PC450T11

Photocoupler with Built-in Breakdown Diode for Surge Voltage Absorption

■ Features

1. Built-in breakdown diode for absorption of surge voltage
2. High current transfer ratio
   (CTR: MIN. 1 500% at I_F = 5mA)
3. Mini-flat package
4. Applicable to soldering reflow
5. Available tape-packaged products

■ Applications

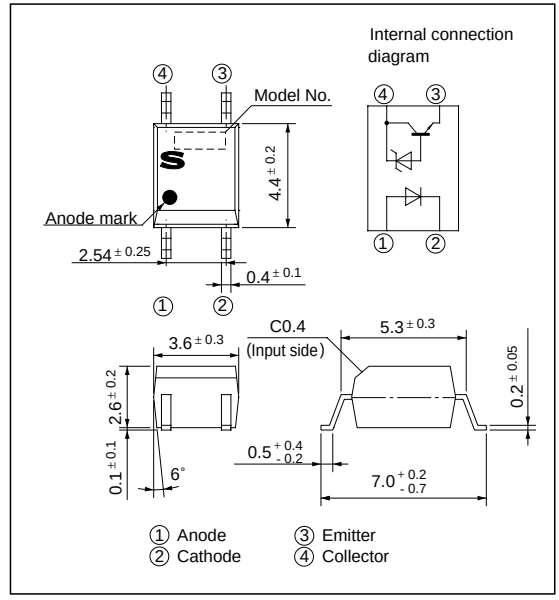
1. Programmable controllers

■ Package Specifications

Model No.	Package Specification
PC450T11	Taping diameter 178mm(750pcs.)

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(Ta= 25˚C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	*1Peak forward current	I_{FM}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P	70	mW
Output	Emitter-collector voltage	V_{ECO}	6	V
	*2Surge endurance	E_{sj}	20	mJ
	Collector current	I_C	150	mA
	Collector power dissipation	P_C	150	mW
Total power dissipation		P_{tot}	170	mW
*3 Isolation voltage		V_{iso}	3.75	kV rms
Operating temperature		T_{opr}	- 30 to + 100	˚C
Storage temperature		T_{stg}	- 40 to + 125	˚C
*4Soldering temperature		T_{sol}	260	˚C

*1 Pulse width <=100μs, Duty ratio : 0.001
*2 Esj = 40V (V_{CEO}) x 100mA(I_C) x 10ms x 1/2
*3 AC for 1 min., 40 to 60% RH, f = 60Hz
*4 For 10 seconds

■ 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
	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	-	-	5	μA
	Collector-emitter breakdown voltage		BV_{CEO}	I_F = 0 I_C = 0.1mA	40	-	60	V
	Emitter-collector breakdown voltage		BV_{ECO}	I_E = 10μA, I_F = 0	6	-	-	V
	Collector current		I_C	V_{CE} = 2V, I_F = 5mA	75	-	-	mA
Transfer characteristics	Collector-emitter saturation voltage		$V_{CE(sat)}$	I_F = 10mA I_C = 100mA	-	-	0.5	V
	Isolation resistance		R_{ISO}	DC500V, 40 to 60% RH	5 x 10^{10}	10^{11}	-	Ω
	Floating capacitance		C_f	V = 0, f = 1MHz	-	0.6	1.0	pF
	Response time	Rise time	t_r	V_{CE} = 2V, I_C = 2mA	-	50	-	μs
		Fall time	t_f	R_L = 100Ω	-	30	-	μs

