

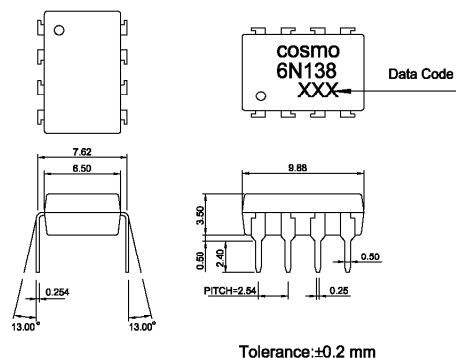
## Features

1. High current transfer ratio  
(CTR:MIN.300% at  $I_F=1.6\text{mA}$ )
2. High speed response  
( $t_{PHL}$ :TYP.2 $\mu\text{s}$  at  $R_L=2.2\text{k}\Omega$ )
3. Instantaneous common mode rejection voltage ( $CM_H$ :TYP500V/ $\mu\text{s}$ )
4. TTL compatible output
5. Overseas standard model

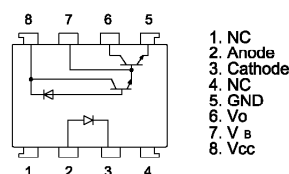
## Applications

1. Interfaces for computer peripherals
2. Electronic calculators, measuring instruments, control equipment
3. Telephone sets.
4. Signal transmission between circuits of different potentials and impedances.

## Outside Dimension:Unit (mm)



## Schematic:Top View



## Absolute Maximum Ratings

(Ta=25°C)

|        | Parameter                                           | Symbol    | Rating      | Unit |
|--------|-----------------------------------------------------|-----------|-------------|------|
| Input  | Forward current                                     | $I_F$     | 20          | mA   |
|        | *1 Peak forward current                             | $I_F$     | 40          | mA   |
|        | *2 Peak transient forward current                   | $I_{FM}$  | 1           | A    |
|        | Reverse voltage                                     | $V_R$     | 5           | V    |
|        | Power dissipation                                   | P         | 35          | mW   |
| Output | Supply voltage                                      | $V_{CC}$  | -0.5 to 7   | V    |
|        | Output voltage                                      | $V_O$     | -0.5 to 7   | V    |
|        | Emitter-base reverse withstand voltage (Pin 5 to 7) | $V_{EBO}$ | 0.5         | V    |
|        | *3 Average output current                           | $I_O$     | 60          | mA   |
|        | Power dissipation                                   | $P_O$     | 100         | mW   |
|        | *4 Isolation voltage                                | $V_{ISO}$ | 2500        | Vrms |
|        | Operating temperature                               | $T_{opr}$ | 0 to +70    | °C   |
|        | Storage temperature                                 | $T_{stg}$ | -55 to +125 | °C   |
|        | *5 Soldering temperature                            | $T_{sol}$ | 260         | °C   |

\*1 50% duty cycle, Pulse width : 1ms

\*2 Pulse width  $\leq 1\mu\text{s}$ , 300pps\*3 Decreases at the rate of  $0.7\text{mA}/^\circ\text{C}$  if the external temperature is  $25^\circ\text{C}$  or more.

\*4 40 to 60% RH, AC for 1 minute

\*5 For 10 seconds

## Electro-optical Characteristics

(Ta=0 to +70°C unless otherwise specified )

