

Wideband Pre-amplifier

Description

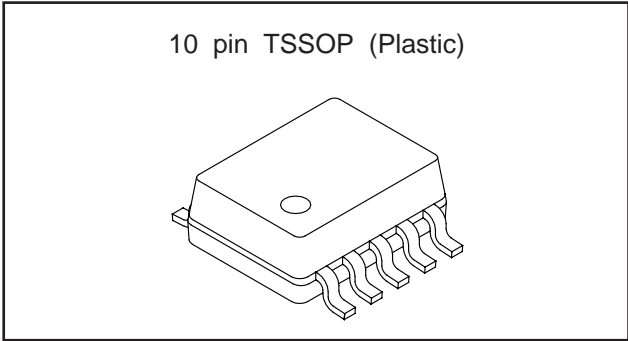
The CXA3299TN is a wideband Pre-amplifier for VTR head.

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 /√Hz

Structure

Bipolar silicon monolithic IC



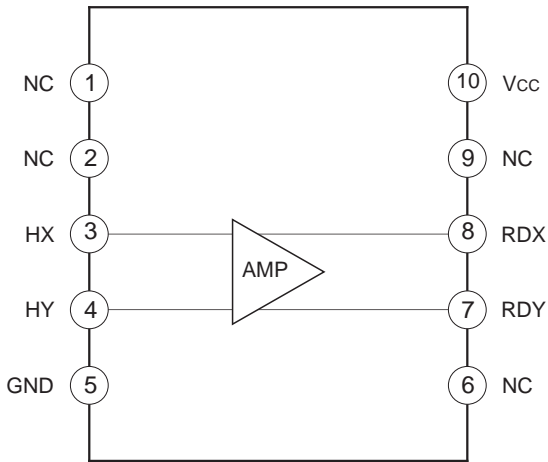
Absolute Maximum Ratings (Ta=25 °C)

• Supply voltage	V <sub>cc</sub>	6	V
• Operating temperature	T <sub>opr</sub>	−20 to +70	°C
• Storage temperature	T <sub>stg</sub>	−55 to +150	°C
• Allowable power dissipation (on board)	P <sub>D</sub>	1000	mW

Operating Conditions

Supply voltage	V <sub>cc</sub>	3.2 to 5.5	V
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Block Diagram and Pin Configuration



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Pin Description

No.	Symbol	Equivalent circuit	Description
1 2	NC		
3 4	H0X H0Y		Head.
5	GND		
6	NC		
7 8	RDY RDX		Read amplifier output.
9	NC		
10	Vcc		

