

4N25(Short), 4N25A(Short), 4N26(Short), 4N27(Short), 4N28(Short)

AC LINE / DIGITAL LOGIC ISOLATOR.

DIGITAL LOGIC / DIGITAL LOGIC ISOLATOR.

TELEPHONE LINE RECEIVER.

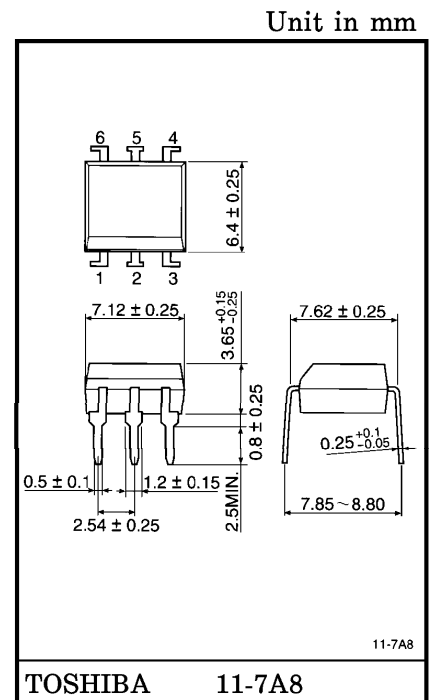
TWISTED PAIR LINE RECEIVER.

HIGH FREQUENCY POWER SUPPLY FEEDBACK CONTROL.

RELAY CONTACT MONITOR.

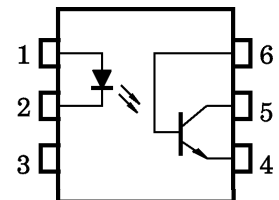
The TOSHIBA 4N25 (Short) through 4N28 (Short) consists of a gallium arsenide infrared emitting diode coupled with a silicon phototransistor in a dual in-line package.

- Switching Speeds : $3\mu\text{s}$ (Typ.)
- DC Current Transfer Ratio : 100% (Typ.)
- Isolation Resistance : $10^{11}\Omega$ (Min.)
- Isolation Voltage : 2500Vrms (Min.)
- UL Recognized : UL1577, File No. E67349



Weight : 0.4g

PIN CONFIGURATIONS (Top view)



- 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 (Continuous)	I _F	80	mA
	Forward Current Derating	$\Delta I_F / ^\circ\text{C}$	1.07 (*)	mA / °C
	Peak Forward Current (Note 1)	I _{PF}	3	A
	Power Dissipation	P _D	150	mW
	Power Dissipation Derating	$\Delta P_D / ^\circ\text{C}$	2.0 (*)	mW / °C
	Reverse Voltage	V _R	3	V
DETECTOR	Collector-Emitter Voltage	BV _{CEO}	30	V
	Collector-Base Voltage	BV _{CBO}	70	V
	Emitter-Collector Voltage	BV _{ECO}	7	V
	Collector Current (Continuous)	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 Range	T _{stg}	-55~150	°C
	Operating Temperature Range	T _{opr}	-55~100	°C
	Lead Soldering Temperature (10s)	T _{sol}	260	°C
	Total Package Power Dissipation	P _T	250	mW
	Total Package Power Dissipation Derating	$\Delta P_T / ^\circ\text{C}$	3.3 (*)	mW / °C

