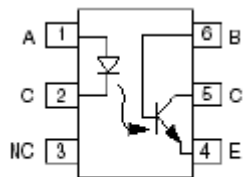
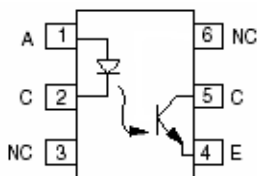


**Feature:**

- High Isolation voltage between input and output (Viso = 5000V rms)
- Current transfer ratio
  - CNY17-1, CNY17F-1: 40~80%
  - CNY17-2, CNY17F-2: 63~125%
  - CNY17-3, CNY17F-3: 100~200%
  - CNY17-4, CNY17F-4: 160~320%
- Creepage distance > 7.6mm
- Operating temperature up to +100°C
- The CNY17F Series offers no external base connection for minimum noise susceptibility
- Compact dual-in-line package
- Packed in tube or Tape and reel
- Conventional black housing package

**Schematic:****CNY17**

1. Anode
2. Cathode
3. No Connection
4. Emitter
5. Collector
6. Base

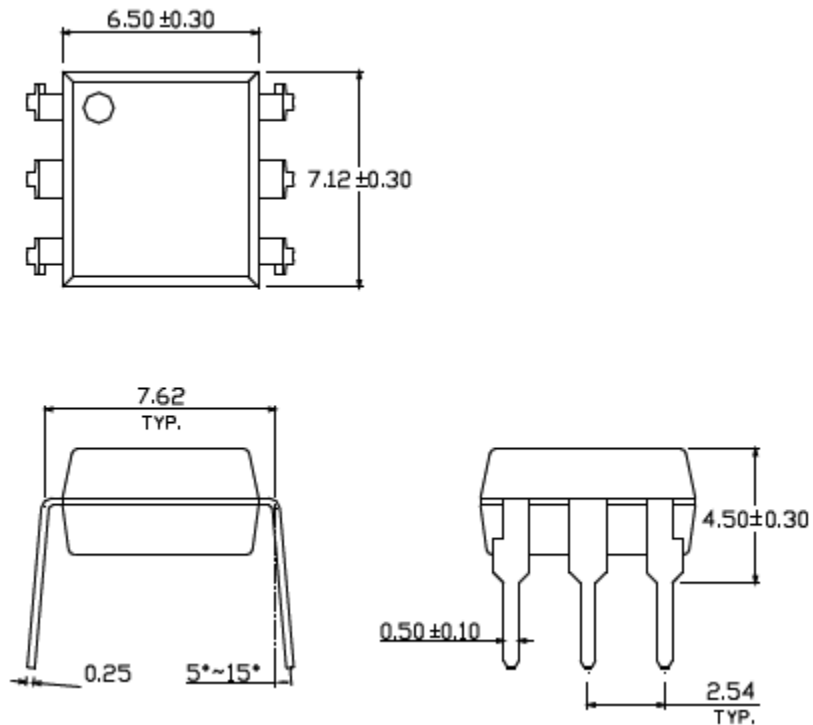
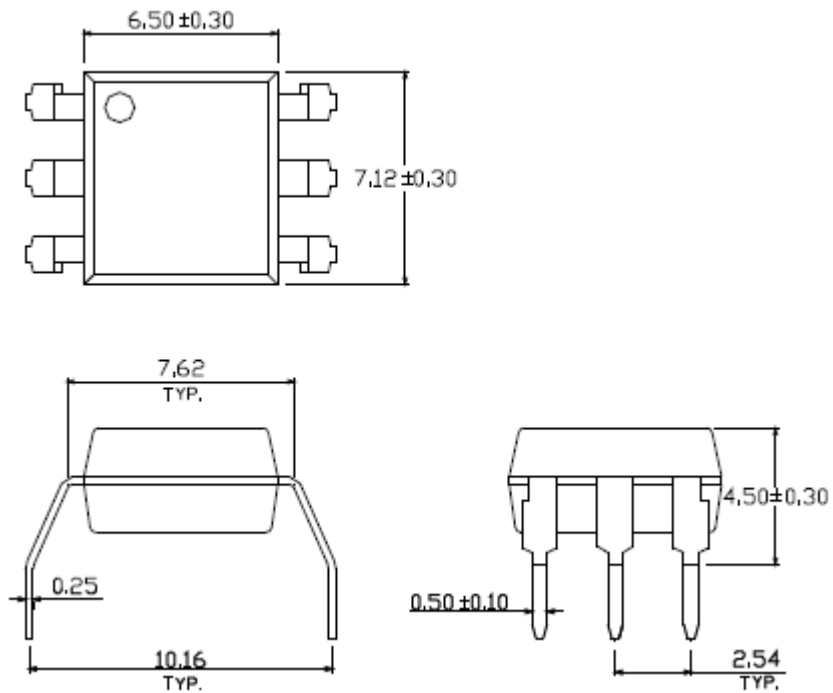
**CNY17F**