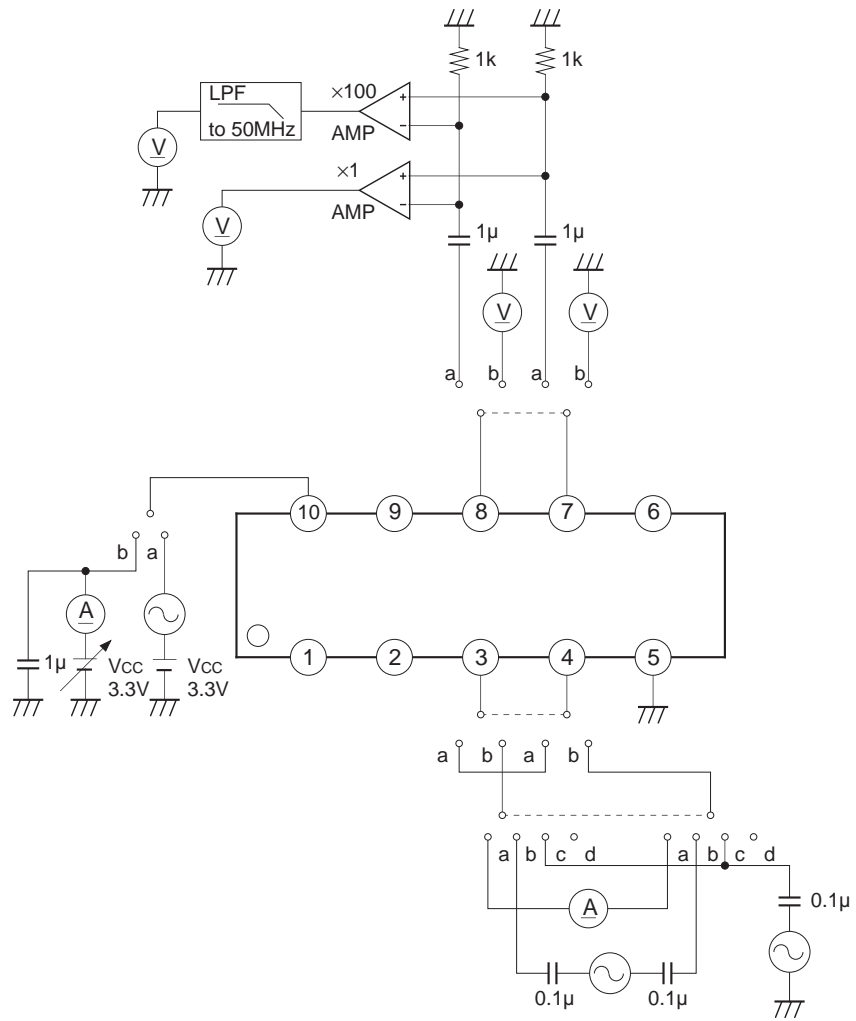
## Electrical Characteristics

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

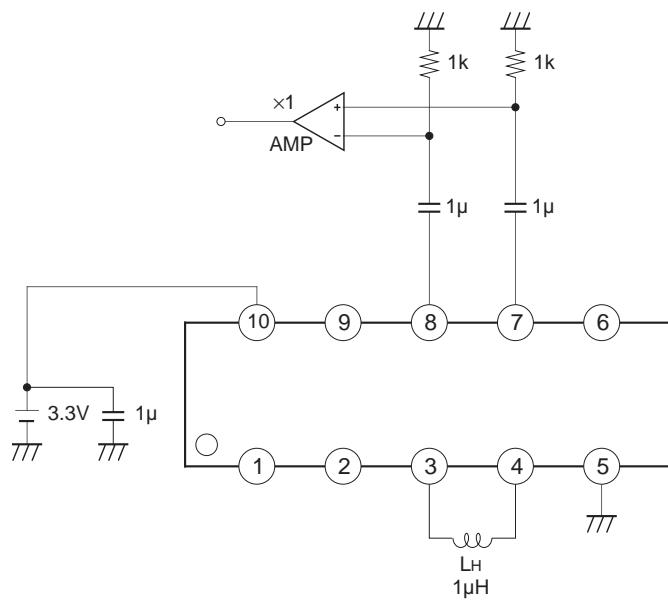
Item	Symbol	Test condition	Min.	Typ.	Max.	Unit.
Current consumption for read	I <sub>CC</sub>		13.5	17.5	*22.5	mA
Read amplifier differential voltage gain	A <sub>V</sub>	Input voltage : 1 mVp-p, 300 kHz	300	380	460	V/V
Frequency band width (-3 dB)	B <sub>W</sub>	Frequency at which A <sub>V</sub> lower by 3 dB	100	160		MHz
Input referred noise voltage	E <sub>N</sub>	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 <sub>OFFR</sub>	V <sub>OFFR</sub> =V <sub>RDX</sub> -V <sub>RDY</sub>	-300		300	mV
Differential input capacitance	C <sub>IN</sub>			3.0	4.5	pF
Differential input resistance	R <sub>IN</sub>		0.7	1.8	3.0	kΩ
Output resistance	R <sub>RD</sub>			4	8	Ω
Read data output sink current	I <sub>sink</sub>		2.5	3.2	4.3	mA
Read data output voltage	V <sub>RD</sub>			V <sub>CC</sub> -1.6		V

