

# ORIENT

## Photocoupler

### Product Data Sheet

Name: OR-10XX

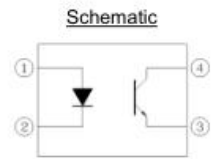
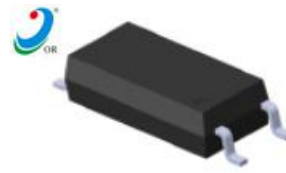
Customer: \_\_\_\_\_

Date: \_\_\_\_\_

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\_\_\_\_\_

1.



**Pin Configuration**  
 1. Anode  
 2. Cathode  
 3. Emitter  
 4. Collector

°C      °C

2.

The OR-10XX series devices consist of an infrared emitting diode, optically coupled to a phototransistor detector. They are packaged in a 4-pin SOP package.

3.

( 2 °C

Parameter		Symbol	Rated Value	Unit
Input	Forward Current	$I_F$	60	mA
	Junction Temperature	$T_J$	125	°C
	Reverse Voltage	$V_R$	6	V
	Consume Power	$P$	100	mW
Output	Collector and emitter Voltage	$V_{CEO}$	80	V
	Emitter and collector Voltage	$V_{ECO}$	7	
	Collector Current	$I_C$	50	mA
	Consume Power	$P_C$	150	mW
Total Consume Power		$P_{tot}$	250	mW
*1 Insulation Voltage		$V_{iso}$	5000	Vrms
Working Temperature		$T_{opr}$	-55 to + 110	°C
Deposit Temperature		$T_{stg}$	-55 to + 125	
*2 Soldering Temperature		$T_{sol}$	260	

