

### KB354NT

#### Features

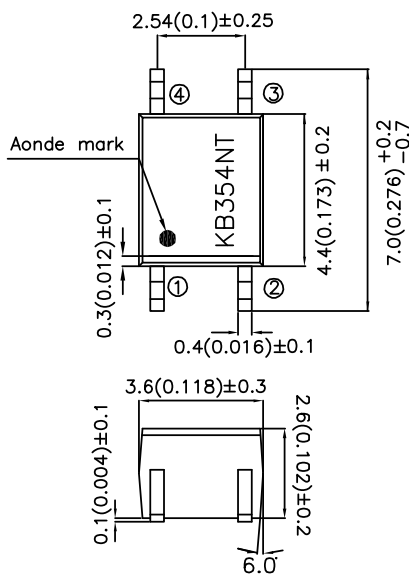
- 1.AC inputs.
- 2.High current transfer ratio.
- 2.Opaque type, mini-flat package.
- 3.Subminiature type (The volume is smaller than that of our conventional DIP type by as far as 30%).
- 4.Isolation voltage between input and output Viso:3750Vrms.
- 5.Employs double transfer mold technology.
- 6.Recognized by UL and CUL, file NO.E225308.
- 7.Package : 1000Pcs / Reel.
- 8.RoHS Compliant.

#### Applications

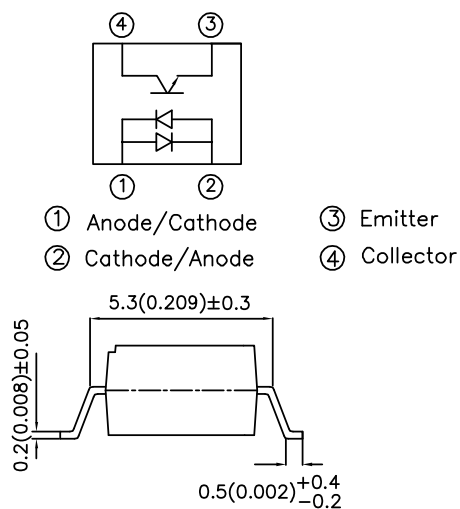
- 1.Hybrid substrates that require high density mounting.
- 2.Programmable controllers.

#### \*PACKAGE DIMENSIONS (UNIT:mm)

##### SMD Type



#### Internal connection diagram



UNIT : MM[INCH]  
TOLERANCE : ±0.5[±0.02] UNLESS OTHERWISE NOTED.

#### \*Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I <sub>F</sub>	±50	mA
	Power dissipation	P	70	mW
Output	Collector-emitter voltage	V <sub>CEO</sub>	35	V
	Emitter-collector voltage	V <sub>ECO</sub>	6	V
	Collector current	I <sub>C</sub>	50	mA
	Collector power dissipation	P <sub>C</sub>	150	mW
Total power dissipation		P <sub>tot</sub>	170	mW
*1 Isolation voltage		V <sub>iso</sub>	3750	V <sub>RMS</sub>
Operating temperature		T <sub>opr</sub>	-30 to +100	°C
Storage temperature		T <sub>stg</sub>	-55 to +125	°C
*2 Soldering temperature		T <sub>sol</sub>	260	°C

\*1 40 to 60%RH, AC for 1 minute.

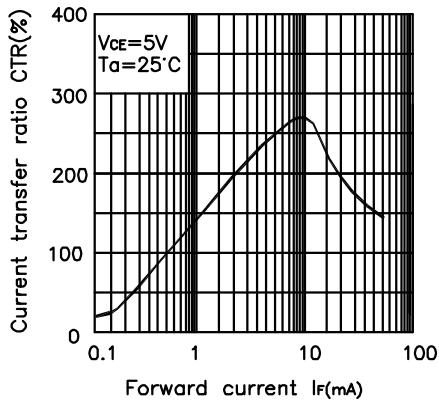
\*2 For 10 seconds.

