

**Features**

1. Opaque type, mini-flat package.
2. Subminiature type  
(The volume is smaller than that of our conventional DIP type by as far as 30%).
3. Current transfer ratio  
(CTR:MIN.50% at  $I_F=5mA$ ,  $V_{ce}=5V$ )
4. Isolation voltage between input and output (Viso:3750Vrms).

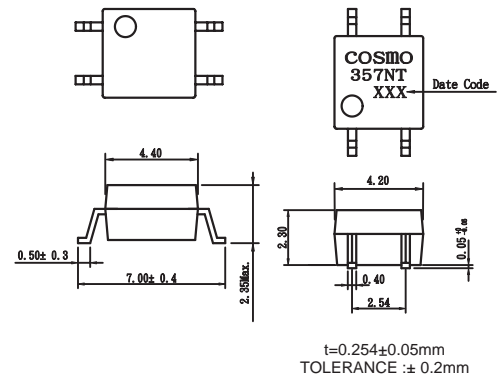
**Applications**

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

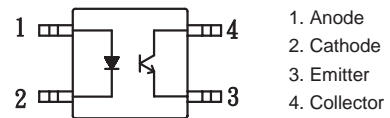
Classification table of current transfer ratio is shown below.

Model NO.	CTR (%)
A	80 TO 160
B	130 TO 260
C	200 TO 400
D	300 TO 600
E	50 TO 600

**Outside Dimension : Unit (mm)**



**Schematic : Top View**



**Absolute Maximum Ratings**

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

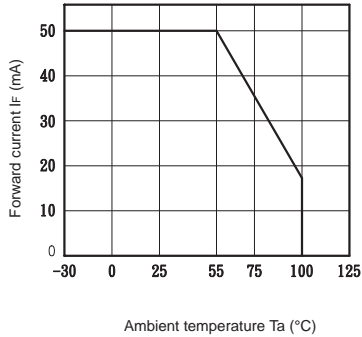
Parameter		Symbol	Rating	Unit
Input	Forward current	$I_F$	50	mA
	Peak forward current	$I_{FM}$	1	A
	Reverse voltage	$V_R$	6	V
	Power dissipation	$P$	70	mW
Output	Collector-emitter voltage	$V_{CEO}$	60	V
	Emitter-collector voltage	$V_{ECO}$	5	V
	Collector current	$I_C$	50	mA
	Collector power dissipation	$P_C$	150	mW
Total power dissipation		$P_{tot}$	170	mW
Isolation voltage 1 minute		Viso	3750	Vrms
Operating temperature		$T_{opr}$	-30 to +100	$^{\circ}C$
Storage temperature		$T_{stg}$	-40 to +125	$^{\circ}C$
Soldering temperature 10 seconds		$T_{sol}$	260	$^{\circ}C$

**Electro-optical Characteristics**

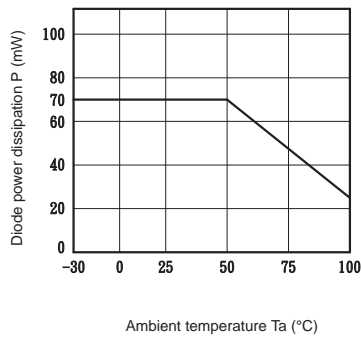
( $T_a=25^{\circ}C$ )

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	$V_F$	$I_F=20mA$	—	1.2	1.4	V
	Reverse current	$I_R$	$V_R=4V$	—	—	10	$\mu A$
	Terminal capacitance	$C_t$	$V=0, f=1kHz$	—	30	250	pF
Output	Collector dark current	$I_{CEO}$	$V_{CE}=20V, I_F=0$	—	—	0.1	$\mu A$
	Collector-emitter breakdown voltage	$BV_{CEO}$	$I_C=0.1mA, I_F=0$	60	—	—	V
	Emitter-collector breakdown voltage	$BV_{ECO}$	$I_E=100\mu A, I_F=0$	5	—	—	V
Transfer characteristics	Current transfer ratio	CTR	$I_F=5mA, V_{CE}=5V$	50	—	600	%
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F=20mA, I_C=1mA$	—	0.1	0.3	V
	Isolation resistance	Riso	DC500V, 40 to 60%RH	$5 \times 10^{10}$	$10^{11}$	—	ohm
	Floating capacitance	$C_f$	$V=0, f=1MHz$	—	0.6	1.0	pF
	Response time (Rise)	$t_r$	$V_{CE}=2V, I_C=2mA, R_L=100ohm$	—	5	20	$\mu s$
Response time (Fall)	$t_f$	—		4	20	$\mu s$	