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

Test Circuit 1



Test Circuit 2



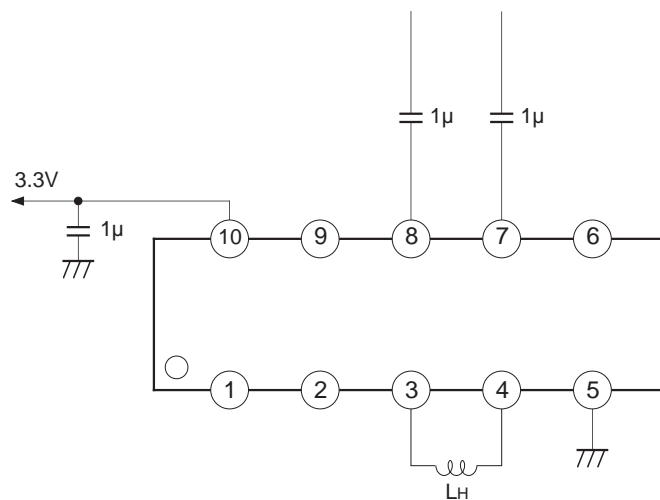
**Description of Functions**

Pre-amplifier

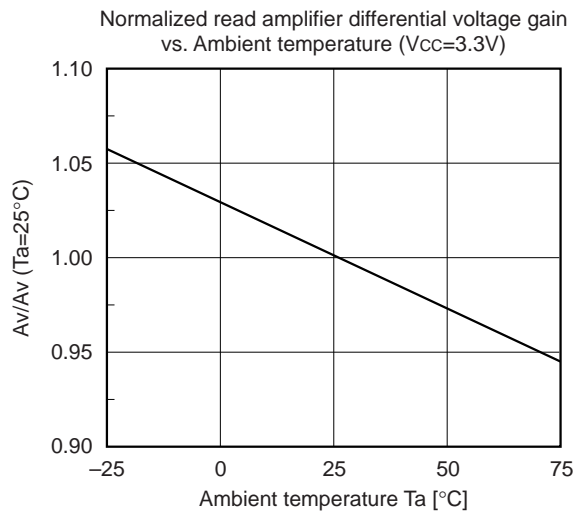
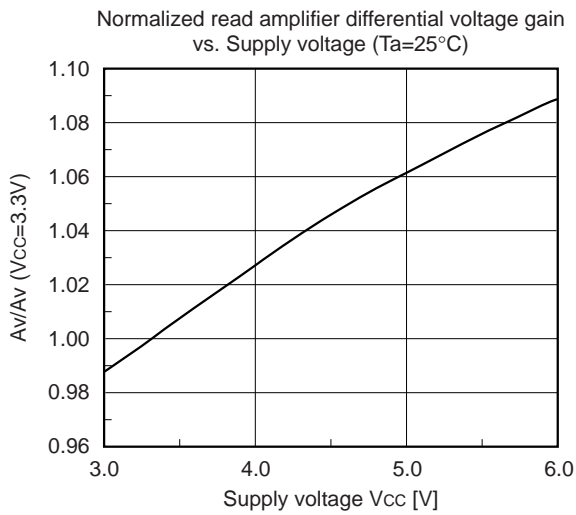