#### \*Electro-optical Characteristics

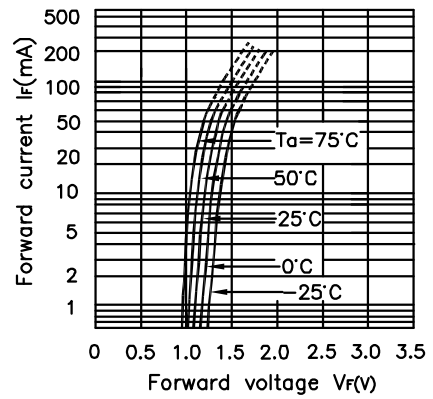
Parameter		Symbol	Conditions	Min.	Typ.	Max.	Unit	
Input	Forward voltage	V <sub>F</sub>	I <sub>F</sub> =± 20mA	-	1.2	1.4	V	
	Peak forward voltage	V <sub>FM</sub>	I <sub>FM</sub> =0.5A	-	-	3.0	V	
Output	Collector dark current	I <sub>CEO</sub>	V <sub>ce</sub> =20V I <sub>F</sub> =0	-	-	10 <sup>-7</sup>	A	
	Collector-emitter breakdown voltage	BV <sub>CEO</sub>	I <sub>C</sub> =0.1mA I <sub>F</sub> =0	35	-	-	V	
	Emitter-collector breakdown voltage	BV <sub>ECO</sub>	I <sub>E</sub> =10uA I <sub>F</sub> =0	6	-	-	V	
Transfer characteristics	Current transfer ration		CTR	I <sub>F</sub> =± 1mA V <sub>ce</sub> =5V	20	-	400	%
	Collector-emitter saturation voltage		V <sub>CE (sat)</sub>	I <sub>F</sub> =± 20mA I <sub>C</sub> =1mA	-	0.1	0.2	V
	Response time	Rise time	t <sub>r</sub>	V <sub>ce</sub> =2V I <sub>C</sub> =2mA R <sub>L</sub> =100Ω	-	4	18	uS
		Fall time	t <sub>f</sub>		-	3	18	uS

Model No.	Rank mark	CTR(%)
KB354N1T	A	50 to 150
KB354NT	A or No mark	20 to 400

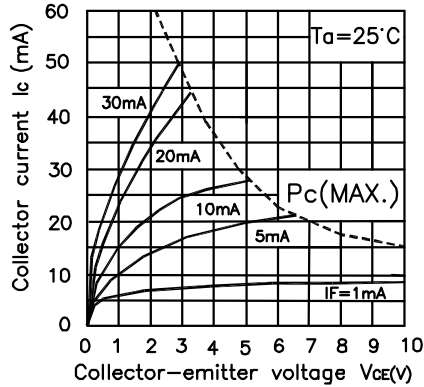
**Fig. 1 Current Transfer vs. Forward Current**



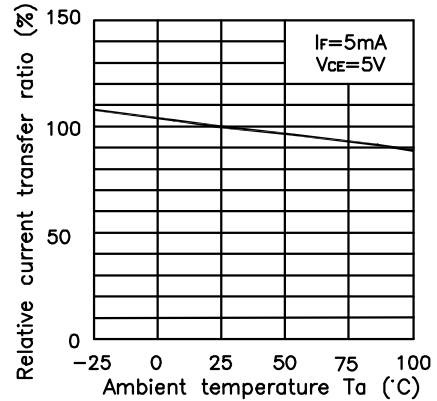
**Fig. 2 Forward Current vs. Forward voltage**



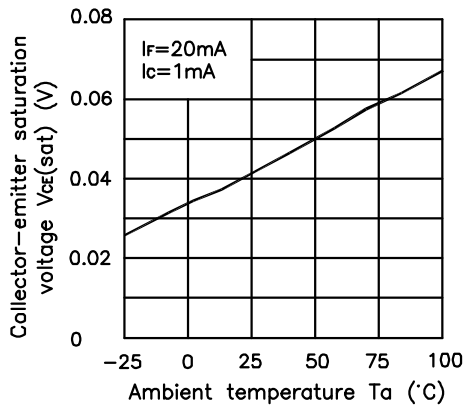
**Fig. 3 Collector Current vs. Collector-emitter Voltage**



