



ORIENT

Photocoupler

Product Data Sheet

Name: OR-10XX

Customer: _____

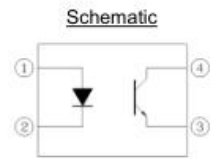
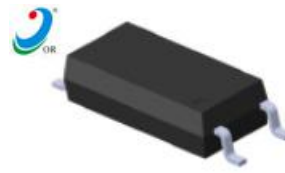
Date: _____

A B A3 F
: _____

H G ,L G D , ,G ,518172

1.

- (1) C
(C : 50 600% IF = 5 A, CE = 5)
(C : 63 320% IF = 10 A, CE = 5)
- (2) H - (= 5,000)
- (3) H - (CE = 70)
- (4) -55 110
- (5) C > 8
- (6) E
- (7) L - : 2.3 : -10



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

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.

- (1)
- (2)
- (3)
- (4) H , , .
- (5)

(2)

| Parameter | | Symbol | Rated Value | Unit |
|--------------------------|-------------------------------|------------------|--------------|------|
| Input | Forward Current | I _F | 60 | mA |
| | Junction Temperature | T _J | 125 | |
| | 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 | |
| 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.

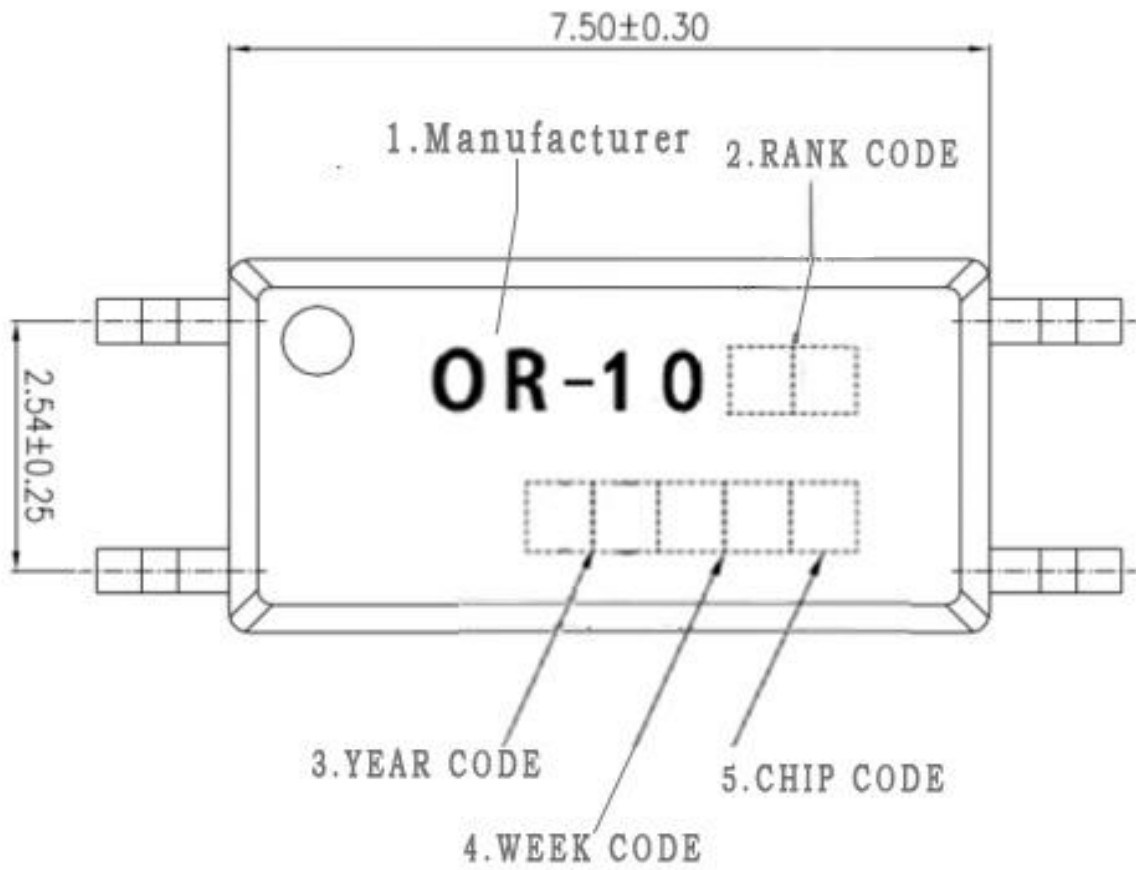
* 2 For 10 seconds

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

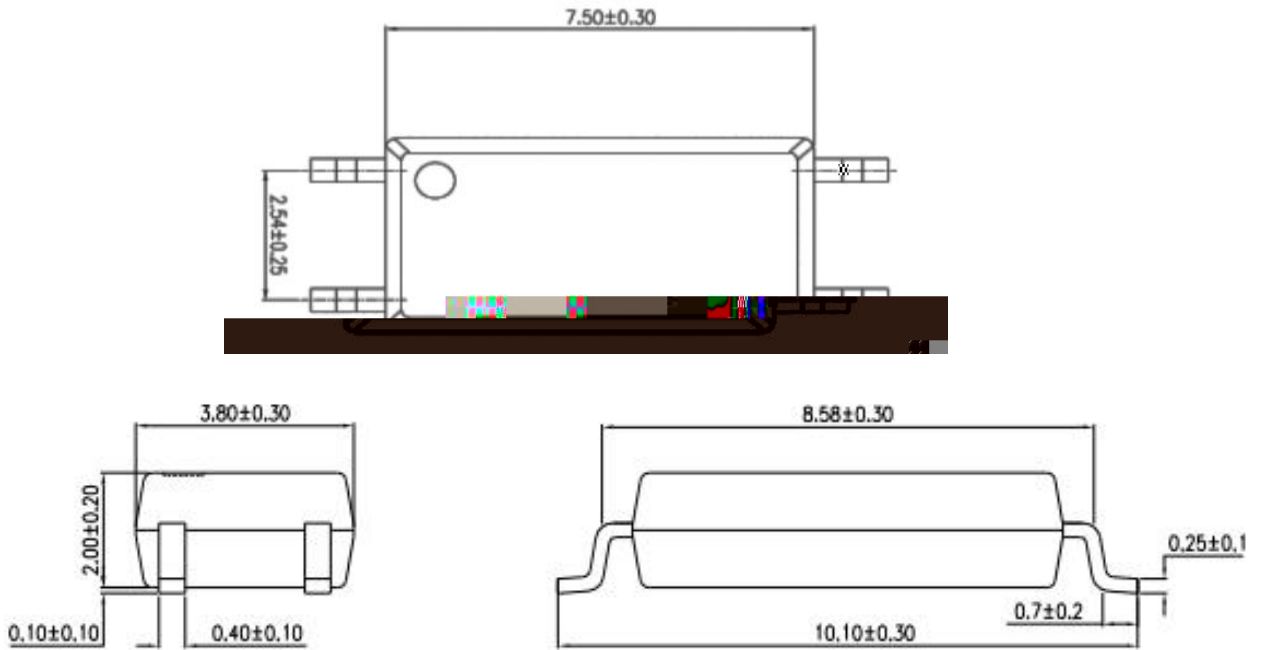
*1 C C = I_C / I_F 100%, C : 3%.