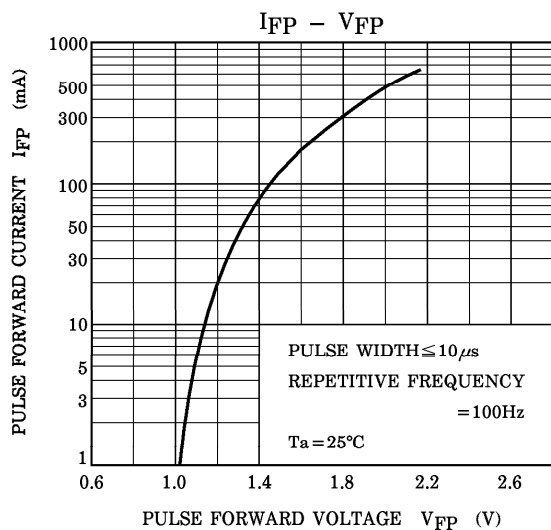
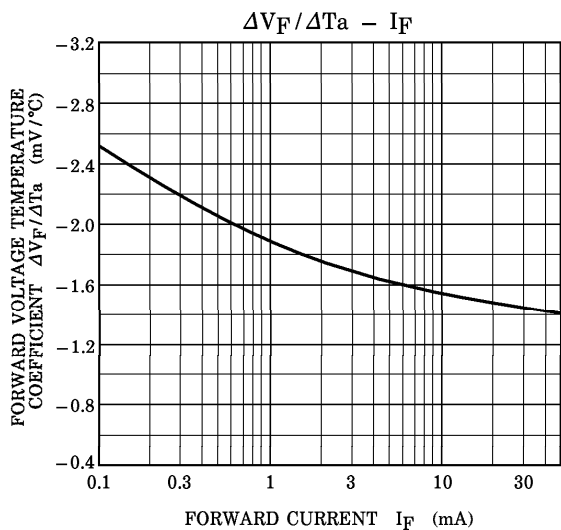
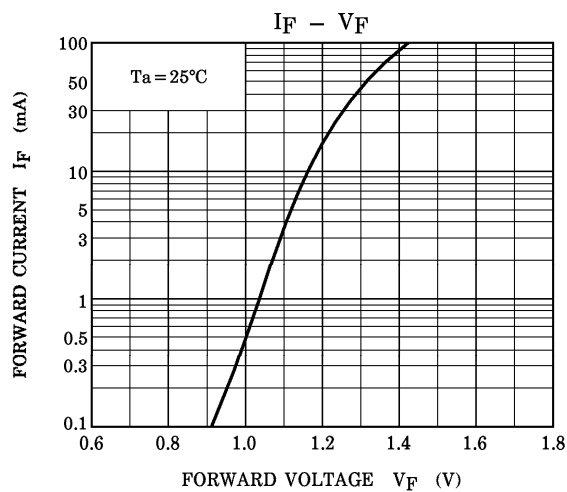
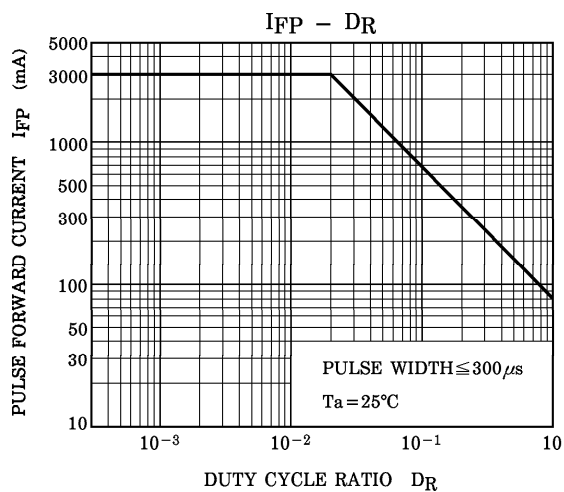
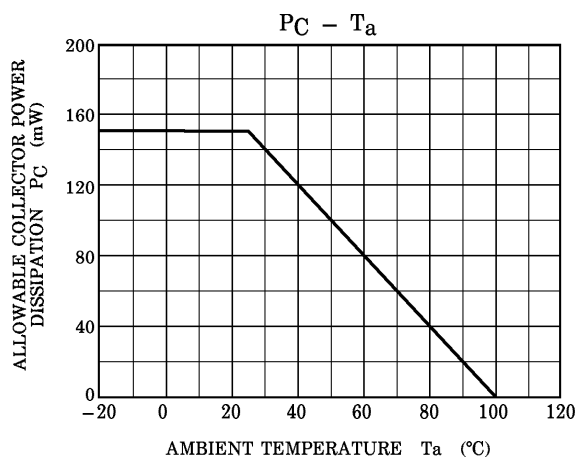
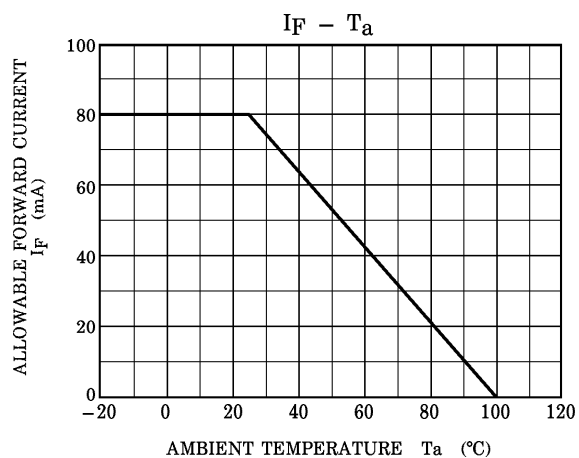
(Note 1) Pulse width 300 μ s, 2% duty cycle.