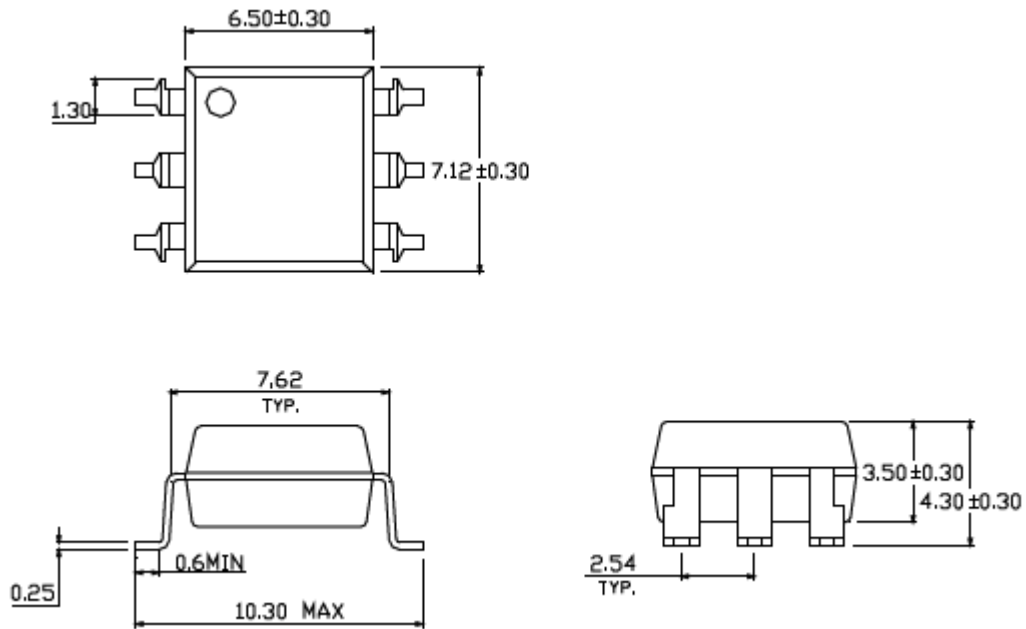
1. Anode
2. Cathode
3. No Connection
4. Emitter
5. Collector
6. No Connection

**Certification & Compliance:**

- Pb free and RoHS Compliant
- UL recognized (File # E338132)
- VDE recognized (File # 40030457)



**Dimension: (Dot location indicates pin 1)****6-Pin Dip (standard):****Wide lead bend (Option W):**

**SMD lead bend (Option S):**

All Dimensions are in mm  
Tolerance = +/- 0.1mm

**Absolute Maximum Rating**

Symbol	Parameter	Rating	Units
T <sub>STG</sub>	Storage Temperature	-55 to +150	°C
T <sub>OPR</sub>	Operating Temperature	-55 to +100	°C
T <sub>SOL</sub>	Lead Solder Temperature (≤10s)	260 for 10 sec	°C
P <sub>TOT</sub>	Total Power Dissipation	200	mW
<b>EMITTER</b>			
I <sub>F</sub>	Continuous Forward Current	60	mA
I <sub>FM</sub>	Peak Forward Current	1	A
V <sub>R</sub>	Reverse Voltage	6	V
P <sub>D</sub>	Power Dissipation	70	mW
	Power Dissipation Derated above 25 °C	1.41	mW/°C
<b>DETECTOR</b>			
V <sub>CEO</sub>	Collector–Emitter Voltage	80	V
VCBO	Collector-Base Voltage (Only for CNY17 Series)	80	V
I <sub>C</sub>	Collector Current	50	mA
V <sub>ECO</sub>	Emitter-Collector Voltage	7	V
P <sub>C</sub>	Collector Power Dissipation	150	mW
	Collector Power Dissipation Derated above 25 °C	1.76	mW/°C