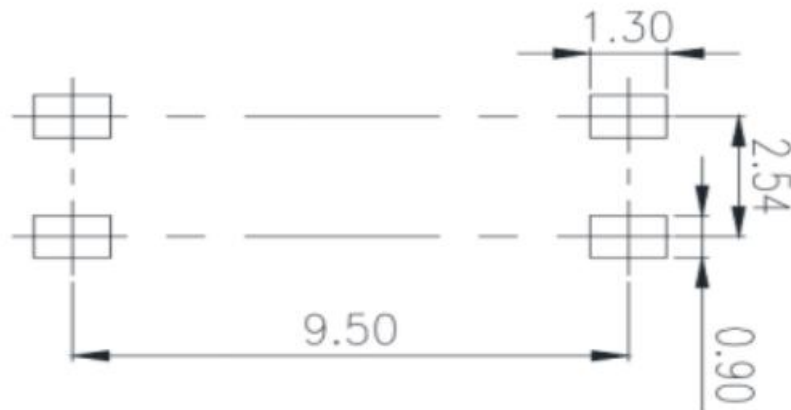
| C | | | | | C |
|-------|-----|--|-----|---|---------------------|
| -1000 | 50 | | 600 | % | IF=5 A, CE=5 , =25 |
| -1001 | 100 | | 160 | | |
| -1004 | 100 | | 200 | | |
| -1005 | 50 | | 150 | | |
| -1006 | 100 | | 300 | | |
| -1007 | 80 | | 160 | | |
| -1008 | 130 | | 260 | | |
| -1009 | 200 | | 400 | | |
| -1010 | 150 | | 300 | | |
| -1019 | 250 | | 500 | | |
| -1020 | 300 | | 450 | | |
| -1002 | 22 | | | % | IF=1 A, CE=5 , =25 |
| -1003 | 34 | | | | |
| -1014 | 56 | | | | |
| -1015 | 63 | | 125 | | |
| -1018 | 100 | | 200 | | |
| -1002 | 63 | | 125 | % | IF=10 A, CE=5 , =25 |
| -1003 | 100 | | 200 | | |
| -1014 | 160 | | 320 | | |



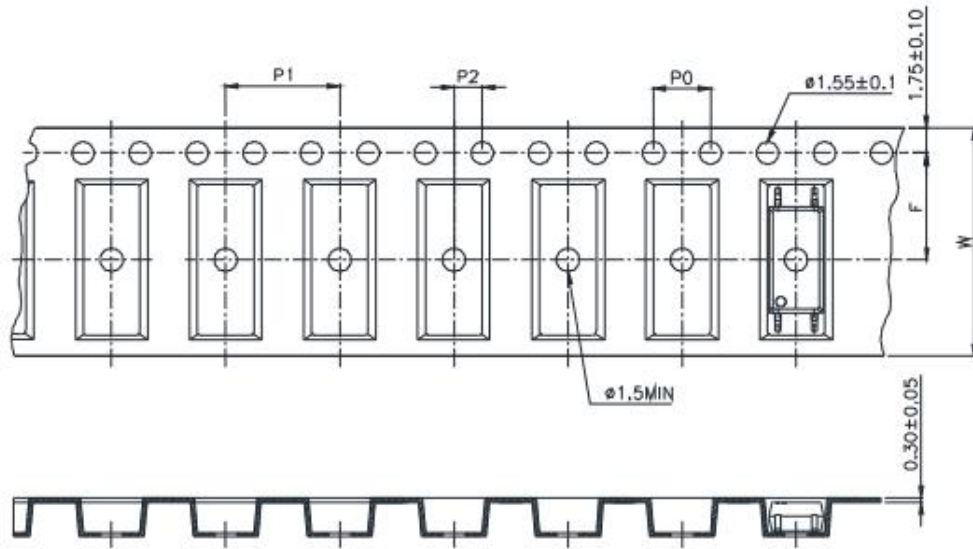
- (1) L . C . , L .
- (2) C .
- (3) .
- (4) .
- (5) C C
- (6) -10 D
- (7) :



