

**Wideband Pre-amplifier**

**Description**

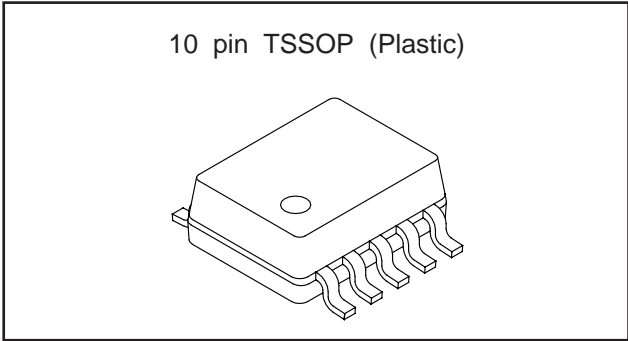
The CXA3199TN is a wideband Pre-amplifier for VTR head.

**Features**

- Operate on single +3.3 V power supply
- Low power consumption  
    Read : 45 mW
- Ultra small package
- Wideband (−3 dB) : 140 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
- Read data outputs are high impedance in Power Saving Mode

**Structure**

Bipolar silicon monolithic IC



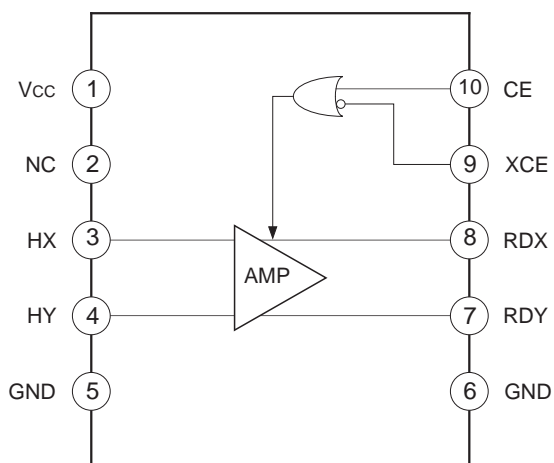
**Absolute Maximum Ratings (Ta=25 °C)**

• 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>	3.1 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	Vcc		
3 4	H0X H0Y		Head.
5 6	GND		
7 8	RDY RDX		Read amplifier output.
9	XCE		Power Save signal input.
10	CE		Power Save signal input.

