

PC703VxNSZX Series/ PC703VxYSZX Series

■ Features

1. TTL compatible output
2. High collector-emitter voltage (V_{CEO} :70V)
3. Isolation voltage (Viso (rms):5kV)
4. Recognized by UL, file No.E64380
Approved by TÜV (VDE0884)(PC703VxYSZX Series)
5. 6-pin DIP package

■ Applications

1. Home appliances
2. Programmable controllers
3. Peripheral equipment of personal computers

■ Model Line-up

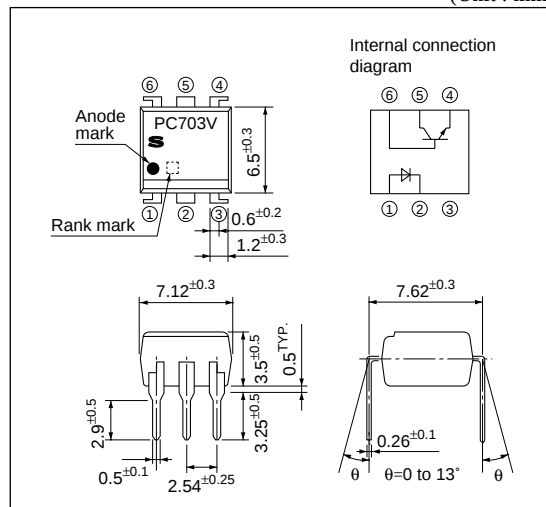
Model No.	* Safty Standard Approval		Package
	UL	TÜV(VDE0884)	
PC703VxNSZX Series	○	—	DIP
PC703VxYSZX Series	○	○	

* Application Model No. PC703V

High Collector-emitter Voltage Type Photocoupler

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings (Ta=25°C)

	Parameter	Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	*1 Peak forward current	I_{FM}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P	70	mW
Output	Collector-emitter voltage	V_{CEO}	70	V
	Emitter-collector voltage	V_{ECO}	6	V
	Collector-base voltage	V_{CBO}	70	V
	Emitter-base voltage	V_{EBO}	6	V
	Collector current	I_C	50	mA
	Collector power dissipation	P_C	160	mW
	Total power dissipation	P_{tot}	200	mW
	*2 Isolation voltage	$V_{iso (rms)}$	5	kV
	Operating temperature	T_{opr}	-30 to +100	°C
	Storage temperature	T_{stg}	-55 to +125	°C
	*3 Soldering temperature	T_{sol}	260	°C

*1 Pulse width≤100μs, Duty ratio=0.001

*2 40 to 60%RH, AC for 1 min

*3 For 10 s

■ Electro-optical Characteristics

(Ta=25°C)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V _F	I _F =20mA	—	1.2	1.4	V
	Peak forward voltage		V _{FM}	I _{FM} =0.5A	—	—	3.0	V
	Reverse current		I _R	V _R =4V	—	—	10	μA
	Terminal capacitance		C _t	V=0, f=1kHz	—	30	250	pF
Output	Collector dark current		I _{CEO}	V _{CE} =20V, I _F =0	—	—	10 ⁻⁷	A
Transfer charac- teristics	*4 Collector cullent		I _C	I _F =10mA, V _{CE} =5V	4.0	—	32.0	mA
	Collector-emitter saturation voltage		V _{CE(sat)}	I _F =20mA, I _C =1mA	—	0.1	0.2	V
	Isolation resistance		R _{ISO}	DC500V, 40 to 60%RH	5×10 ¹⁰	10 ¹¹	—	Ω
	Floating capacitance		C _f	V=0, f=1MHz	—	0.6	1.0	pF
	Cut-off frequency		f _c	V _{CE} =5V, I _C =2mA, R _L =100Ω, -3dB	—	80	—	kHz
	Response time	Rise time	t _r	V _{CE} =2V, I _C =2mA R _L =100Ω	—	4	15	μs
		Fall time	t _f		—	3	15	μs

*4 Classification table of collector current is shown below.