| Parameter                                     | Symbol                  | Conditions                                                              | MIN. | TYP.      | MAX. | Unit                       |
|-----------------------------------------------|-------------------------|-------------------------------------------------------------------------|------|-----------|------|----------------------------|
| *6 Current transfer ratio                     | CTR                     | $I_F=1.6\text{mA}$ , $V_O=0.4\text{V}$ , $V_{CC}=4.5\text{V}$           | 300  | 1600      | -    | %                          |
| Logic (0) output voltage                      | $V_{OL}$                | $I_F=1.6\text{mA}$ , $I_O=4.8\text{mA}$ , $V_{CC}=4.5\text{V}$          | -    | 0.1       | 0.4  | V                          |
| Logic (1) output current                      | $I_{OH}$                | $I_F=0$ , $V_{CC}=V_O=7\text{V}$                                        | -    | 0.1       | 250  | $\mu\text{A}$              |
| Logic (0) supply current                      | $I_{CCL}$               | $I_F=1.6\text{mA}$ , $V_{CC}=5\text{V}$ , $V_O=\text{open}$             | -    | 0.5       | -    | $\text{mA}$                |
| Logic (1) supply current                      | $I_{CCH}$               | $I_F=0$ , $V_{CC}=5\text{V}$ , $V_O=\text{open}$                        | -    | 10        | -    | $\text{nA}$                |
| Input forward voltage                         | $V_F$                   | $I_F=1.6\text{mA}$ , $T_a=25^\circ\text{C}$                             | -    | 1.5       | 1.7  | V                          |
| Input forward voltage temperature coefficient | $\Delta V_F/\Delta T_a$ | $I_F=1.6\text{mA}$                                                      | -    | -1.9      | -    | $\text{mV}/^\circ\text{C}$ |
| Input reverse voltage                         | $BV_R$                  | $I_R=10\mu\text{A}$ , $T_a=25^\circ\text{C}$                            | 5.0  | -         | -    | V                          |
| Input capacitance                             | $C_{IN}$                | $V_F=0$ , $f=1\text{MHz}$                                               | -    | 60        | -    | $\text{pF}$                |
| *7 Leak current(input-output)                 | $I_{I-O}$               | $V_{I-O}=3\text{kV DC}$ , 45%RH, $t=5\text{s}$ , $T_a=25^\circ\text{C}$ | -    | -         | 1.0  | $\mu\text{A}$              |
| *7 Isolation resistance(input-output)         | $R_{I-O}$               | $V_{I-O}=500\text{V DC}$                                                | -    | $10^{12}$ | -    | $\Omega$                   |
| *7 Capacitance(input-output)                  | $C_{I-O}$               | $f=1\text{MHz}$                                                         | -    | 0.6       | -    | $\text{pF}$                |

\*6 Current transfer ratio is a ratio of  
input current and output current expressed in %.

\*7 Measured as 2-pin element ( Short 1, 2, 3, 4 and 5, 6, 7, 8 )

## Switching Characteristics

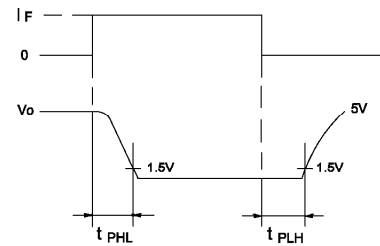
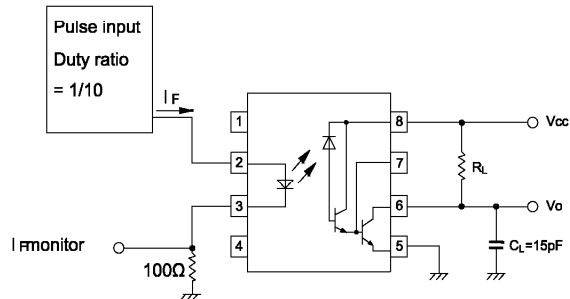
(Ta=25°C, Vcc=5V)

| Parameter                                                                | Symbol    | Conditions                                                           | MIN. | TYP. | MAX. | Unit                   |
|--------------------------------------------------------------------------|-----------|----------------------------------------------------------------------|------|------|------|------------------------|
| *8 Propagation delay time<br>Output (1) $\rightarrow$ (0)                | $t_{PHL}$ | $R_L=2.2\text{k}\Omega$ , $I_F=1.6\text{mA}$                         | -    | 2    | 10   | $\mu\text{s}$          |
| *8 Propagation delay time<br>Output (0) $\rightarrow$ (1)                | $t_{PLH}$ | $R_L=2.2\text{k}\Omega$ , $I_F=1.6\text{mA}$                         | -    | 7    | 35   | $\mu\text{s}$          |
| *9<br>*10 Instantaneous common<br>mode rejection voltage<br>"Output (1)" | $CM_H$    | $I_F=0$ , $V_{CM}=10V_{P-P}$ , $R_L=2.2\text{k}\Omega$               | -    | 500  | -    | $\text{V}/\mu\text{s}$ |
| *9<br>*10 Instantaneous common<br>mode rejection voltage<br>"Output (0)" | $CM_L$    | $I_F=1.6\text{mA}$ , $V_{CM}=10V_{P-P}$ ,<br>$R_L=2.2\text{k}\Omega$ | -    | -500 | -    | $\text{V}/\mu\text{s}$ |

\*9 Instantaneous common mode rejection voltage "output(1)" represents a common voltage variation that can hold the output above (1) level (  $V_O>2.0\text{V}$  ).

\*10 Instantaneous common mode rejection voltage "output(1)" represents a common voltage variation that can hold the output above (0) level (  $V_O<0.8\text{V}$  ).

\*8 Tset Circuit Propagation Delay Time



\*10 Tset Circuit for Instantaneous Common Mode Rejection Voltage