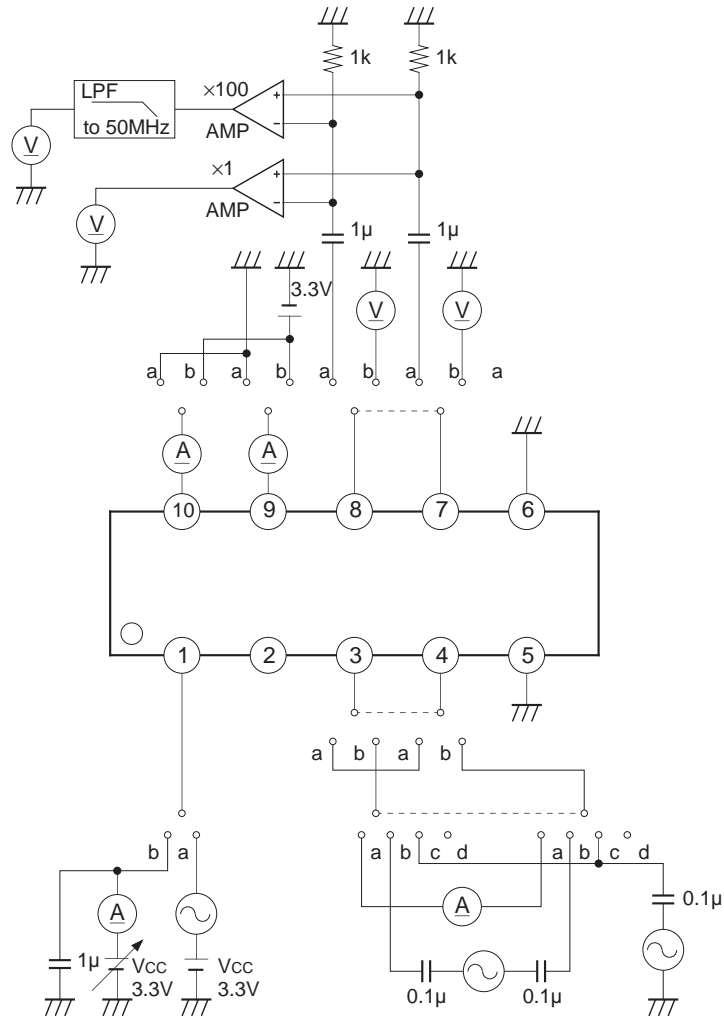
## Electrical Characteristics

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

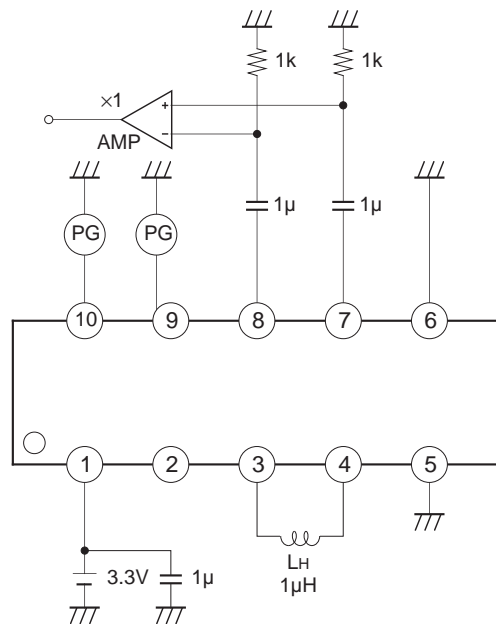
Item	Symbol	Test condition	Min.	Typ.	Max.	Unit.
Current consumption for read	$I_{CCR}$		8.0	13.5	*19.5	mA
Current consumption for chip disenable	$I_{CCXCE}$		0.3	0.5	0.8	mA
Digital input "Low" input voltage	$V_{IL}$				0.8	V
Digital input "High" input voltage	$V_{IH}$		2.0			V
Digital input "Low" input current	$I_{IL}$	"H" applied voltage: 3.3 V "L" applied voltage: 0 V	-100			$\mu\text{A}$
Digital input "High" input current	$I_{IH}$				100	$\mu\text{A}$
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	145		MHz