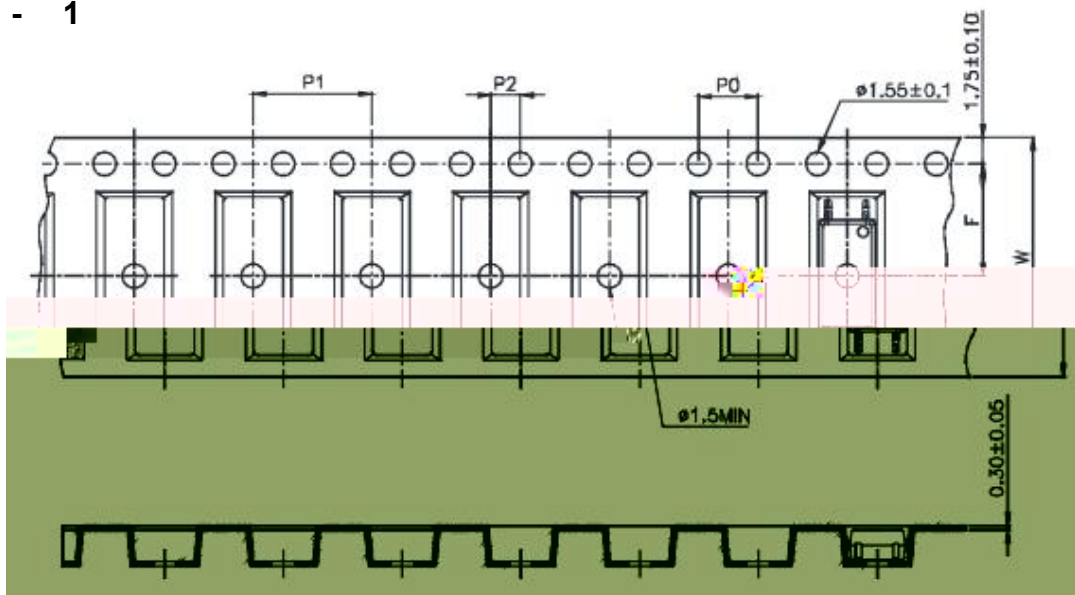
()



(1) -10 -



(2) -10 - 1



| | | |
|---|---|-----------------|
| D | | D () |
| | | 16 0.3 (0.63) |
| | 0 | 4 0.3 (0.15) |
| D | F | 7.5 0.1 (0.295) |
| | 2 | 2 0.1 (0.079) |
| D | 1 | 8 0.1 (0.315) |

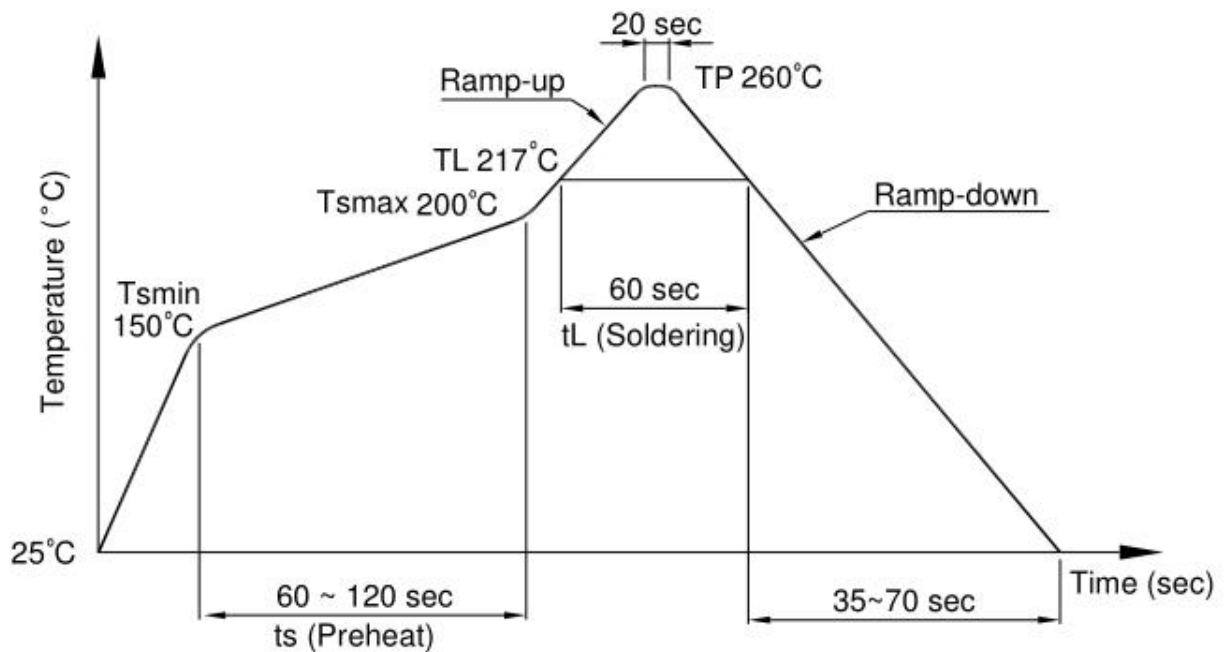
| | |
|-----|------------|
| | -10 (/ 1) |
| () | 3000 |

11.

