

Description

The CYP817 consist of a photo-transistor optically coupled to a gallium arsenide infrared emitting diode, The CYPC817 offer sigal isolated channels in an eight lead plastic DIP , DIP-M or SMD package.

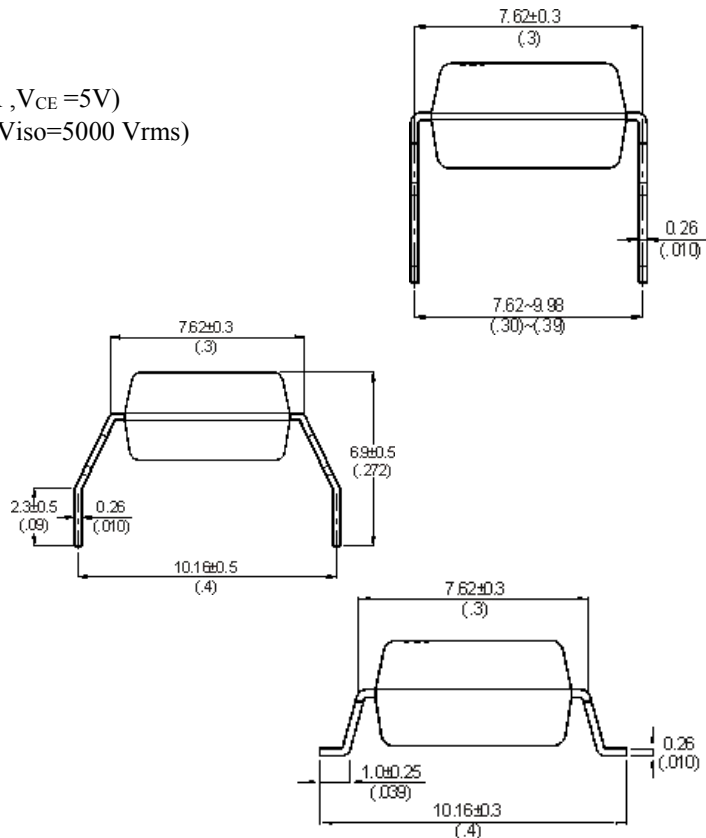
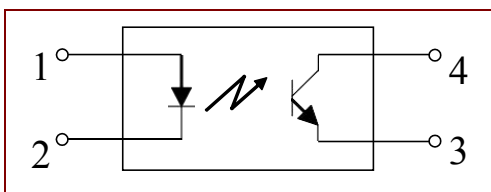
Features

- Current transfer ratio (CTR: 80~600% at $I_F = 5\text{mA}$, $V_{CE} = 5\text{V}$)
- High isolation voltage between input and output ($V_{iso} = 5000\text{Vrms}$)
- Minimum BV_{CEO} of 80V guaranteed
- UL approved (NO.:E497745)
- Compliance with EU REACH and RoHS
- CQC approved (NO.:CQC20001238665)

Applications

- Switching power supply, intelligent meter
- Industrial control, measuring instruments
- Office equipment such as copiers
- Household appliances, such as air conditioners, fans, water heaters, etc.

Block Diagram and Package



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

Parameter		Symbol	Rating	Unit
Input	Forward Current	I_F	50	mA
	Reverse Voltage	V_R	6	V
	Power Dissipation	P	70	mW
	Derating factor (above $T_a = 100^\circ\text{C}$)	PDD	2.9	mW/ $^\circ\text{C}$
	Thermal Resistance Junction-Ambient	R_{thJ-A}	325	$^\circ\text{C}/\text{W}$
	Thermal Resistance Junction-Case	R_{thJ-C}	200	$^\circ\text{C}/\text{W}$
Output	Collector Power Dissipation	P_C	150	mW
	Collector Current	I_C	50	mA
	Collector-Emitter Voltage	V_{CEO}	80	V
	Emitter-Collector Voltage	V_{ECO}	6	V
Total Power Dissipation		P_{tot}	200	mW
Isolation Voltage		V_{iso}	5000	Vrms
Operating Temperature		T_{opr}	-55~+110	$^\circ\text{C}$
Storage Temperature		T_{stg}	-55~+125	$^\circ\text{C}$
Soldering Temperature		T_{sol}	260	$^\circ\text{C}$

