

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

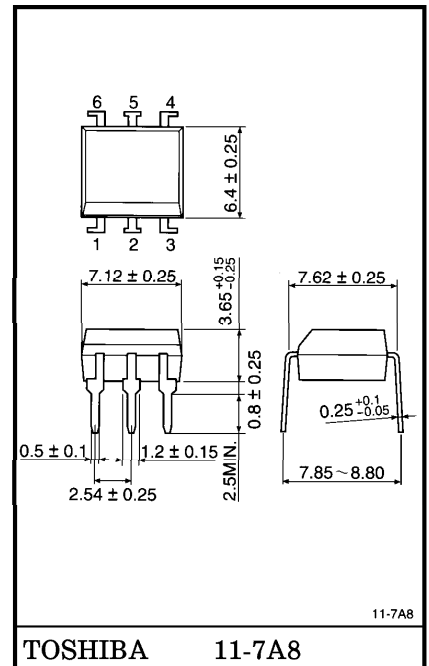
HIGH FREQUENCY POWER SUPPLY FEEDBACK CONTROL

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.

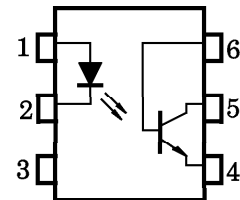
- Small Package Size and Low Cost
- Fast Switching Speeds : $5\mu s$ (TYP.)
- High DC Current Transfer Ratio : CTR ($I_F=10mA, V_{CE}=5V$)
 CNY17-2 : 63~125%
 CNY17-3 : 100~200%
 CNY17-4 : 160~320%
- High Isolation Resistance : $10^{11}\Omega$ (TYP.)
- High Isolation Voltage : 4400V (MIN.)

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)

