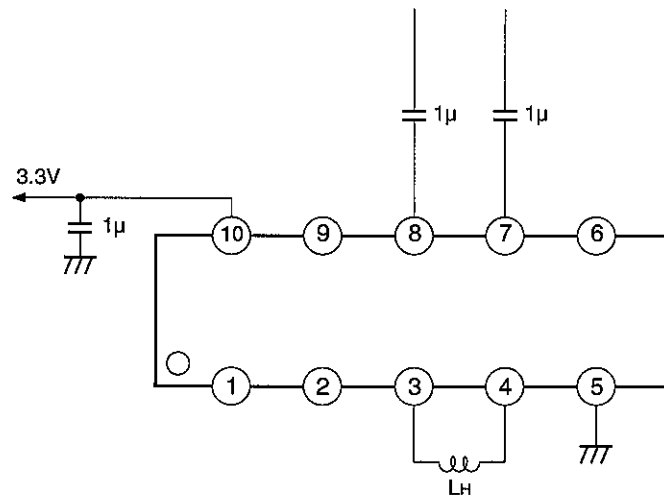
Description of Functions

Pre-amplifier

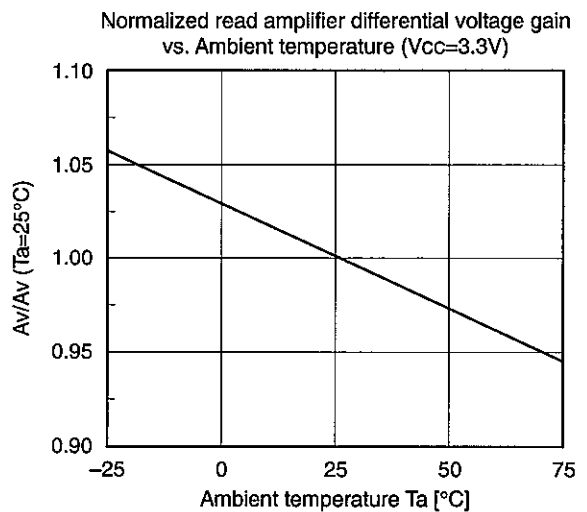
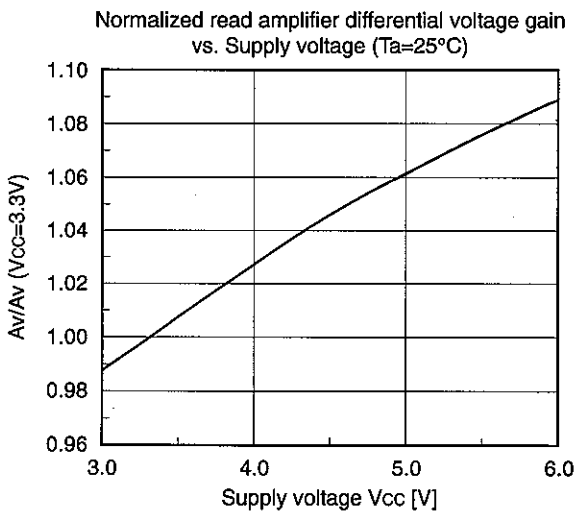
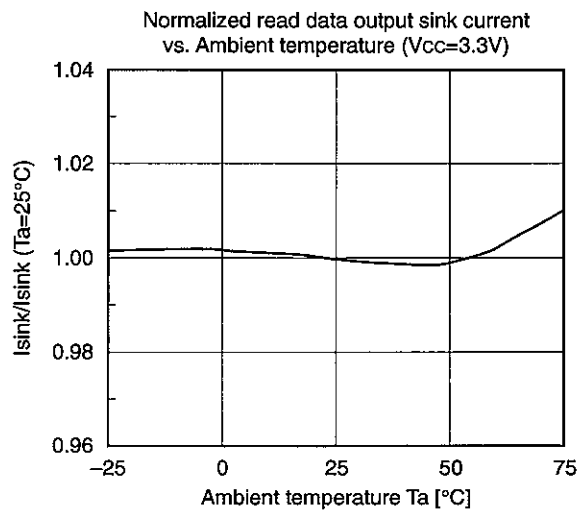
