

TOSHIBA PHOTOCOUPLER GaAs IRED & PHOTO-TRANSISTOR

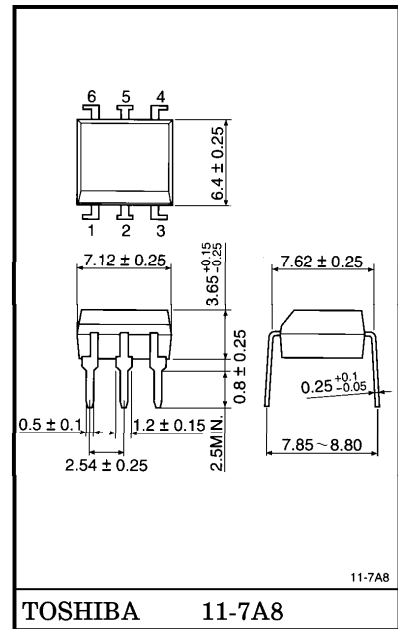
CNY17-2, CNY17-3, CNY17-4

- AC LINE/DIGITAL LOGIC ISOLATOR
- DIGITAL LOGIC/DIGITAL LOGIC ISOLATOR
- TELEPHONE LINE RECEIVER
- TWISTED PAIR LINE RECEIVER
- HIGH FREQUENCY POWER SUPPLY FEEDBACK CONTROL
- RELAY CONTACT MONITOR

The TOSHIBA Corporation CNY17 consist of a gallium arsenide infrared emitting diode coupled with a silicon photo transistor in a dual in-line package.

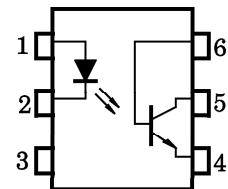
- Small Package Size and Low Cost
- Fast Switching Speeds : $5\mu\text{s}$ (TYP.)
- High DC Current Transfer Ratio : CTR ($I_F = 10\text{mA}$, $V_{CE} = 5\text{V}$)
 CNY17-2 : 63~125%
 CNY17-3 : 100~200%
 CNY17-4 : 160~320%
- High Isolation Resistance : $10^{11}\Omega$ (TYP.)
- High Isolation Voltage : 4400V (MIN.)

Unit in mm



Weight : 0.4g

PIN CONFIGURATION



- 1 : ANODE
- 2 : CATHODE
- 3 : N.C.
- 4 : EMITTER
- 5 : COLLECTOR
- 6 : BASE

MAXIMUM RATINGS (Ta = 25°C)