**Electrical Characteristic** ( $T_A=25\text{ }^\circ\text{C}$ )

Symbol	Characteristic	Device	Test Condition	Range			Unit
				Min	Typ	Max	
<b>Emitter</b>							
$V_F$	Forward Voltage	CNY17 CNY17F	$I_f = 60\text{mA}$	-	-	1.65	V
$I_R$	Reverse Current		$V_R = 6\text{V}$	-	-	10	$\mu\text{A}$
$C_{in}$	Input Capacitance		$V = 0, f = 1\text{MHz}$	-	18	-	pF
<b>Detector</b>				Min	Typ	Max	
$I_{CBO}$	Collector-Base Dark Current	CNY17	$V_{CB} = 10\text{V},$ $I_F = 0\text{ mA}$	-	-	20	nA
$BV_{CBO}$	Collector-Base Breakdown Voltage		$I_C = 0.1\text{mA},$ $I_F = 0\text{ mA}$	80	-	-	V
$I_{CEO}$	Collector-Emitter Dark Current	CNY17F	$V_{CE} = 10\text{V},$ $I_F = 0\text{ mA}$	-	-	50	nA
$BV_{CEO}$	Collector-Emitter Breakdown Voltage		$I_C = 1\text{mA},$ $I_F = 0\text{ mA}$	80	-	-	V
$BV_{ECO}$	Emitter-Collector Breakdown Voltage	CNY17 CNY17F	$I_E = 0.1\text{mA},$ $I_F = 0\text{ mA}$	7	-	-	V
$C_{CE}$	Collector-Emitter Capacitance		$V_{CE} = 0\text{V}, f=1\text{MHz}$	-	8	-	pF

**DC TRANSFER CHARACTERISTIC**

Symbol	Characteristic	Device	Test Condition	Range			Unit
				Min	Typ	Max	
CTR	Current Transfer Ratio	CNY17-1 CNY17F-1	$V_{CE} = 5V, I_F = 10mA$	40	-	80	%
		CNY17-2 CNY17F-2		63	-	125	
		CNY17-3 CNY17F-3		100	-	200	
		CNY17-4 CNY17F-4		160	-	320	
CTR	Current Transfer Ratio	CNY17-1 CNY17F-1	$V_{CE} = 5V, I_F = 1mA$	13	-	-	%
		CNY17-2 CNY17F-2		22	-	-	
		CNY17-3 CNY17F-3		34	-	-	
		CNY17-4 CNY17F-4		56	-	-	
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage	CNY17 CNY17F	$I_C = 10mA,$ $I_F = 2.5mA$	-	-	0.3	V