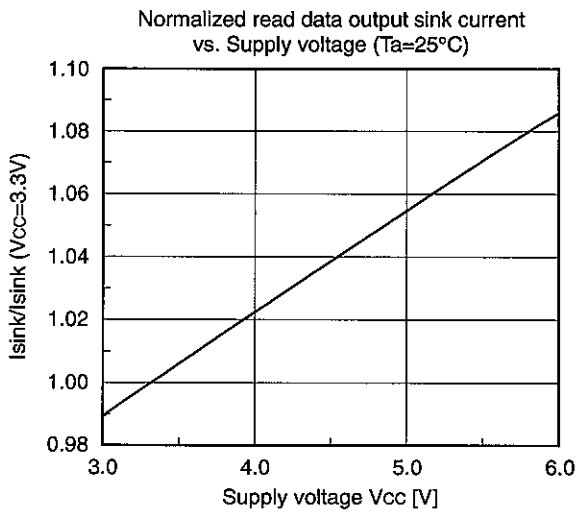
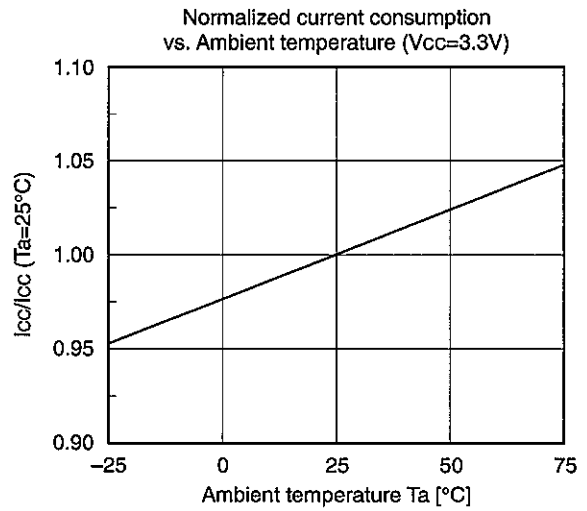
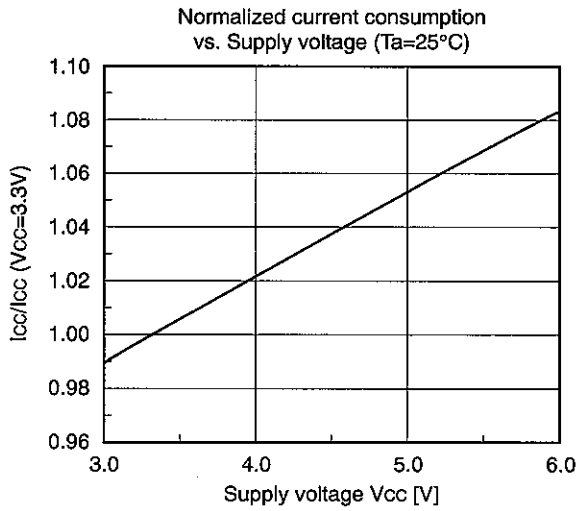
This is a low noise amplifier for amplifying the signals from the heads with an emitter follower output.