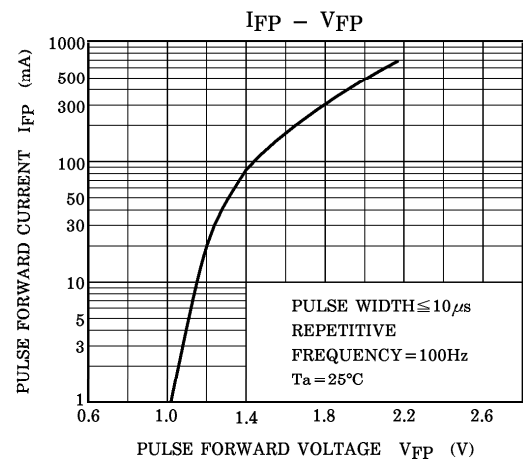
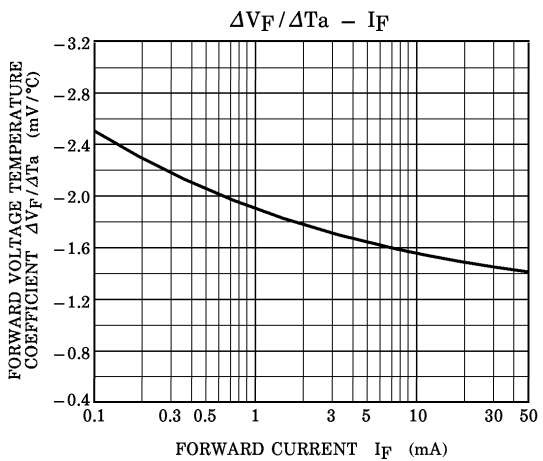
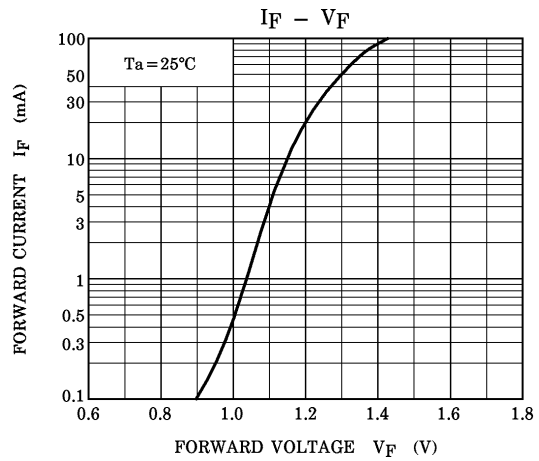
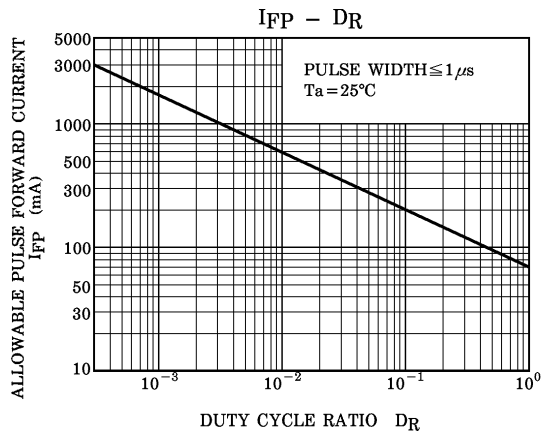
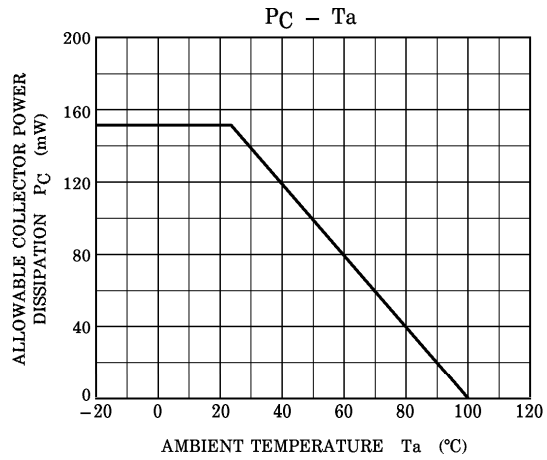
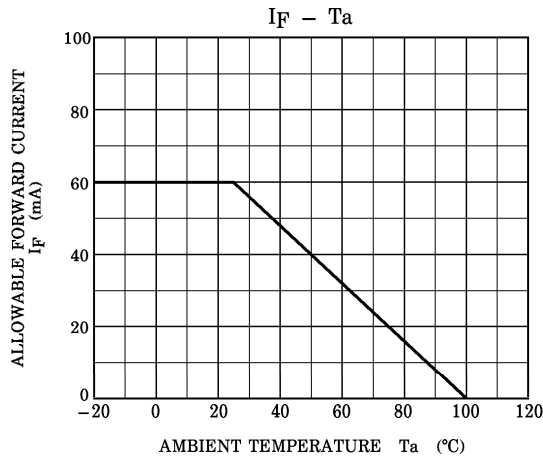
CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I_F	60	mA
	Forward Current Derating	$\Delta I_F / ^\circ\text{C}$	0.8 *	mA / °C
	Peak Forward Current (Note)	I_{PF}	3	A
	Power Dissipation	P_D	100	mW
	Power Dissipation Derating	$\Delta P_D / ^\circ\text{C}$	1.33 *	mW / °C
	Reverse Voltage	V_R	6	V
PHOTO-TRANSISTOR	Collector-Emitter Voltage	BV_{CEO}	70	V
	Collector-Base Voltage	BV_{CBO}	70	V
	Emitter-Collector Voltage	BV_{ECO}	7	V
	Collector Current	I_C	100	mA
	Power Dissipation	P_C	150	mW
	Power Dissipation Derating	$\Delta P_C / ^\circ\text{C}$	2.0 *	mW / °C
COUPLED	Storage Temperature	T_{stg}	-55~150	°C
	Operating Temperature	T_{opr}	-55~100	°C
	Lead Soldering Temperature (10s)	T_{sol}	260	°C
	Total Package Dissipation	P_T	200	mW
	Total Package Power Dissipation Derating	$\Delta P_T / ^\circ\text{C}$	2.6 *	mW / °C

