



## Part Numbering System

WPPC - D 1 3 06 6 L D - TRU  
(1) (2) (3) (4) (5) (6) (7) (8) (9)

(1) **Photo Coupler**

(2) **Input**  
A: AC  
D: DC

(3) **Channel**  
1: 1 Channel  
2: 2 Channels  
4: 4 Channels

(4) **Output Configuration**  
1: Single Photo Transistor  
2: Darlington Photo Transistor  
3: (6-pin only) Single Photo Transistor without base terminal

(5) **Output Type**  
**Collector Emitter Voltage**  
03: 30V(V<sub>CEO</sub>)  
035: 35V(V<sub>CEO</sub>)  
06: 60V(V<sub>CEO</sub>)  
08: 80V(V<sub>CEO</sub>)  
30: 300V(V<sub>CEO</sub>)  
**Propagation Delay Time**  
D008: 1M bit/s\*  
D015: 1M bit/s\*  
D35: High Gain Split PD\*  
D60: High Gain Split PD\*

\*Digital High Speed Parts: Code denotes max propagation delay.

(6) **Pin Configuration**  
4: 4pin  
6: 6pin  
8: 8pin  
16: 16pin

(7) **CTR Ranking**  
Note: The below ranking pertains to WPPC-D13066 Series. No CTR Ranking for Digital High Speed Parts.

Rank	CTR(%)	Rank	CTR(%)
A	60-160% @2mA5V	G	40-80% @10mA5V
B	130-260% @2mA5V	H	63-125% @10mA5V
C	200-400% @2mA5V	I	100-200% @10mA5V
D	300-600% @2mA5V	J	160-320% @10mA5V
E	60-600% @2mA5V	K	200-400% @10mA5V
F	160-256% @10mA10V	L	min. 100% @ 10mA 10V

(8) **Package Types**  
D: DIP  
A: SMD  
S: SOP  
SS: SSOP  
H: Long Creepage Distance

(9) **Taping**  
TLD: Tape Direction Left  
TRU: Tape Direction Right

## Features

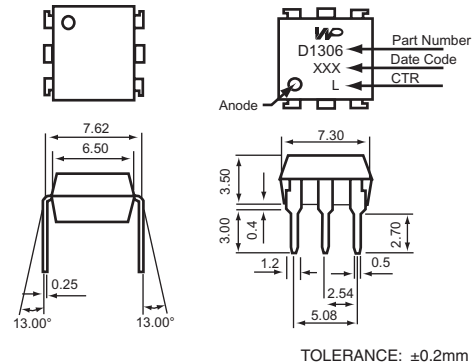
1. Current transfer ratio.  
(CTR: MIN. 60% at  $I_F = 2\text{mA}$ ,  $V_{CE} = 5\text{V}$ )
2. High isolation voltage between input and output  
(Viso: 5000Vrms).
3. Compact dual-in-line package.
4. Available package types: DIP(shown)/ SMD/ H.

## Applications

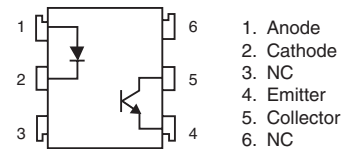
1. Registers, copiers, automatic vending machines.
2. System appliances, measuring instruments.
3. Computer terminals, programmable controllers.
4. Communications, telephone, etc.
5. Electric home appliances, such as oil fan heaters, Microwave oven, Washer, Refrigerator, Air conditioner, etc.
6. Medical instruments, physical and chemical equipment.
7. Signal transmission between circuits of different potentials and impedances.
8. Facsimilie equipment, Audio, Video.
9. Switching power supply, Laser beam printer.

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## Outside Dimension: Unit (mm)



## Schematic: Top View



## Absolute Maximum Ratings

( $T_a = 25^\circ\text{C}$ )

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	$V_{CEO}$	60	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		Viso	5000	Vrms
Operating Temperature		$T_{opr}$	-30 to +100	$^\circ\text{C}$
Storage Temperature		$T_{stg}$	-55 to +125	$^\circ\text{C}$
Solder Temperature 10 seconds		$T_{sol}$	260	$^\circ\text{C}$

## Electro-optical Characteristics

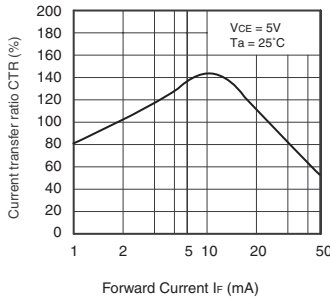
( $T_a = 25^\circ\text{C}$ )