**Isolation Characteristic**

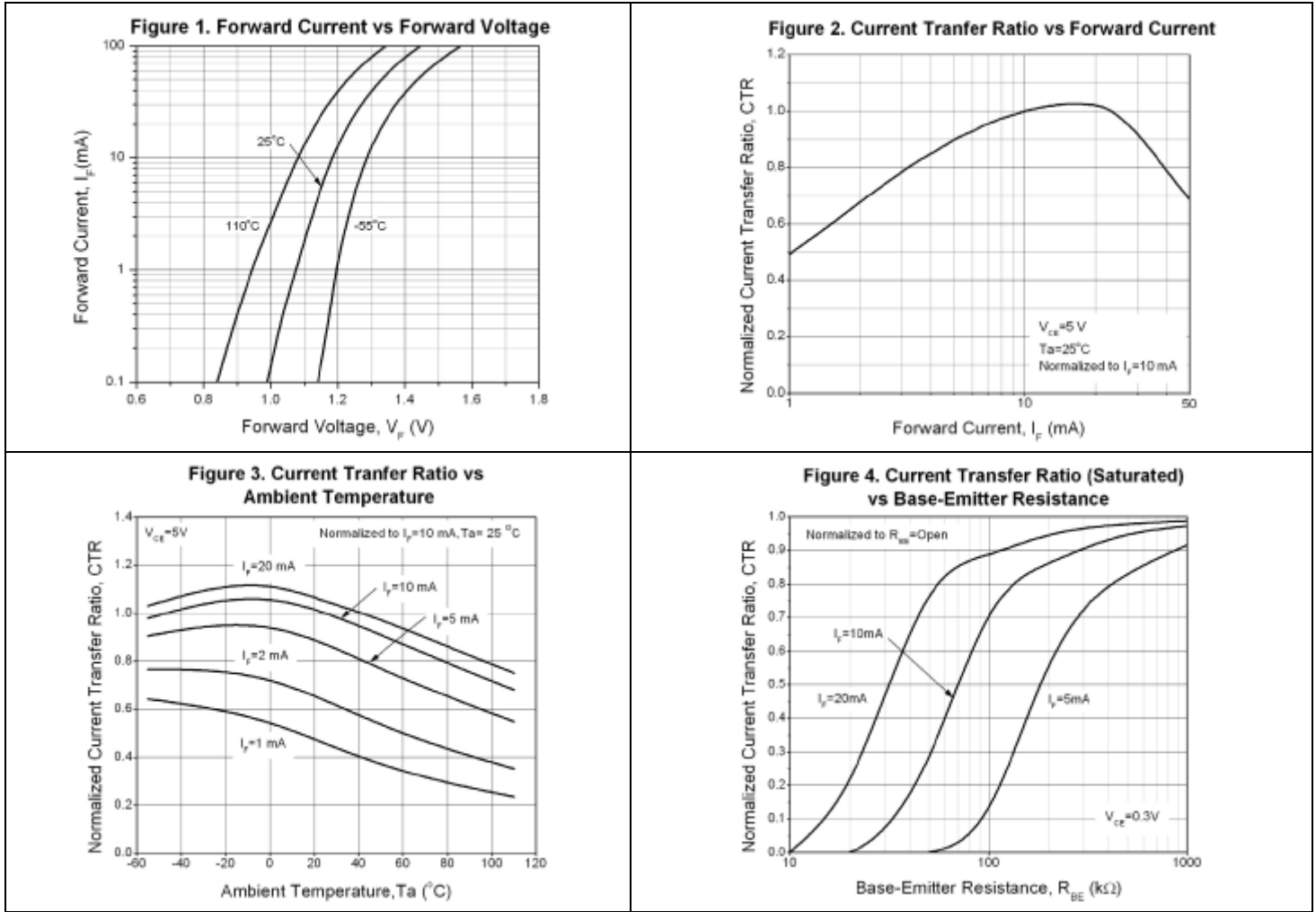
Symbol	Characteristic	Device	Test Condition	Range			Unit
				Min	Typ	Max	
$R_{IO}$	Isolation Resistance	CNY17 CNY17F	$V_{IO} = 500Vdc$	$10^{11}$	-	-	$\Omega$
$C_{IO}$	Input-output capacitance		$V_{IO} = 0, f = 1MHz$	-	0.5	-	pF
$V_{iso}$	Isolation Voltage		AC for 1 minute, R.H. = 40~60%R.H.	5000			V rms

**AC Characteristic**

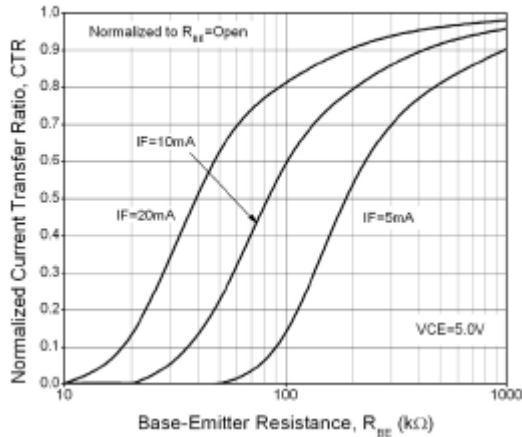
Symbol	Characteristic	Device	Test Condition	Range			Unit
				Min	Typ	Max	
$T_{on}$	Turn-on Time	CNY17 CNY17F	$V_{CC} = 10V,$ $I_C = 2mA,$ $R_L = 100 \Omega$	-	10	12	$\mu s$
$T_{off}$	Turn-off Time			-	9	12	
$T_r$	Rise Time			-	6	10	
$T_f$	Fall Time			-	8	10	
$T_r$	Rise Time		$V_{CC} = 5V,$ $I_F = 10mA,$	-	2	10	
$T_f$	Fall Time			-	3	10	