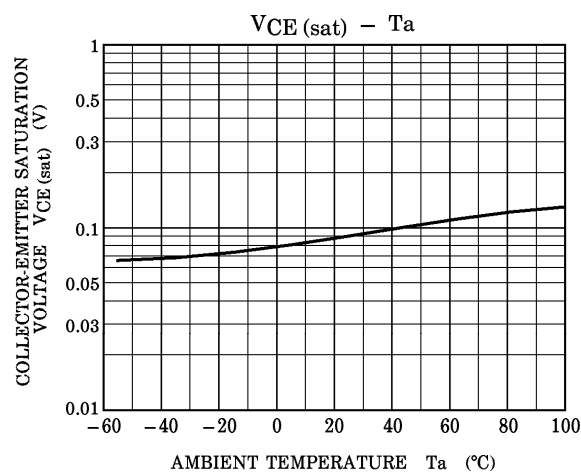
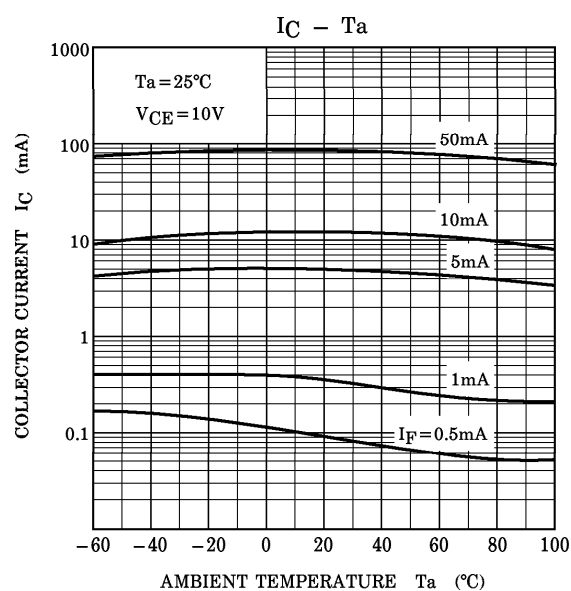
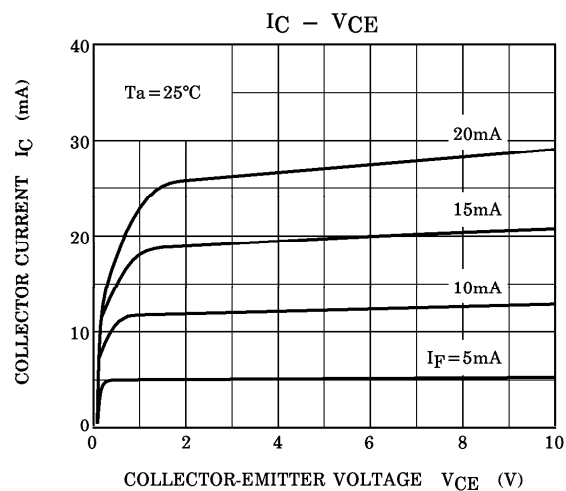
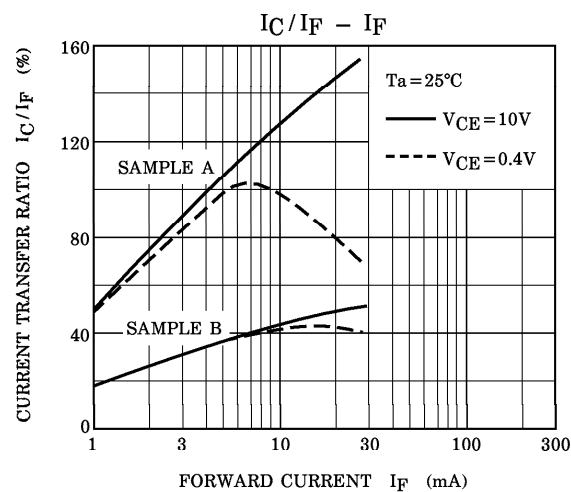
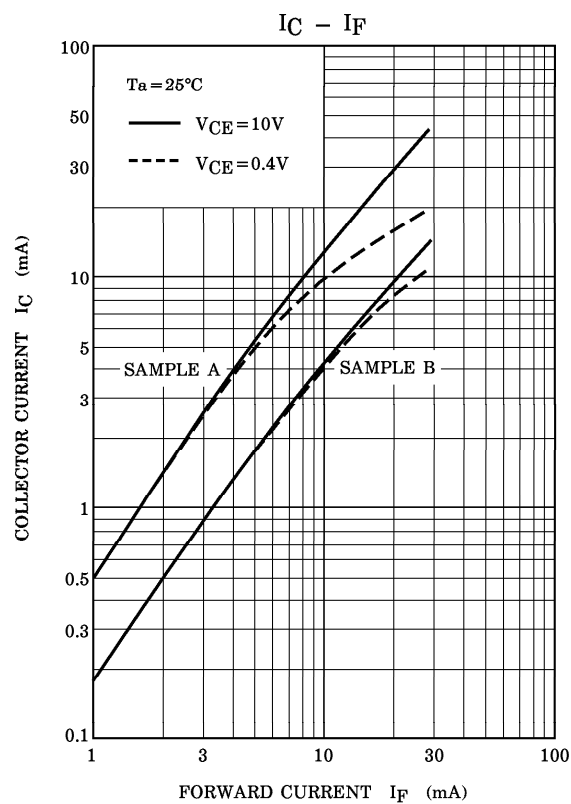
(*) Above 25°C ambient.