Input referred noise voltage	$E_N$	Head impedance : 0 $\Omega$		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	$V_{OFFR}$	$V_{OFFR}=V_{RDX}-V_{RDY}$ , A version	-300		300	mV
Chip disenable to read	$T_{IR}$				500	ns
Differential input capacitance	$C_{IN}$			3.0	4.5	pF
Differential input resistance	$R_{IN}$		0.8	2.1	3.5	k $\Omega$
Output resistance	$R_{RD}$	RDX or RDY	10.0	20.0	35.0	$\Omega$
Read data output sink current	$I_{sink}$		2.0	3.0	4.1	mA

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

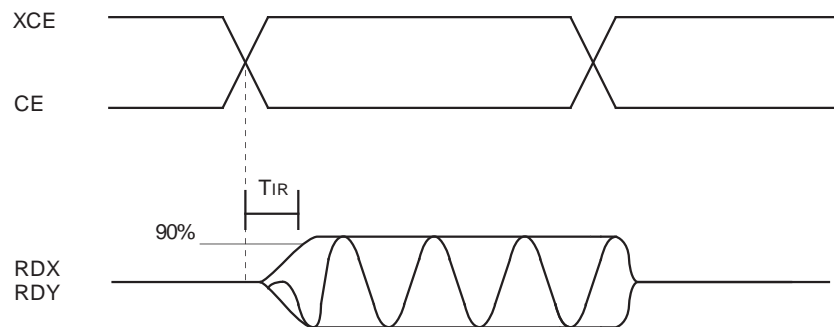
Test Circuit 1



Test Circuit 2



**Timing Chart**



**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.

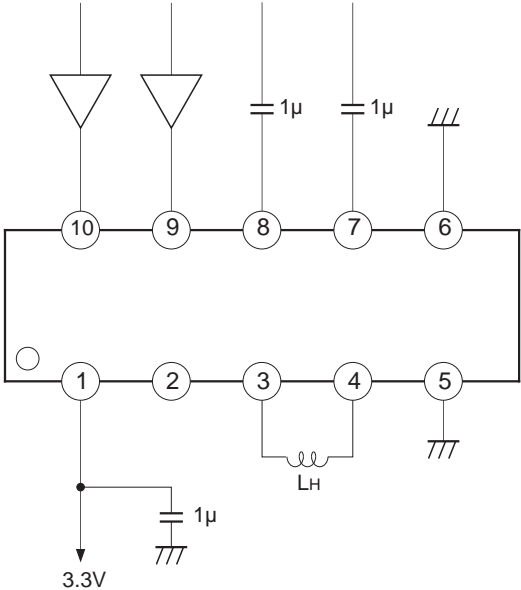
**Mode control**

The mode are set as shown Table 1 by CE and XCE.