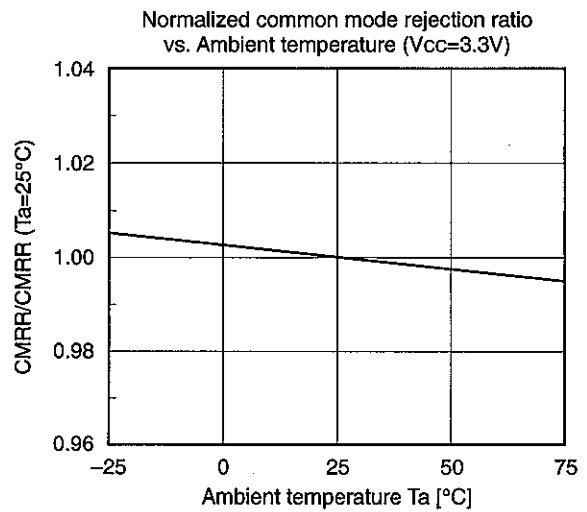
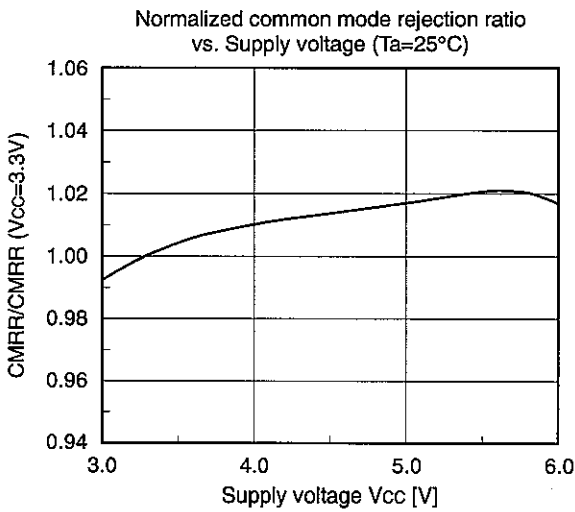
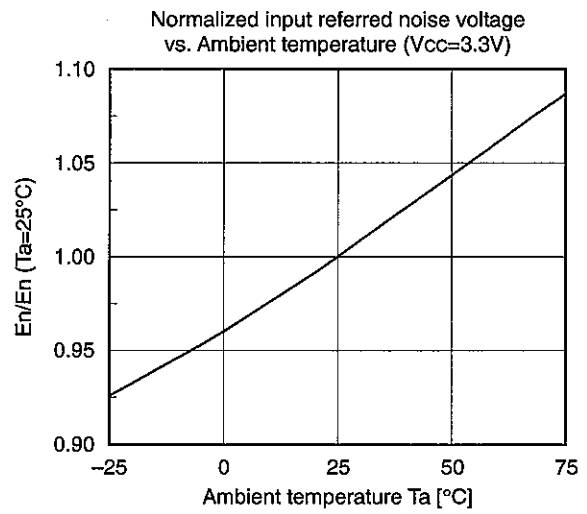
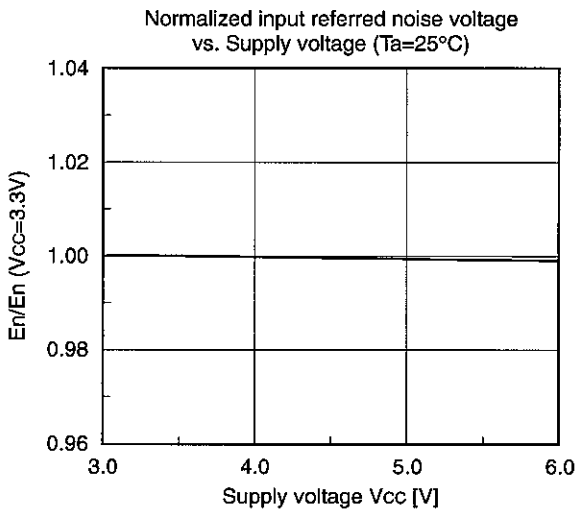
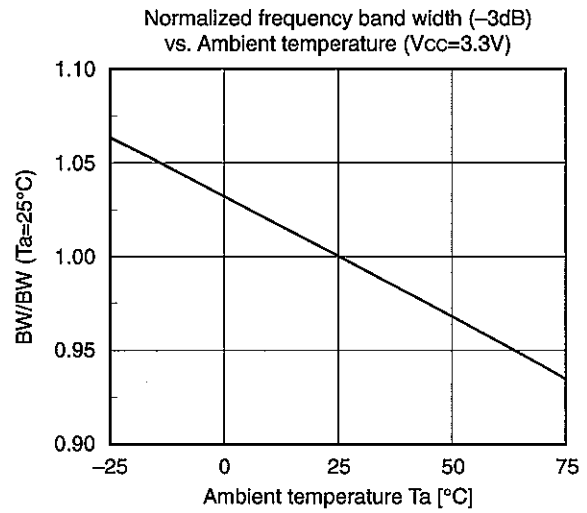
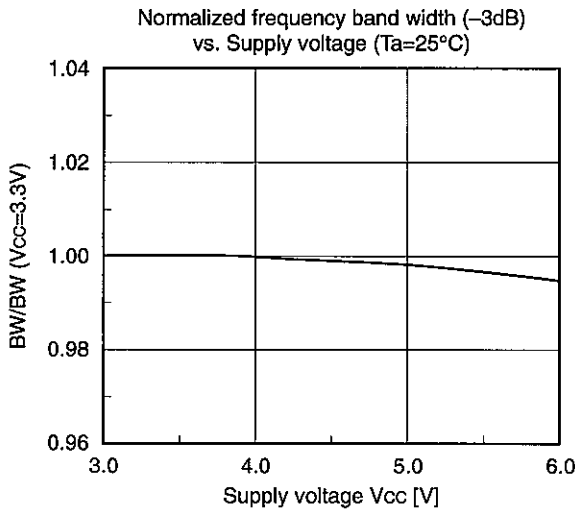
The RDX and RDY are the outputs of the differential amplifier whose polarity between the RDX and X side of the head input is same.