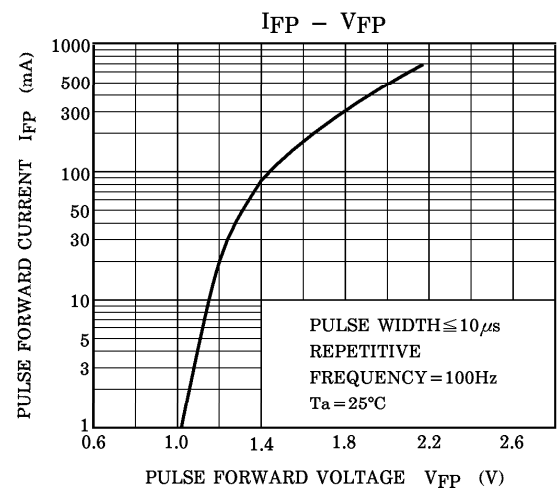
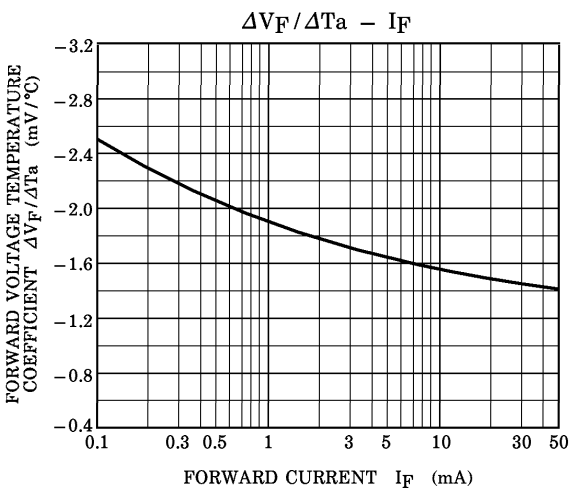
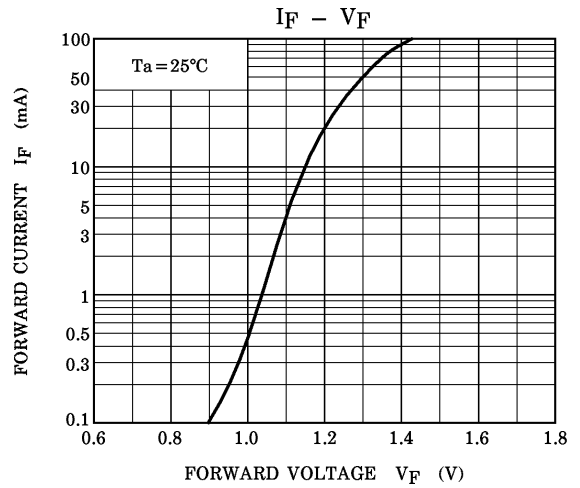
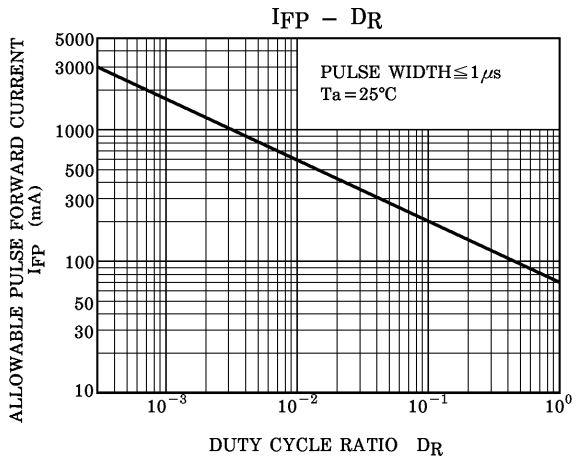
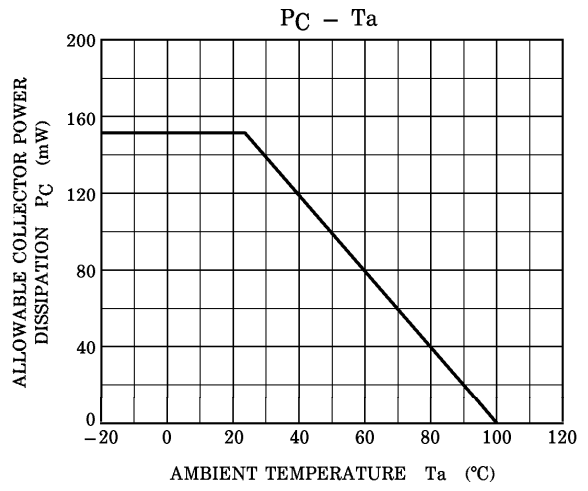
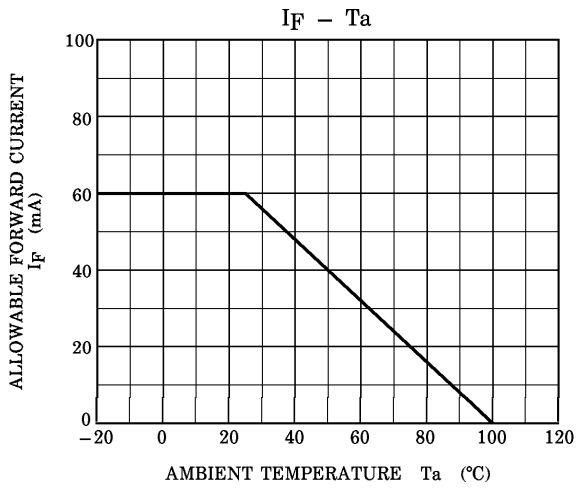
CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I_F	60	mA
	Forward Current Derating	$\Delta I_F / ^\circ\text{C}$	0.8*	mA / °C
	Peak Forward Current (Note)	I_{PF}	3	A
	Power Dissipation	P_D	100	mW
	Power Dissipation Derating	$\Delta P_D / ^\circ\text{C}$	1.33*	mW / °C
	Reverse Voltage	V_R	6	V
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