Electro-optical Characteristics (Ta=25°C)

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
	Forward Voltage	V_F	$I_F=20\text{mA}$	-	1.2	1.4	V
	Reverse Current	I_R	$V_R=4\text{V}$	-	-	10	μA
	Terminal Capacitance	C_t	$V=0, f=1\text{kHz}$	-	30	250	pF
Output	Collector Dark Current	I_{CEO}	$V_{CE}=20\text{V}$	-	-	100	nA
	Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C=0.1\text{mA}, I_F=0$	80	-	-	V
	Emitter-Collector Breakdown Voltage	BV_{ECO}	$I_E=10\mu\text{A}, I_F=0$	6	-	-	V
Transfer Characteristics	Current Transfer Ratio	CTR	$I_F=5\text{mA}, V_{CE}=5\text{V}$	80	-	600	%
	Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_F=2\text{mA}, I_C=5\text{mA}$	-	0.1	0.2	V
	Isolation Resistance	R_{ISO}	DC500V, 40~60%R.H.	5×10^{10}	1×10^{11}	-	Ω
	Floating Capacitance	C_f	$V=0, f=1\text{MHz}$	-	0.6	1.0	pF
	Cut-off Frequency	F_c	$V_{CE}=5\text{V}, I_C=2\text{mA},$ $R_L=100\Omega, -3\text{dB}$	-	80	-	kHz
Switching Characteristics	Rise Time	T_r	$V_{CE}=2\text{V}, I_C=2\text{mA},$ $R_L=100\Omega$	-	4	18	μs
	Fall Time	T_f		-	4	18	μs

* $CTR = I_C / I_F \times 100\%$

Rank Table of CTR

Type	CTR Classification	Current Transfer Ratio (%) (I_C / I_F)		Marking Of Classification
		$I_F = 5\text{mA}, V_{CE} = 5\text{V}, T_a = 25^\circ\text{C}$		
		Min	Max	
CYPC817	A	80	160	
	B	130	260	
	C	200	400	
	D	300	600	
	A or B	80	260	
	B or C	130	400	
	C or D	200	600	
	A,B or C	80	800	
	B,C or D	130	600	
	A,B,C or D	80	600	

