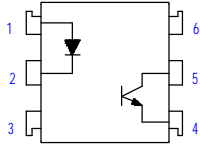


Schematic:



For dimensions and pin-outs, see the last page of this document.

Features:

1. Current transfer ratio
(CTR : 160-320% at $I_F=10\text{mA}$ $V_{CE}=5\text{V}$)
2. High isolation voltage between input and output
(Viso : 5300Vrms, 7500vPK).
3. Compact dual-in-line package.

Ordering:

Suffix to Standard Part Number

- V = VDE Compliant
- G = 10mm Lead Spread
- S = Surface Mount Lead-form
- T = Tape & Reel

Superior OPTO Part Number:

OPTO610

Absolute Maximum Ratings:

| | Parameter | Symbol | Rating | Unit |
|--------|---------------------------------|-----------|-------------|------|
| Input | Forward current | I_F | 50 | mA |
| | Peak forward current | I_{FM} | 1 | A |
| | Reverse voltage | V_R | 6 | V |
| | Power dissipation | P_D | 70 | mW |
| Output | Collector-emitter voltage | V_{CEO} | 100 | V |
| | Emitter-collector voltage | V_{ECO} | 6 | V |
| | Collector current | I_C | 50 | mA |
| | Collector power dissipation | P_C | 150 | mW |
| | Total power dissipation | P_{tot} | 200 | mW |
| | Isolation voltage 1 minute | V_{ISO} | 5300 | Vrms |
| | Operating temperature | T_{opr} | -55 to +100 | °C |
| | Storage temperature | T_{stg} | -55 to +125 | °C |
| | Soldering temperature 10 second | T_{sol} | 260 | °C |

Electrical Characteristics:

| | Parameter | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|--------------------------|--------------------------------------|---------------|---|--------------------|-----------|------|------|
| Input | Forward voltage | V_F | $I_F=20\text{mA}$ | - | 1.2 | 1.4 | V |
| | Peak forward voltage | V_{FM} | $I_{FM}=0.5\text{A}$ | - | - | 3.5 | V |
| | Reverse current | I_R | $V_R=4\text{V}$ | - | - | 10 | uA |
| | Terminal capacitance | C_t | $V=0, f=1\text{kHz}$ | - | 30 | - | pF |
| Output | Collector dark current | I_{CEO} | $V_{CE}=20\text{V}$ | - | - | 0.1 | Ua |
| Transfer characteristics | Current transfer ratio | CTR | $I_F=10\text{mA}, V_{CE}=5\text{V}$ | 160 | - | 320 | % |
| | Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_F=10\text{mA}, I_C=2.5\text{mA}$ | - | 0.1 | 0.3 | V |
| | Isolation resistance | Riso | DC500V | 5×10^{10} | 10^{11} | - | ohm |
| | Floating capacitance | C_f | $V=0, f=1\text{MHz}$ | - | 0.6 | 1.0 | pF |
| | Cut-off frequency | f_c | $V_{CC}=5\text{V}, I_C=2\text{mA}, R_L=100\text{ohm}$ | - | 80 | - | kHz |
| | Response time (Rise) | t_r | $V_{CE}=2\text{V}, I_C=2\text{mA}, R_L=100\text{ohm}$ | - | 5 | 20 | us |
| | Response time (Fall) | t_f | | - | 4 | 20 | us |