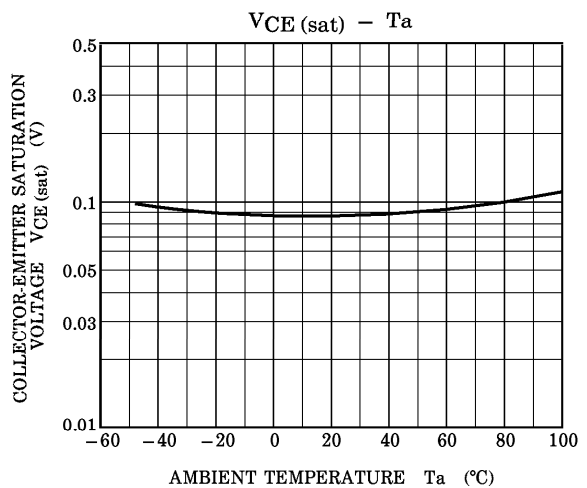
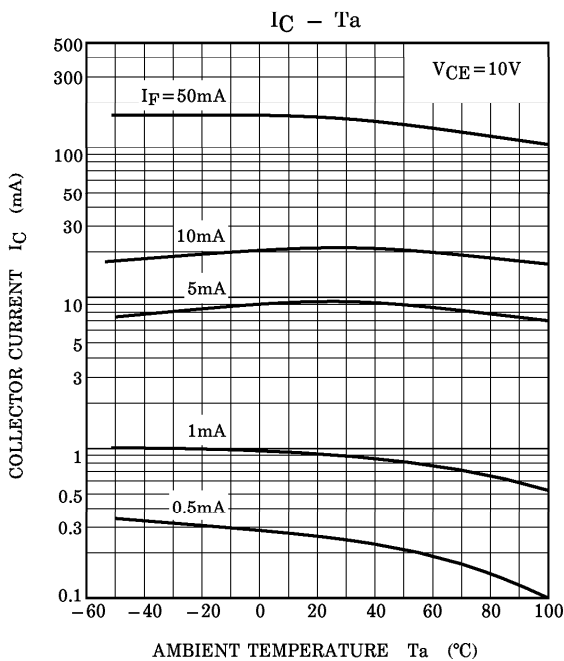
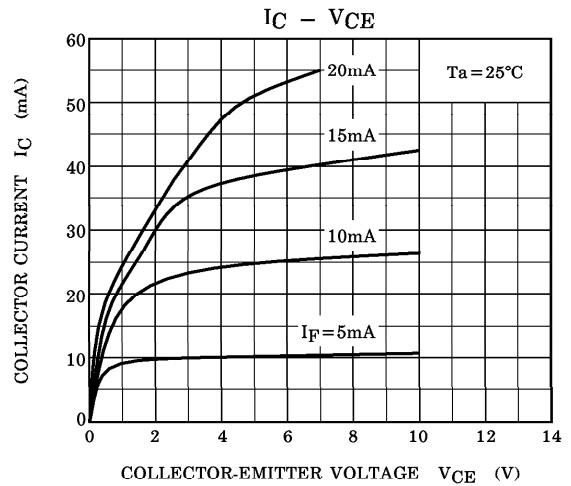
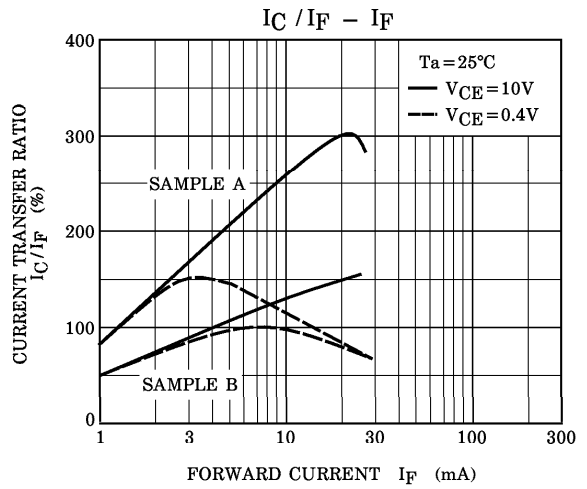
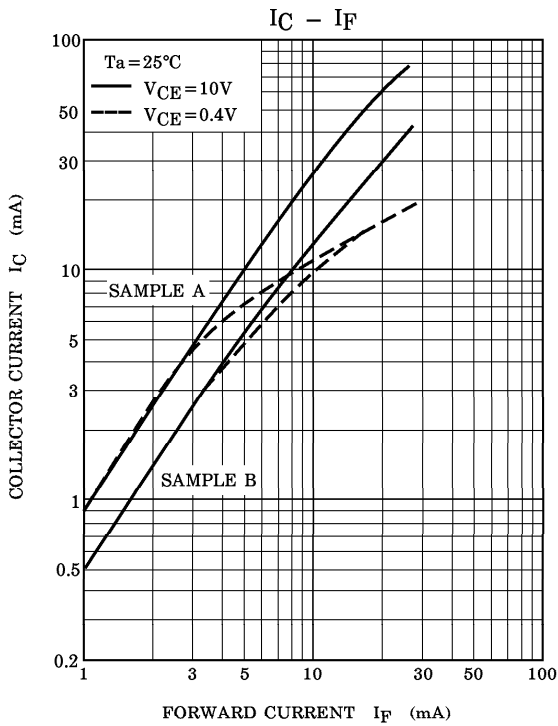
(Note) Pulse Width 1 μ s, 300pps.