Model No. *5	Rank mark	I_C (mA)
PC703V1NSZX	A	4.0 to 8.0
PC703V2NSZX	B	6.3 to 12.5
PC703V3NSZX	C	10.0 to 20.0
PC703V4NSZX	D	16.0 to 32.0
PC703V5NSZX	A or B	4.0 to 12.5
PC703V6NSZX	B or C	6.3 to 20.0
PC703V7NSZX	C or D	10.0 to 32.0
PC703V0NSZX	A, B, C or D	4.0 to 32.0

Measuring Conditions

$I_F=10\text{mA}$

$V_{CE}=5\text{V}$

$T_A=25^\circ\text{C}$

*5 PC703V0YSZX Series are equivalent.

Fig.1 Forward Current vs. Ambient Temperature

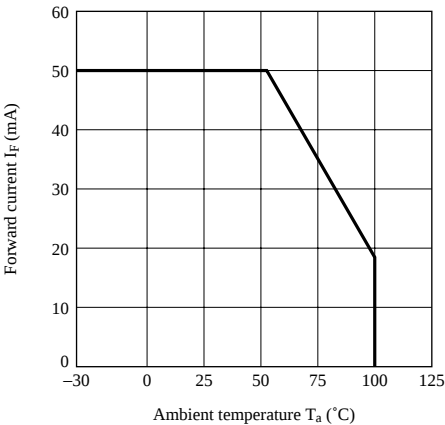


Fig.2 Collector Power Dissipation vs. Ambient Temperature

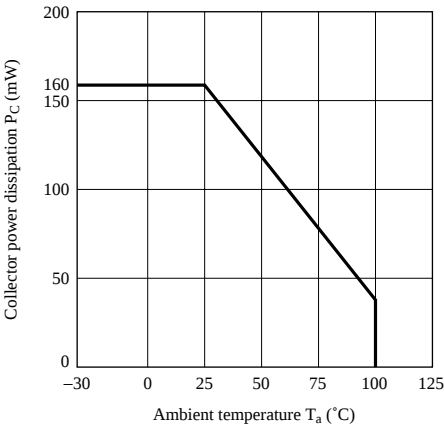


Fig.3 Peak Forward Current vs. Duty Ratio

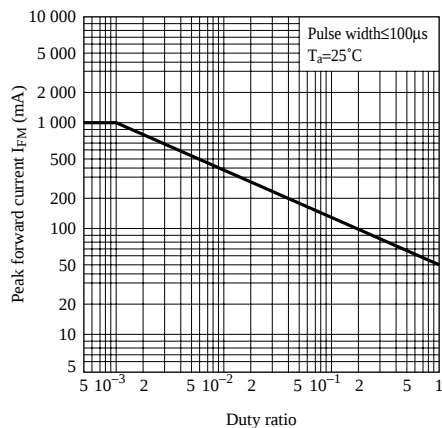


Fig.4 Forward Current vs. Forward Voltage

