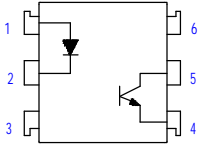


### Schematic:



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

### Features:

1. Current transfer ratio  
(CTR : 200-400% 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	$V_{CEO}$	70	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	$5 \times 10^{10}$	$10^{11}$	–	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

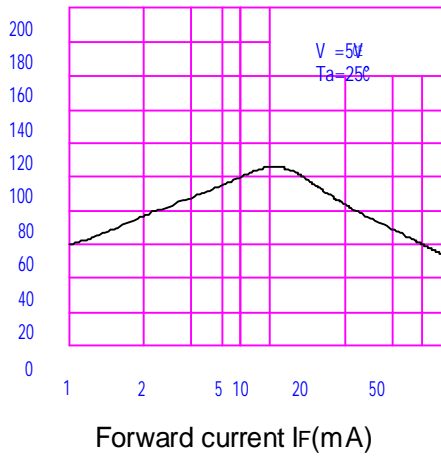


Fig.3 Collector Dark Current vs. Ambient Temperature

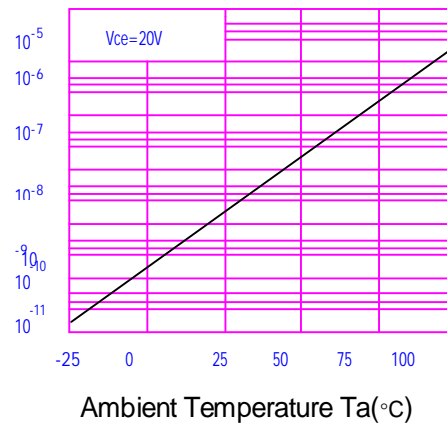
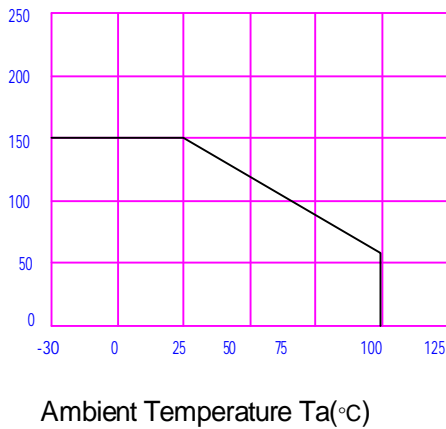