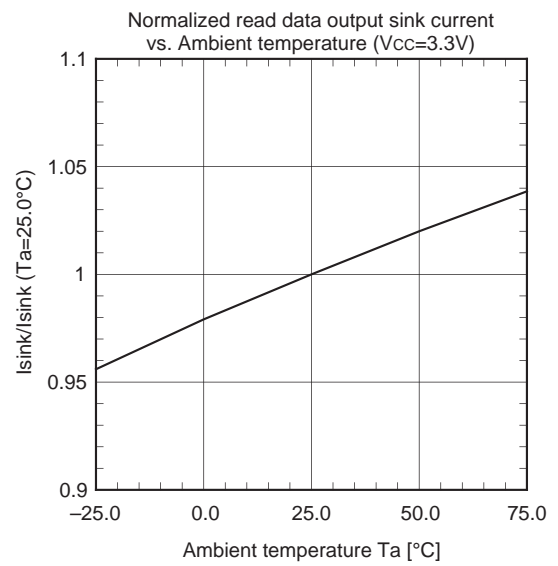
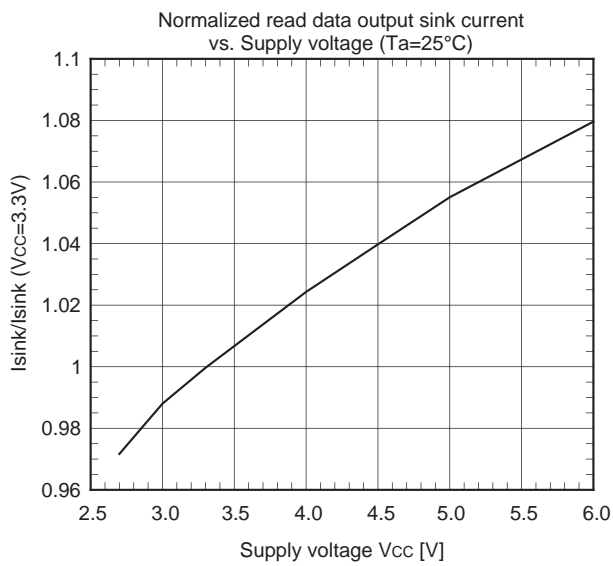
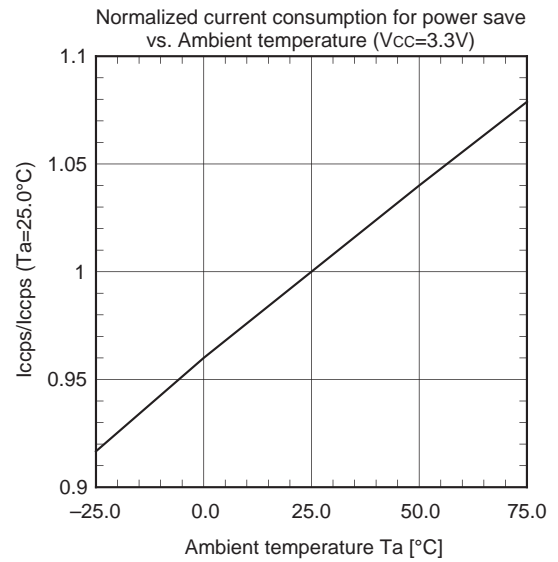
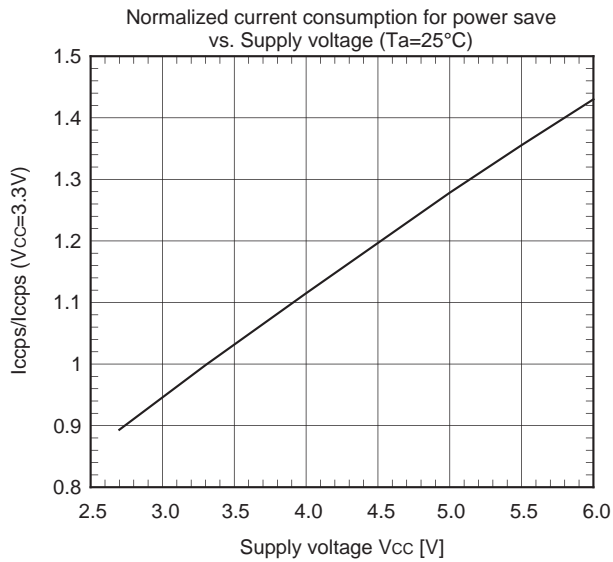
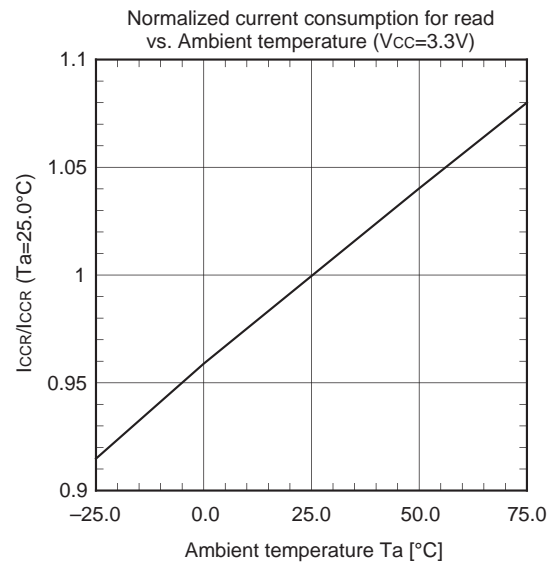
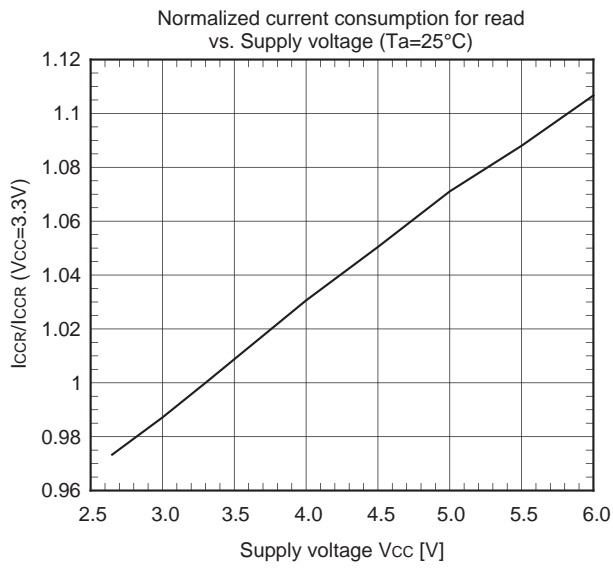
CE	XCE	Mode
H	L	Read
H	H	
L	L	
L	H	Power saving

