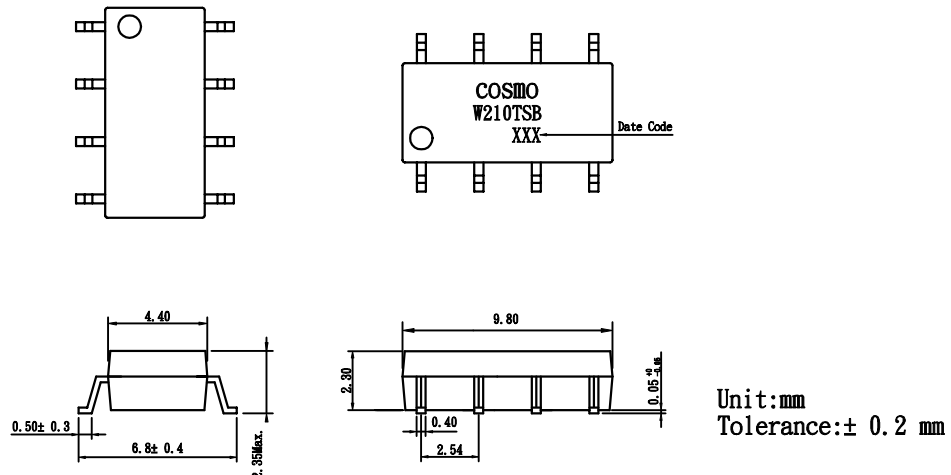


PRODUCT SPECIFICATION

COSMO ELECTRONICS CO., LTD.	PHOTO MOS RELAYS: KAQW210TSB	SHEET 1 OF 10
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• OUTSIDE DIMENSION :



• Turn on/Turn off time



Absolute Maximum Ratings ($T_A=25^\circ\text{C}$)

Emitter (Input)

Reverse Voltage	5.0V
Continuous Forward Current	50mA
Peak Forward Current (1s)	1A
Power Dissipation	100mW
Derate Linearly from 25°C	1.3mW/ $^\circ\text{C}$

Detector (Output)

Output Breakdown Voltage	$\pm 350\text{V}$
Continuous Load Current	$\pm 130\text{mA}$
Power Dissipation	500mW

General Characteristics

Isolation Test Voltage	1500VAC _{RMS}
Isolation Resistance	
$V_{10}=500\text{V}, T_A=25^\circ\text{C}$	$\geq 10^{10}\Omega$
Total Power Dissipation	550mW

Derate Linearly from 25°C	2.5mW/ $^\circ\text{C}$
Storage Temperature Range	-40 to $+150^\circ\text{C}$
Operating Temperature Range	-40 to $+85^\circ\text{C}$
Junction Temperature	100°C
Soldering Temperature, 2mm from case, 10 sec.	260°C

PRODUCT SPECIFICATION

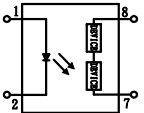
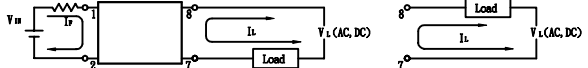
COSMO ELECTRONICS CO., LTD.	PHOTO MOS RELAYS: KAQW210TSB	SHEET 2 OF 10
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Characteristics

(T_A = 25° C)

Description	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Emitter (Input)						
Forward Voltage	V _F		1.2	1.5	V	I _F = 10mA
Operation Input Current	I _{FON}			5	mA	V _L = ± 20V, I _L = 100mA, t = 10 ms
Recovery Input Current	I _{FOFF}	0.05			mA	V _L = ± 20V, I _L = < 5uA
Detector (Output)						
Output Breakdown Voltage	V _B	350			V	I _B = 50uA
Output Off-State Leakage	I _{T(OFF)}		0.7	2	uA	V _T = 100V, I _F = 0mA
I/O Capacitance	C _{ISO}		6		pF	I _F = 0, f = 1MHz
ON Resistance	R _{ON}		28	35	Ω	I _L = 100mA, I _F = 10mA
Turn-on Time	T _{ON}		0.1	0.5	ms	I _F = 10mA, V _L = ± 20V
Turn-off Time	T _{OFF}		0.3	0.5	ms	t = 10ms, I _L = ± 100mA