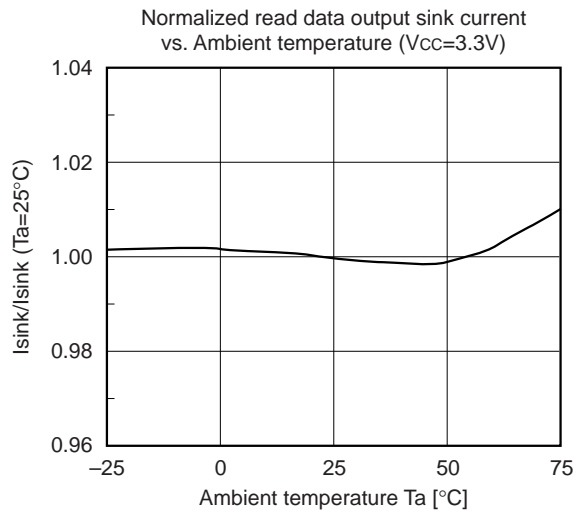
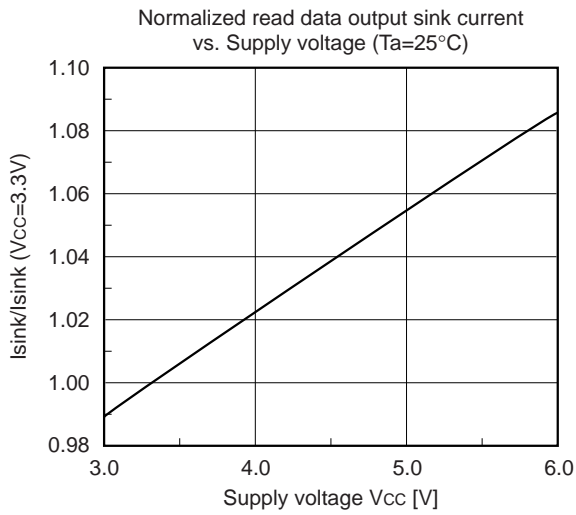
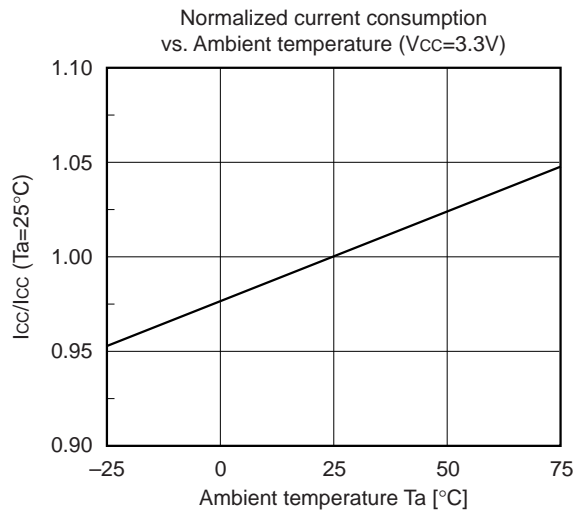
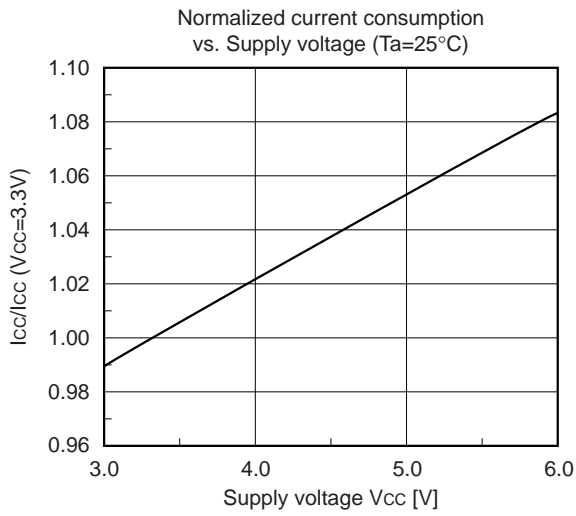
This is a low noise amplifier for amplifying the signals from the heads with an emitter follower output.