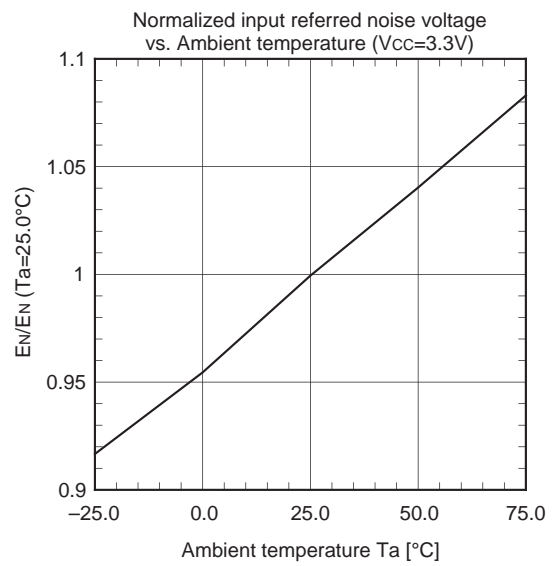
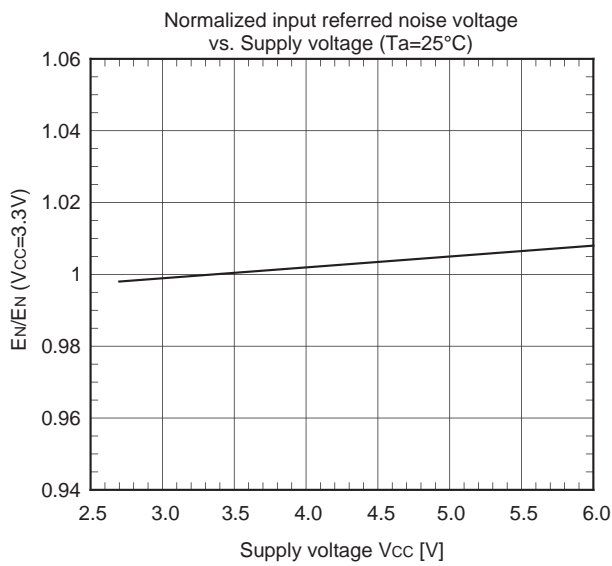
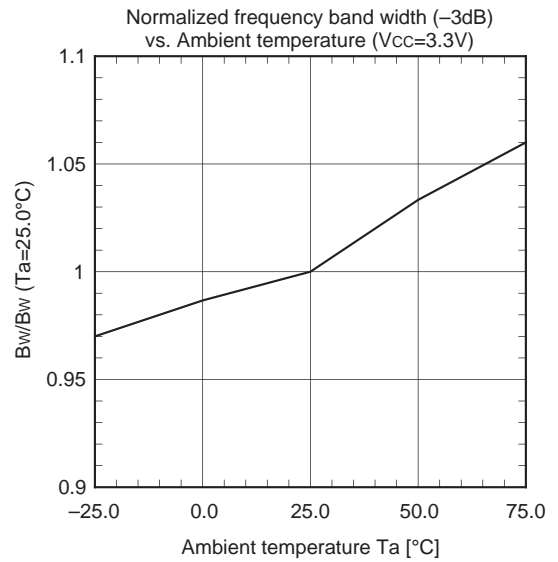
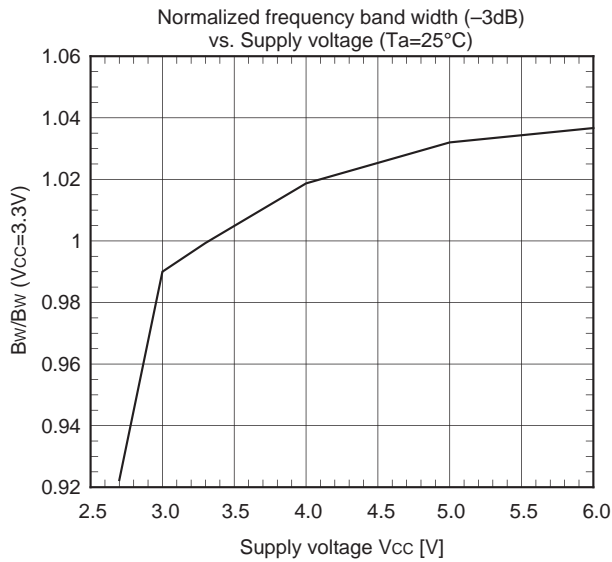
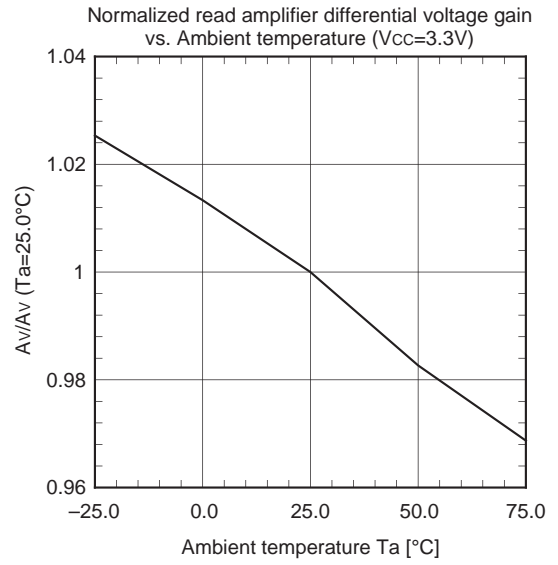
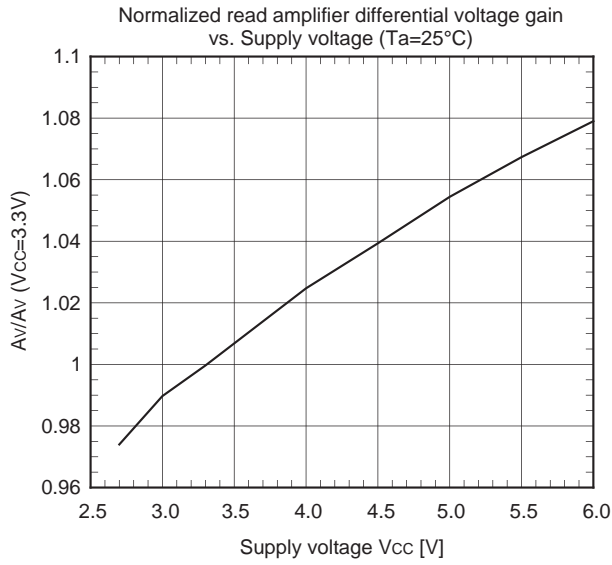
**Table 1. Mode selection**