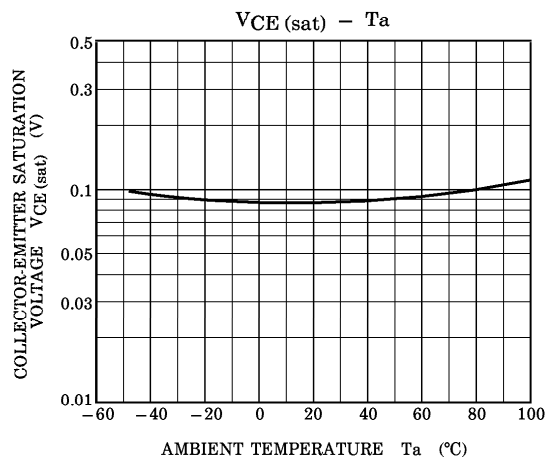
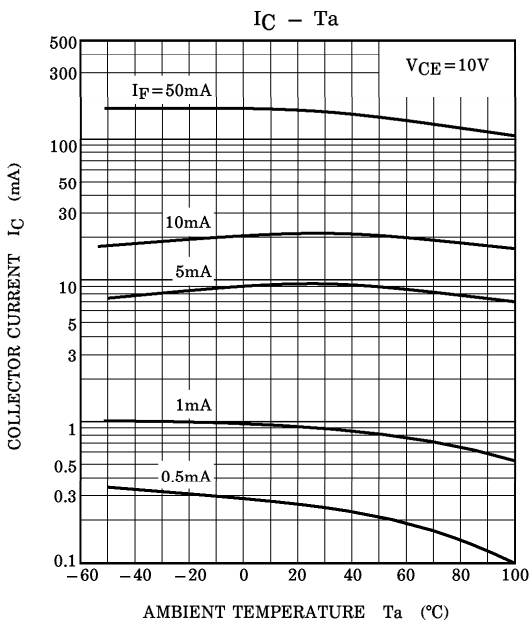
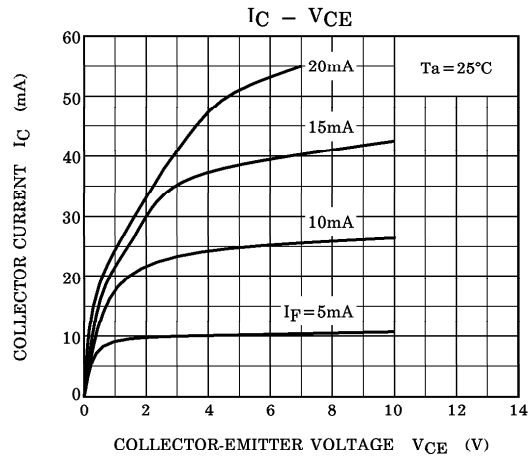
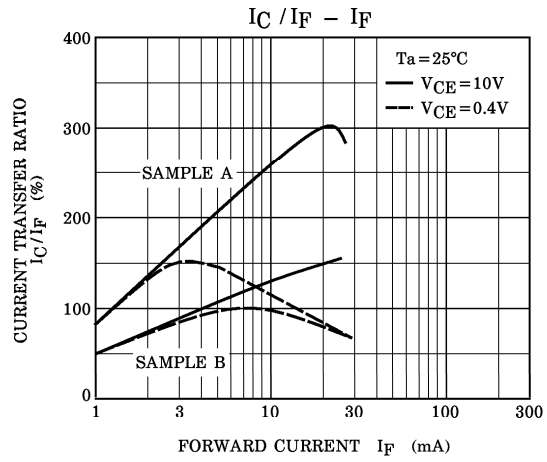
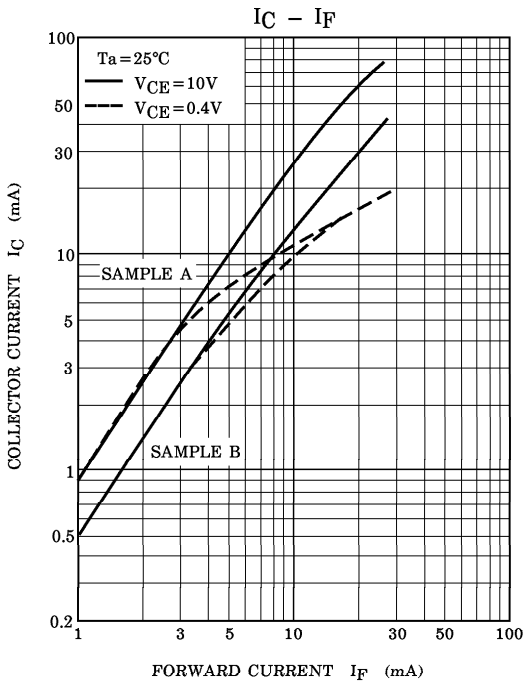
(Note) Pulse Width 1 μ s, 300pps.