Fig. 1 Current Transfer Ratio Vs. Forward Current

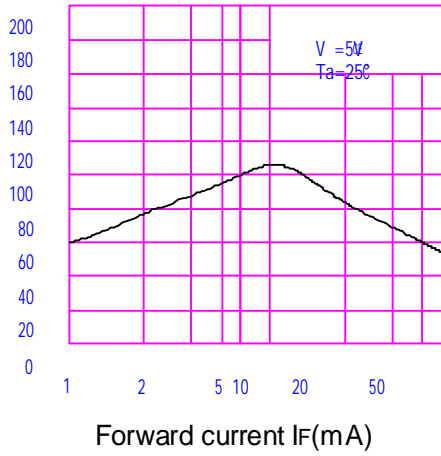


Fig.3 Collector Dark Current vs. Ambient Temperature

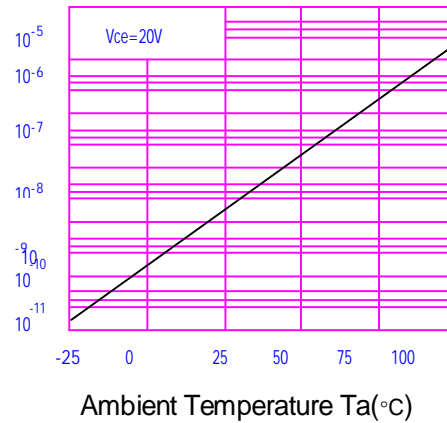
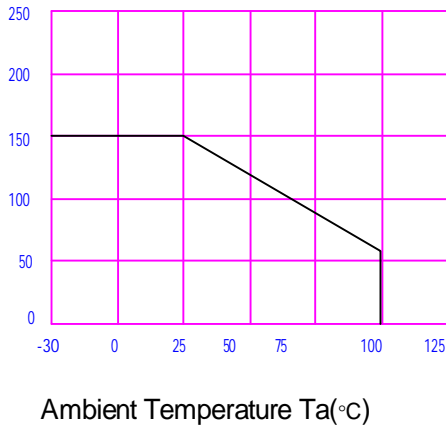


Fig.4 Forward Current vs. Ambient Temperature

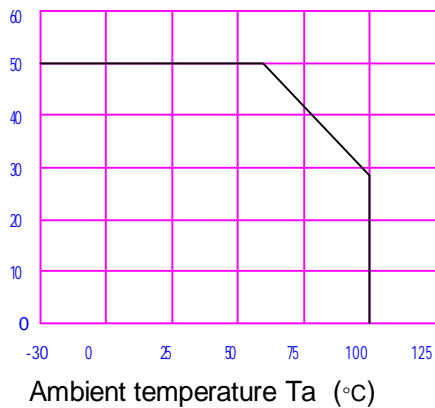


Fig.5 Forward Current vs. Forward Voltage

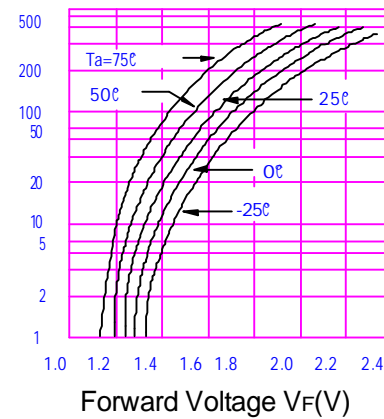
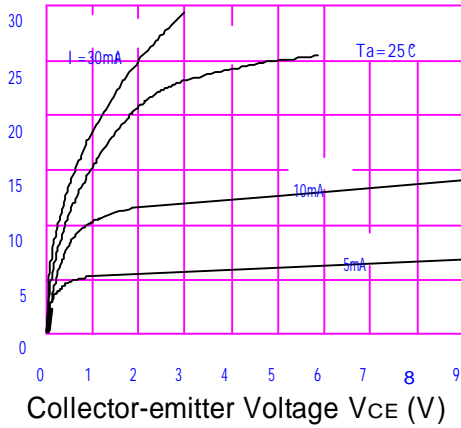


Fig.6 Collector Current vs. Collector-emitter Voltage

Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

Ambient temperature $T_a(^{\circ}C)$
Fig.6 Collector Current vs.
Collector-emitter Voltage



Forward Voltage $V_f(V)$
Fig.7 Relative Current Transfer Ratio
vs. Ambient Temperature