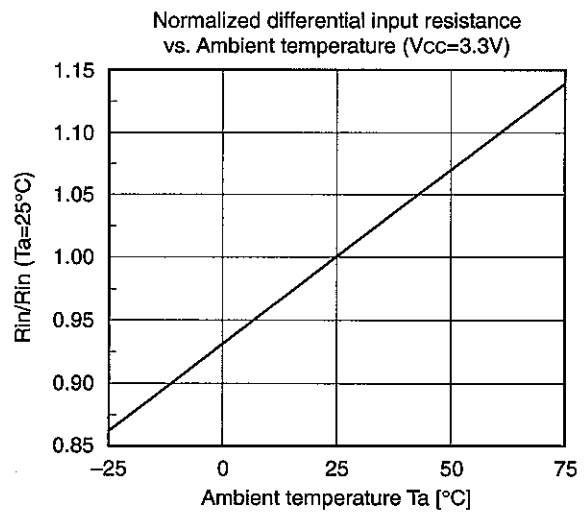
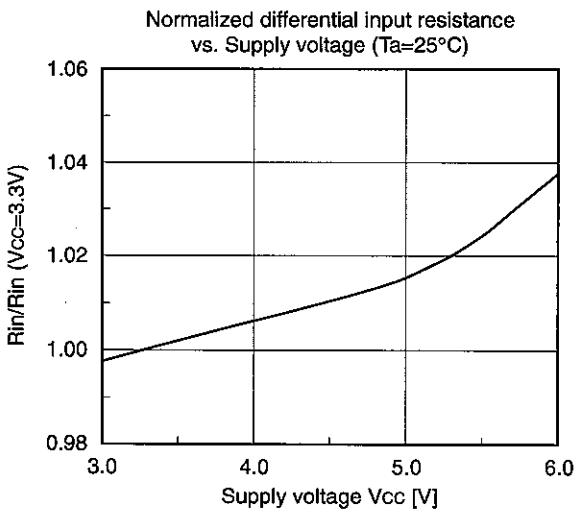
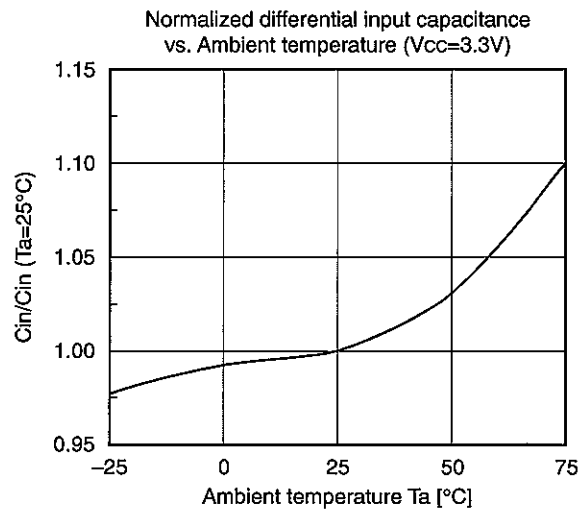
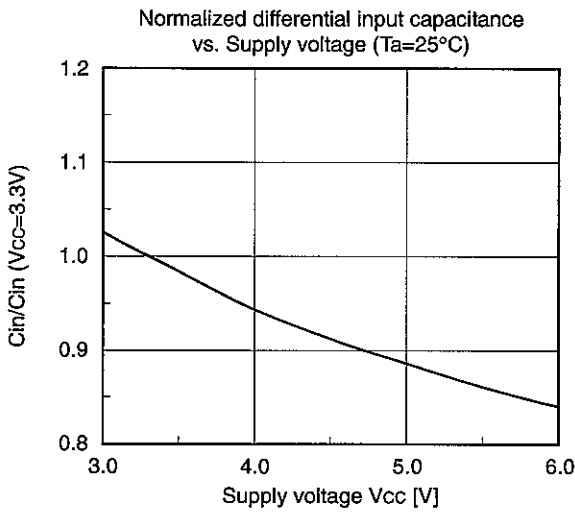
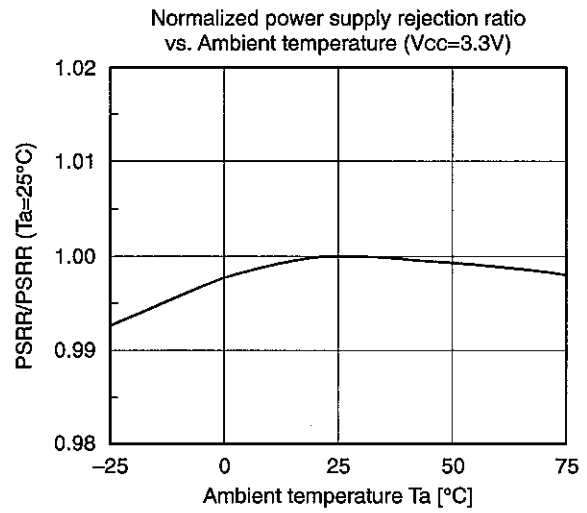
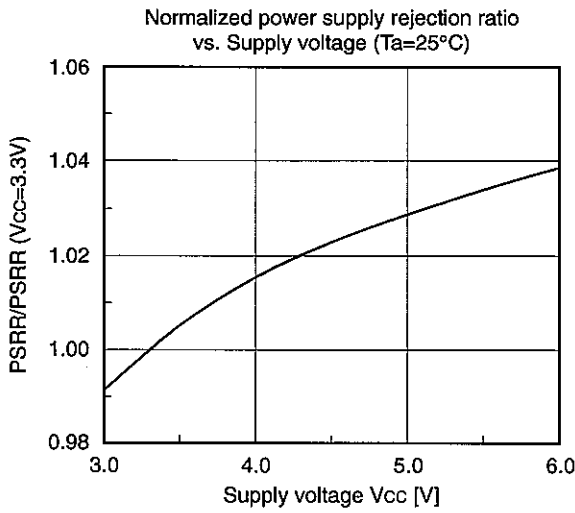
Application Circuit