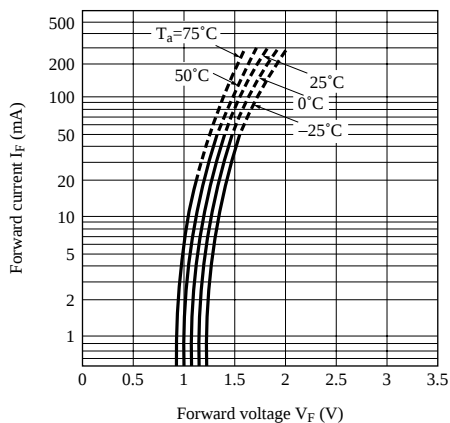


Fig.5 Current Transfer Ratio vs. Forward Current

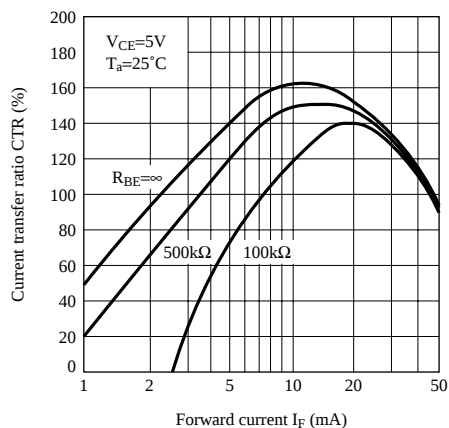


Fig.6 Collector Current vs. Collector-emitter Voltage

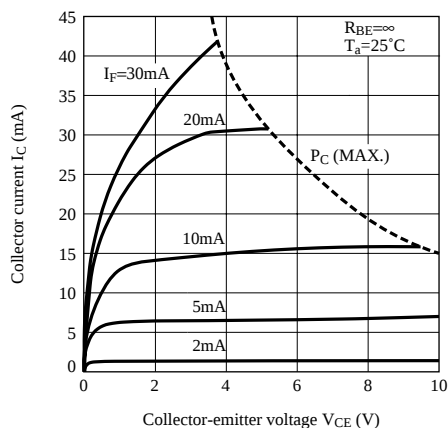


Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

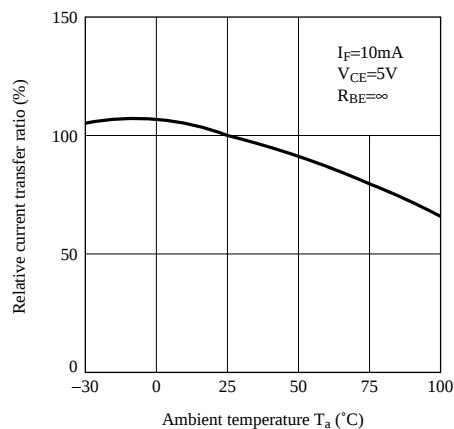


Fig.8 Collector - emitter Saturation Voltage vs. Ambient Temperature

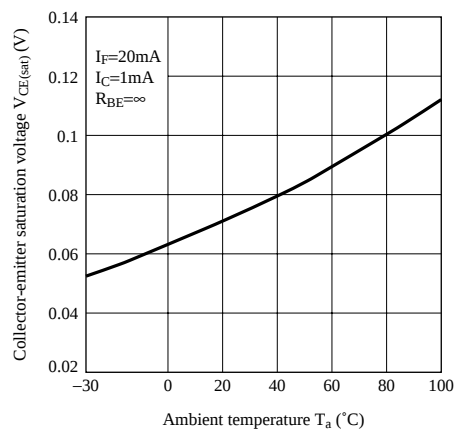
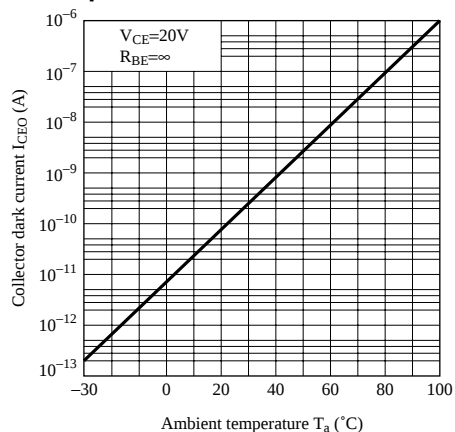
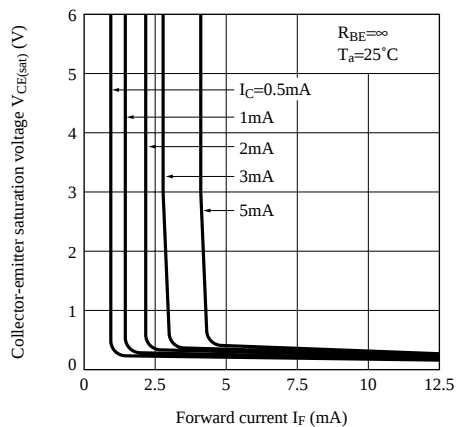
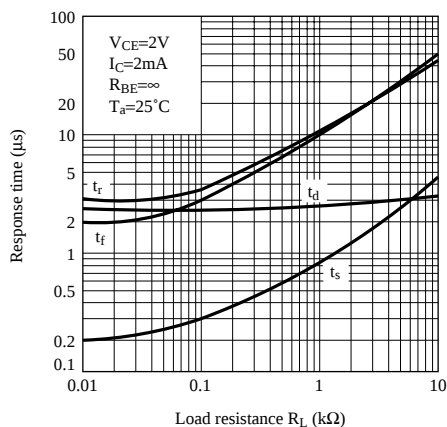
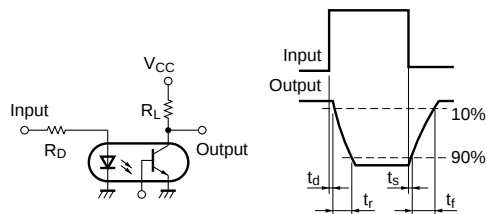
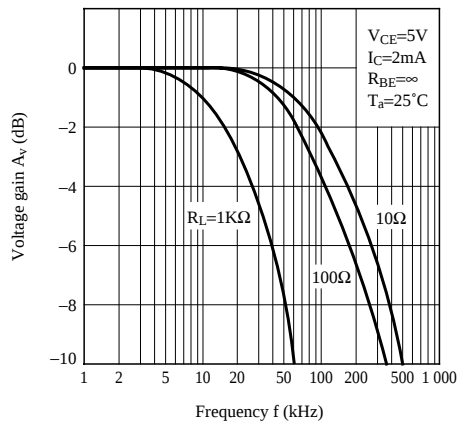
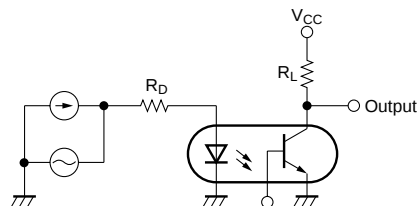