(1). (- -020)

. D

| | |
|-----------|---------|
| | C |
| - () | 150 C |
| - () | 200 C |
| - () () | 90 30 |
| - (L) | 217 C |
| - (L) | 60 |
| () | 260 C |
| - | 3 C / |
| - | 3 6 C / |



12.

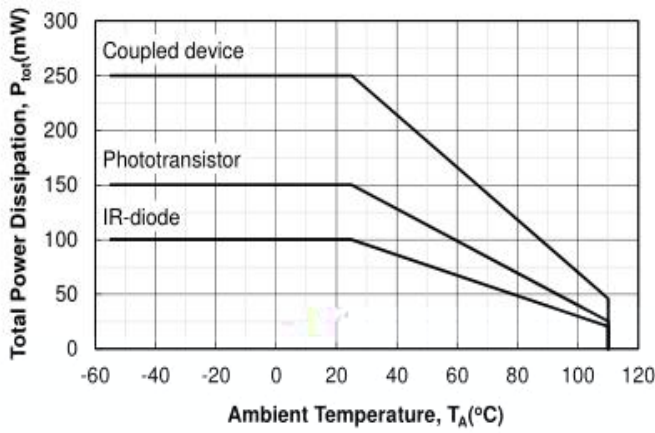


Figure 1. P_{tot} vs. T_A

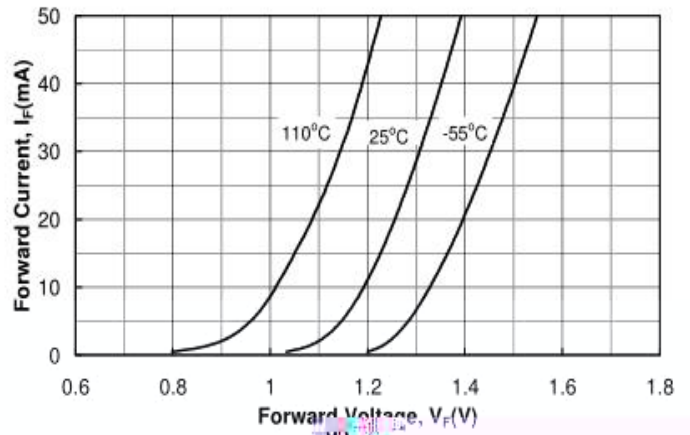


Figure 4. I_F vs. V_F

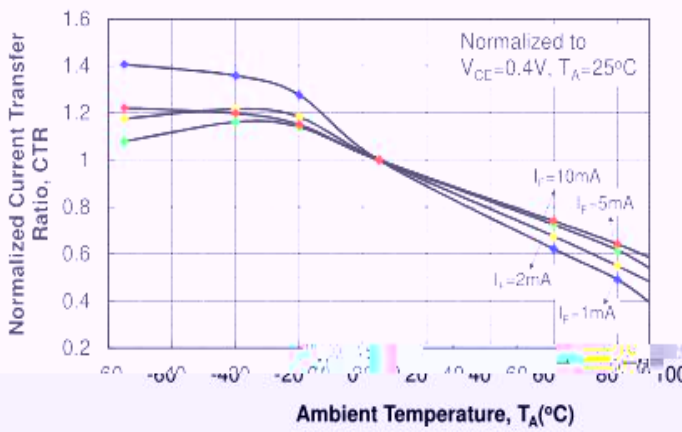