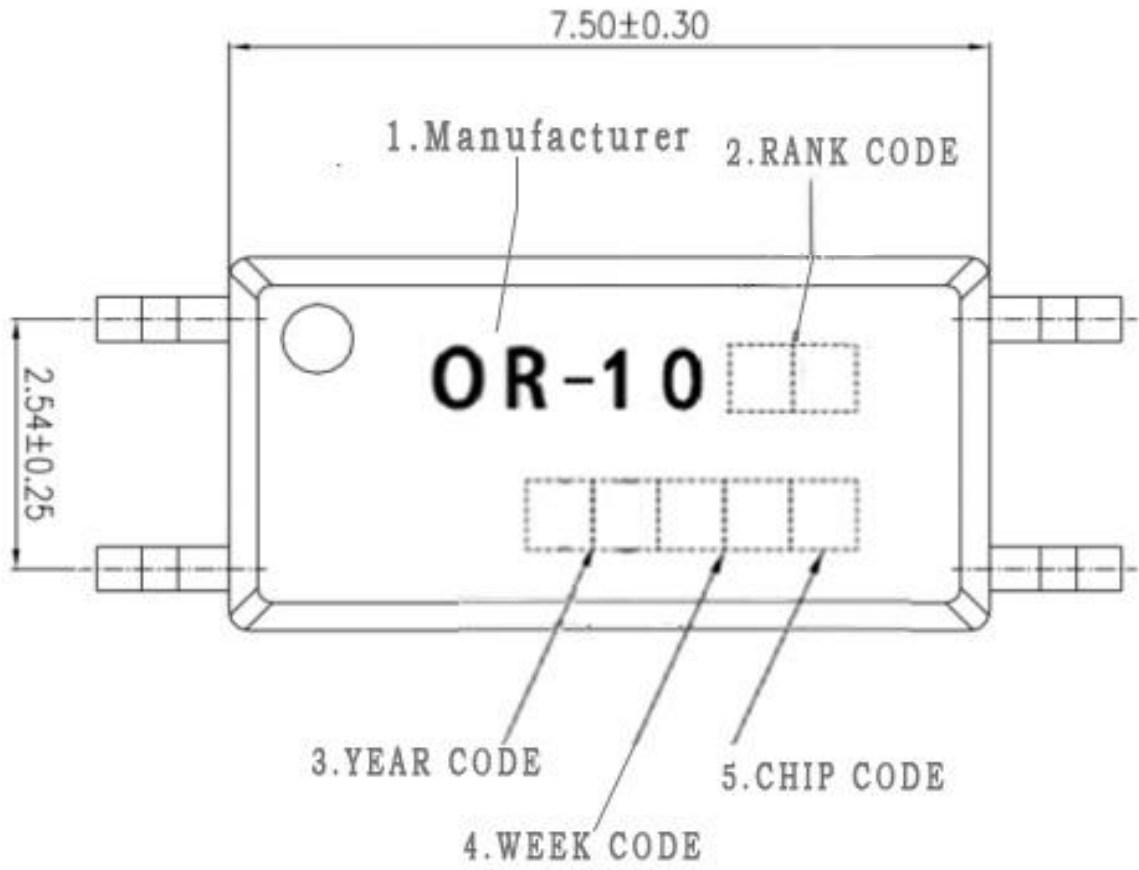
Notes

\*1 AC for 1 minute, R.H.= 40 ~ 60% R.H. In this test, pins 1, 2 are shorted together, and pins 3, 4 are shorted together.

\* 2 For 10 seconds

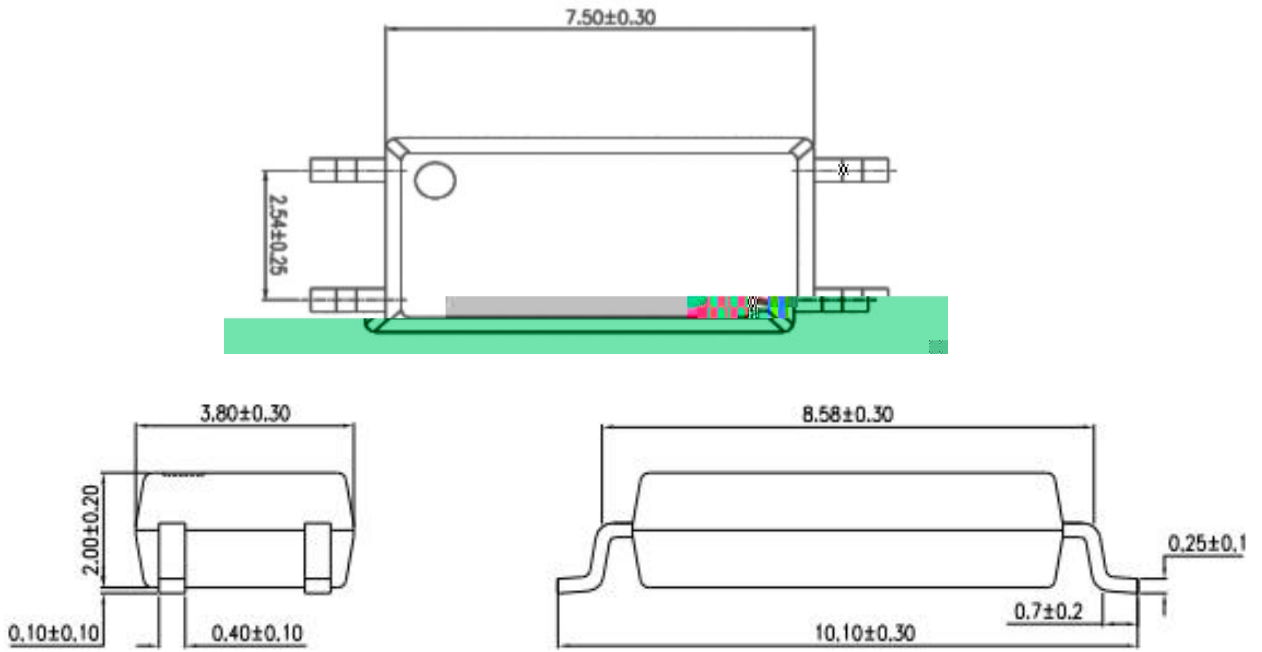
Parameter		Symbol	Condition	Min	Typ.*	Max	Unit
Input		$V_F$	$I_F=50\text{mA}$	---	1.25	1.6	V
		$I_R$	$V_R=4\text{V}$	---	---	10	$\mu\text{A}$
		$C_t$	$V=0, f=1\text{MHz}$	---	50	---	pF
Output		$I_{CEO}$	$V_{CE}=20\text{V},$ $I_F=0\text{mA}$	---	10	100	nA
		$BV_{CEO}$	$I_C=1\text{mA}$ $I_F=0\text{mA}$	80	---	---	V
		$BV_{ECO}$	$I_E=0.1\text{mA}$ $I_F=0\text{mA}$	7	---	---	V
Transforming Characteristics		CTR	$I_F=5\text{mA}$ $V_{CE}=5\text{V}$	50	---	600	%
		$I_C$		2.5	---	30	mA
		$V_{CE(sat)}$	$I_F=10\text{mA}$ $I_C=1\text{mA}$	---	---	0.3	V
		$R_{iso}$	DC500V 40~60%R.H.	$10^{12}$	---	---	$\Omega$
		$C_f$	$V=0, f=1\text{MHz}$	---	0.3	---	pF
		$t_r$	$V_{CC}=5\text{V},$ $I_C=2\text{mA}$ $R_L=100\Omega$	---	3	18	$\mu\text{s}$
		$t_f$		---	4.7	18	$\mu\text{s}$