Fig.9 Collector Dark Current vs. Ambient Temperature**Fig.10 Collector-emitter Saturation Voltage vs. Forward Current****Fig.11 Response Time vs. Load Resistance****Fig.12 Test Circuit for Response Time****Fig.13 Frequency Response****Fig.14 Test Circuit for Frequency Response**

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 - Office automation equipment
 - Telecommunication equipment [terminal]
 - Test and measurement equipment
 - Industrial control
 - Audio visual equipment
 - Consumer electronics
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 - Transportation control and safety equipment (i.e., aircraft, trains, automobiles, etc.)
 - Traffic signals
 - Gas leakage sensor breakers
 - Alarm equipment
 - Various safety devices, etc.
 - (iii) SHARP devices shall not be used for or in connection with equipment that requires an extremely high level of reliability and safety such as:
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 - Telecommunication equipment [trunk lines]
 - Nuclear power control equipment
 - Medical and other life support equipment (e.g., scuba).
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5. 6-pin DIP package (Lead forming type)

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■ Absolute Maximum Ratings (Ta=25°C)

	Parameter	Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	*1 Peak forward current	I_{FM}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P	70	mW
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	Collector current	I_C	50	mA
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	*2 Isolation voltage	$V_{iso (rms)}$	5	kV
	Operating temperature	T_{opr}	-30 to +100	°C
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	*3 Soldering temperature	T_{sol}	260	°C