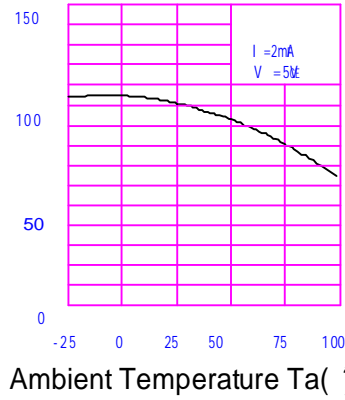


Fig.8 Collector-emitter Saturation
Voltage vs. Ambient Temperature

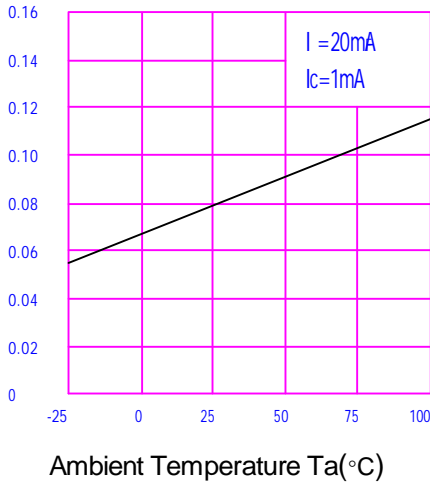


Fig.9 Collector-emitter Saturation
Voltage vs. Forward Current

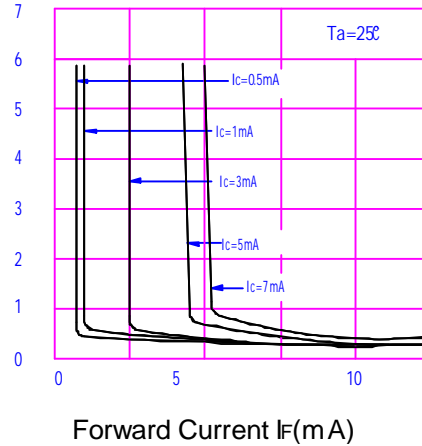


Fig.10 Response Time vs. Load
Resistance

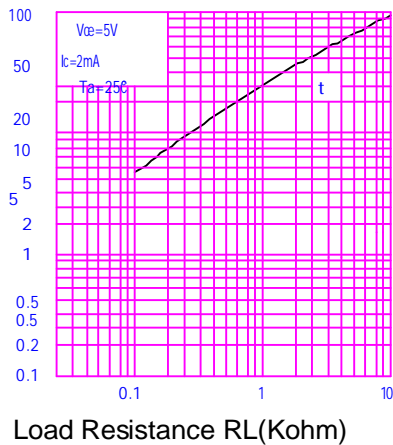


Fig.11 Response Time vs. Load
Resistance

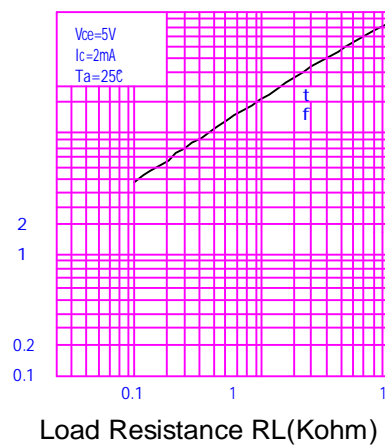
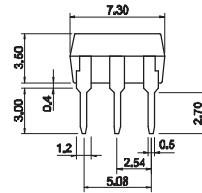
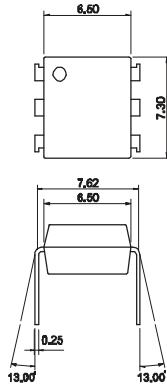
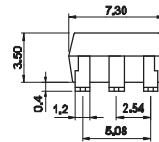
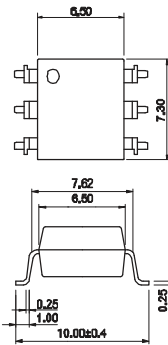