Fig.4 Forward Current vs. Ambient Temperature

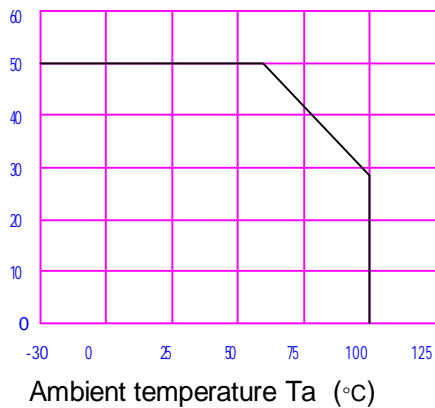


Fig.5 Forward Current vs. Forward Voltage

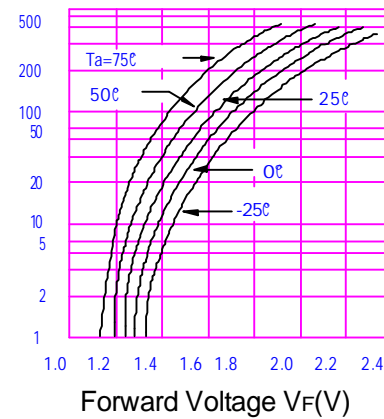


Fig.6 Collector Current vs. Collector-emitter Voltage

Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

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

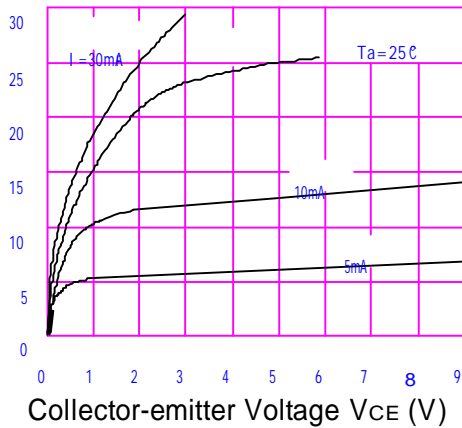
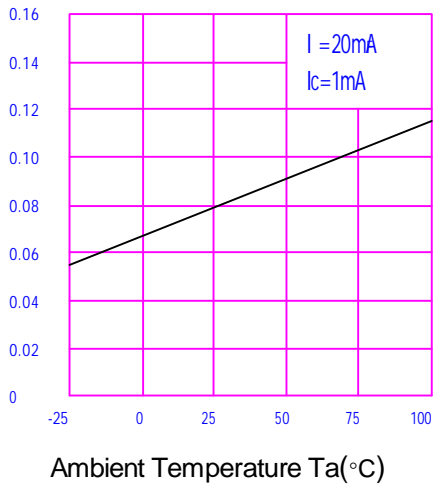


Fig.8 Collector-emitter Saturation  
Voltage vs. Ambient Temperature



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

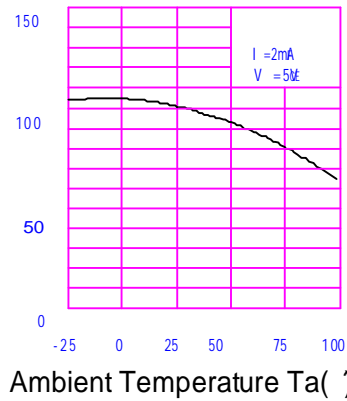


Fig.9 Collector-emitter Saturation  
Voltage vs. Forward Current

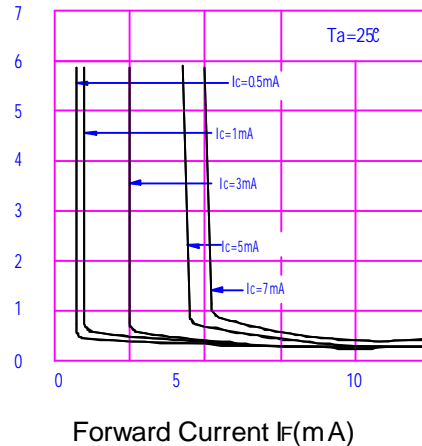


Fig.10 Response Time vs. Load  
Resistance

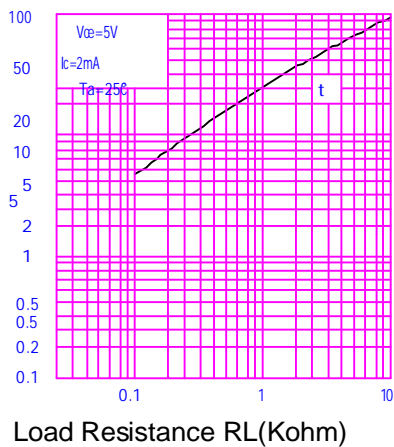


Fig.11 Response Time vs. Load  
Resistance

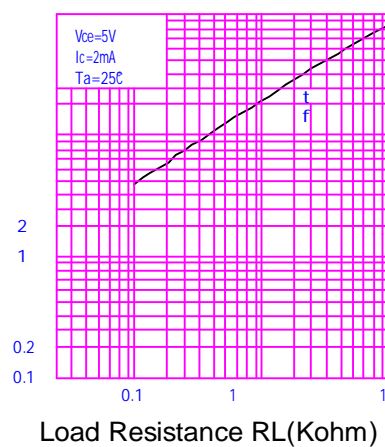
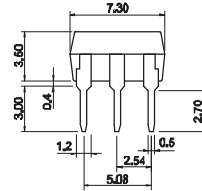
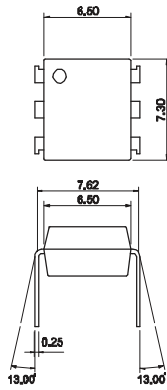
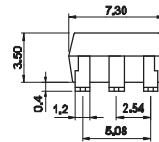
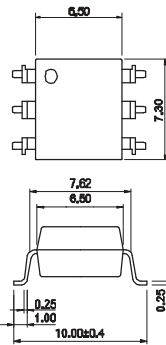


