



Photocoupler

Product Data Sheet

CNY17-1 THRU CNY17-4 SERIES

Spec No.: DS-70-99-0001

Effective Date: 09/15/2001

Revision: B

LITE-ON DCC

RELEASE

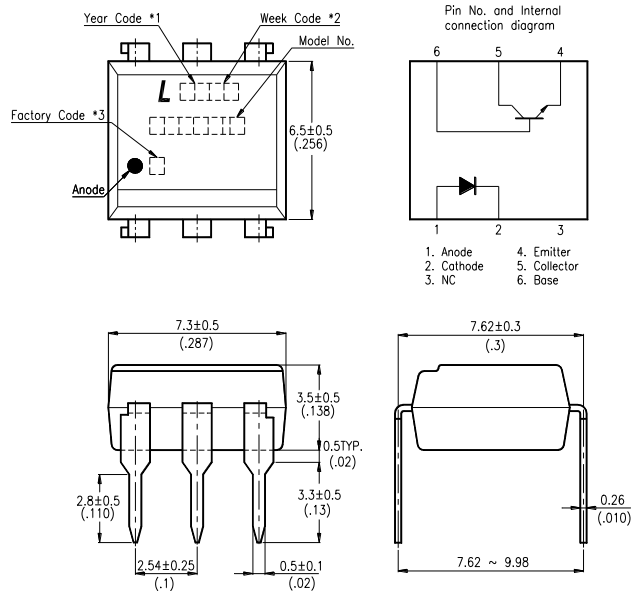
BNS-OD-FC001/A4

FEATURES

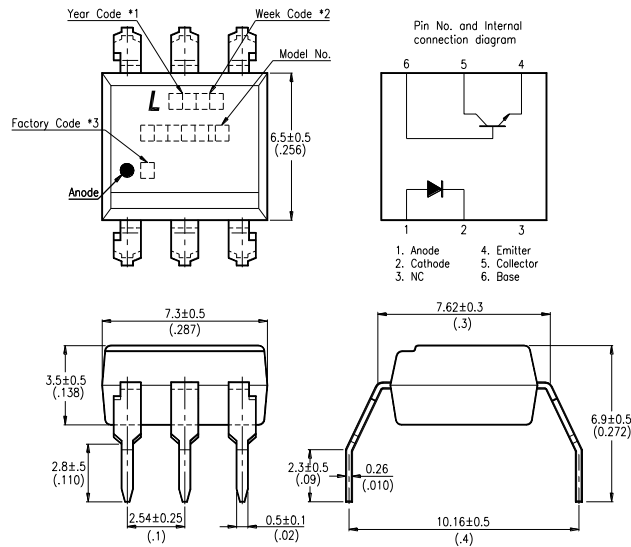
- * High collector-emitter voltage
($V_{CEO} = 70V$)
- * High input-output isolation voltage
($V_{iso} = 5,000V_{rms}$)
- * Response time
(t_r : TYP. $5\mu s$ at $V_{CC} = 10V$, $I_C = 2mA$, $R_L = 100\Omega$)
- * Current transfer ratio
(CTR : MIN. 40% at $I_F = 10mA$, $V_{CE} = 5V$)
- * Dual-in-line package :
CNY17-1, CNY17-2, CNY17-3, CNY17-4
- * Wide lead spacing package :
CNY17-1M, CNY17-2M, CNY17-3M, CNY17-4M
- * Surface mounting package :
CNY17-1S, CNY17-2S, CNY17-3S, CNY17-4S
- * Tape and reel packaging :
(TYPE D) CNY17-1S-TA1, CNY17-2S-TA1, CNY17-3S-TA1, CNY17-4S-TA1
- * UL approved (No. E113898)
- * FIMKO approved (No. 209049)
- * NEMKO approved (No. P99102464)
- * DEMKO approved (No. 99-04182)
- * SEMKO approved (No. 9943380 / 01-20)
- * VDE approved (No. 094722)
- * CSA approve in progress

OUTLINE DIMENSIONS

Dual-in-line package :



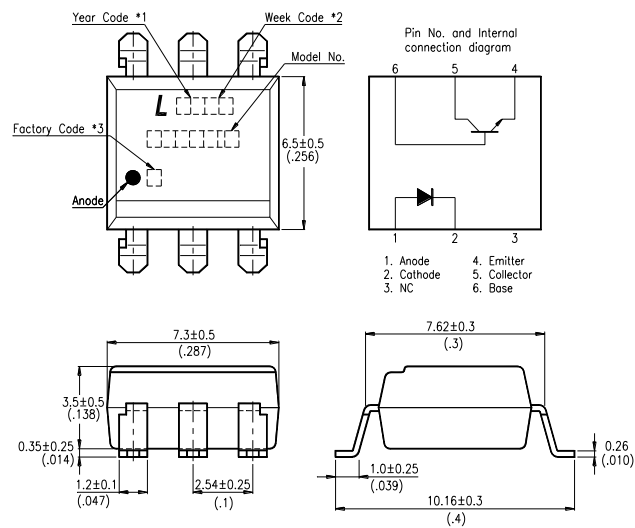
Wide lead spacing package:



