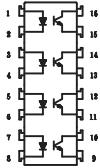


### Schematic:



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

### Features:

1. Current transfer ratio  
(CTR:MIN 100% at  $I_F=5mA$   $V_{ce}=5V$ )
2. High isolation voltage between input and output  
( $V_{iso}:5300V_{rms}$ ).
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:

**OPTO161**

### Absolute Maximum Ratings:

( $T_a=25^\circ C$ )

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	$V_{CEO}$	35	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	$V_{rms}$
Operating temperature		$T_{opr}$	-55 to +100	$^\circ C$
Storage temperature		$T_{stg}$	-55 to +125	$^\circ C$
Soldering temperature 10 second		$T_{sol}$	260	$^\circ C$

### Electrical Characteristics:

( $T_a=25^\circ C$ )

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	$V_F$	$I_F = 20mA$	—	1.2	1.4	V
	Peak forward voltage	$V_{FM}$	$I_{FM} = 0.5A$	—	—	3.0	V
	Reverse current	$I_R$	$V_R = 4V$	—	—	10	$\mu A$
	Terminal capacitance	$C_t$	$V=0, f=1kHz$	—	30	—	pF
Output	Collector dark current	$I_{CEO}$	$V_{CE} = 20V$	—	—	0.1	$\mu A$
Transfer characteristics	Current transfer ratio	CTR	$I_F = 5mA, V_{CE} = 5V$	100	—	—	%
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 5mA, I_C = 1mA$	—	—	0.4	V
	Isolation resistance	Riso	DC500V	$5 \times 10^{10}$	$10^{11}$	—	ohm
	Floating capacitance	$C_f$	$V=0, f=1MHz$	—	0.6	1.0	pF
	Cut-off frequency	$f_c$	$V_{CC} = 5V, I_C = 2mA, R_L = 100ohm$	—	80	—	kHz
	Response time(Rise)	$t_r$	$V_{CE} = 2V, I_C = 2mA, R_L = 100ohm$	—	4	18	$\mu s$
	Response time(Fall)	$t_f$		—	3	18	$\mu s$