Mos Relay Schematic and Wiring Diagrams

Type	Schematic	Output configuration	Load	Con- nection	Wiring diagram
KAQW210TSB		1a	AC/DC	-	

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KAQW210TSB

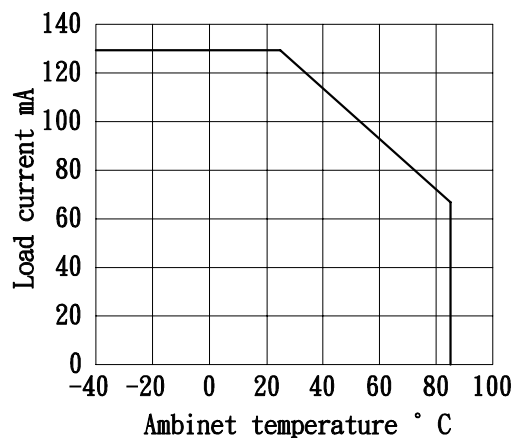
SHEET 3 OF 10

DATA CURVE

Load current vs. ambient temperature

Allowable ambient temperature:

-40° C+85° C

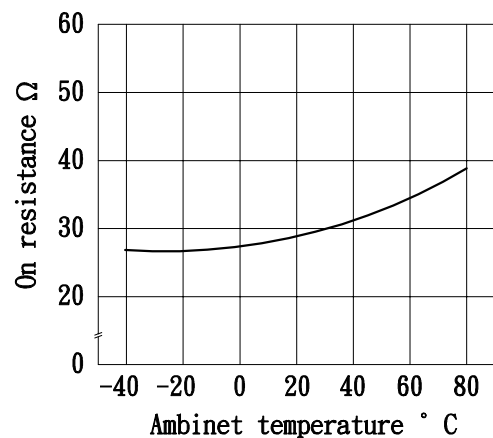


On resistance vs. ambient temperature

Across terminals 7 and 8 pin

LED current: 5mA

Continuous load current: 130 mA(DC)

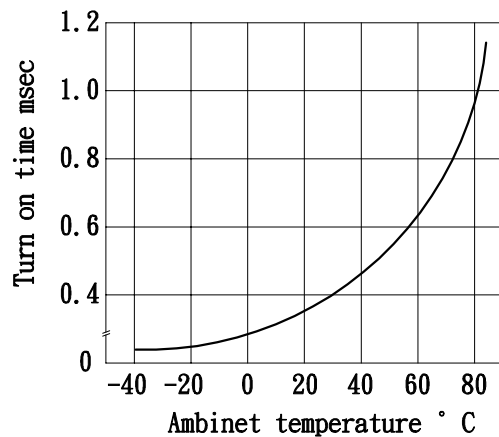


Turn on time vs. ambient temperature

Load voltage 350 V(DC)

LED current :5mA

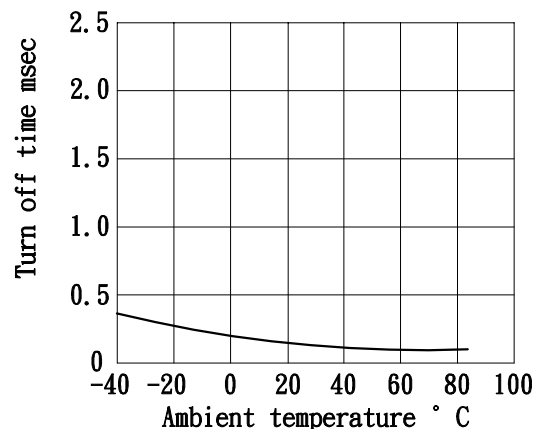
Continuous load current: 130mA(DC)



Turn off time vs. ambient temperature

LED current: 5mA; Load voltage: 350V(DC)

Continuous load current: 130mA(DC)



PRODUCT SPECIFICATION

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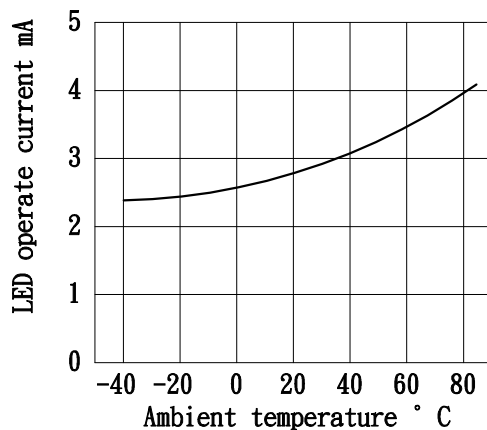
ELECTRONICS CO., LTD.