					°C
					°C
					°C

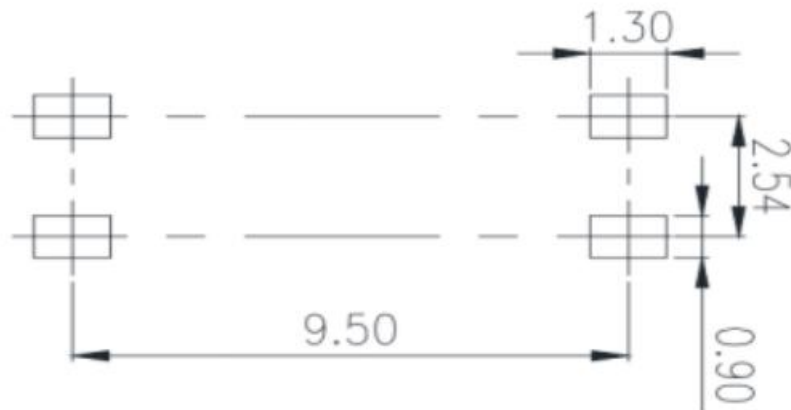


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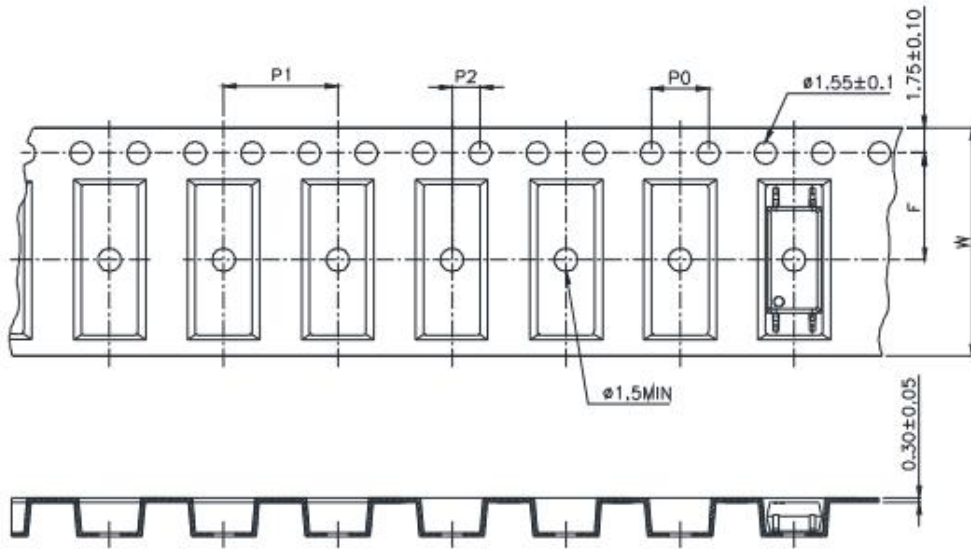