$R_L = 75 \Omega$

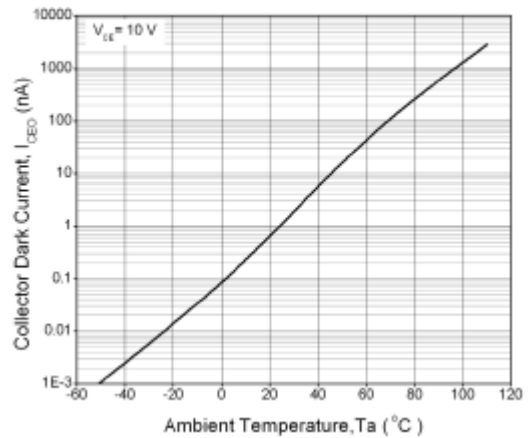
**Characteristic Curves:**



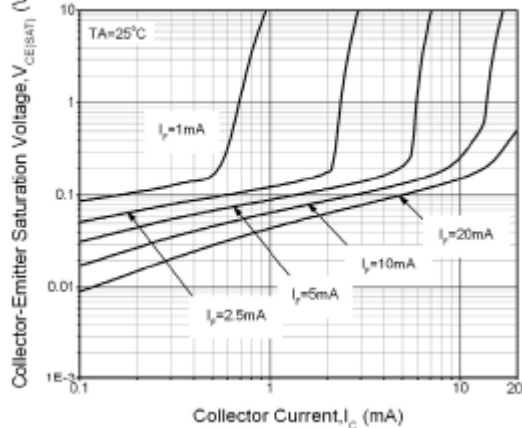
**Figure 5. Current Transfer Ratio (Unsaturated) vs Base-Emitter Resistance**



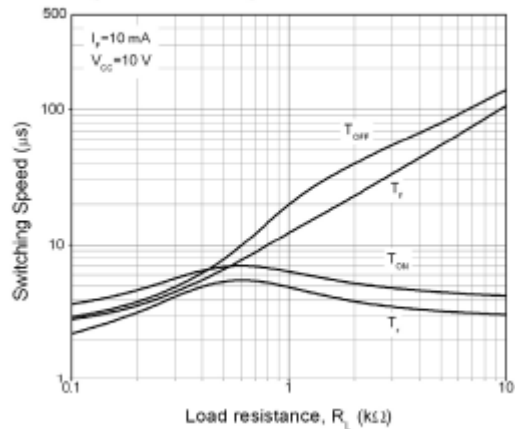
**Figure 6. Dark Current vs Ambient Temperature**



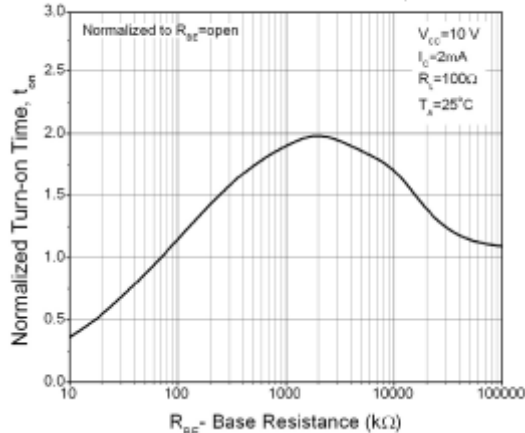
**Figure 7. Collector-Emitter Saturation Voltage vs Collector Current**



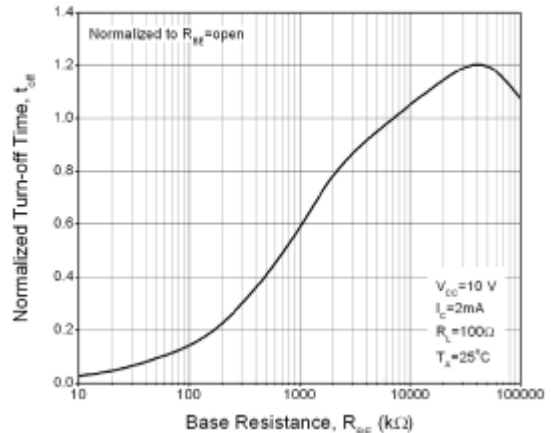
**Figure 8. Switching Time vs Load Resistance**