Fig.1 Peak Forward Current vs. Duty Ratio

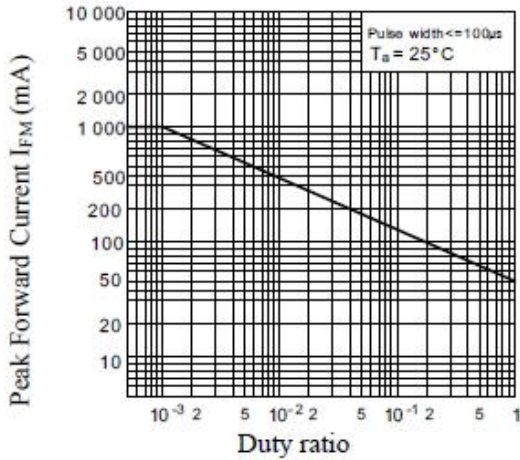


Fig.2 Current Transfer Ratio vs. Forward Current

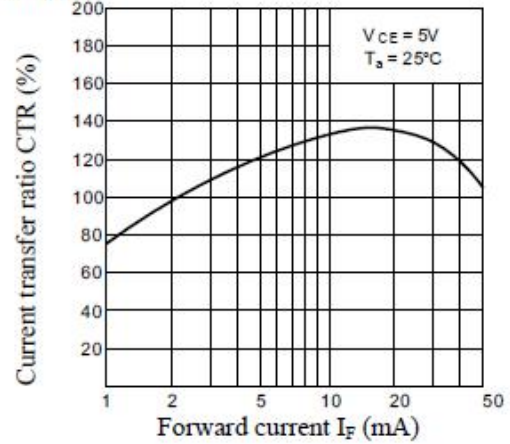


Fig.3 Forward Current vs. Forward Voltage

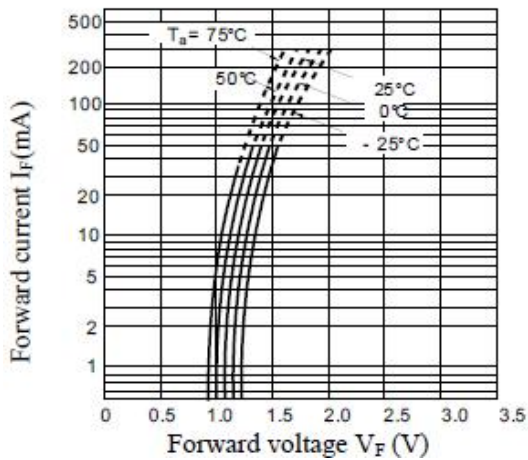


Fig.4 Collector Current vs. Collector-emitter Voltage

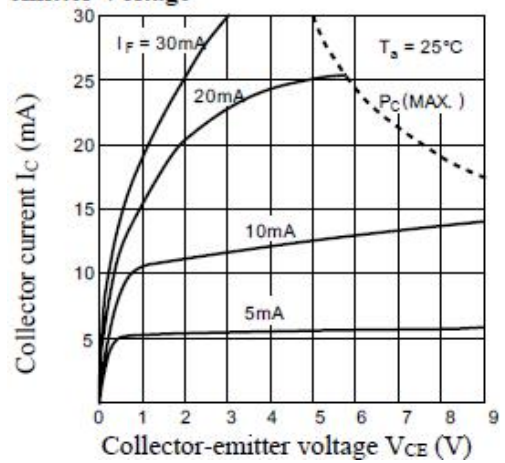


Fig.5 Relative Current Transfer Ratio vs. Ambient Temperature

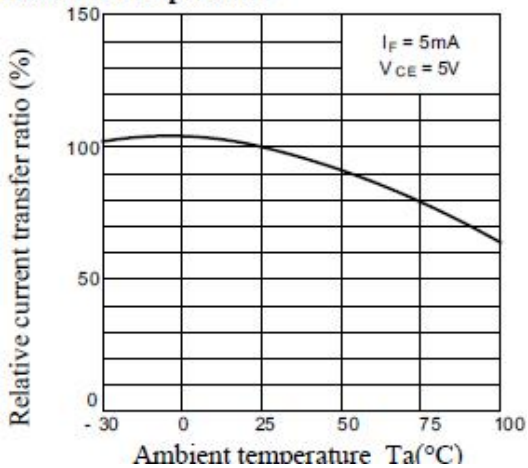