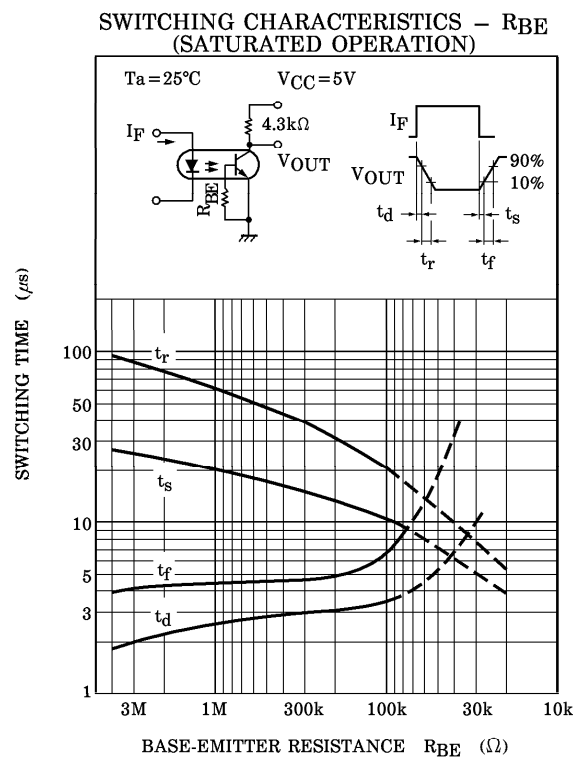
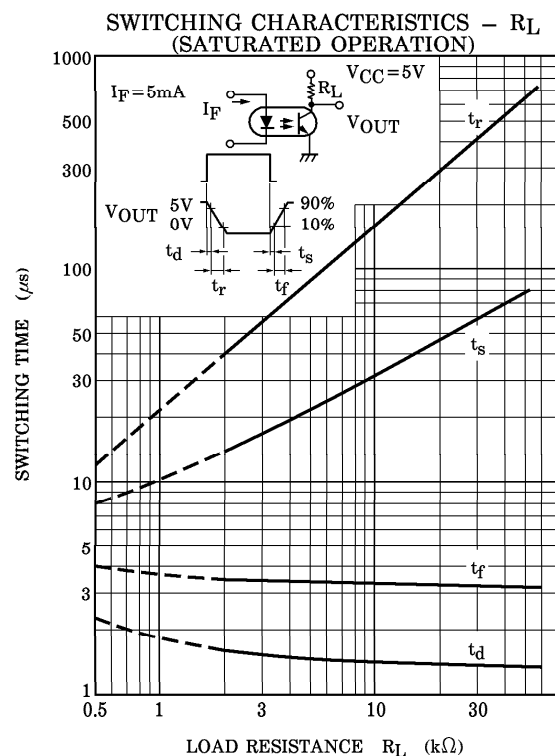
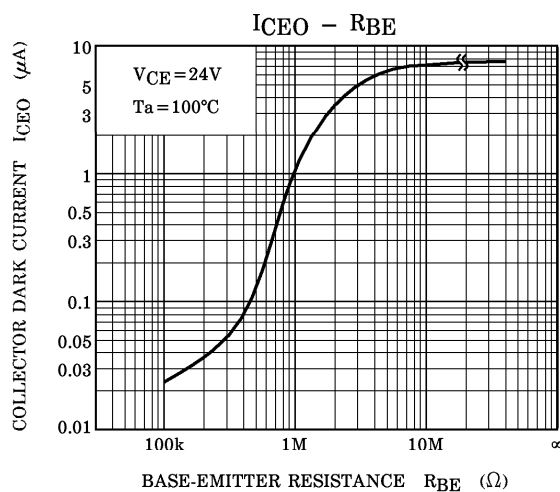
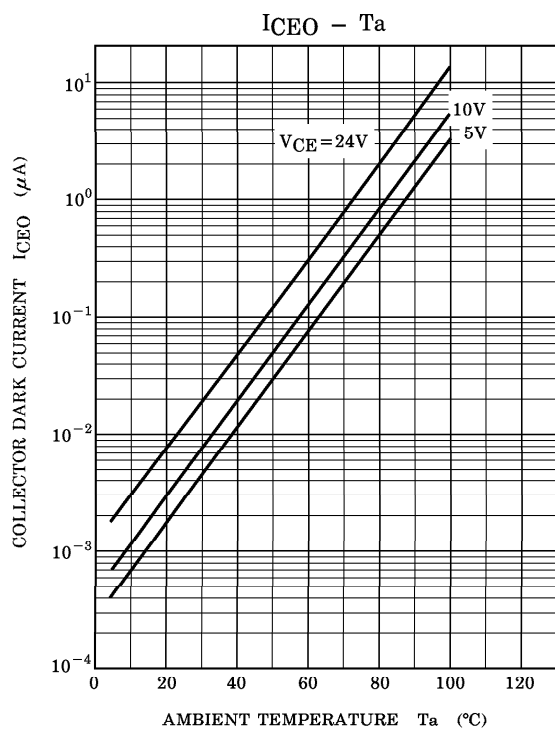
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V_F	$I_F = 10\text{mA}$	—	1.15	1.5	V
	Reverse Current	I_R	$V_R = 3\text{V}$	—	—	100	μA
	Capacitance	C_D	$V = 0, f = 1\text{MHz}$	—	30	—	pF
DETECTOR	DC Forward Current Gain	h_{FE}	$V_{CE} = 5\text{V}, I_C = 500\mu\text{A}$	—	200	—	—
	Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_F = 0$	30	—	—	V
	Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}$	70	—	—	V
	Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	$I_E = 100\mu\text{A}$	7	—	—	V
	Collector Dark Current	I_{CEO}	$V_{CE} = 10\text{V}$	—	1	50	nA
	Collector Dark Current	I_{CBO}	$V_{CB} = 10\text{V}$	—	0.1	20	nA
	Collector-Emitter Capacitance	C_{CE}	$V = 0, f = 1\text{MHz}$	—	10	—	pF