- *1. Year date code.
- *2. 2-digit work week.
- *3. Factory identification mark shall be marked (Z : Taiwan, Y : Thailand, X : China).
- *4. Model No.: CNY17-1, CNY17-2, CNY17-3, CNY17-4

OUTLINE DIMENSIONS

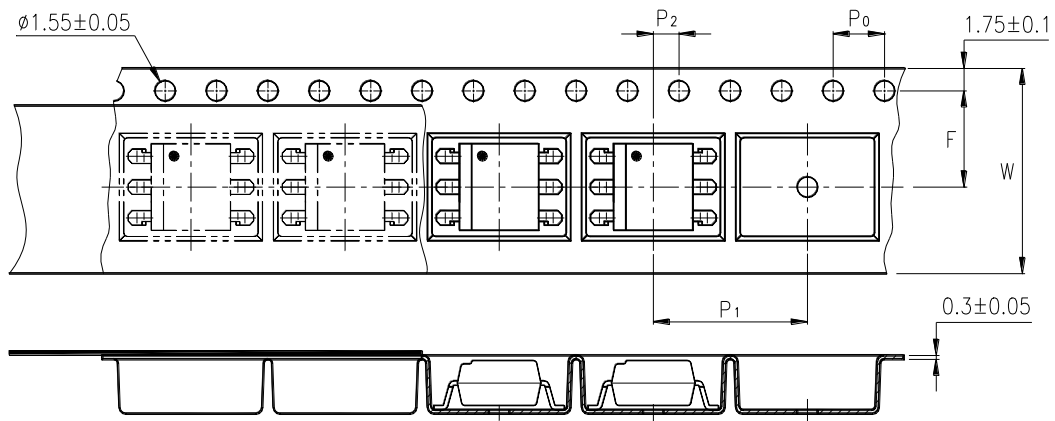
Surface mounting package :



- *1. Year date code.
- *2. 2-digit work week.
- *3. Factory identification mark shall be marked (Z : Taiwan, Y : Thailand, X : China).
- *4. Model No.: CNY17-1, CNY17-2, CNY17-3, CNY17-4

TAPING DIMENSIONS

Tape and reel package (TYPE I):



Description	Symbol	Dimensions in mm (inches)
Tape wide	W	16 ± 0.3 (.63)
Pitch of sprocket holes	P_0	4 ± 0.1 (.15)
Distance of compartment	F	7.5 ± 0.1 (.295)
Distance of compartment to compartment	P_2	2 ± 0.1 (.079)
Distance of compartment to compartment	P_1	12 ± 0.1 (.472)

ABSOLUTE MAXIMUM RATING

(Ta = 25°C)

PARAMETER		SYMBOL	RATING	UNIT
INPUT	Forward Current	I _F	60	mA
	Reverse Voltage	V _R	6	V
	Power Dissipation	P	100	mW
OUTPUT	Collector - Emitter Voltage	V _{CEO}	70	V
	Emitter - Collector Voltage	V _{ECO}	7	V
	Collector - Base Voltage	V _{CBO}	70	V
	Collector Current	I _C	150	mA
	Collector Power Dissipation	P _C	150	mW
Total Power Dissipation		P _{tot}	250	mW
*1	Isolation Voltage	V _{iso}	5,000	V _{rms}
Operating Temperature		T _{opr}	-55 ~ +100	°C
Storage Temperature		T _{stg}	-55 ~ +150	°C
*2	Soldering Temperature	T _{sol}	260	°C

*1. AC For 1 Minute, R.H. = 40 ~ 60%

Isolation voltage shall be measured using the following method.

- (1) Short between anode and cathode on the primary side and between collector, emitter and base on the secondary side.
- (2) The isolation voltage tester with zero-cross circuit shall be used.
- (3) The waveform of applied voltage shall be a sine wave.