Fig.6 Collector-emitter Saturation Voltage vs. Ambient Temperature

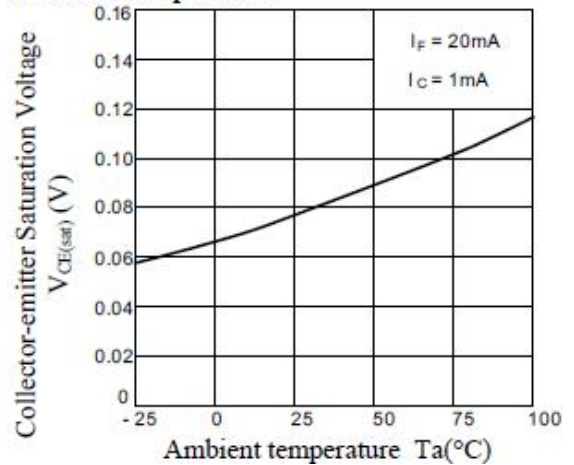


Fig.7 Collector Dark Current vs. Ambient Temperature

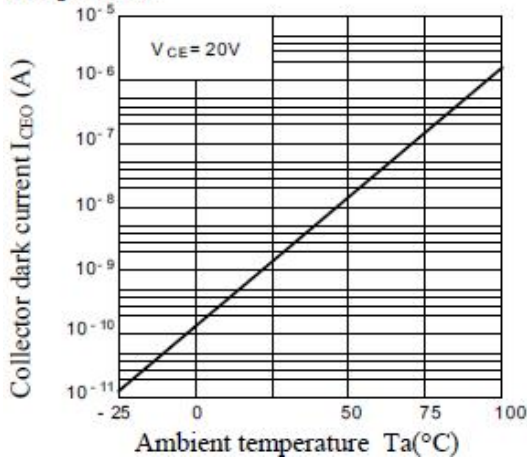


Fig.8 Response Time vs. Load Resistance

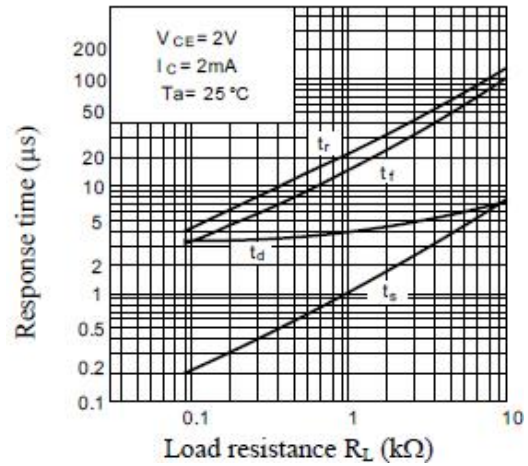


Fig.9 Frequency Response

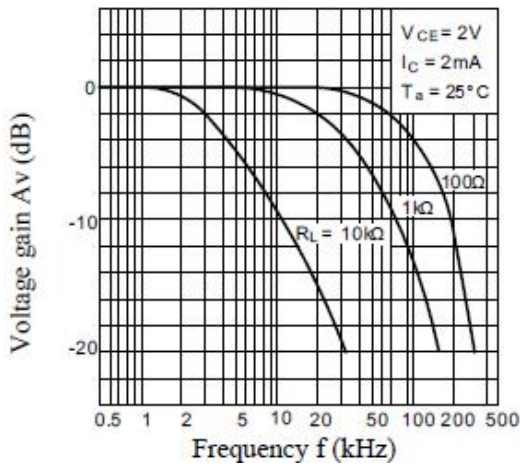
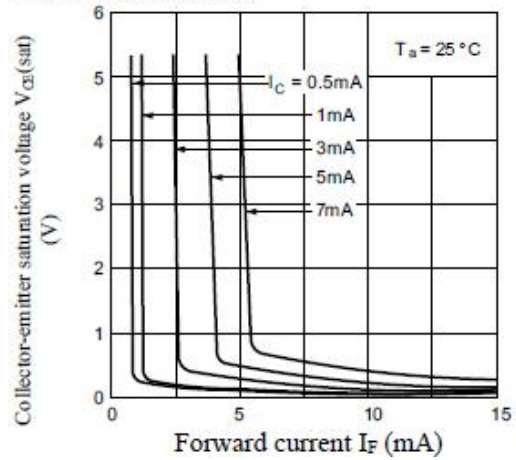
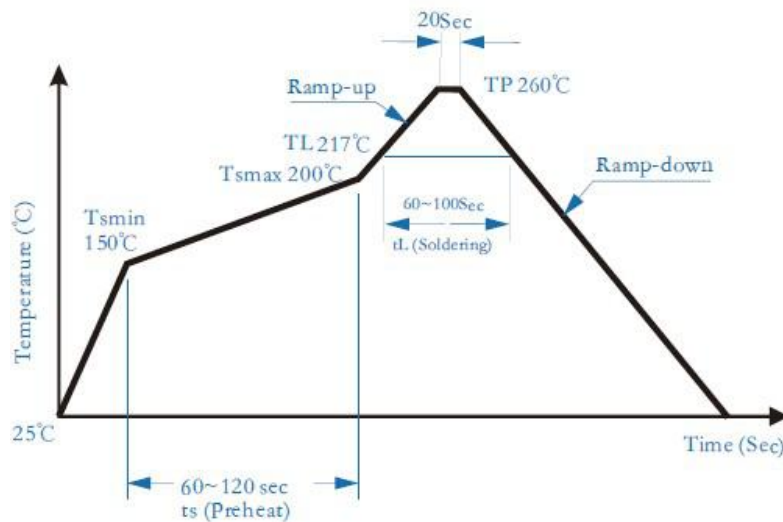