	Current Transfer Ratio	I_C / I_F	$I_F = 10\text{mA}, V_{CE} = 10\text{V}$	20	100	—	%
	Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_F = 50\text{mA}, I_C = 2\text{mA}$	—	0.1	0.5	V
COUPLED	Capacitance Input to Output	C_S	$V_S = 0, f = 1\text{MHz}$	—	0.8	—	pF
	Isolation Resistance	R_S	$V_S = 500\text{V}, R. H. \leq 60\%$	10^{11}	—	—	Ω
	Isolation Voltage	BV_S	AC, 1 minute	2500	—	—	V_{rms}
		$BV_S(*)$	AC, Peak	2500	—	—	V_{pk}
				1500	—	—	
				500	—	—	
			AC, 1 second	1775	—	—	V_{rms}
	Rise / Fall Time	t_r / t_f	$V_{CE} = 10\text{V}, I_C = 2\text{mA}$ $R_L = 100\Omega$	—	2	—	μs
	Rise / Fall Time	t_r / t_f	$V_{CB} = 10\text{V}, I_{CB} = 50\mu\text{A}$ $R_L = 100\Omega$	—	200	—	ns

(*) JEDEC registered minimum BV_S , however, TOSHIBA specifies a minimum BV_S of 2500Vrms, 1 minute.







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