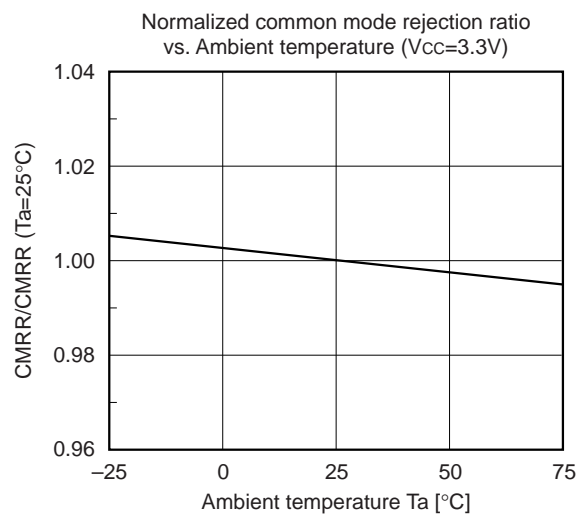
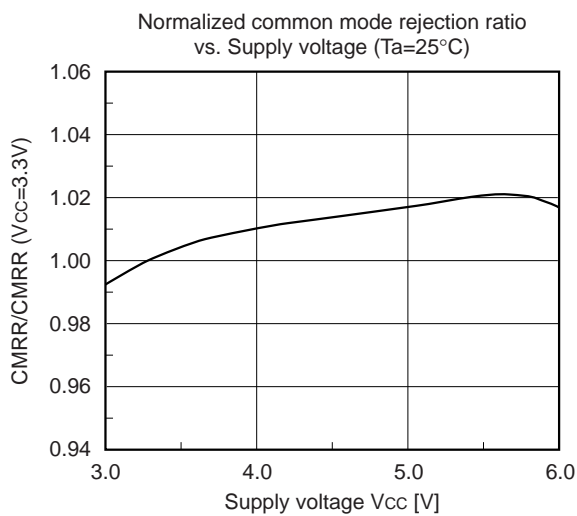
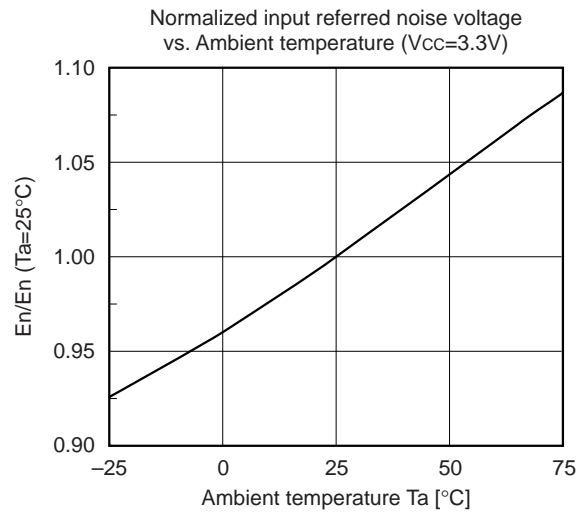
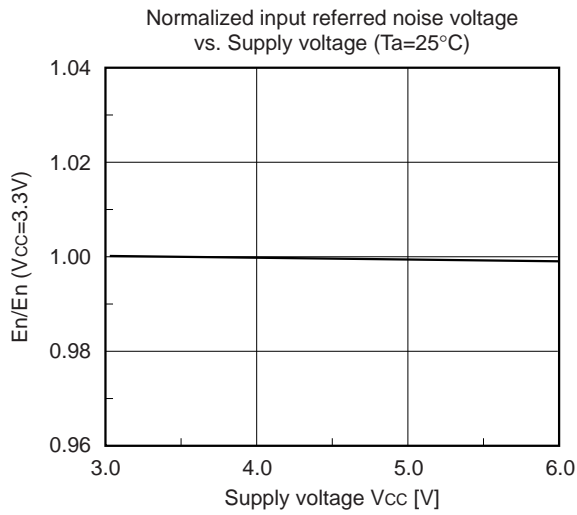
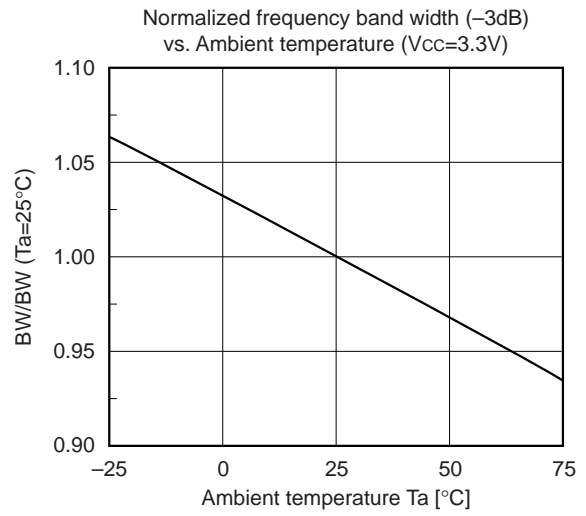
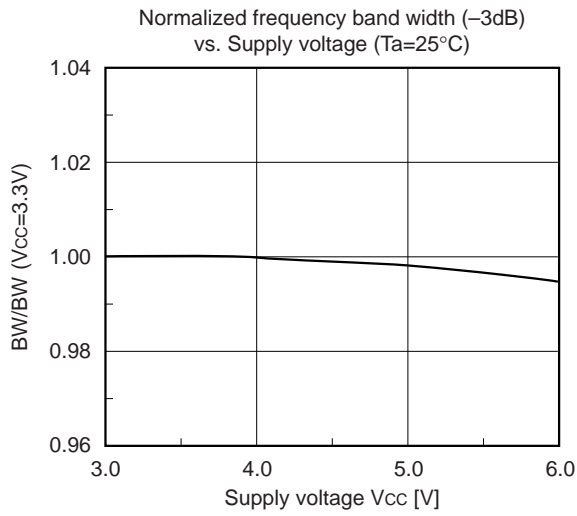
The RDX and RDY are the outputs of the differential amplifier whose polarity between the RDX and X side of the head input is same.