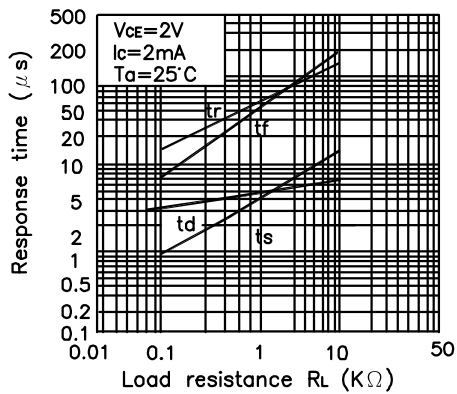
**Fig. 4 Forward Current vs. Ambient Temperature**



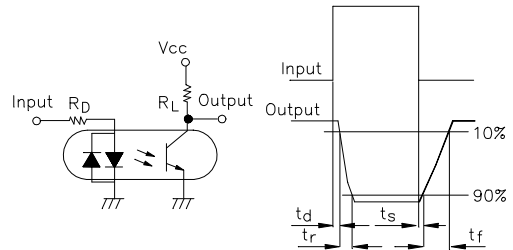
**Fig. 5 Collector-emitter Saturation Voltage vs. Ambient Temperature**



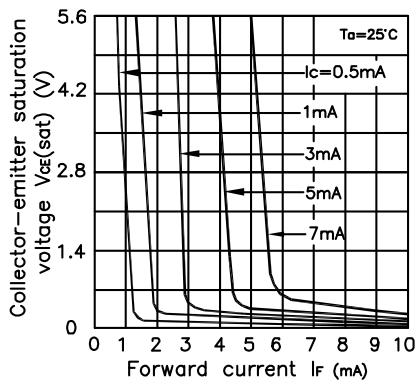
**Fig. 6 Response Time vs. Load Resistance**



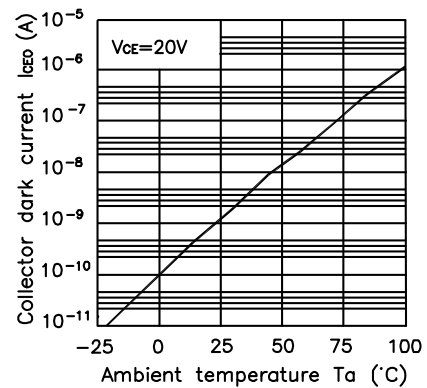
**Test Circuit for Response Time**



**Fig. 7 Collector-emitter Saturation Voltage vs. Forward Current**



**Fig. 8 Collector Dark Current vs. Ambient Temperature**



#### \* NOTES ON HANDLING

#### 1.Recommended soldering conditions (Dip soldering)

##### (1) Dip soldering

Temperature	260°C or below (molten solder temperature)
Time	Less than 10 seconds.
Cycle	One cycle allowed to be dipped in solder including plastic mold portion.
Flux	Rosin flux containing small amount of chlorine (The flux with a maximum chlorine content of 0.2 Wt % is recommended.)

##### (2) Cautions

###### Fluxes

Avoid removing the residual flux with freon-based and chlorine-based cleaning solvent.

#### 2.Cautions regarding noise

Be aware that power is suddenly into the component any surge current may cause damage happen, even if the voltage is within the absolute maximum ratings.