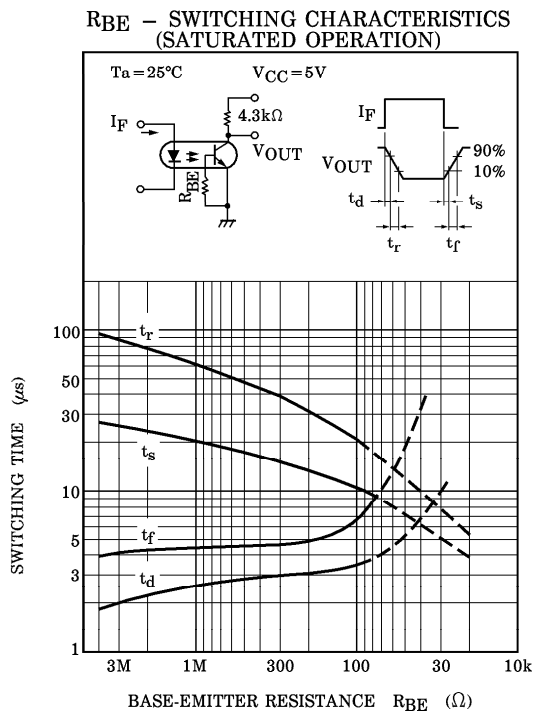
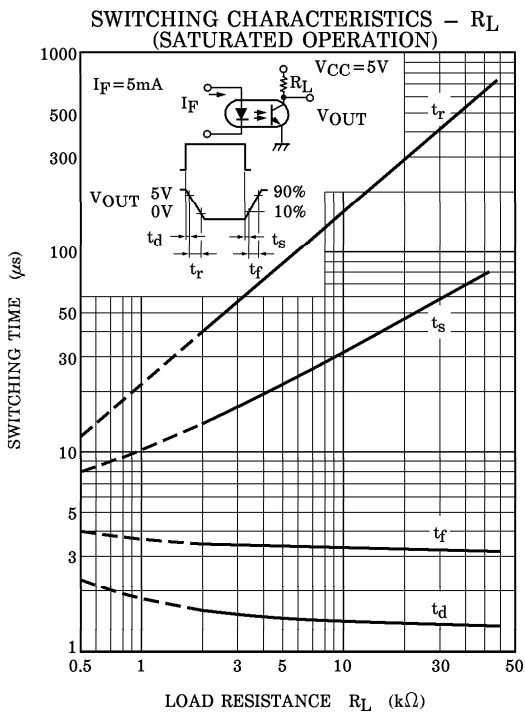
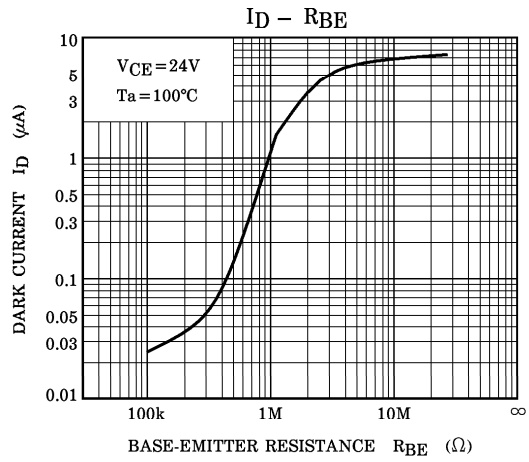
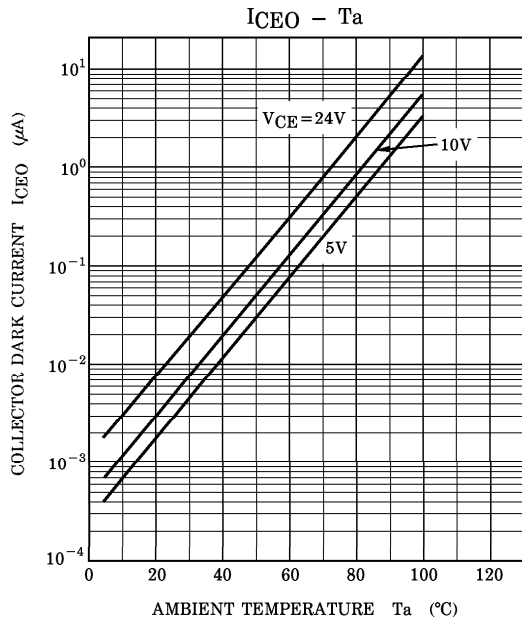
* Above 25°C ambient.