Fig.10 Collector-emitter Saturation Voltage vs. Forward Current

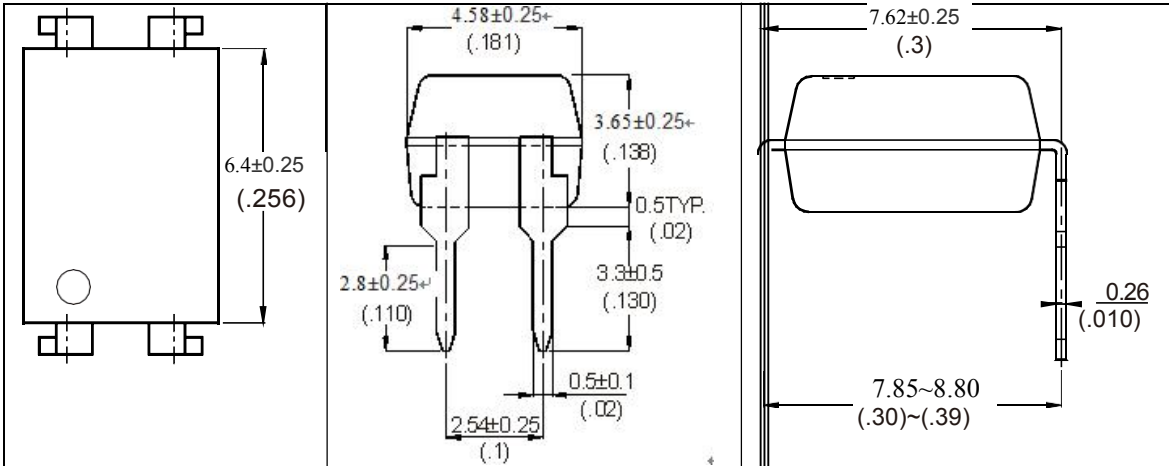


Solder Reflow Profile

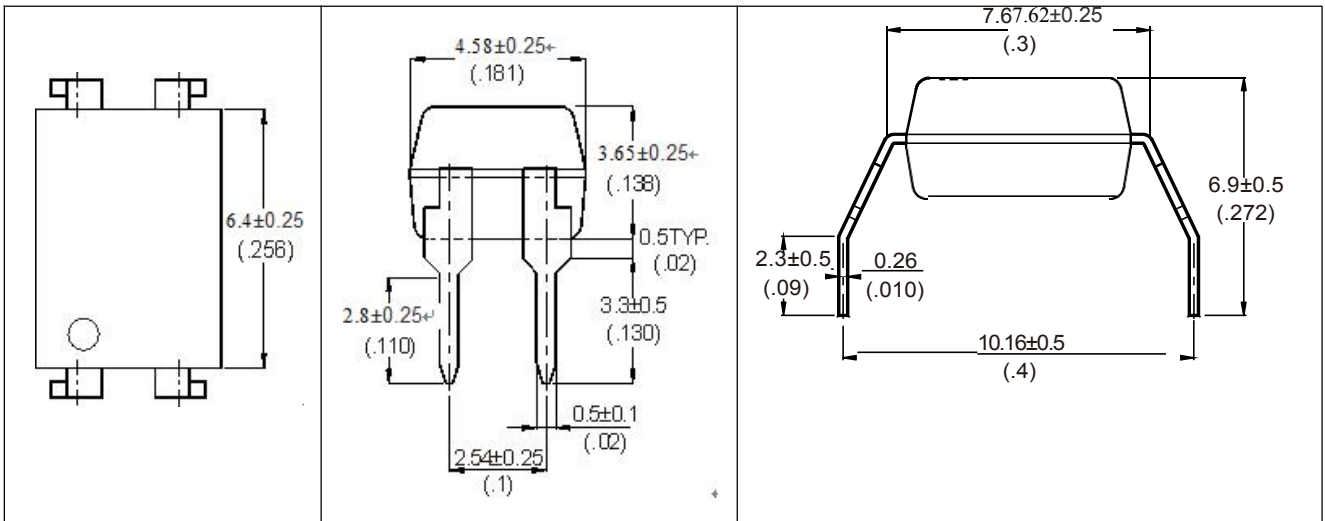


Outline Dimensions

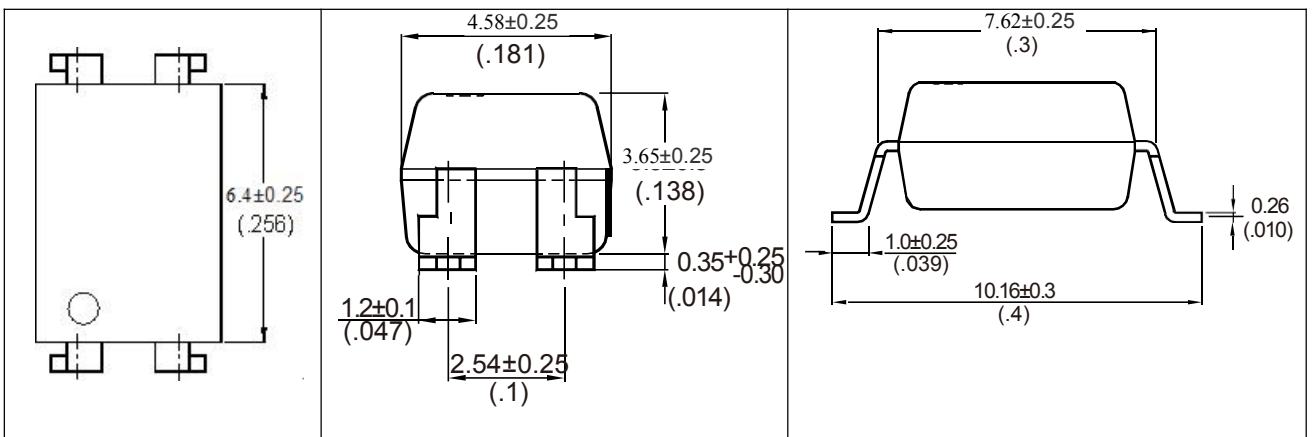
Unit: mm (inch)



4-pin DIP



4-pin DIP (M Type)



4-pin SMD

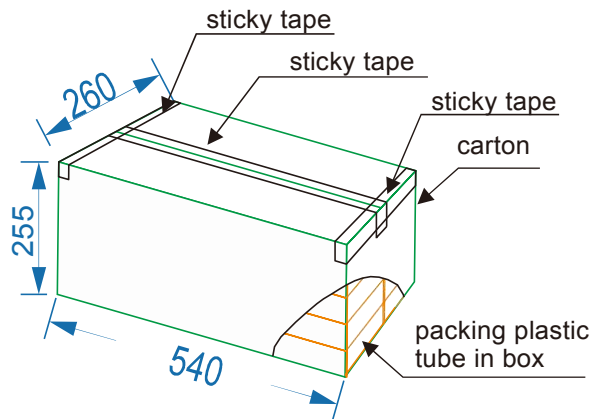
Packing

■ Summary table

Package Type	Packing Form	Quantity per Reel/Tube	Quantity per Box	Quantity per Carton	Antistatic Bag Specification	Box Specification	Carton Specification	Note
SMD-4	Reel (φ330mm)	2k pcs/reel	5 reels /box	4 boxes /ctn	-	350*340*108 mm	458*365*350 mm	Guard band 200mm min.
DIP-4	Tube (500*12*11mm)	100pcs /tube	60 tubes/box	6 boxes /ctn	NA	526*118*75mm	540*260*255 mm	Endplug (blue) and
DIP-4 (M)	Tube (500*13*11mm)	100pcs /tube	60 tubes/box	6 boxes /ctn	NA	526*128*77mm	540*270*275 mm	Endplug (white) keep the direction

■ DIP-4 (tube)

- 1) Qty/ctn: 36000pcs
- 2) Inner packing:
 - i. 100pcs/tube, antistatic tube, indication of trade mark and antistatic.
 - ii. 60 tubes/box.
- 3) Schematic:



■ SMD-4 (Tape & Reel)

- 4) Qty/reel: 2000 pcs. Qty/ctn: 40000 pcs.
- 5) Inner packing: 2000pcs/reel.
- 6) Schematic:

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