**Figure 9. Turn-on Time vs Base-Emitter Resistance**

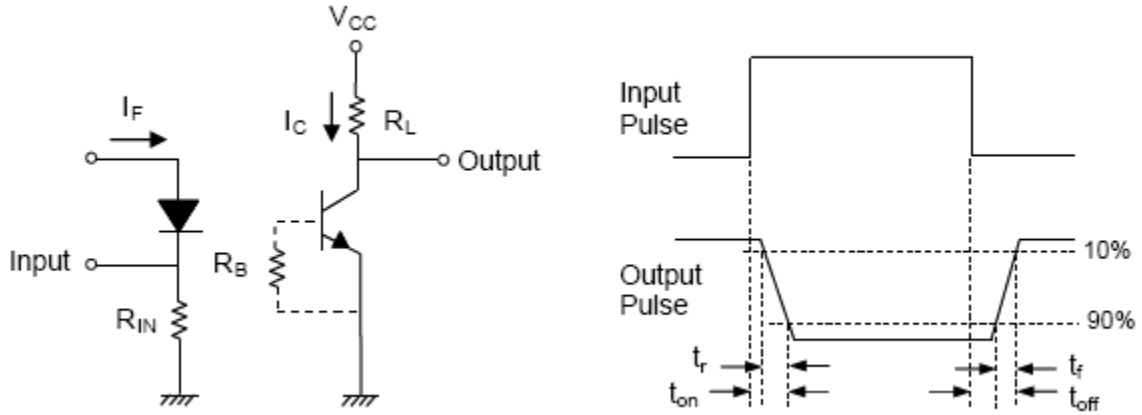


**Figure 10. Turn-off Time vs Base-Emitter Resistance**

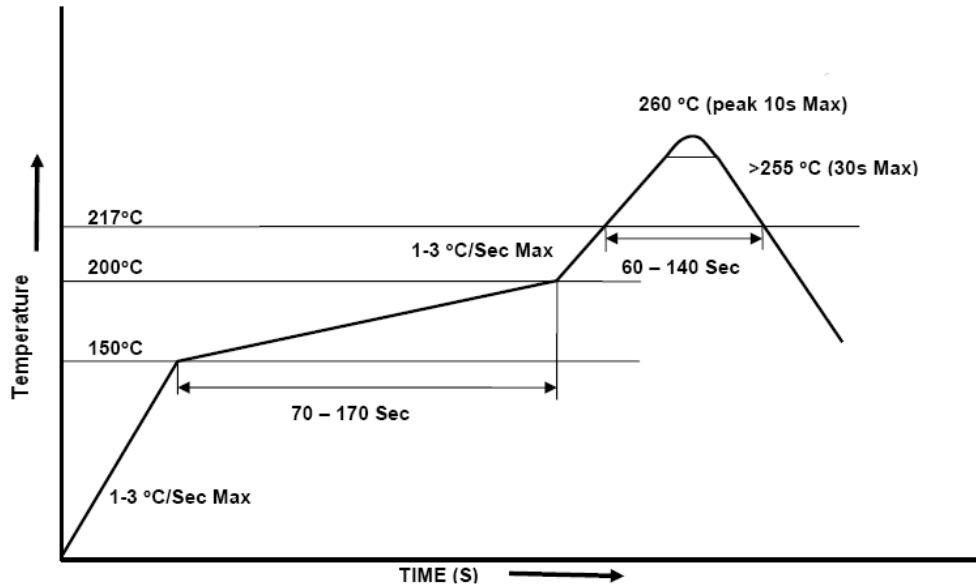


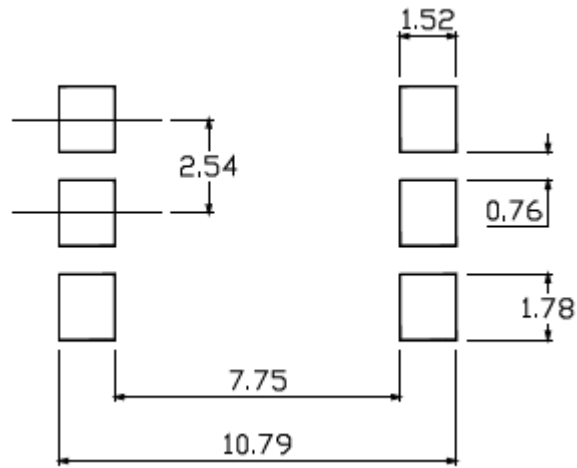


**Test Circuit for Response Time:**



**Solder Profile & Footprint:**





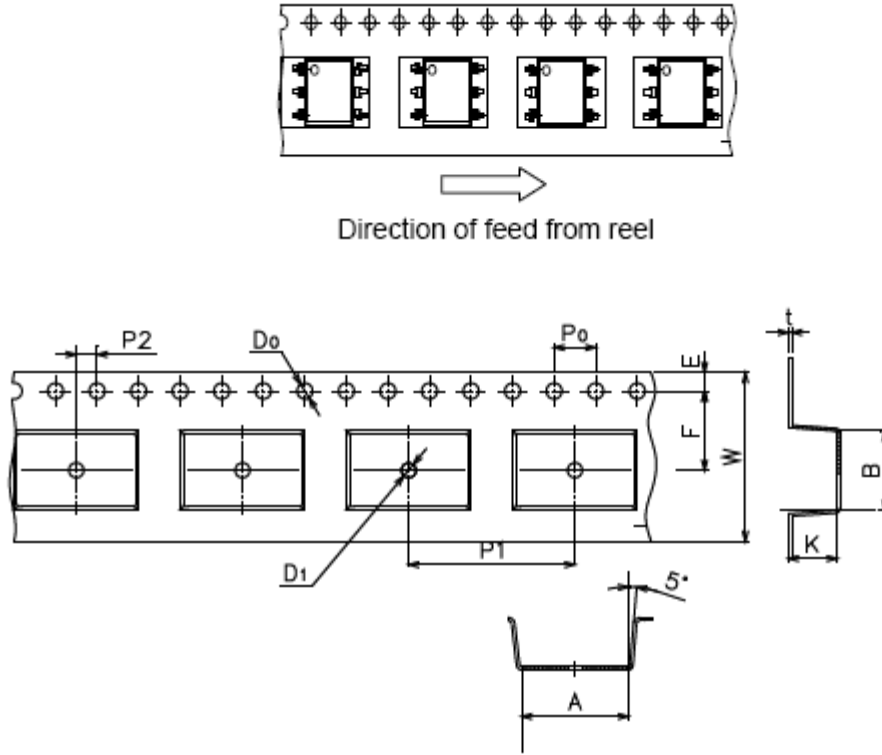
Recommended Solder Footprint for SMD Leadform

Units: mm