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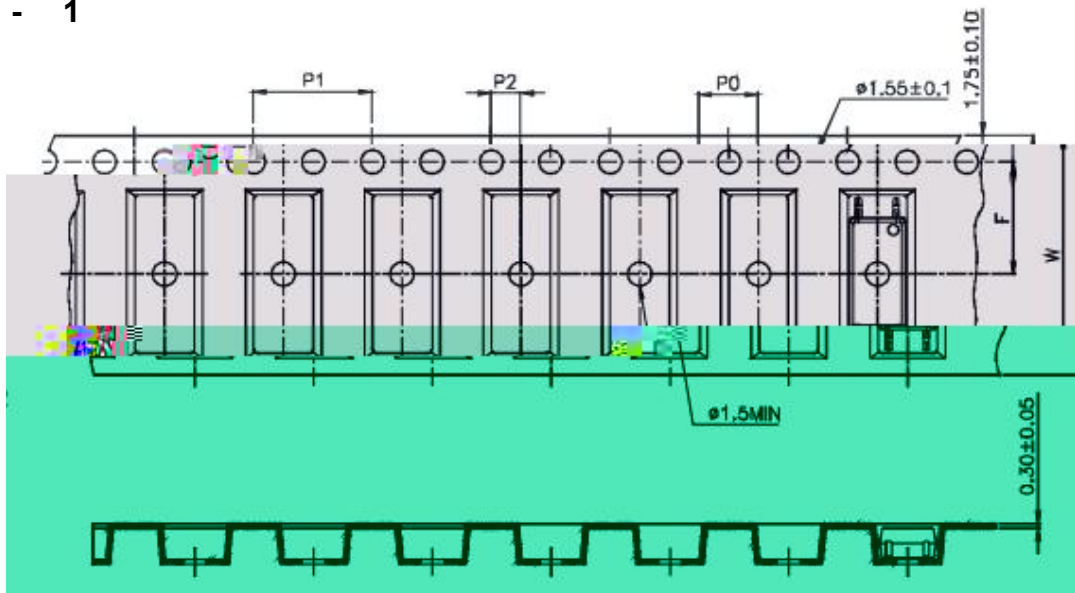


10.

(1) -10 -



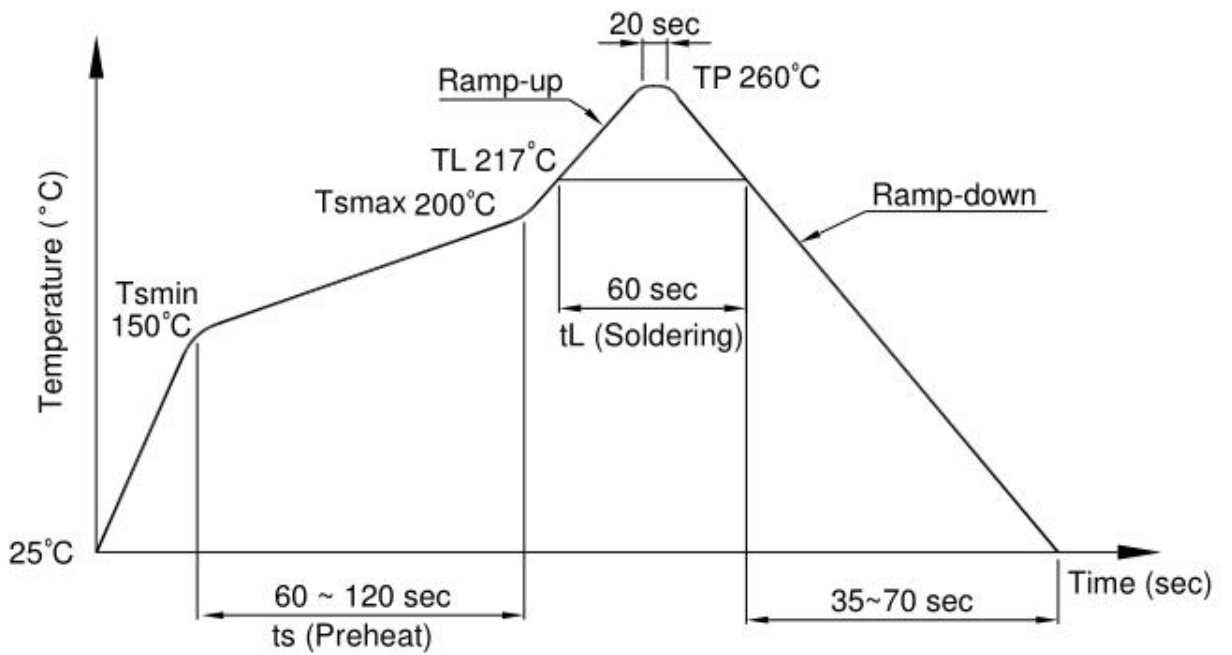
(2) -10 - 1





11.

(1). ( - -020 )





OR-10XX

12.