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	$\mu\text{A}$
	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	$\mu\text{A}$
Transfer Characteristics	Current transfer ratio	CTR	$I_F = 2\text{mA}, V_{CE} = 5\text{V}$	60	-	600	%
	Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_F = 20\text{mA}, I_C = 1\text{mA}$	-	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	$f_c$	$V_{CC} = 5\text{V}, I_C = 2\text{mA}, R_L = 100\Omega$	-	80	-	kHz
	Response time (Rise)	$t_r$	$V_{ce} = 5\text{V}, I_C = 2\text{mA}, R_L = 100\Omega$	-	5	20	$\mu\text{s}$
Response time (Fall)	$t_f$	-		4	20	$\mu\text{s}$	

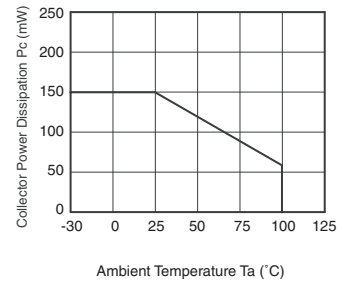
**Data Curves**

Rank	CTR(%)
A	60-160% @2mA 5V
B	130-260% @2mA 5V
C	200-400% @2mA 5V
D	300-600% @2mA 5V
E	60-600% @2mA 5V
F	160-256% @10mA 10V
G	40-80% @10mA 5V
H	63-125% @10mA 5V
I	100-200% @10mA 5V
J	160-320% @10mA 5V
K	200-400% @10mA 5V
L	min. 100% @ 10mA 10V

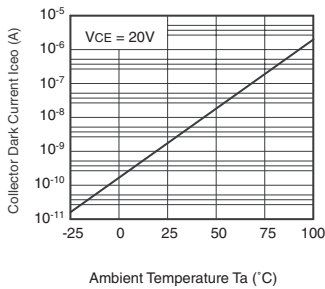
**Fig.1** Current Transfer Ratio vs. Forward Current



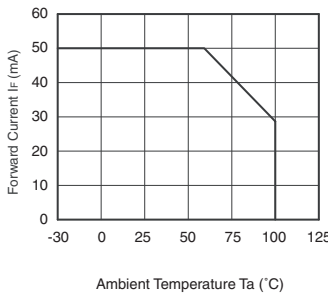
**Fig.2** Collector Power Dissipation vs. Ambient Temperature



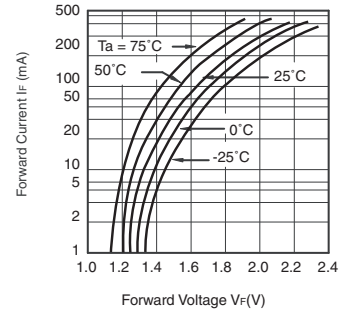
**Fig.3** Collector Dark Current vs. Ambient Temperature



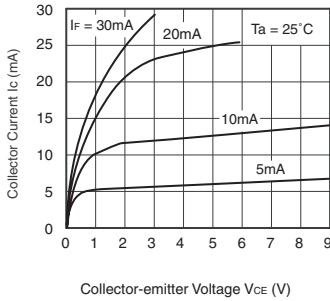
**Fig.4** Forward Current vs. Ambient Temperature



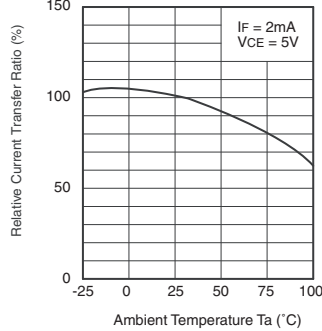
**Fig.5** Forward Current vs. Forward Voltage



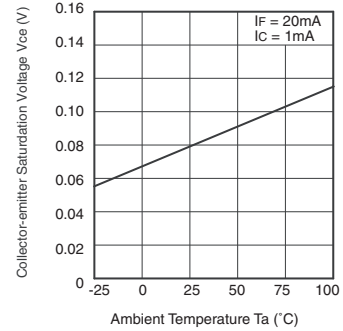
**Fig.6** Collector Current vs. Collector-emitter Voltage



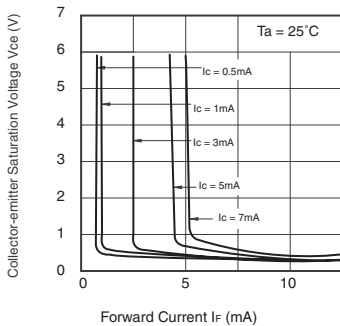
**Fig.7** Relative Current Transfer Ratio vs. Ambient Temperature



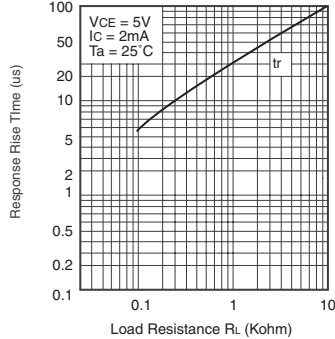
**Fig.8** Collector-emitter Saturation Voltage vs. Ambient Temperature



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



**Fig.10** Response Time vs. Load Resistance



**Fig.11** Response Time vs. Load Resistance