Application Circuit

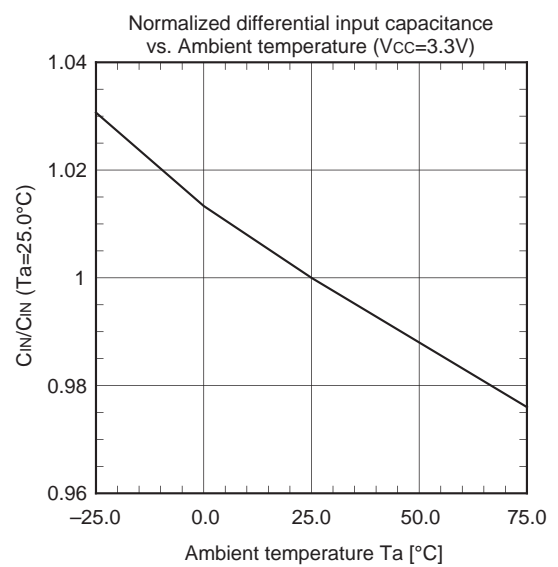
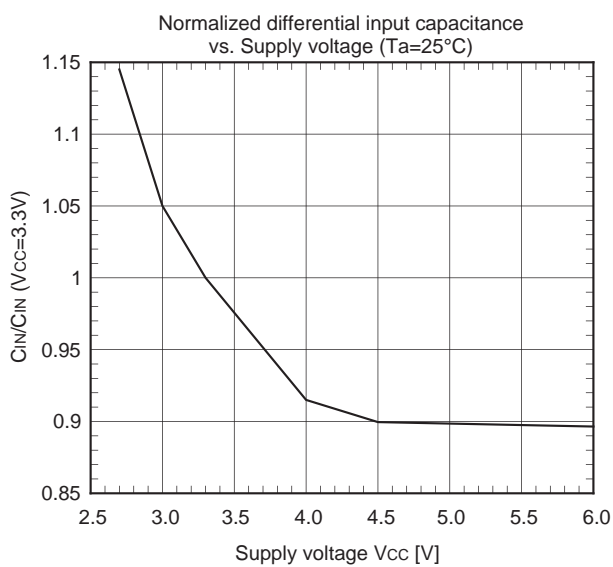
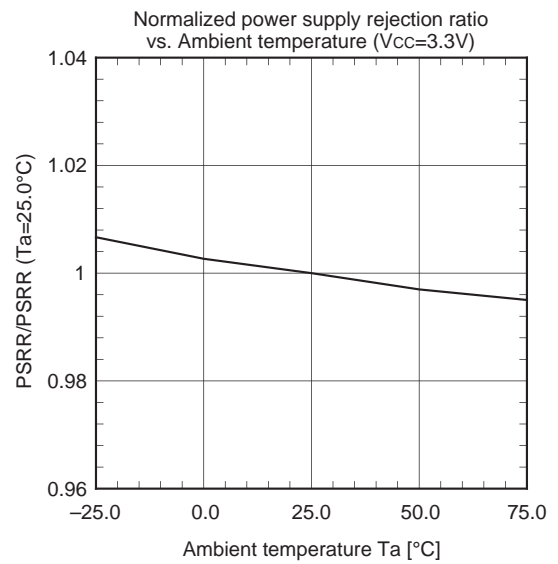
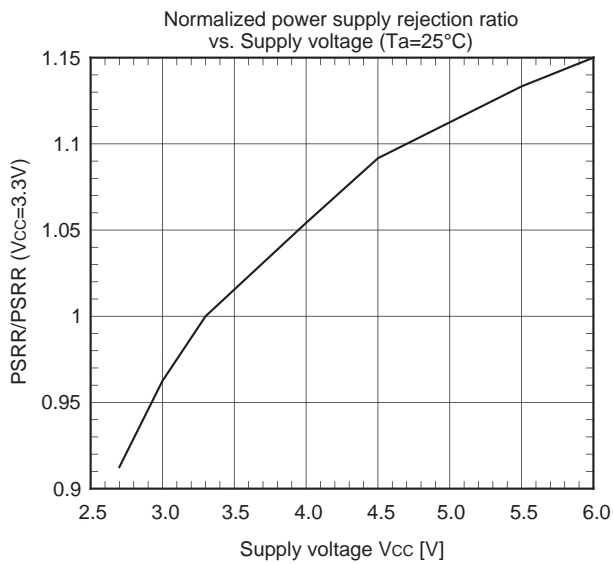
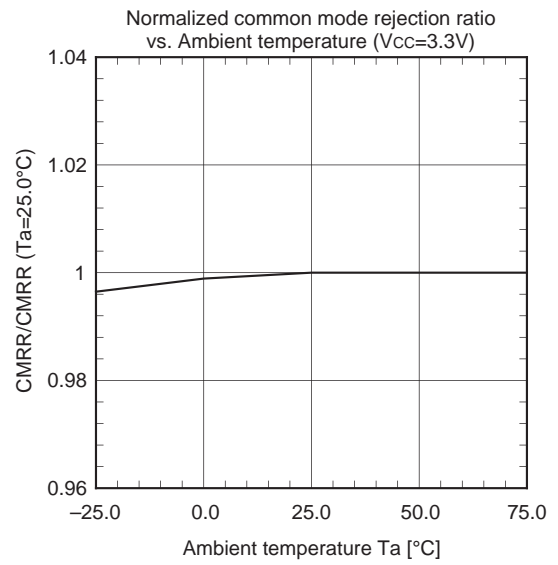
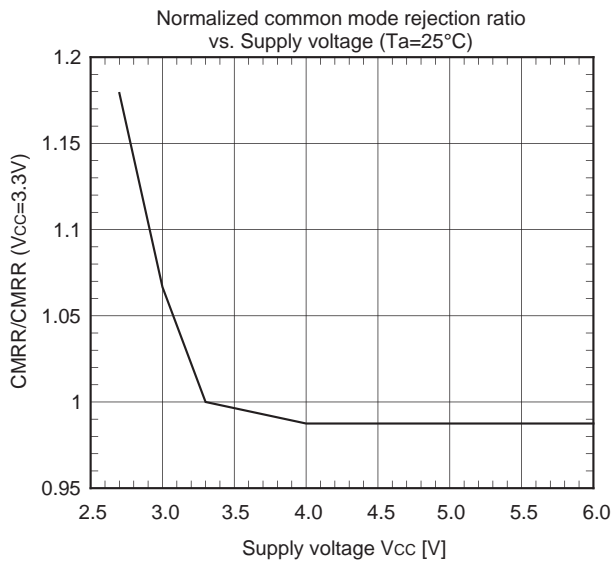