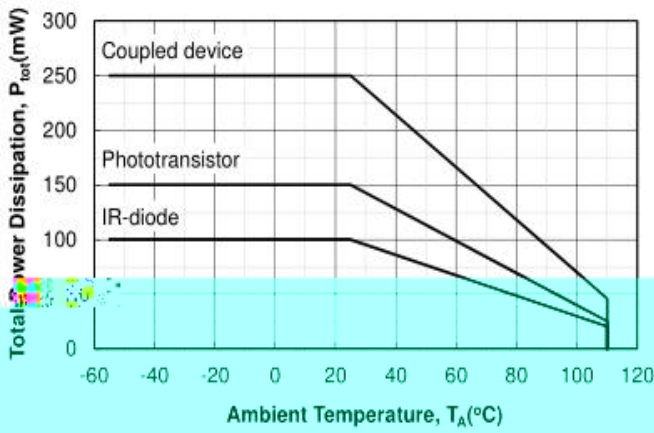


Figure 1.  $P_{tot}$  vs.  $T_A$

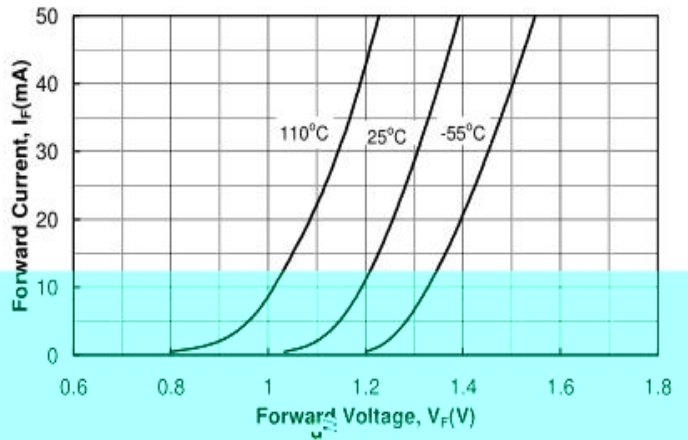


Figure 4.  $I_F$  vs.  $V_F$

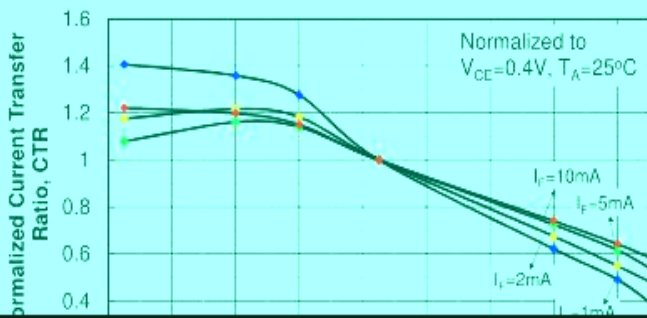


Figure 3. Non-saturated Normalized CTR vs.  $T_A$

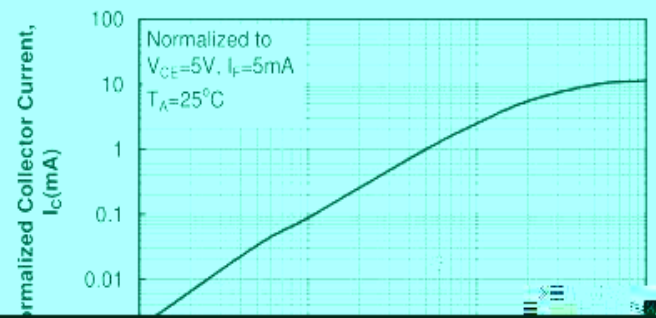


Figure 6. Normalized CTR vs.  $I_F$

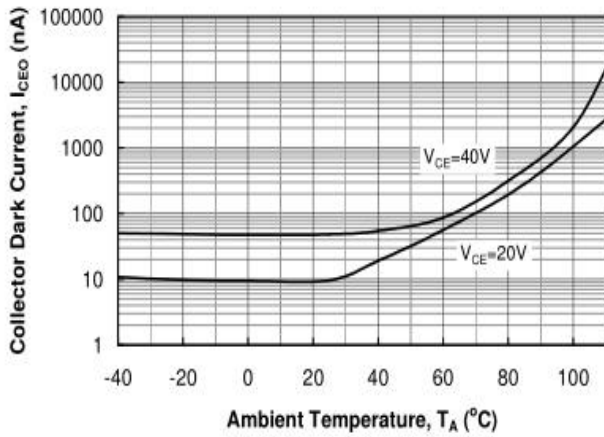