Fig.1 Current Transfer Ratio vs. Forward Current

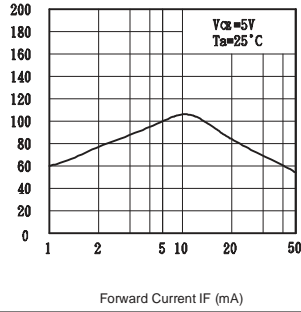


Fig.2 Collector Power Dissipation vs. Ambient Temperature

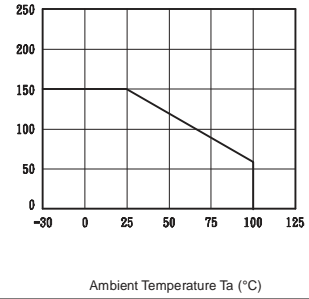


Fig.3 Collector Dark Current vs. Ambient Temperature

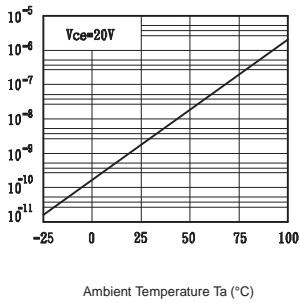


Fig.4 Forward Current vs. Ambient Temperature

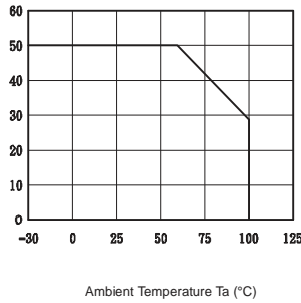


Fig.5 Forward Current vs. Forward Voltage

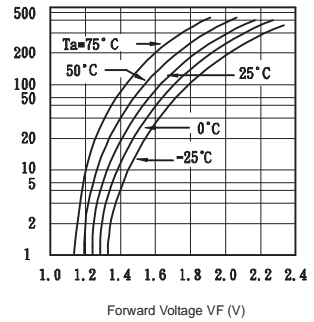


Fig.6 Collector Current vs. Collector-emitter Voltage

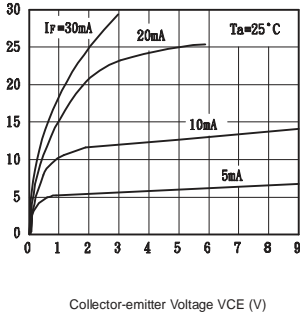


Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

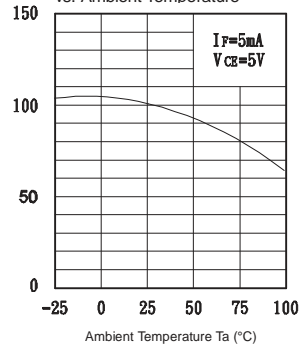


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

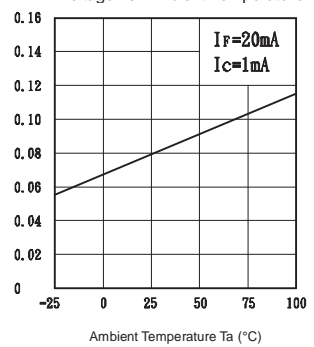


Fig.9 Collector-emitter Saturation Voltage vs. Forward Current

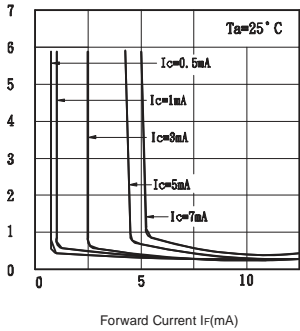


Fig.10 Response Time vs. Load Resistance

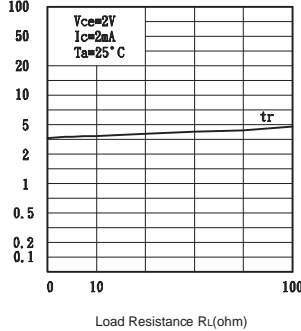


Fig.11 Response Time vs. Load Resistance

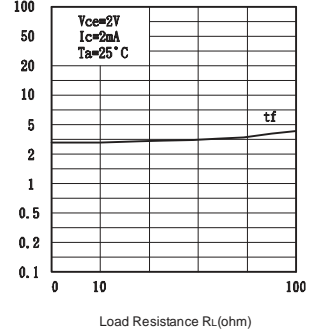
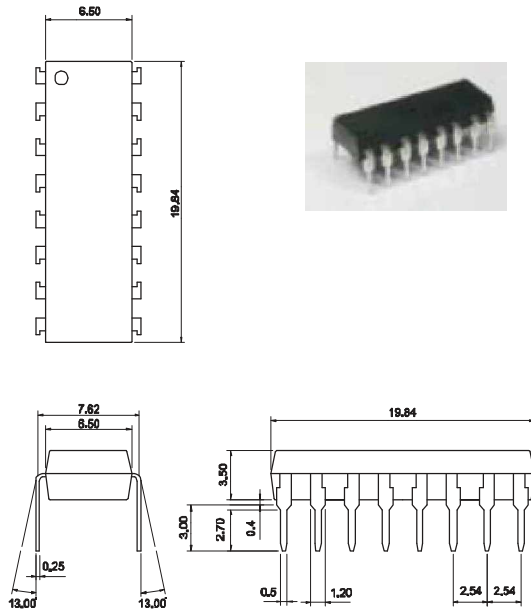
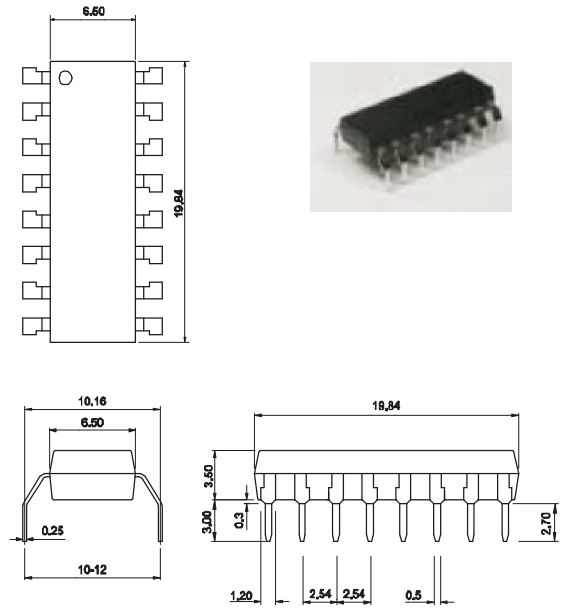


Fig.10 : 16-pin DIP type



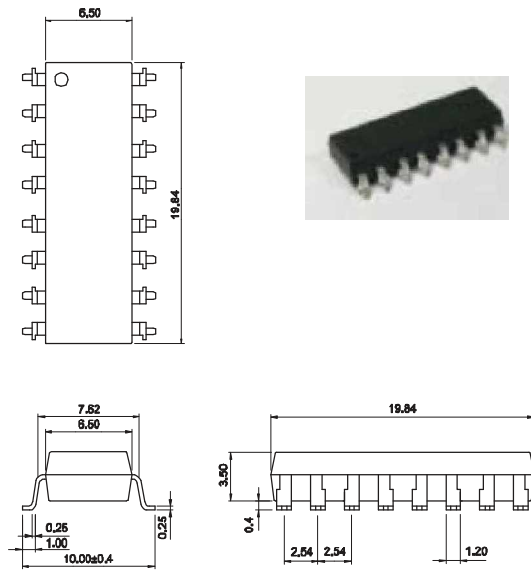
TOLERANCE :  $\pm 0.2\text{mm}$

Fig.12 : 16-pin G type



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

Fig.11 : 16-pin SMD type



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