PHOTO MOS RELAYS:

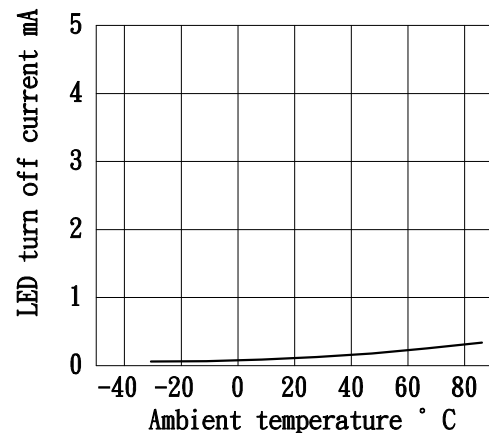
KAQW210TSB

SHEET 4 OF 10

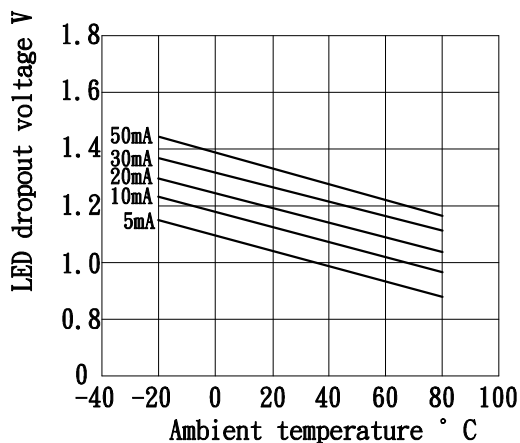
LED operate vs. ambient temperature
Load voltage: 350V(DC)
Continuous load current: 130mA(DC)



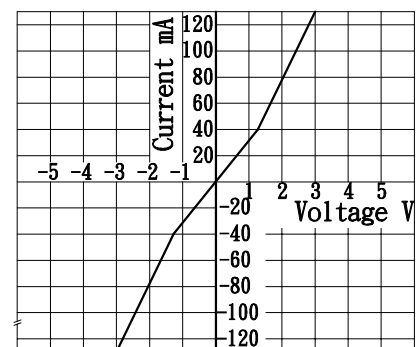
LED turn off current vs. ambient temperature
Load voltage: 350V(DC)
Continuous load current: 130mA(DC)



LED dropout voltage vs. ambient temperature
LED current: 5 to 50mA



Voltage vs. current characteristics of output at MOS FET portion
Measured portion: across terminals 7 and 8 pin
Ambient temperature: 25°C



PRODUCT SPECIFICATION

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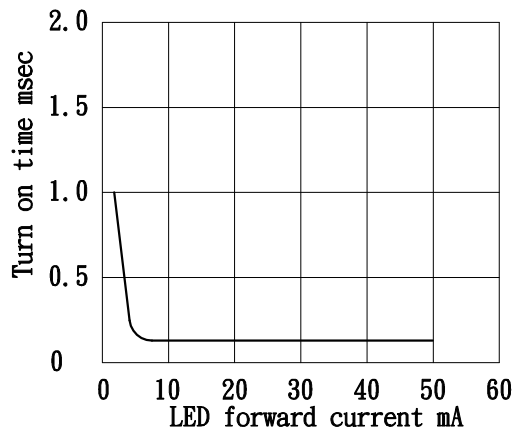
ELECTRONICS CO., LTD.