Figure 7.  $I_{CEO}$  vs.  $T_A$

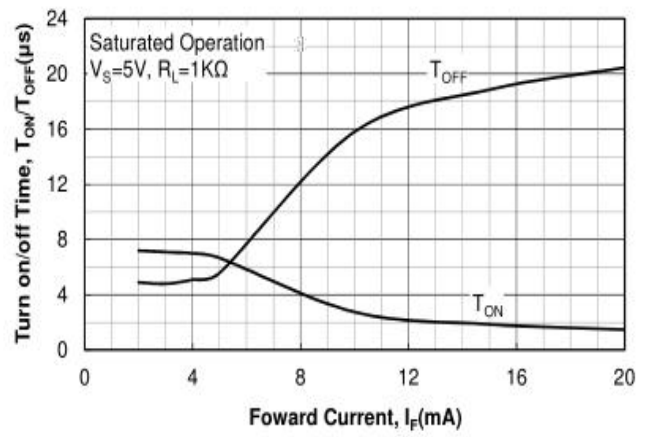


Figure 10.  $T_{ON} / T_{OFF}$  vs.  $I_F$

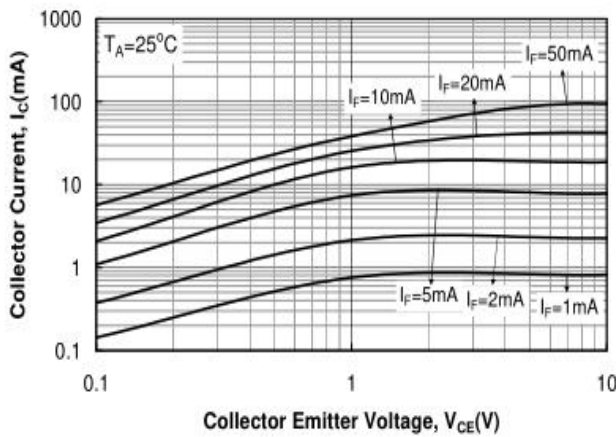


Figure 8.  $I_C$  vs.  $V_{CE}$

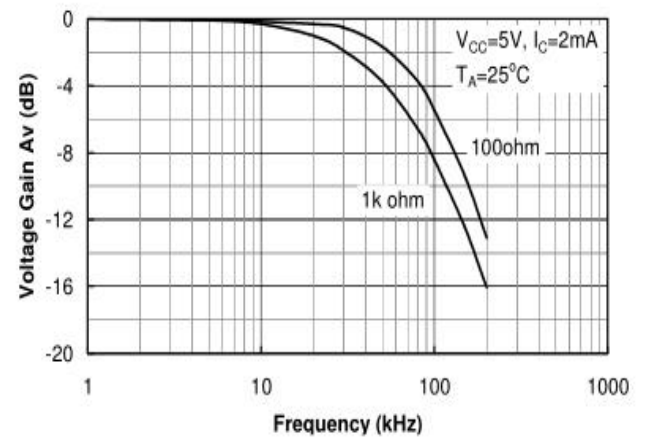


Figure 11. Frequency Response

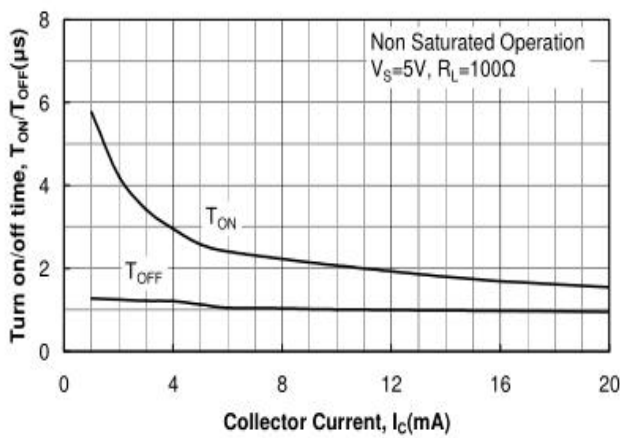


Figure 9.  $T_{ON} / T_{OFF}$  vs.  $I_C$

