

<MFT>
RT8H151C

Window comparator circuit

DESCRIPTION

RT8H151C is composed by NPN transistors, PNP transistors and resistors. It can miniaturization of a set and reduce parts or time necessary for completion. RT8H151C constitutes the window comparator circuit.

FEATURES

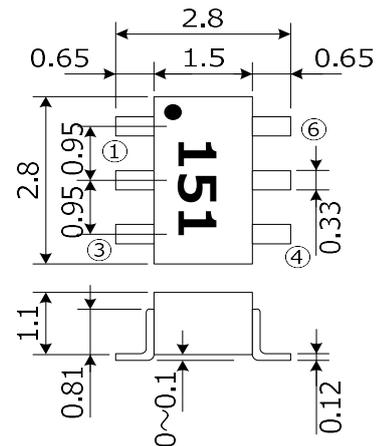
- Miniaturization of a set.
- External setting of a detection voltage is possible with the detection voltage setting terminals (VIN1, VIN2)
- Open collector output

APPLICATION

- Window type voltage detection circuit

OUTLINE DRAWING

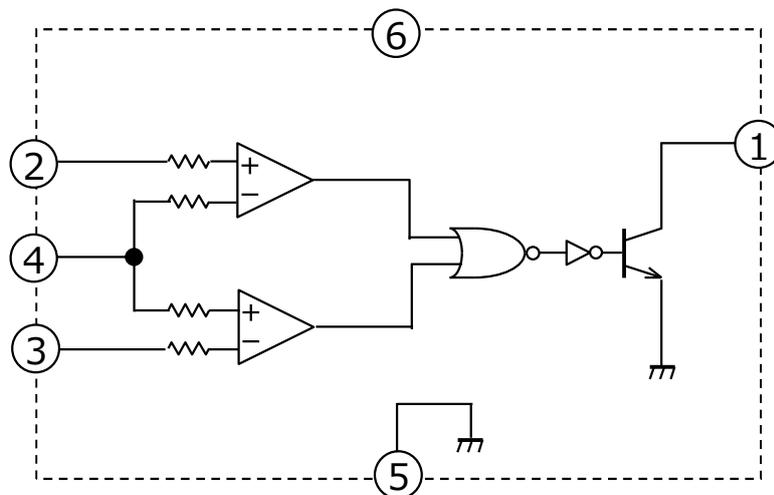
Unit : mm



PIN CONFIGURATION

- | | |
|--------|-------|
| ① OUT | ⑥ VCC |
| ② VIN1 | ⑤ GND |
| ③ VIN2 | ④ VS |

BLOCK DIAGRAM



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ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

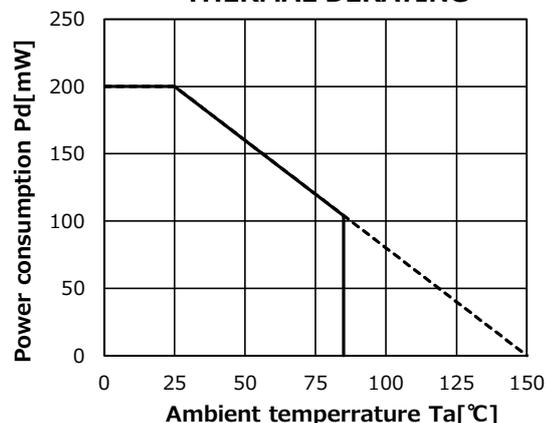
Symbol	Parameter	Conditions	Ratings	Unit
VCC	Supply voltage		18	V
VIN	VIN1,VIN2 Input voltage		-0.3~VCC	V
VS	VS Input voltage		-0.3~VCC	V
Pd	Internal power dissipation		200	mW
Kθ	Thermal derating	Ta≥25°C	1.6	mW/°C
Tj	Junction temperature		150	°C
Tstg	Storage temperature	(keep dry)	-40~150	°C
Topr	Operating temperature	(keep dry)	-20~85	°C

ELECTRICAL CHARACTERISTIC (Ta=25°C,VCC=5V unless otherwise noted.)