Figure 2. Saturated Normalized CTR vs. T_A

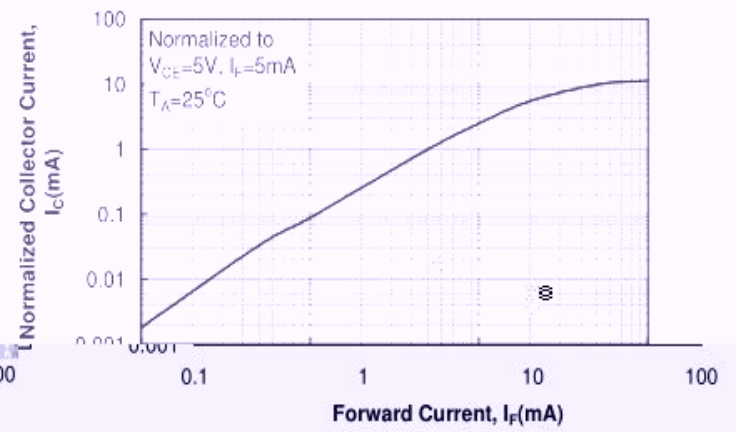


Figure 5. Normalized I_C vs. I_F

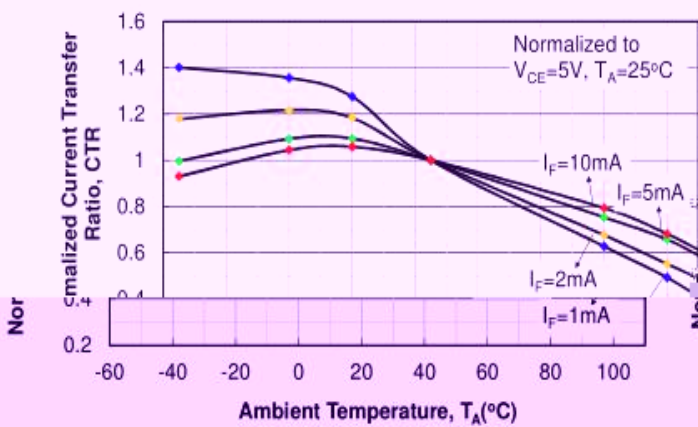


Figure 3. Non-saturated Normalized CTR vs. T_A

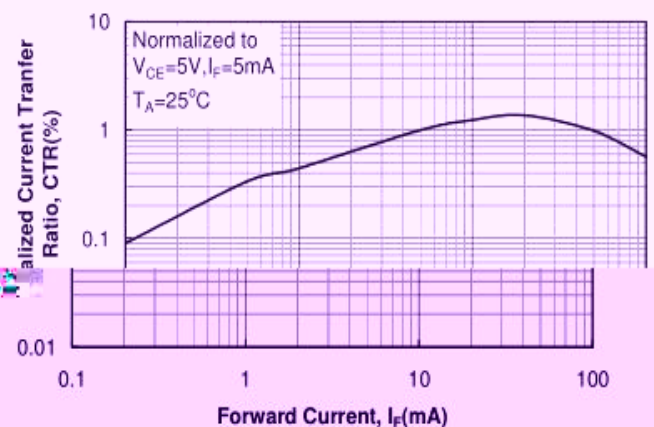


Figure 6. Normalized CTR vs. I_F

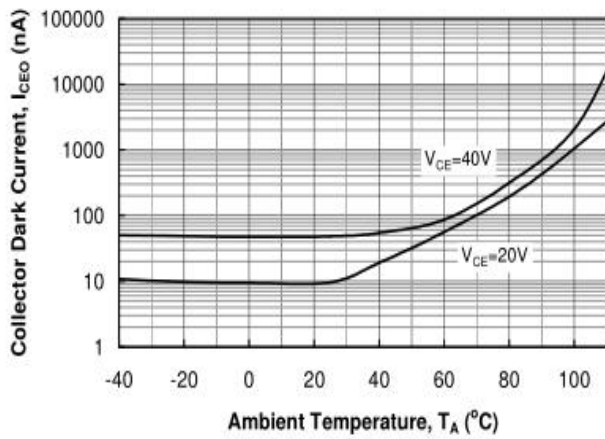


Figure 7. I_{CEO} vs. T_A