tolerance: +/- 0.1mm

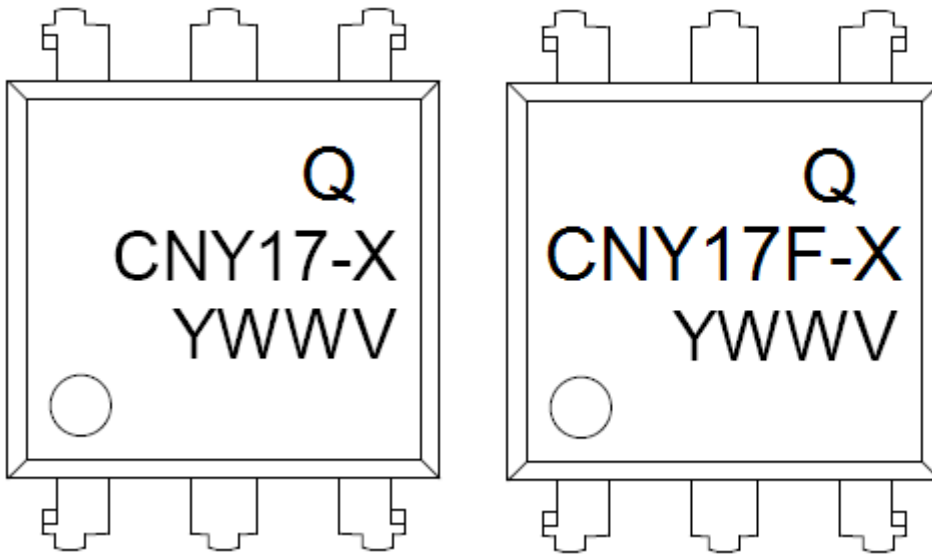
**Packing & Labeling:**

**Tape Dimensions:**



Dimension No.	A	B	Do	D1	E	F
Dimension (mm)	10.4±0.1	7.52±0.1	1.5±0.1	1.5+0.1/-0	1.75±0.1	7.5±0.1

Dimension No.	Po	P1	P2	t	W	K
Dimension (mm)	4.0±0.15	16.0±0.1	2.0±0.1	0.35±0.03	16.0±0.2	4.5±0.1

**Device Marking:**

Q = QT-Brightek Corporation

CNY17(F)-X = Device Part Number (X: 1, 2, 3 or 4)