*1 Pulse width≤100μs, Duty ratio=0.001

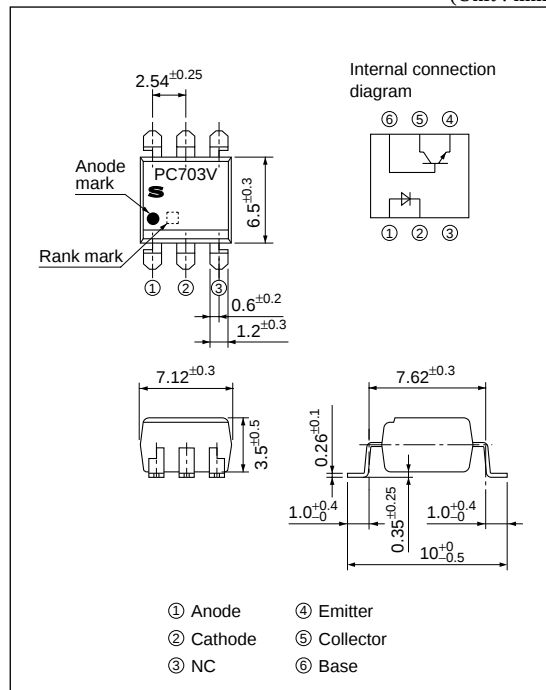
*2 40 to 60%RH, AC for 1 min

*3 For 10 s

High Collector-emitter Voltage Type Photocoupler

■ Outline Dimensions

(Unit : mm)



■ Electro-optical Characteristics

(Ta=25°C)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V _F	I _F =20mA	—	1.2	1.4	V
	Peak forward voltage		V _{FM}	I _{FM} =0.5A	—	—	3.0	V
	Reverse current		I _R	V _R =4V	—	—	10	μA
	Terminal capacitance		C _t	V=0, f=1kHz	—	30	250	pF
Output	Collector dark current		I _{CEO}	V _{CE} =20V, I _F =0	—	—	10 ⁻⁷	A
Transfer charac- teristics	*4 Collector cullent		I _C	I _F =10mA, V _{CE} =5V	4.0	—	32.0	mA
	Collector-emitter saturation voltage		V _{CE(sat)}	I _F =20mA, I _C =1mA	—	0.1	0.2	V
	Isolation resistance		R _{ISO}	DC500V, 40 to 60%RH	5×10 ¹⁰	10 ¹¹	—	Ω
	Floating capacitance		C _f	V=0, f=1MHz	—	0.6	1.0	pF
	Cut-off frequency		f _c	V _{CE} =5V, I _C =2mA, R _L =100Ω, -3dB	—	80	—	kHz
	Response time	Rise time	t _r	V _{CE} =2V, I _C =2mA		—	4	15
Fall time		t _f	R _L =100Ω		—	3	15	μs

*4 Classification table of collector current is shown below.

Model No.	Rank mark	I _C (mA)
PC703V1NIZX	A	4.0 to 8.0
PC703V2NIZX	B	6.3 to 12.5
PC703V3NIZX	C	10.0 to 20.0
PC703V4NIZX	D	16.0 to 32.0
PC703V5NIZX	A or B	4.0 to 12.5
PC703V6NIZX	B or C	6.3 to 20.0
PC703V7NIZX	C or D	10.0 to 32.0
PC703V0NIZX	A, B, C or D	4.0 to 32.0