Fig.4 : 6-pin DIP type



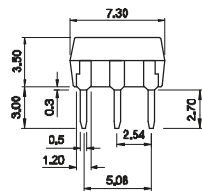
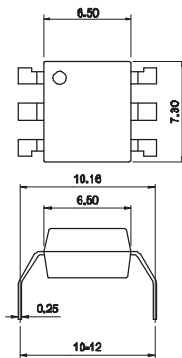
TOLERANCE :  $\pm 0.2\text{mm}$

Fig.5 : 6-pin SMD type



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

Fig.6 : 6-pin G type

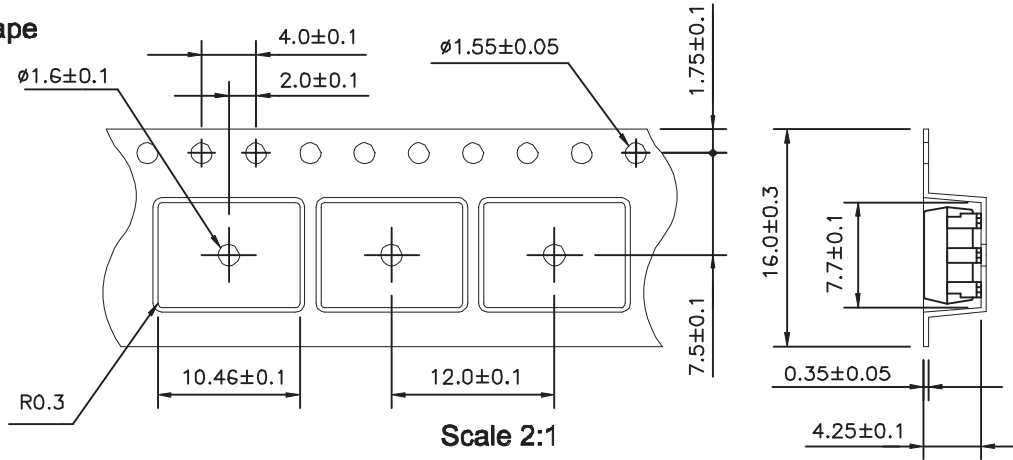


TOLERANCE :  $\pm 0.2\text{mm}$

6-pin SMD Carrier Tape & Reel

Unit:mm

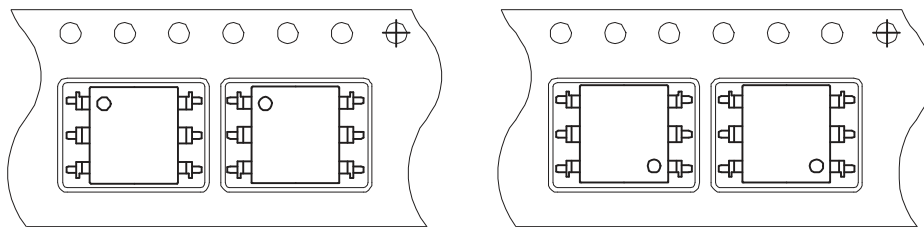
Tape



Scale 2:1

Material : PS

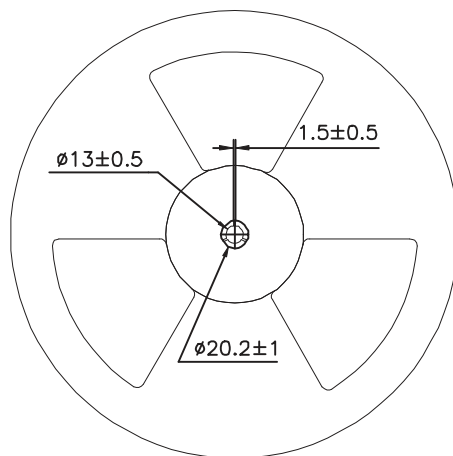
Direction



TL

TR

Reel



Scale 1:5

Material : PVC



Packing: 1000pcs/reel