Fig.4 : 6-pin DIP type



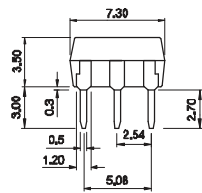
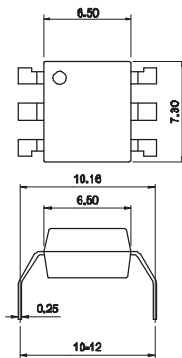
TOLERANCE : $\pm 0.2\text{mm}$

Fig.5 : 6-pin SMD type



TOLERANCE : $\pm 0.2\text{mm}$

Fig.6 : 6-pin G type

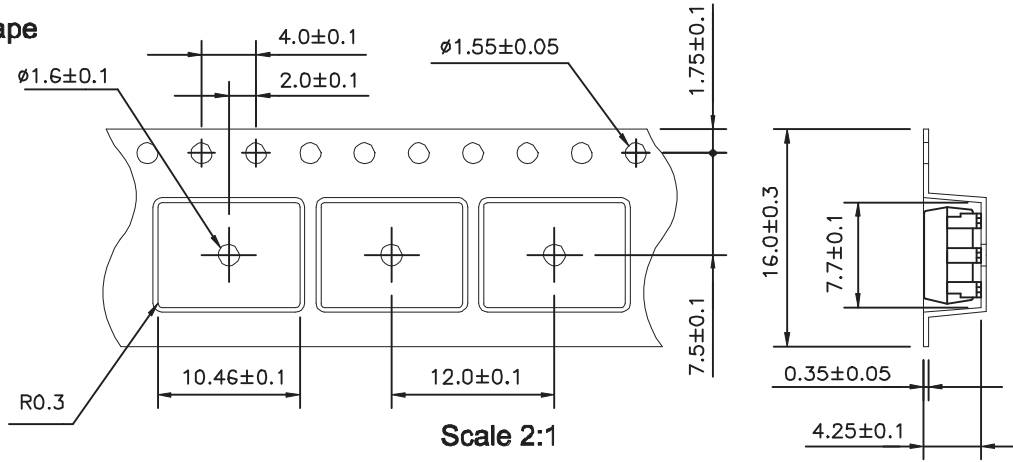


TOLERANCE : $\pm 0.2\text{mm}$

6-pin SMD Carrier Tape & Reel

Unit:mm

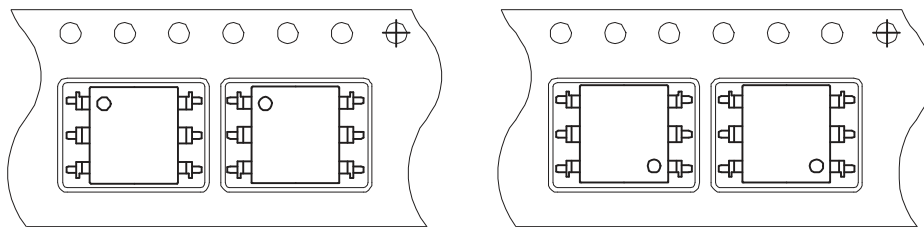
Tape



Scale 2:1

Material : PS

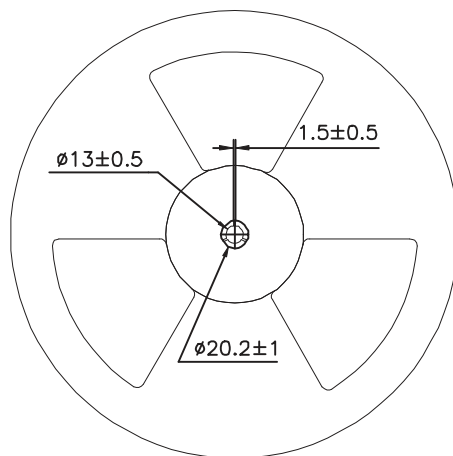
Direction



TL

TR

Reel



Scale 1:5

Material : PVC



Packing: 1000pcs/reel