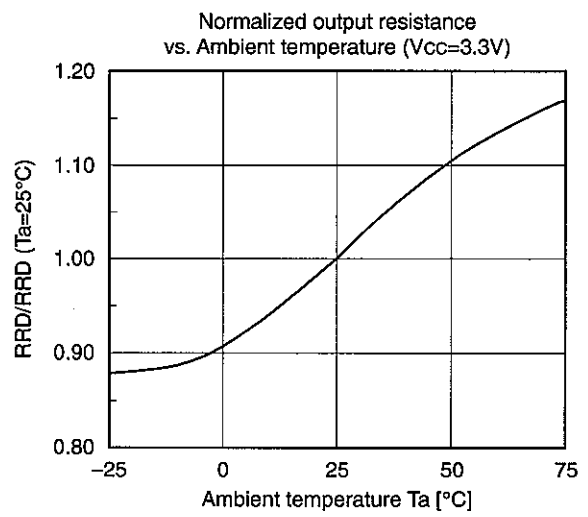
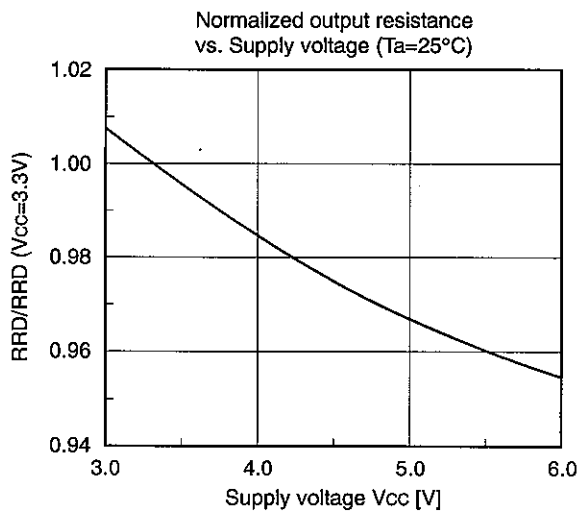