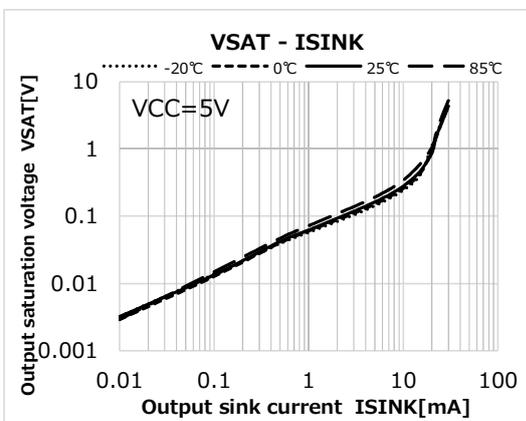
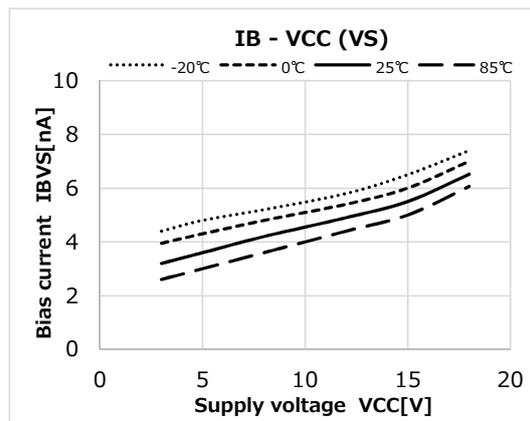
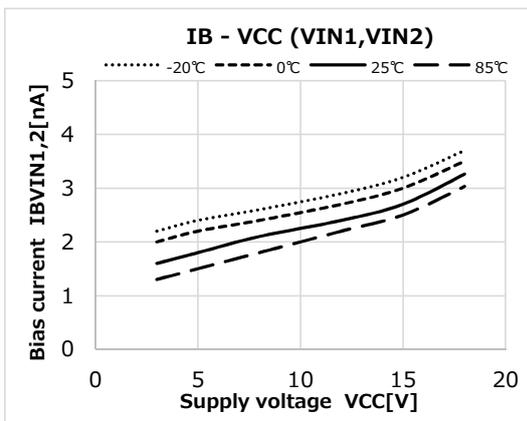
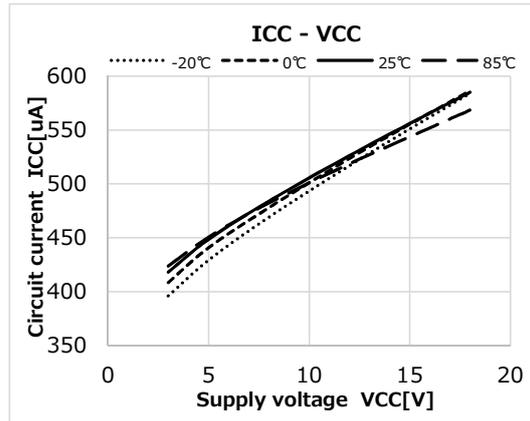
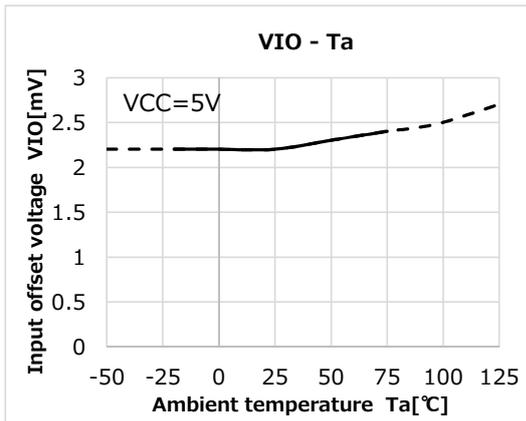
Symbol	Parameter	Test condition	Designed value			Unit
			Min	Typ	Max	
VCC	Operating supply voltage range		3		17	V
ICC	Circuit current	VIN2=3V,VIN1=1V,VS=0V		500		uA
VIN	VIN1,2 Common-mode input voltage range		0		VCC-1.5	V
VS1	Detection voltage1	VIN2=3V,VIN1=1V,RL=5.1KΩ		1.00		V
VS2	Detection voltage2	VIN2=3V,VIN1=1V,RL=5.1KΩ		3.00		V
IBIN1	VIN1 bias current	VIN2=3V,VIN1=1V,VS=2.5V			150	nA
IBIN2	VIN2 bias current	VIN2=3V,VIN1=1V,VS=3.5V			150	nA
IBVS	VS bias current	VIN2=3V,VIN1=1V,VS=0V			300	nA
tr	Response time	RL=5.1KΩ,VRL=5V	-	6.0	-	usec
VOSAT	Output saturation voltage	VIN2=3V,VIN1=1V,VS=0V,RL=5.1KΩ	-	0.2	0.4	V
IOL	Output leak current	VIN2=3V,VIN1=1V,VS=2.5V,VO=18V	-	-	1	uA