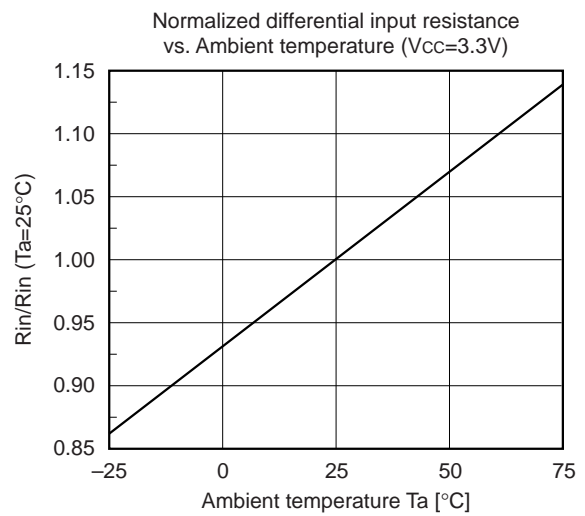
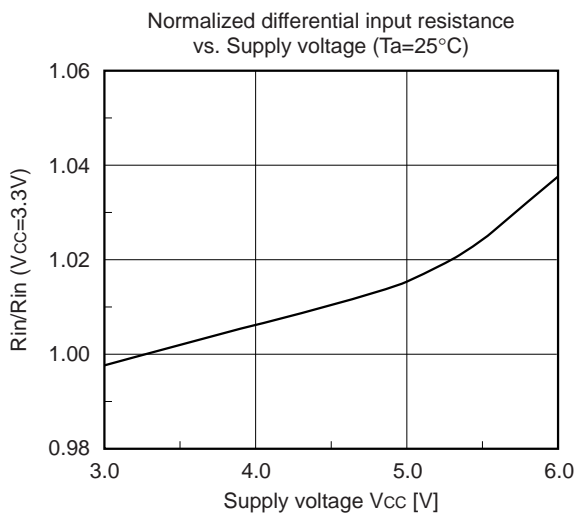
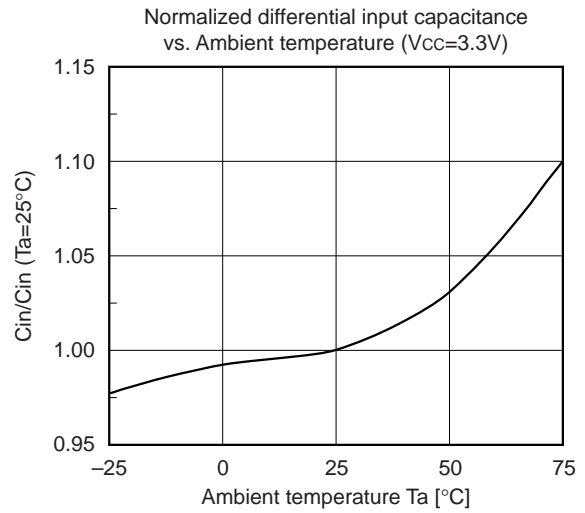
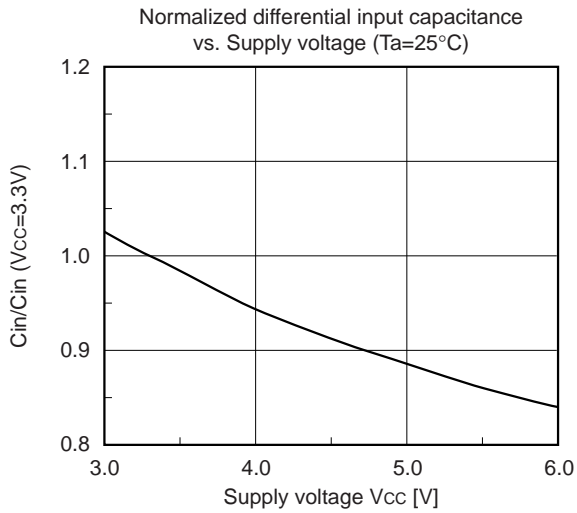
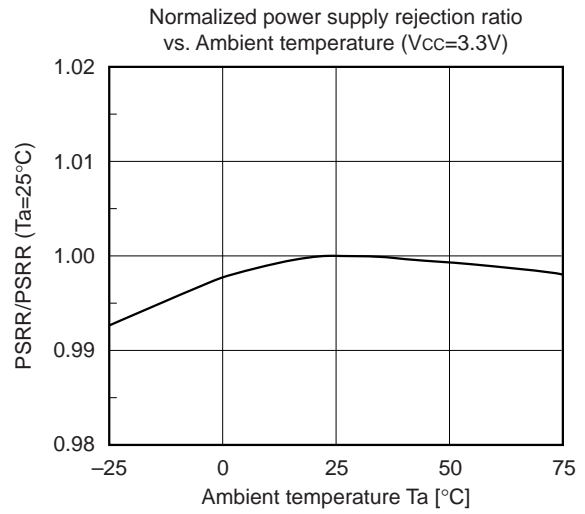
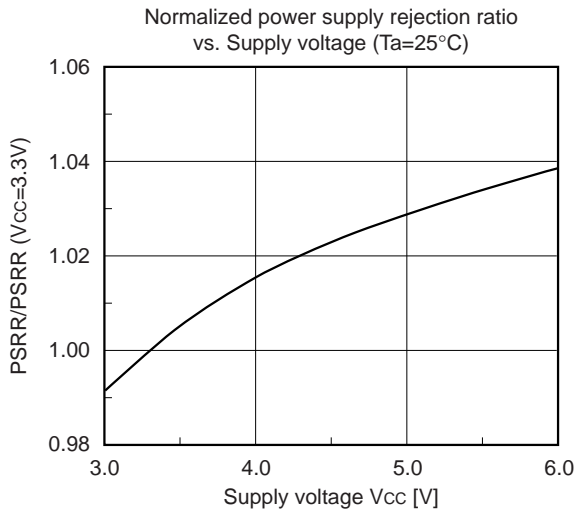
**Application Circuit**