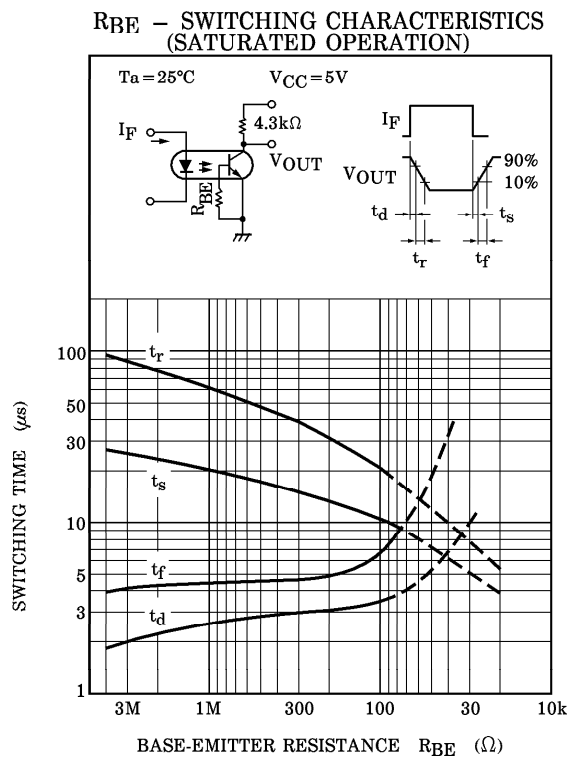
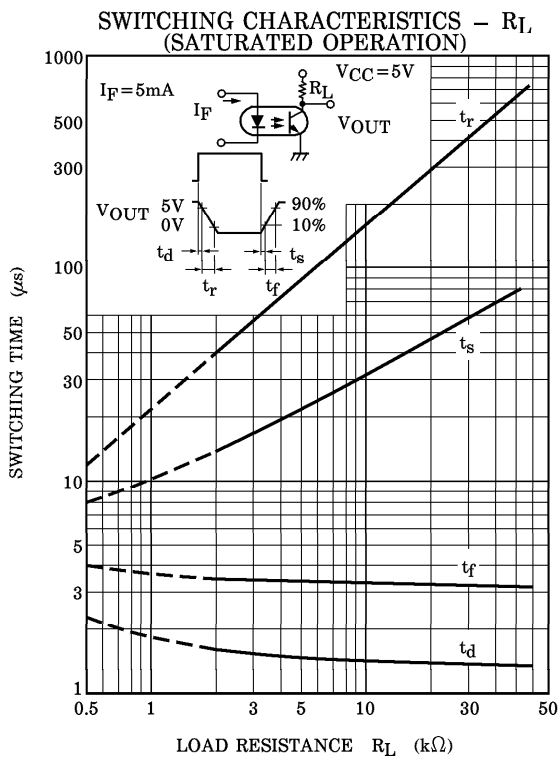
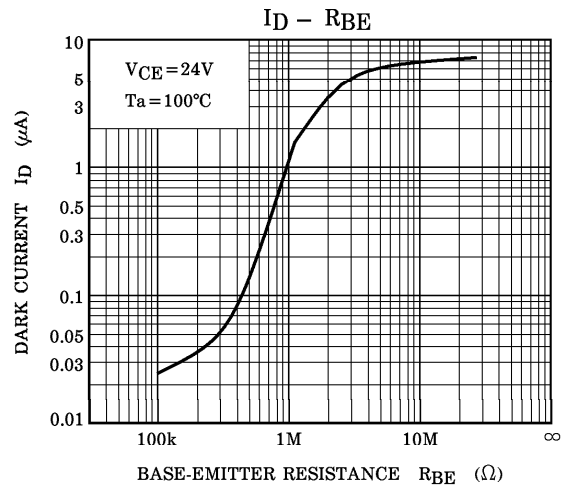
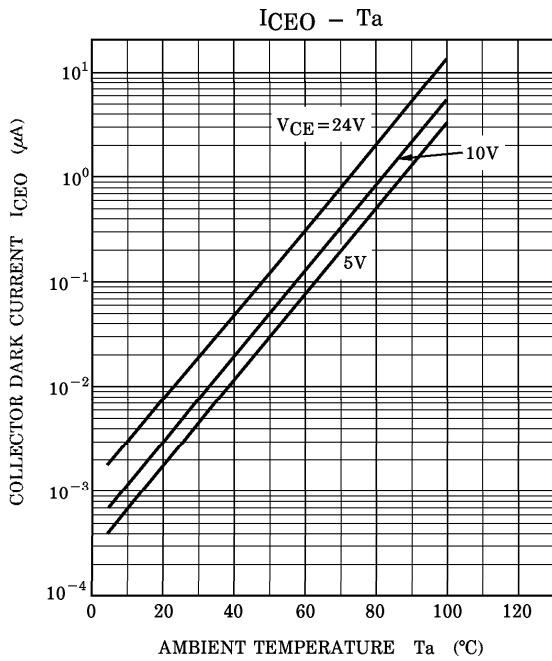
* Above 25°C ambient.