Measuring Conditions
I_F=10mA
V_{CE}=5V
T_A=25°C

Fig.1 Forward Current vs. Ambient Temperature

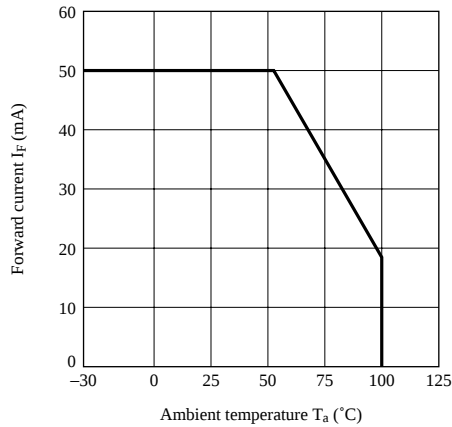


Fig.2 Collector Power Dissipation vs. Ambient Temperature

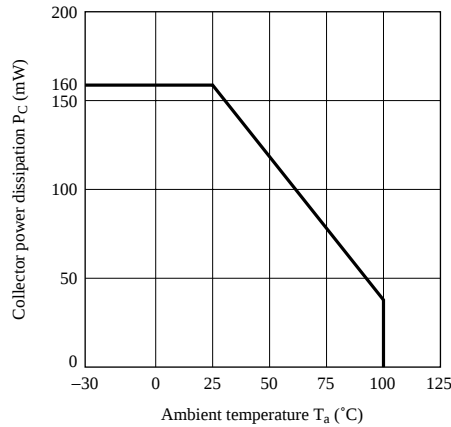


Fig.3 Peak Forward Current vs. Duty Ratio

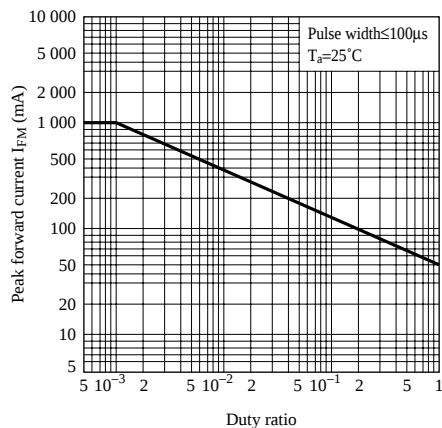


Fig.4 Forward Current vs. Forward Voltage

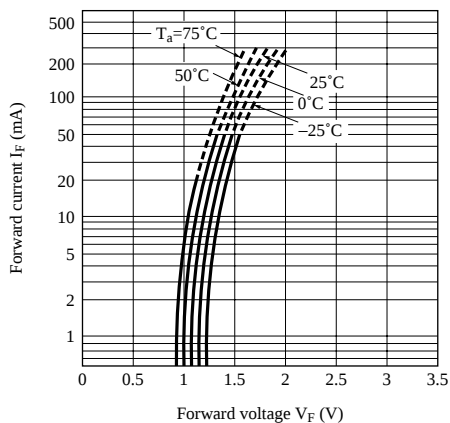


Fig.5 Current Transfer Ratio vs. Forward Current

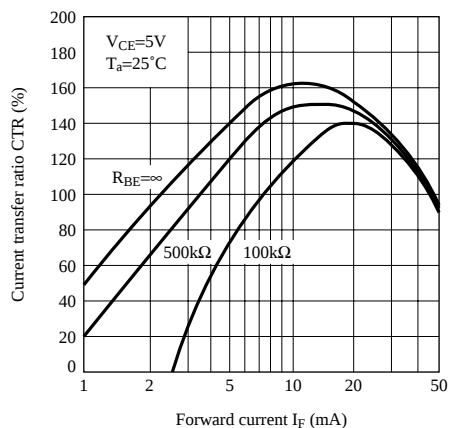


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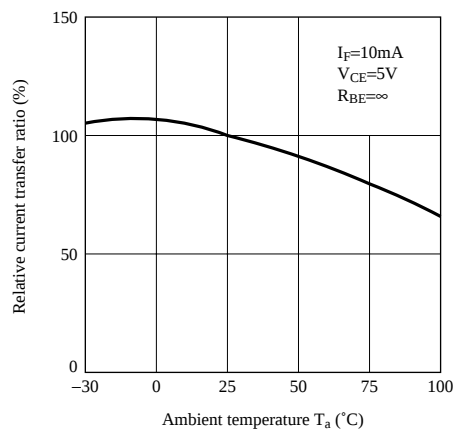