CHARACTERISTICS

THERMAL DERATING



REFERENCE DATA

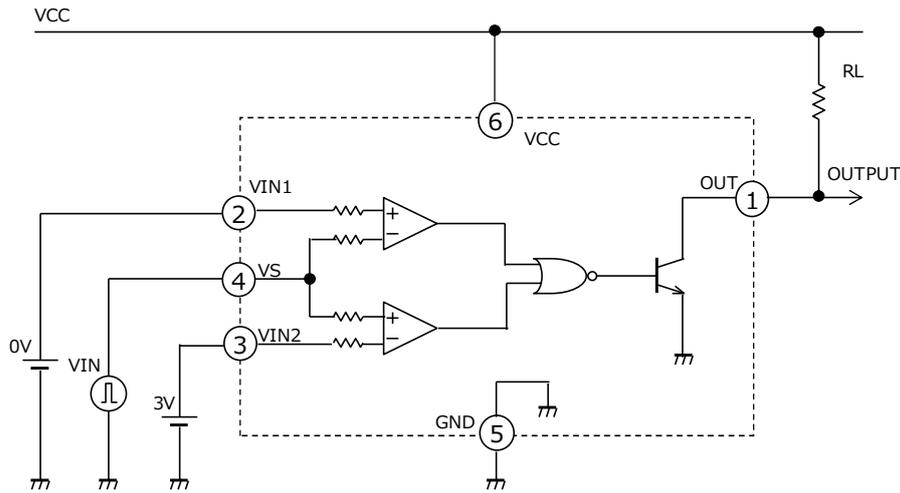


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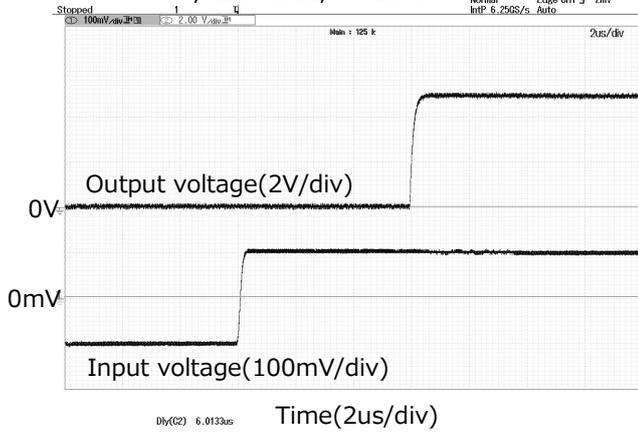
Window comparator circuit