PHOTO MOS RELAYS:

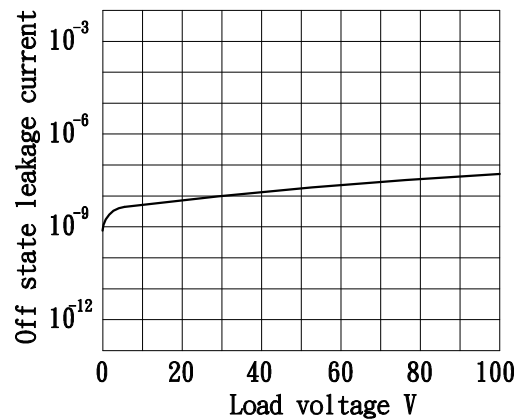
KAQW210TSB

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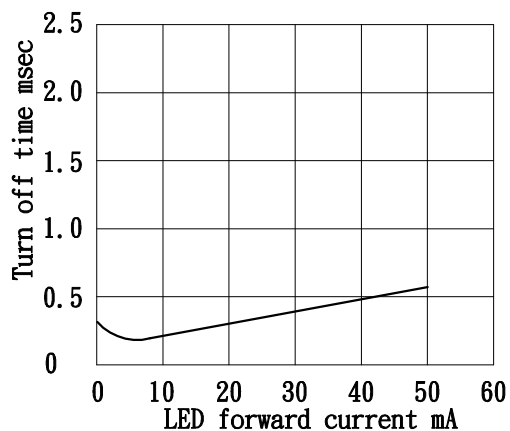
LED forward current vs. turn on time
Across terminals 7 and 8pin; Load voltage: 350V(DC); Continuous load current: 130mA(DC); Ambient temperature: 25° C



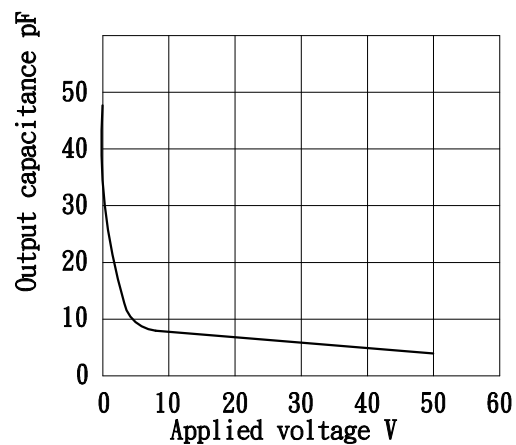
Off state leakage current
Across terminals 7 and 8pin
Ambient temperature: 25° C



LED forward current vs. turn off time
Across terminals 7 and 8pin; Load voltage: 350V(DC); Continuous load current: 130 mA(DC); Ambient temperature: 25° C



Applied voltage vs. output capacitance
Across terminals 7 and 8pin
Frequency: 1MHz; Ambient temperature: 25° C



PRODUCT SPECIFICATION

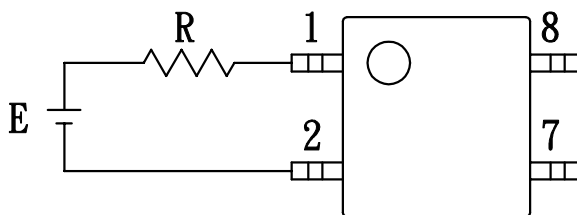
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USING METHODS

Examples of resistance value to
control LED forward current I_F

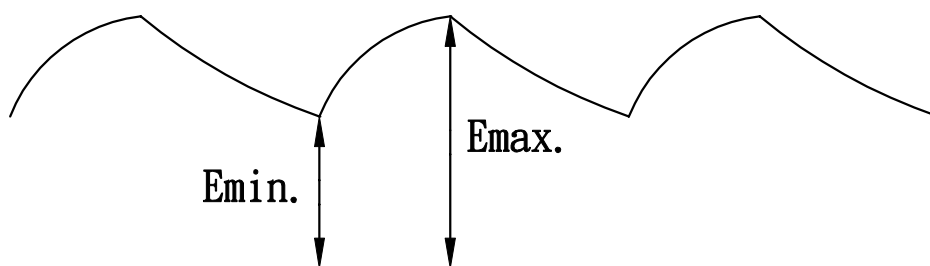
Photo MOSRELAY

($I_F = 5\text{mA}$)



E	R
3.3V	Approx. 240 ohm
5V	Approx. 540 ohm
12V	Approx. 1.8K ohm
15V	Approx. 2.4K ohm
24V	Approx. 4K ohm

- (1) LED forward current must be more than 5mA, at E min.
- (2) LED forward current must be less than 50mA, at E max.