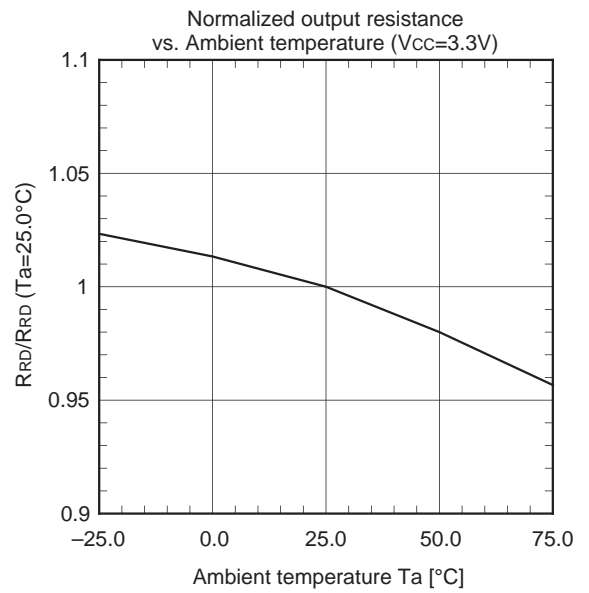
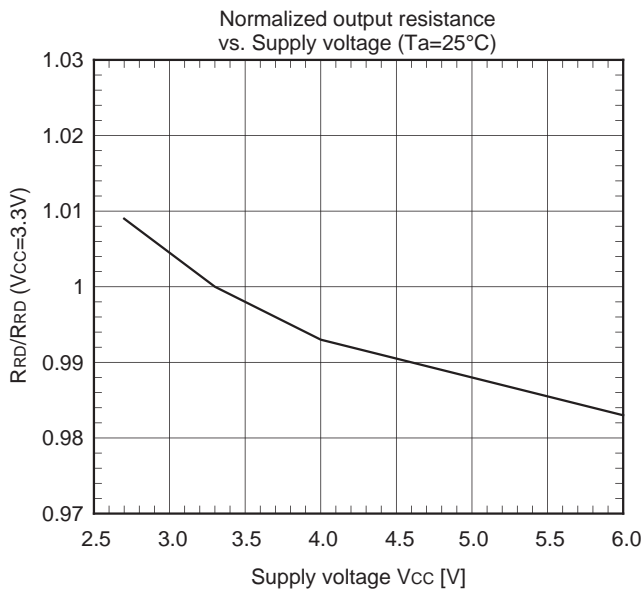
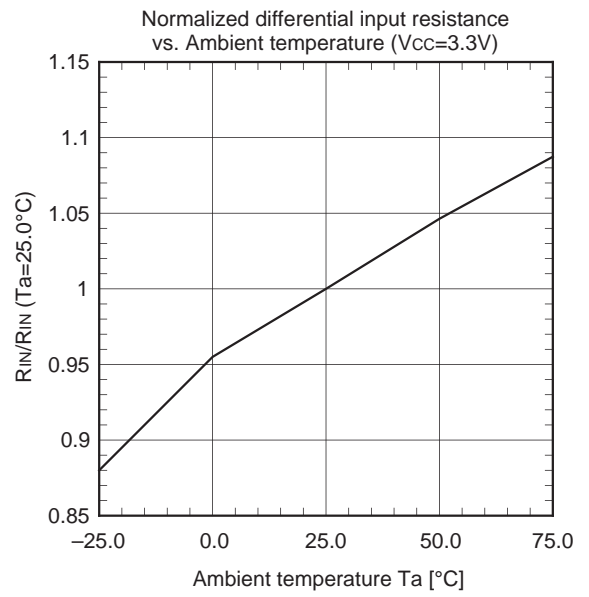
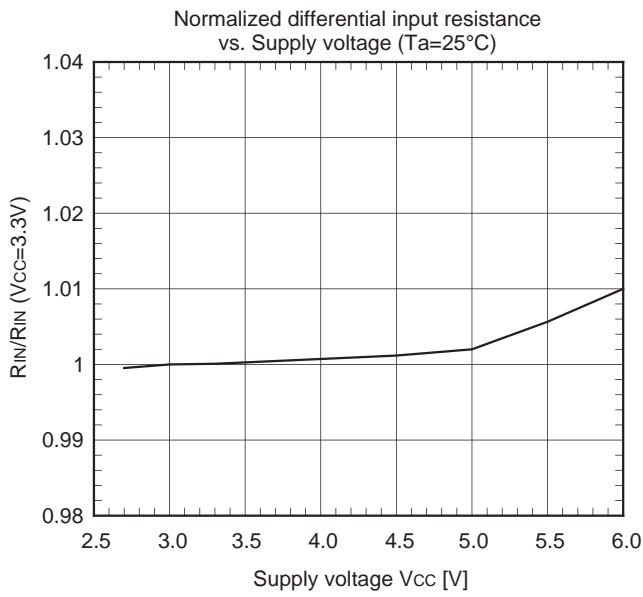