Fig.6 Collector Current vs. Collector-emitter Voltage

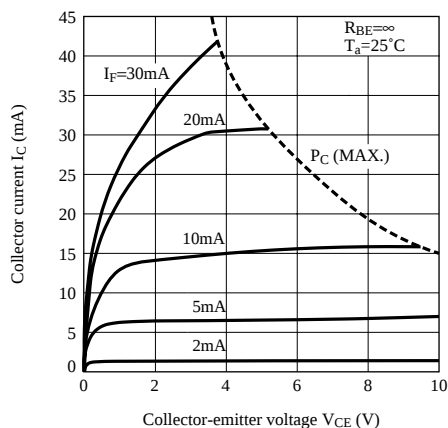


Fig.8 Collector - emitter Saturation Voltage vs. Ambient Temperature

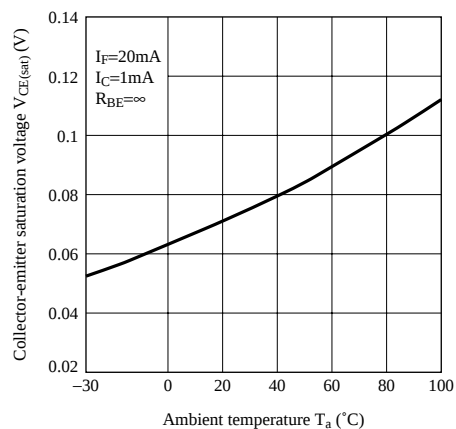
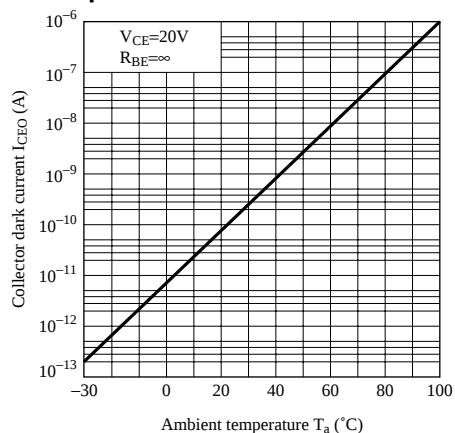
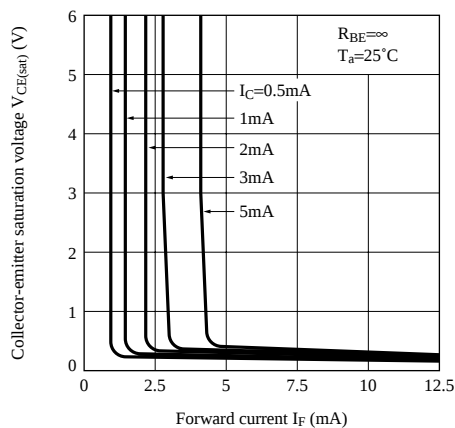
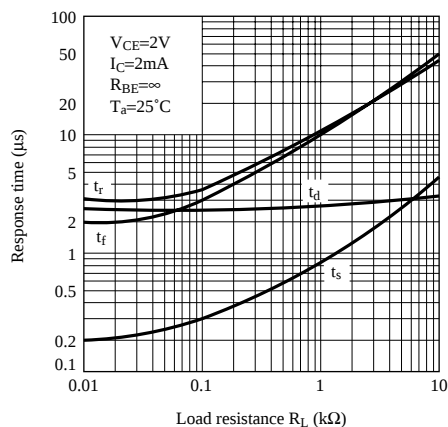
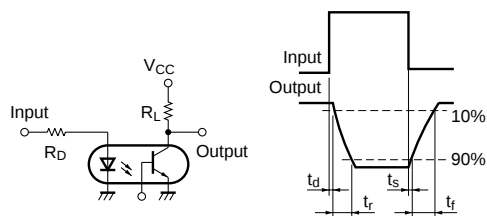
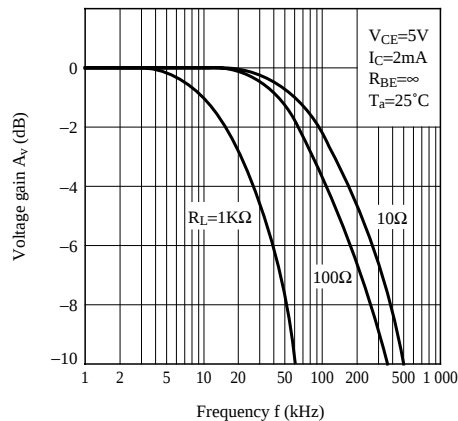
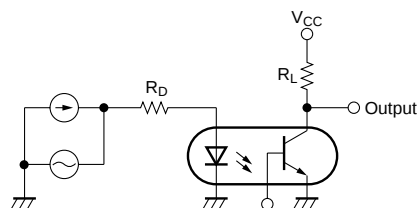


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