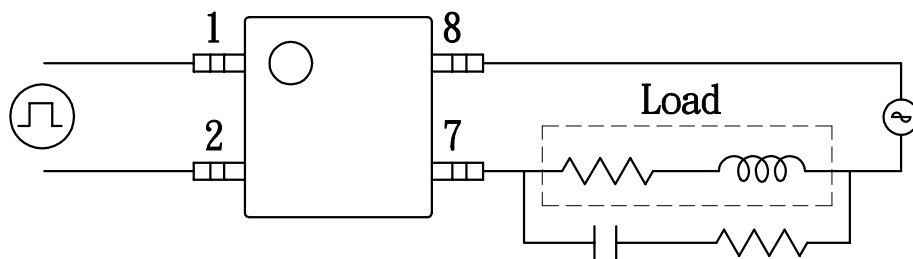
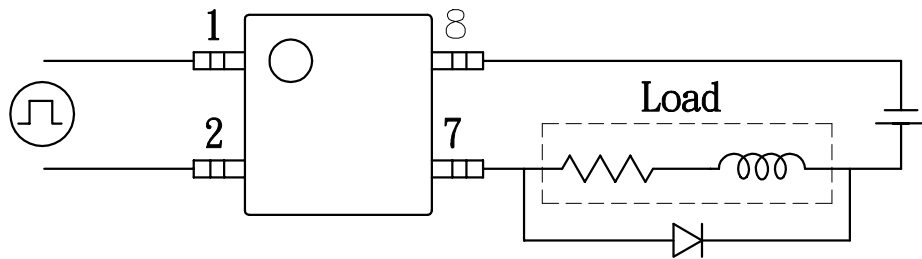


PRODUCT SPECIFICATION

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USING METHODS

Regulate the spike voltage generated on the inductive load as follows



R-C Snubber

PRODUCT SPECIFICATION

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• Absolute Maximum Ratings

(Ta=25°C)

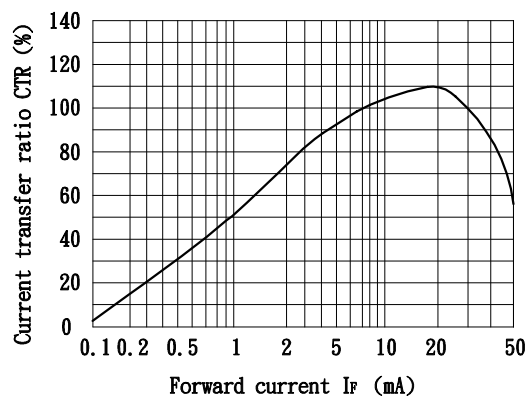
	Parameter	Symbol	Rating	Unit
Input	Forward current	I _F	± 50	mA
	Peak forward current	I _{FM}	± 1	A
	Power dissipation	P _D	70	mW
Output	Collector-emitter voltage	V _{CE0}	60	V
	Emitter-collector voltage	V _{ECO}	6	V
	Collector current	I _c	50	mA
	Collector power dissipation	P _c	150	mW
	Total power dissipation	P _{tot}	200	mW
	Isolation voltage 1 minute	V _{iso}	3750	V _{rms}
	Operating temperature	T _{opr}	-30 to +100	° C
	Storage temperature	T _{stg}	-55 to +125	° C
	Soldering temperature 10 second	T _{sol}	260	° C

• 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	-	-	3.5	V
	Terminal capacitance	C _t	V=0, f=1kHz	-	30	-	pF
Output	Collector dark current	I _{CE0}	V _{CE} =20V, I _F =0	-	-	0.1	uA
	Current transfer ratio	CTR	I _F =± 1mA, V _{CE} =5V	30	100	-	%
Transfer characteristics	Collector-emitter saturation voltage	V _{CE(sat)}	I _F =± 20mA, I _C =1mA	-	0.1	0.3	V
	Isolation resistance	R _{iso}	DC500V	5x10 ¹⁰	10 ¹¹	-	ohm
	Floating capacitance	C _f	V=0, f=1MHz	-	0.6	1.0	pF
	Cut-off frequency	f _c	V _{CC} =5V, I _C =2mA, R _L =100ohm	-	80	-	kHz
	Response time (Rise)	t _r	V _{CC} =2V, I _C =2mA, R _L =100ohm	-	5	20	us
	Response time (Fall)	t _f		-	4	20	us