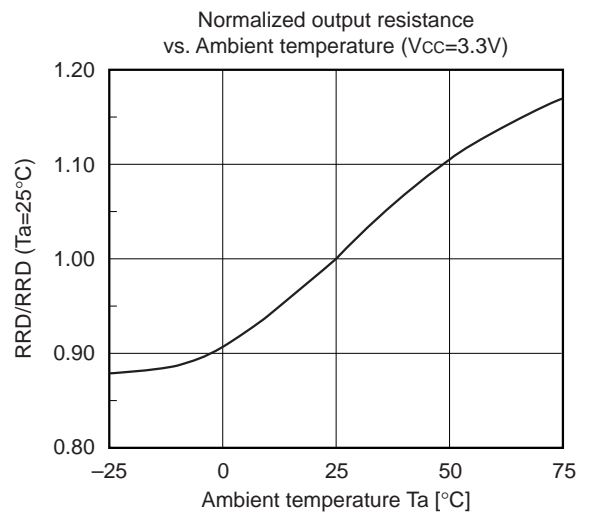
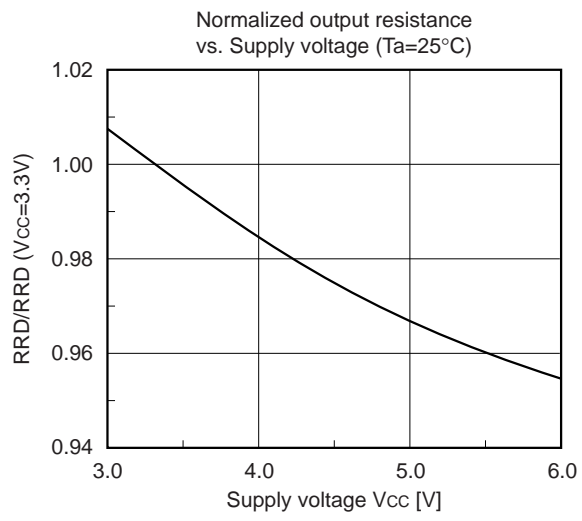
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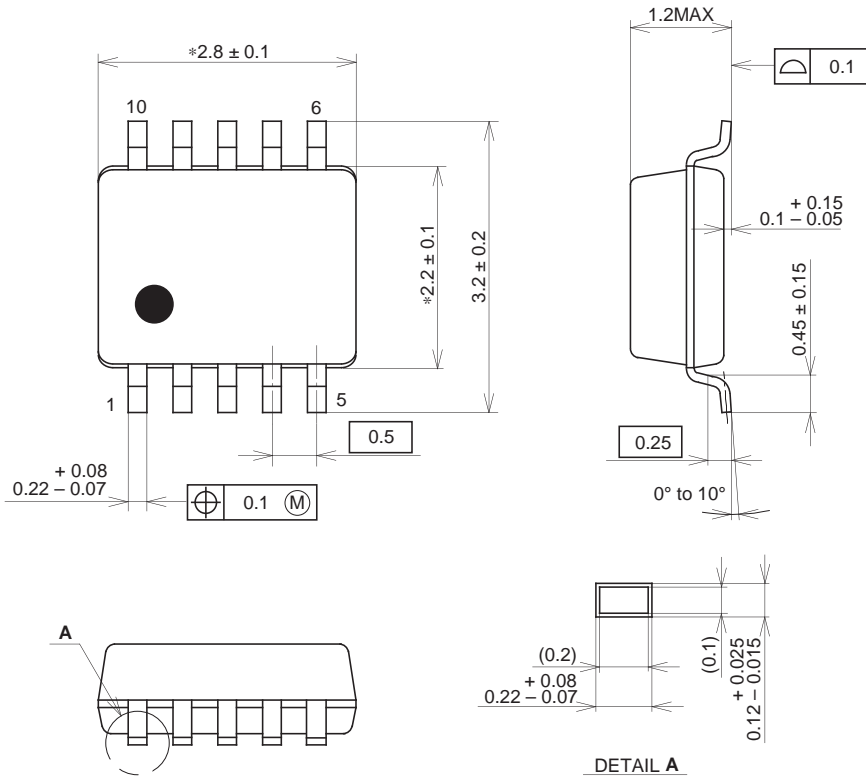






Package Outline Unit : mm

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