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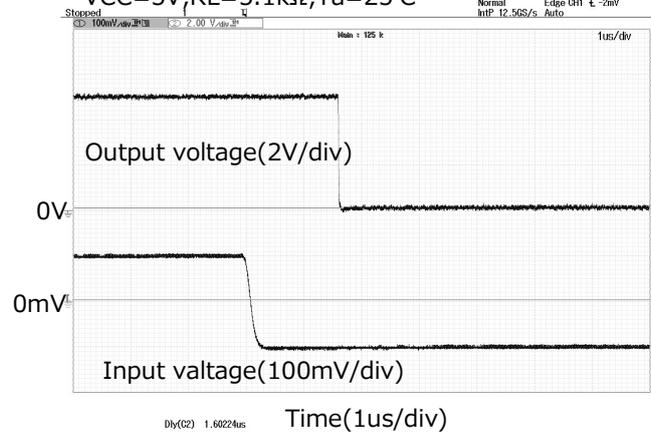
Response time measurement circuit



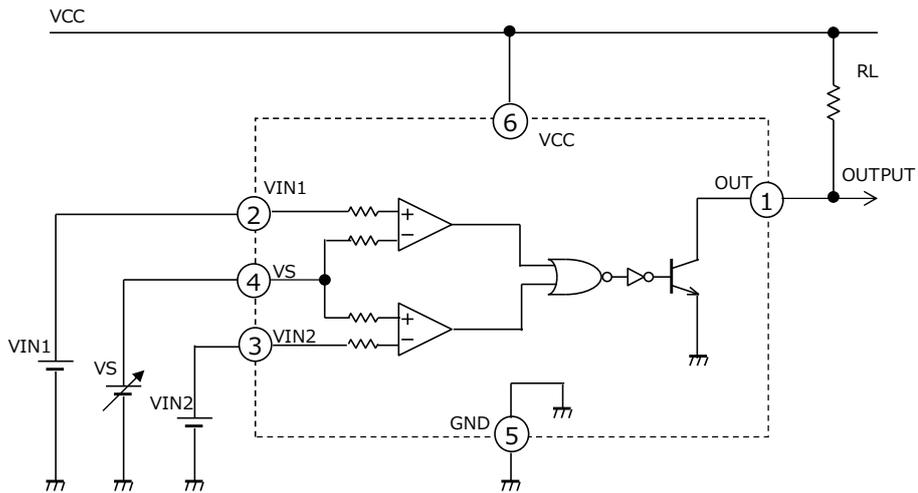
Rise response time
VCC=5V, RL=5.1kΩ, Ta=25°C



Fall response time
VCC=5V, RL=5.1kΩ, Ta=25°C

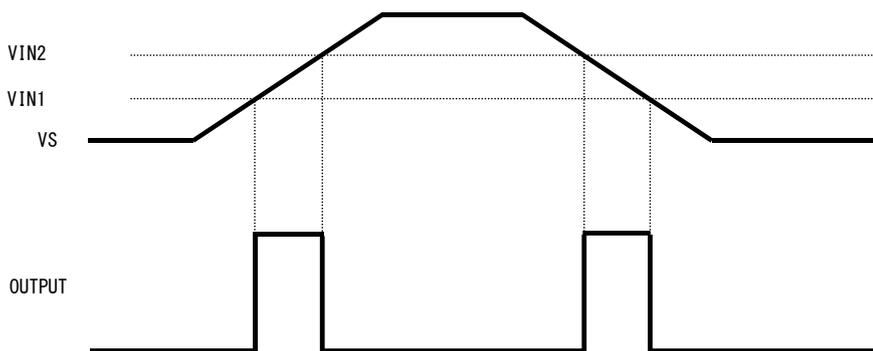


APPLICATION CIRCUIT EXAMPLES



* 1. Please set VIN1 and VIN2 set voltage so that $VIN1 < VIN2$.

TIMING CHART



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