*2. For 10 Seconds

ELECTRICAL - OPTICAL CHARACTERISTICS

(Ta = 25°C)

PARAMETER		SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS	
INPUT	Forward Voltage	V_F	—	1.45	1.65	V	$I_F=60mA$	
	Reverse Current	I_R	—	—	10	μA	$V_R=6V$	
	Terminal Capacitance	C_t	—	—	100	pF	$V=0, f=1MHz$	
OUTPUT	Collector Dark Current	I_{CEO}	—	—	50	nA	$V_{CE}=10V, I_F=0$	
	Collector-Emitter Breakdown Voltage	BV_{CEO}	70	—	—	V	$I_C=0.1mA$ $I_F=0$	
	Emitter-Collector Breakdown Voltage	BV_{ECO}	7	—	—	V	$I_E=10\mu A$ $I_F=0$	
	Collector-Base Breakdown Voltage	BV_{CBO}	70	—	—	V	$I_C=0.1mA$ $I_F=0$	
TRANSFER CHARACTERISTICS	* Current Transfer Ratio	CNY17-1	CTR	40	—	80	%	$I_F=10mA$ $V_{CE}=5V$
		CNY17-2		63	—	125		
		CNY17-3		100	—	200		
		CNY17-4		160	—	320		
	Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	—	0.3	V	$I_F=10mA$ $I_C=2.5mA$	
	Isolation Resistance	R_{iso}	100	—	—	G Ω	DC500V 40 ~ 60% R.H.	
	Floating Capacitance	C_f	—	—	2	pF	$V=0, f=1MHz$	
	Response Time (Rise)	t_r	—	5	10	μs	$V_{CC}=10V, I_C=2mA$ $R_L=100\Omega$	
	Response Time (Fall)	t_f	—	5	10	μs		

$$* CTR = \frac{I_C}{I_F} \times 100\%$$

CHARACTERISTICS CURVES

Fig.1 Forward Current vs. Ambient Temperature

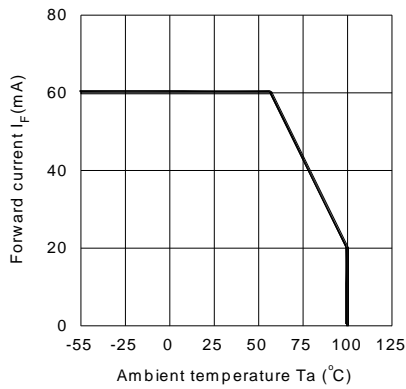


Fig.2 Collector Power Dissipation vs. Ambient Temperature

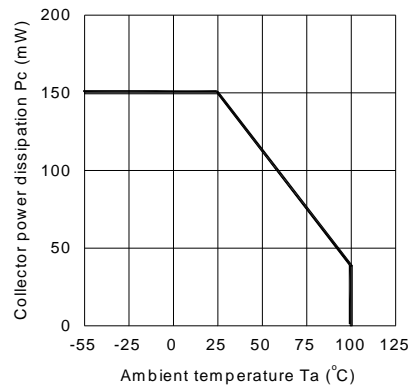


Fig.3 Collector-emitter Saturation Voltage vs. Forward Current

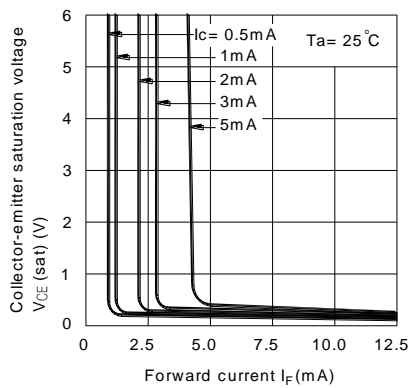


Fig.4 Forward Current vs. Forward Voltage

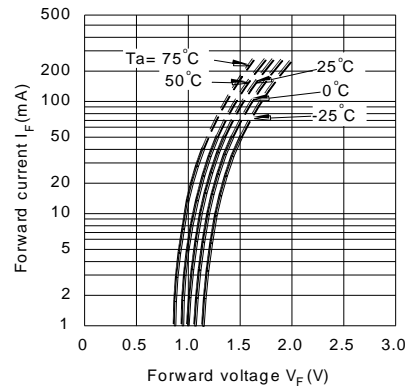


Fig.5 Current Transfer Ratio vs. Forward Current

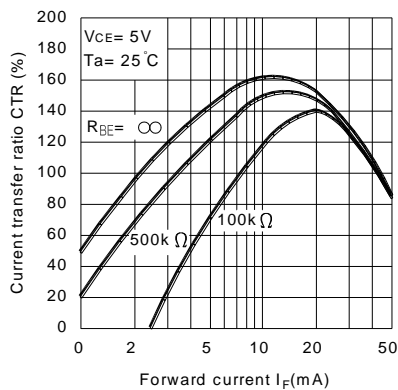
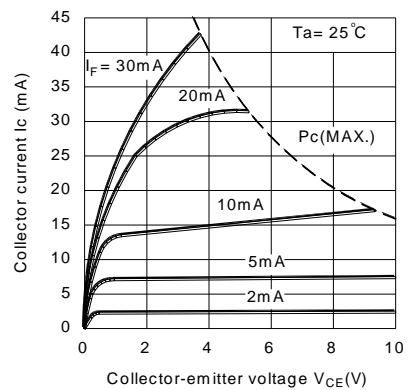