Y = Year

WW = Week

V = VDE Option

**Ordering Information:**

Part Number	Orderable Part Number	Options	Description	Quantity per packing
CNY17-1	CNY17-1	None	Standard 6pin DIP	60pcs / Tube
	CNY17-1V	None	Standard 6pin DIP With VDE marking	60pcs / Tube
	CNY17-1TA	W	Wide lead bend (0.4 inch spacing)	60pcs / Tube
	CNY17-1TAV	W	Wide lead bend (0.4 inch spacing) + VDE marking	60pcs / Tube
	CNY17-1STA	S	SMD lead form with tape and reel option	1000pcs / reel
	CNY17-1STAV	S	SMD lead form with tape and reel option + VDE marking	1000pcs / reel
CNY17-2	CNY17-2	None	Standard 6pin DIP	60pcs / Tube
	CNY17-2V	None	Standard 6pin DIP With VDE marking	60pcs / Tube
	CNY17-2TA	W	Wide lead bend (0.4 inch spacing)	60pcs / Tube
	CNY17-2TAV	W	Wide lead bend (0.4 inch spacing) + VDE marking	60pcs / Tube
	CNY17-2STA	S	SMD lead form with tape and reel option	1000pcs / reel
	CNY17-2STAV	S	SMD lead form with tape and reel option + VDE marking	1000pcs / reel
CNY17-3	CNY17-3	None	Standard 6pin DIP	60pcs / Tube
	CNY17-3V	None	Standard 6pin DIP With VDE marking	60pcs / Tube
	CNY17-3TA	W	Wide lead bend (0.4 inch spacing)	60pcs / Tube
	CNY17-3TAV	W	Wide lead bend (0.4 inch spacing) + VDE marking	60pcs / Tube
	CNY17-3STA	S	SMD lead form with tape and reel option	1000pcs / reel
	CNY17-3STAV	S	SMD lead form with tape and reel option + VDE marking	1000pcs / reel

Part Number	Orderable Part Number	Options	Description	Quantity per packing
CNY17-4	CNY17-4	None	Standard 6pin DIP	60pcs / Tube
	CNY17-4V	None	Standard 6pin DIP With VDE marking	60pcs / Tube
	CNY17-4TA	W	Wide lead bend (0.4 inch spacing)	60pcs / Tube
	CNY17-4TAV	W	Wide lead bend (0.4 inch spacing) + VDE marking	60pcs / Tube
	CNY17-4STA	S	SMD lead form with tape and reel option	1000pcs / reel
	CNY17-4STAV	S	SMD lead form with tape and reel option + VDE marking	1000pcs / reel
CNY17F-1	CNY17F-1	None	Standard 6pin DIP	60pcs / Tube
	CNY17F-1V	None	Standard 6pin DIP With VDE marking	60pcs / Tube
	CNY17F-1TA	W	Wide lead bend (0.4 inch spacing)	60pcs / Tube
	CNY17F-1TAV	W	Wide lead bend (0.4 inch spacing) + VDE marking	60pcs / Tube
	CNY17F-1STA	S	SMD lead form with tape and reel option	1000pcs / reel
	CNY17F-1STAV	S	SMD lead form with tape and reel option + VDE marking	1000pcs / reel
CNY17F-2	CNY17F-2	None	Standard 6pin DIP	60pcs / Tube
	CNY17F-2V	None	Standard 6pin DIP With VDE marking	60pcs / Tube
	CNY17F-2TA	W	Wide lead bend (0.4 inch spacing)	60pcs / Tube
	CNY17F-2TAV	W	Wide lead bend (0.4 inch spacing) + VDE marking	60pcs / Tube
	CNY17F-2STA	S	SMD lead form with tape and reel option	1000pcs / reel
	CNY17F-2STAV	S	SMD lead form with tape and reel option + VDE marking	1000pcs / reel

Part Number	Orderable Part Number	Options	Description	Quantity per packing
CNY17F-3	CNY17F-3	None	Standard 6pin DIP	60pcs / Tube
	CNY17F-3V	None	Standard 6pin DIP With VDE marking	60pcs / Tube
	CNY17F-3TA	W	Wide lead bend (0.4 inch spacing)	60pcs / Tube
	CNY17F-3TAV	W	Wide lead bend (0.4 inch spacing) + VDE marking	60pcs / Tube
	CNY17F-3STA	S	SMD lead form with tape and reel option	1000pcs / reel
	CNY17F-3STAV	S	SMD lead form with tape and reel option + VDE marking	1000pcs / reel
CNY17F-4	CNY17F-4	None	Standard 6pin DIP	60pcs / Tube
	CNY17F-4V	None	Standard 6pin DIP With VDE marking	60pcs / Tube
	CNY17F-4TA	W	Wide lead bend (0.4 inch spacing)	60pcs / Tube
	CNY17F-4TAV	W	Wide lead bend (0.4 inch spacing) + VDE marking	60pcs / Tube
	CNY17F-4STA	S	SMD lead form with tape and reel option	1000pcs / reel
	CNY17F-4STAV	S	SMD lead form with tape and reel option + VDE marking	1000pcs / reel

**Revision History:**

Description:	Revision #	Revision Date
Initial of CNY17 & CNY17F Series	1.0	4/27/2010
Feature, certification & compliance and ordering information updates	1.1	02/01/2011

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1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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