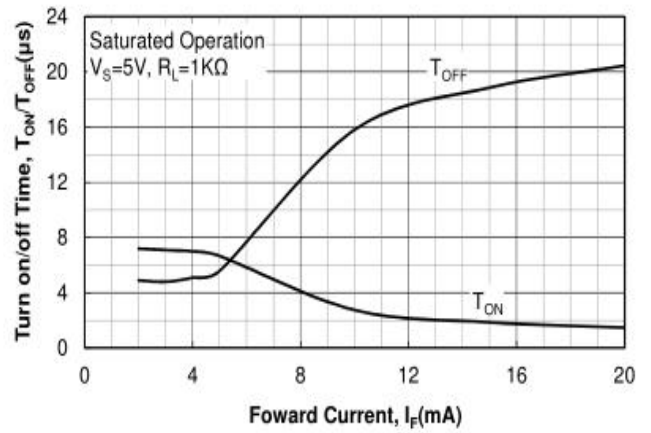


Figure 10. T_{ON} / T_{OFF} vs. I_F

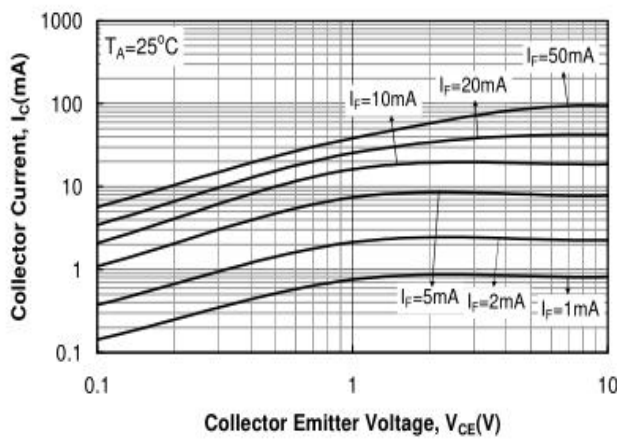


Figure 8. I_C vs. V_{CE}

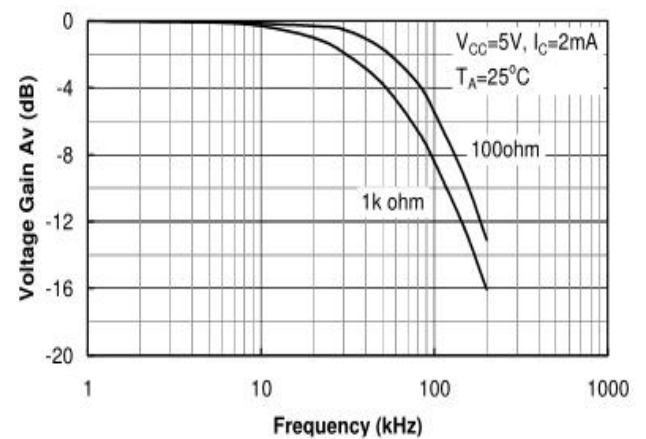


Figure 11. Frequency Response

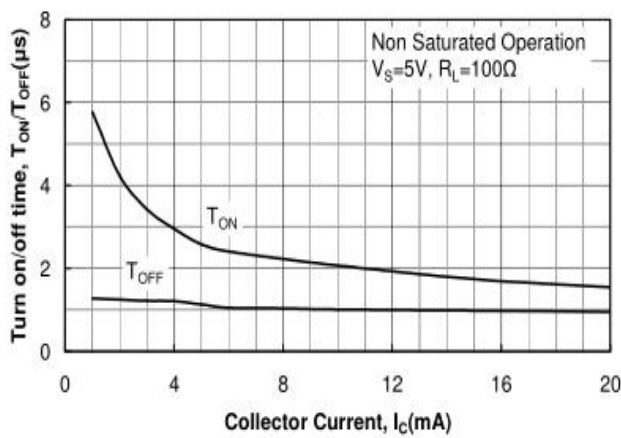


Figure 9. T_{ON} / T_{OFF} vs. I_C



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