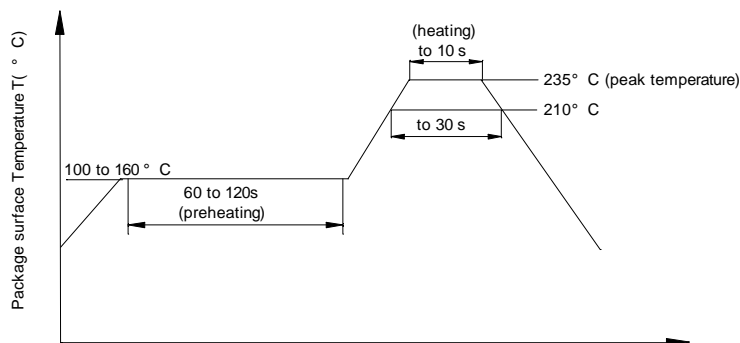
#### NOTES ON HANDLING

##### 1.Recommended soldering conditions

###### (1).Infrared reflow soldering

- Peak reflow temperature 235 ° C or below(package surface temperature)
- Time of temperature higher than 210 ° C 30 seconds or less
- Number of reflows Three
- Flux Rosin flux containing small amount of chlorine(The flux with a maximum chlorine content of 0.2Wt % is recommended.)

Recommended Temperature Profile of infrared Reflow



#### CAUTION

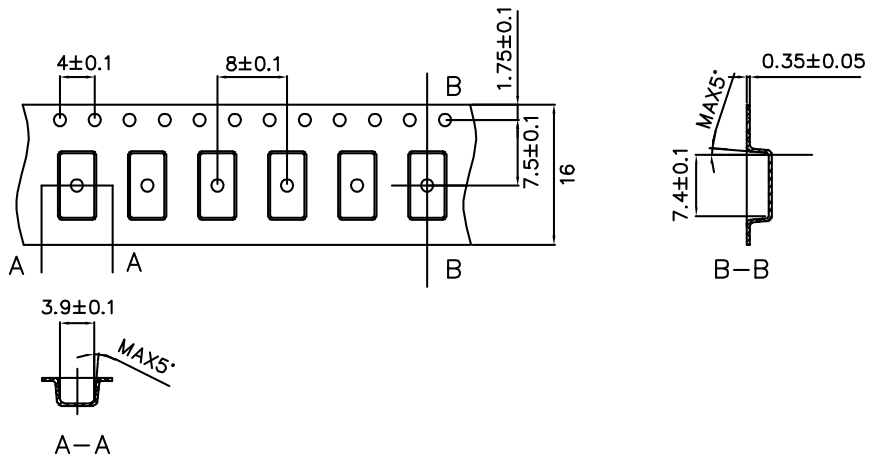
Within this device there exists GaAs (Gallium Arsenide) material which is a harmful substance if ingested. GaAs dust and fumes are toxic. Do not break, cut or pulverize the product, or use chemicals to dissolve them.

#### RESTRICTIONS ON PRODUCT USE

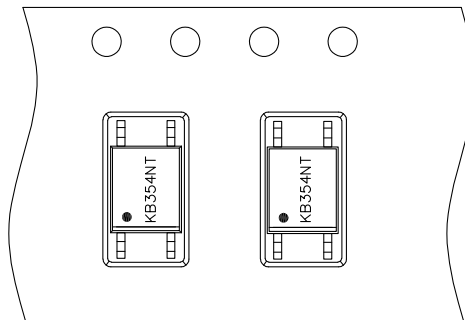
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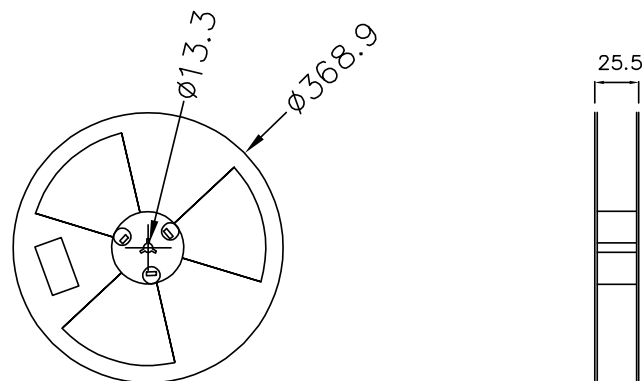
#### Outline and Dimension(Tape) (Units : mm)



#### Tape Direction



#### Outline and Dimension(Reel)



Packing: 1000pcs/reel