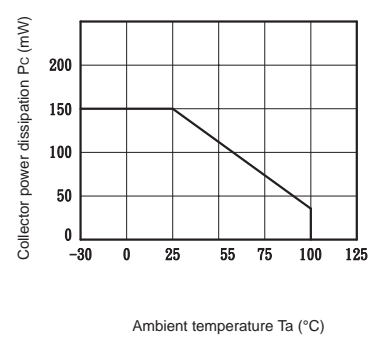
**Fig.1** Forward Current vs. Ambient Temperature



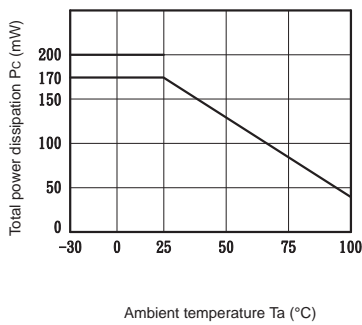
**Fig.2** Diode Power Dissipation vs. Ambient Temperature



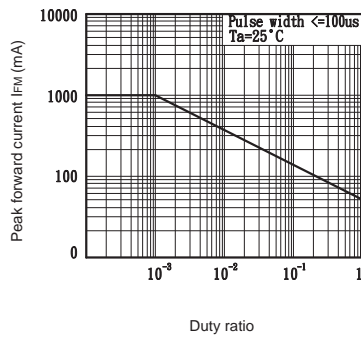
**Fig.3** Collector Power Dissipation vs. Ambient temperature



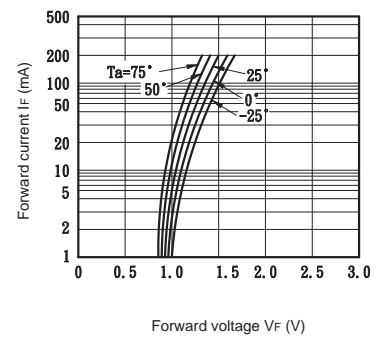
**Fig.4** Total Power Dissipation vs. Ambient temperature



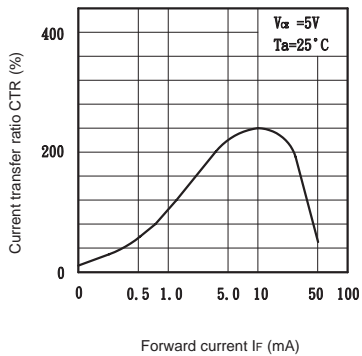
**Fig.5** Peak Forward Current vs. Duty Ratio



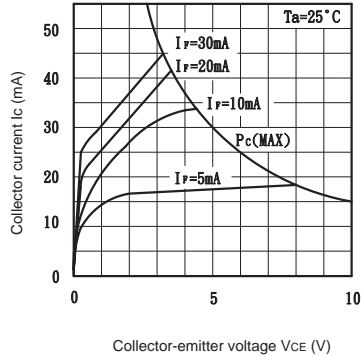
**Fig.6** Forward Current vs. Forward Voltage



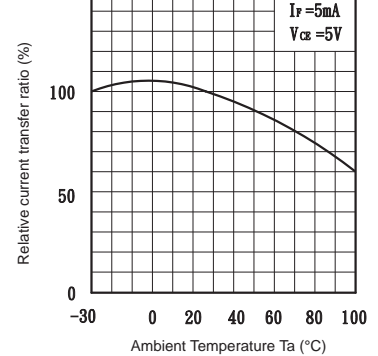
**Fig.7** Current Transfer Ratio vs. Forward Current



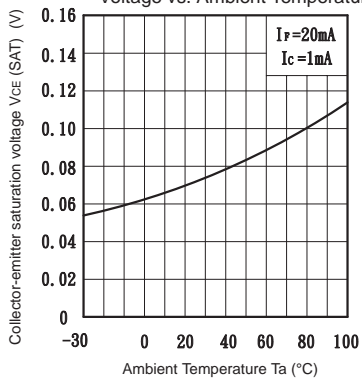
**Fig.8** Collector Current vs. Collector-emitter Voltage



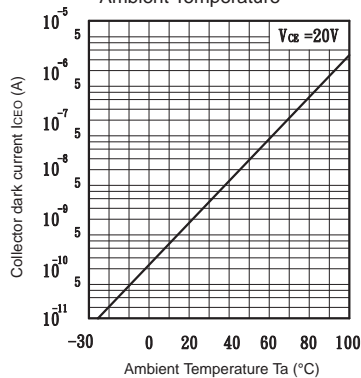
**Fig.9** Relative Current Transfer Ratio vs. Ambient Temperature



**Fig.10** Collector-emitter Saturation Voltage vs. Ambient Temperature



**Fig.11** Collector Dark Current vs. Ambient Temperature



**Fig.12** Response Time vs. Load Resistance