Fig.1 Current Transfer Ratio vs.
Forward Current



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Fig. 2 Collector Power Dissipation vs. Ambient Temperature

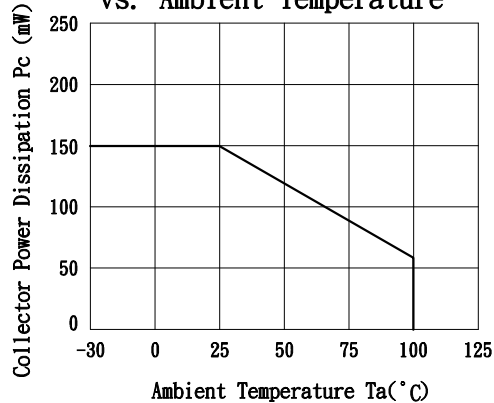


Fig. 3 Collector Dark Current vs. Ambient Temperature

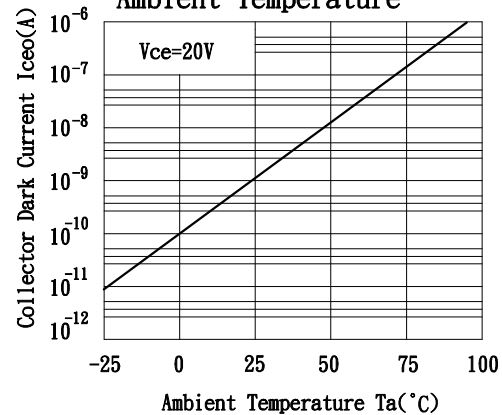


Fig. 4 Forward Current vs. Ambient Temperature

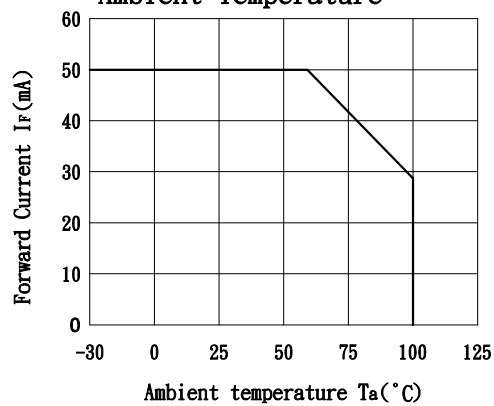


Fig. 5 Forward Current vs. Forward Voltage

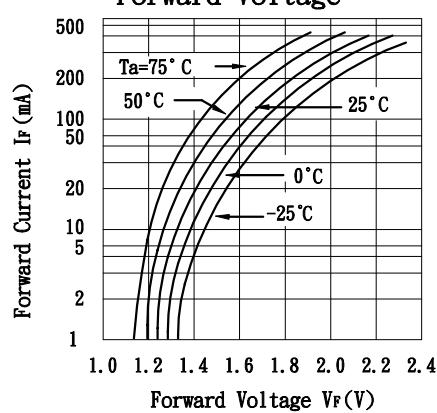


Fig. 6 Collector Current vs. Collector-emitter Voltage

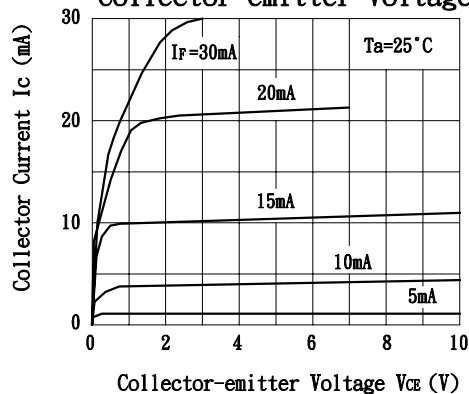
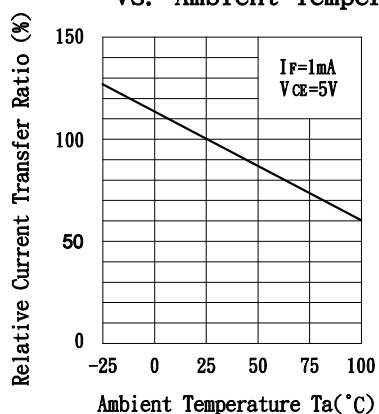