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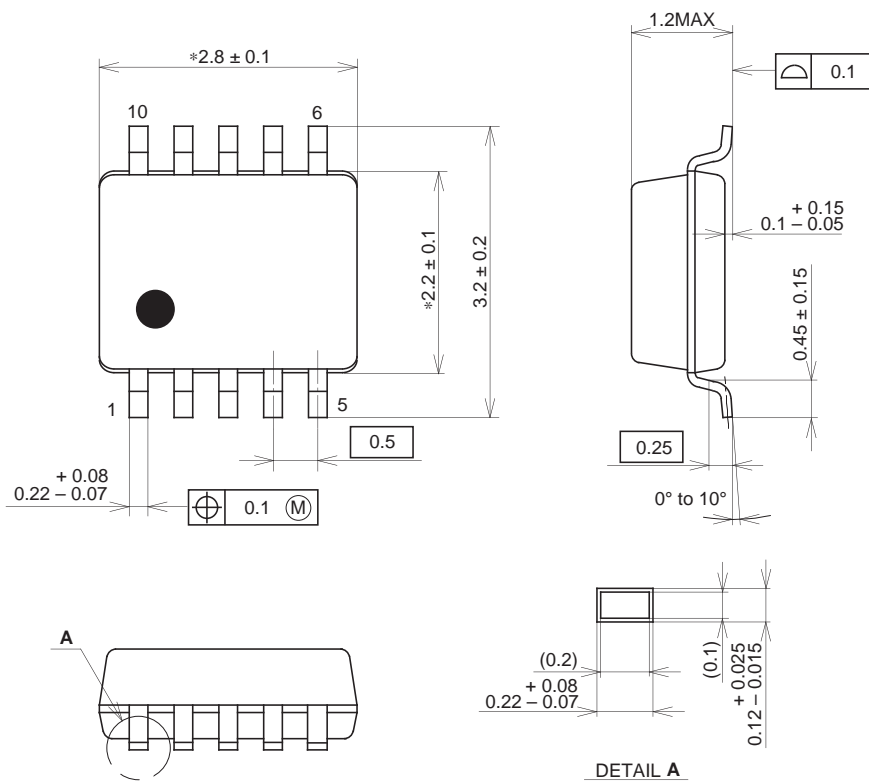






Package Outline Unit : mm

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