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
LED	Forward Voltage	V _F	I _F = 60mA	—	1.35	1.65	V	
	Reverse Current	I _R	V _R = 3V	—	—	10	μA	
	Capacitance	C _D	V = 0, f = 1MHz	—	30	—	pF	
PHOTO-TRANSISTOR	DC Forward Current Gain	h _{FE}	V _{CE} = 5, I _C = 500μA	100	200	—		
	Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C = 1mA, I _F = 0	70	—	—	V	
	Collector-Base Breakdown Voltage	V _{(BR)CBO}	I _C = 100μA, I _F = 0	70	—	—	V	
	Emitter-Collector Breakdown Voltage	V _{(BR)ECO}	I _E = 100μA, I _F = 0	7	—	—	V	
	Collector Dark Current	I _{CEO}	V _{CE} = 10V, I _F = 0	—	1	50	nA	
	Collector Dark Current	I _{CBO}	V _{CB} = 10V, I _F = 0	—	0.1	20	nA	
	Collector-Emitter Capacitance	C _{CE}	V = 0, f = 1MHz	—	10	—	pF	
	COUPLED	Current Transfer Ratio	CNY17-2	CTR	I _F = 10mA, V _{CE} = 5V	63	—	125
CNY17-3			100			—	200	
CNY17-4			160			—	320	
Saturation Voltage		V _{CE(sat)}	I _F = 10mA, I _C = 2.5mA	—	—	0.4	V	
Capacitance Input to Output		C _S	V = 0, f = 1MHz	—	0.8	—	pF	
Isolation Resistance		R _S	V = 500V	—	10 ¹¹	—	Ω	
DC Isolation Voltage		BV _S	DC 1 minute	4400	—	—	V	
Rise / Fall Time		t _r / t _f	V _{CE} = 10V, I _C = 2mA R _L = 100Ω	—	5	10	μs	
Rise / Fall Time Photo Diode	t _r / t _f	V _{CB} = 10V, I _{CB} = 50μA R _L = 100Ω	—	200	—	ns		







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