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature



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

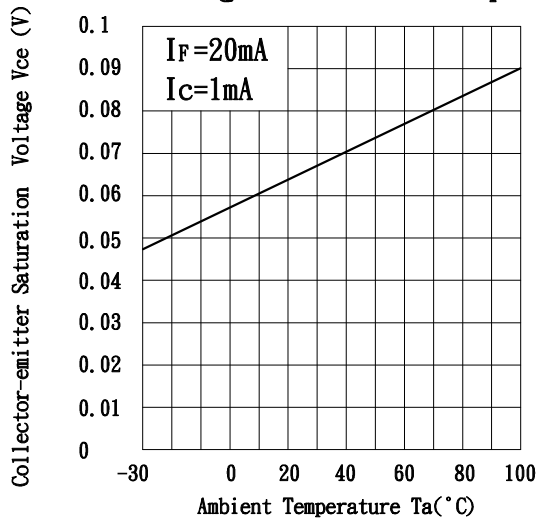


Fig. 9 Collector-emitter Saturation Voltage vs. Forward Current

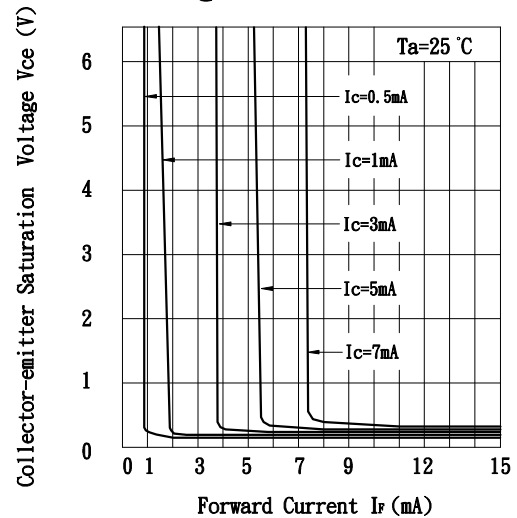


Fig. 10 Response Time vs. Load Resistance

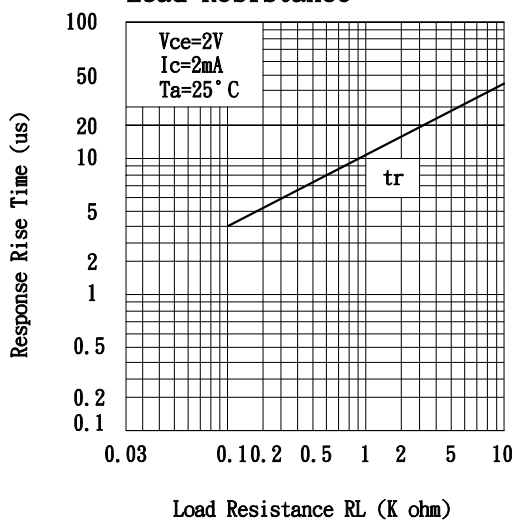
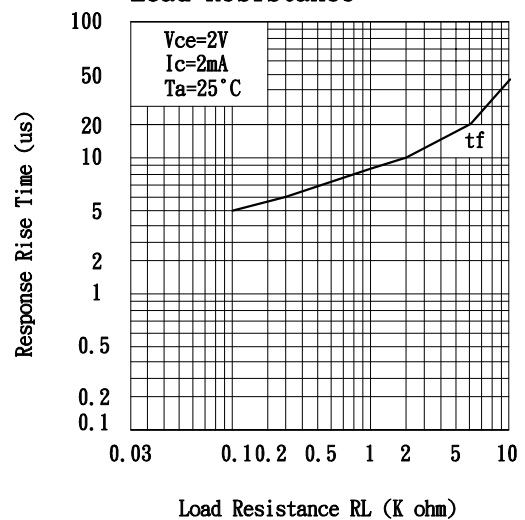


Fig. 11 Response Time vs. Load Resistance





Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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Факс: 8 (812) 320-02-42

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