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V_F	$I_F = 60\text{mA}$	—	1.35	1.65	V
	Reverse Current	I_R	$V_R = 3\text{V}$	—	—	10	μA
	Capacitance	C_D	$V = 0, f = 1\text{MHz}$	—	30	—	pF
PHOTO-TRANSISTOR	DC Forward Current Gain	h_{FE}	$V_{CE} = 5, I_C = 500\mu\text{A}$	100	200	—	
	Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_F = 0$	70	—	—	V
	Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}, I_F = 0$	70	—	—	V
	Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	$I_E = 100\mu\text{A}, I_F = 0$	7	—	—	V
	Collector Dark Current	I_{CEO}	$V_{CE} = 10\text{V}, I_F = 0$	—	1	50	nA
	Collector Dark Current	I_{CBO}	$V_{CB} = 10\text{V}, I_F = 0$	—	0.1	20	nA
	Collector-Emitter Capacitance	C_{CE}	$V = 0, f = 1\text{MHz}$	—	10	—	pF
COUPLED	Current Transfer Ratio	CNY17-2	$I_F = 10\text{mA}, V_{CE} = 5\text{V}$	63	—	125	%
		CNY17-3		100	—	200	
		CNY17-4		160	—	320	
	Saturation Voltage	$V_{CE(sat)}$	$I_F = 10\text{mA}, I_C = 2.5\text{mA}$	—	—	0.4	V
	Capacitance Input to Output	C_S	$V = 0, f = 1\text{MHz}$	—	0.8	—	pF
	Isolation Resistance	R_S	$V = 500\text{V}$	—	10^{11}	—	Ω
	DC Isolation Voltage	BV_S	DC 1 minute	4400	—	—	V
	Rise / Fall Time Diode	t_r / t_f	$V_{CE} = 10\text{V}, I_C = 2\text{mA}$ $R_L = 100\Omega$	—	5	10	μs
Rise / Fall Time Photo	t_r / t_f	$V_{CB} = 10\text{V}, I_{CB} = 50\mu\text{A}$ $R_L = 100\Omega$	—	200	—	ns	







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