Fig.6 Collector Current vs. Collector-emitter Voltage



CHARACTERISTICS CURVES

Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

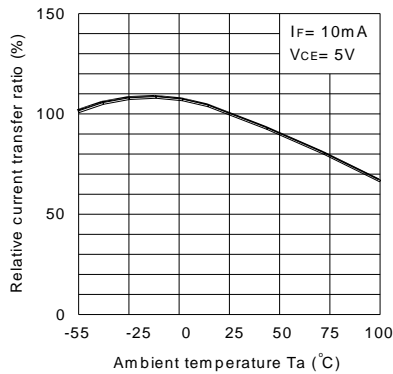


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

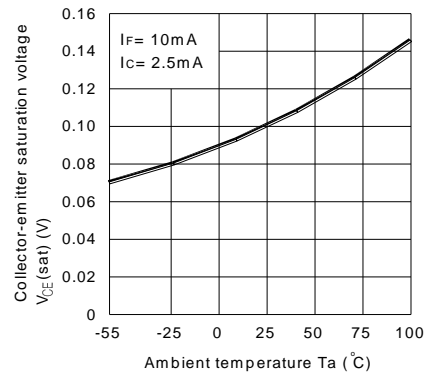


Fig.9 Collector Dark Current vs. Ambient Temperature

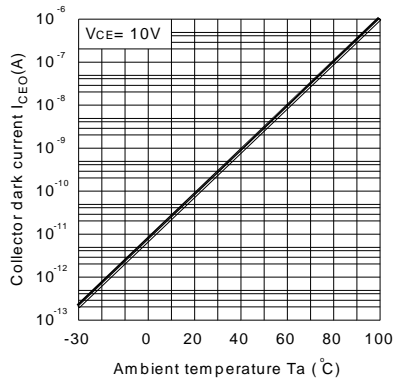


Fig.10 Response Time vs. Load Resistance

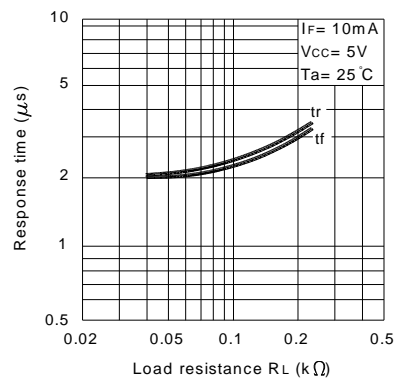
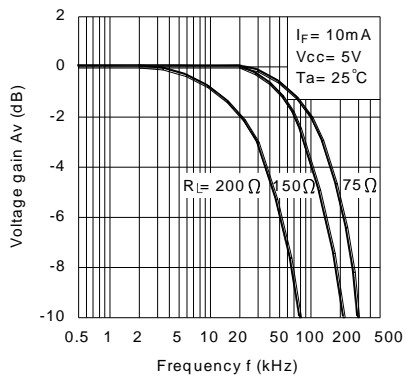
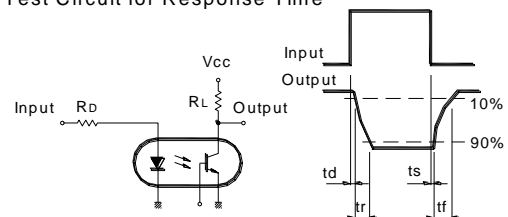


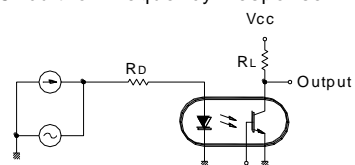
Fig.11 Frequency Response



Test Circuit for Response Time

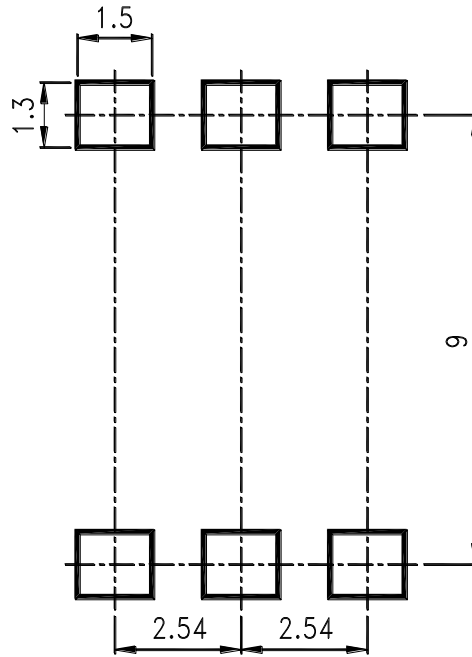


Test Circuit for Frequency Response



RECOMMENDED FOOT PRINT PATTERNS (MOUNT PAD)

Unit : mm



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