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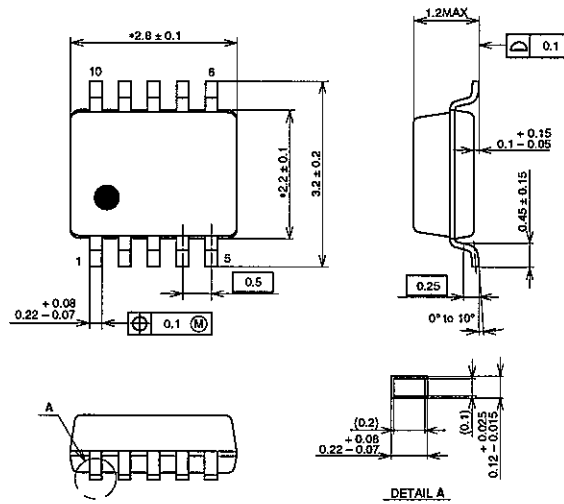






Package Outline Unit : mm

10PIN TSSOP(PLASTIC)



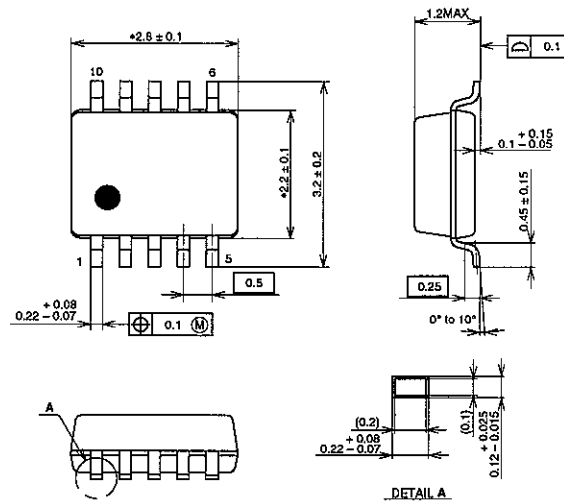
NOTE: Dimension "*" does not include mold protrusion.

PACKAGE STRUCTURE

| | |
|------------|---------------|
| SONY CODE | TSSOP-10P-L01 |
| EIAJ CODE | _____ |
| JEDEC CODE | _____ |

| | |
|------------------|----------------|
| PACKAGE MATERIAL | EPOXY RESIN |
| LEAD TREATMENT | SOLDER PLATING |
| LEAD MATERIAL | COPPER ALLOY |
| PACKAGE MASS | 0.02g |

10PIN TSSOP(PLASTIC)



NOTE: Dimension "*" does not include mold protrusion.

PACKAGE STRUCTURE

| | |
|------------|---------------|
| SONY CODE | TSSOP-10P-L01 |
| EIAJ CODE | _____ |
| JEDEC CODE | _____ |

| | |
|------------------|----------------|
| PACKAGE MATERIAL | EPOXY RESIN |
| LEAD TREATMENT | SOLDER PLATING |
| LEAD MATERIAL | COPPER ALLOY |
| PACKAGE MASS | 0.02g |

LEAD PLATING SPECIFICATIONS

| ITEM | SPEC. |
|--------------------|-----------------|
| LEAD MATERIAL | COPPER ALLOY |
| SOLDER COMPOSITION | Sn-Bi Bi:1-4wt% |
| PLATING THICKNESS | 5-18 μ m |