Fig. 1 Forward Current vs. Ambient Temperature

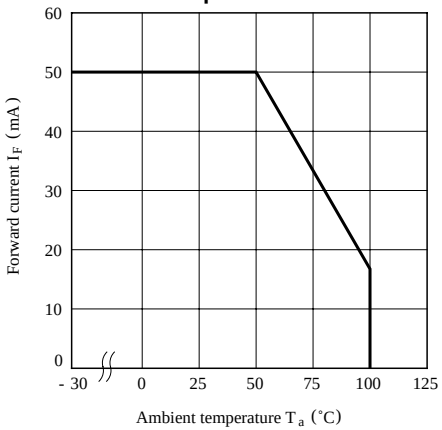


Fig. 2 Diode Power Dissipation vs. Ambient Temperature

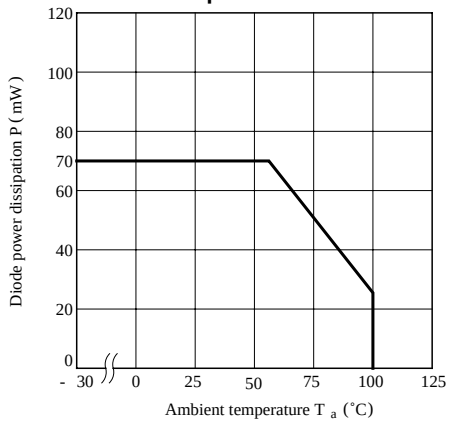


Fig. 3 Power Dissipation vs. Ambient Temperature

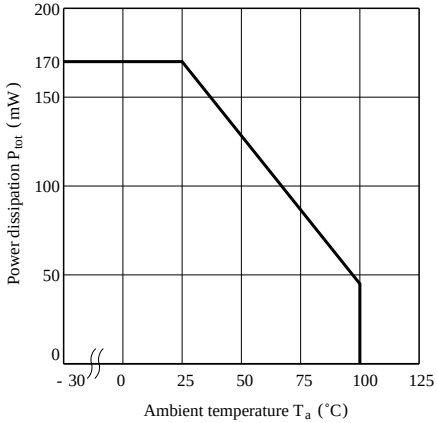


Fig. 4 Peak Forward Current vs. Duty Ratio

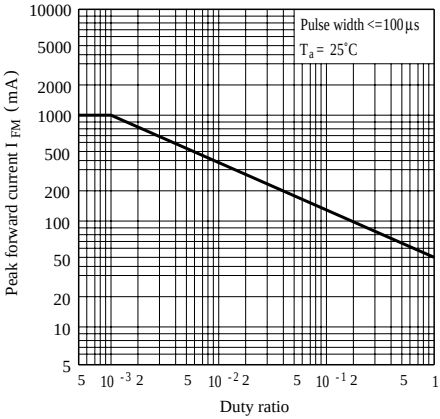


Fig. 5 Forward Current vs. Forward Voltage

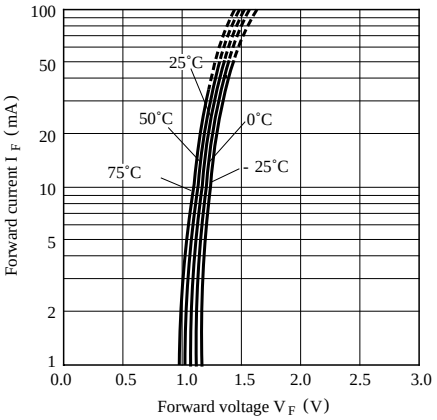


Fig. 6 Current Tranfer Ratio vs. Forward Current

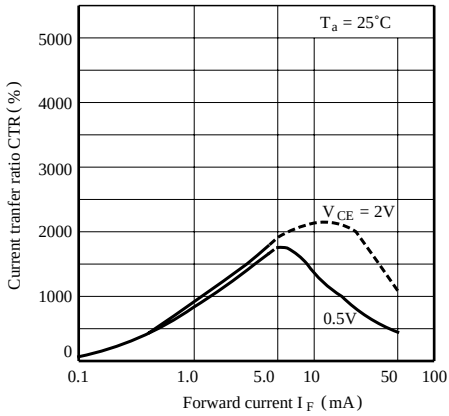


Fig. 7 Collector Current vs. Collector -emitter Voltage

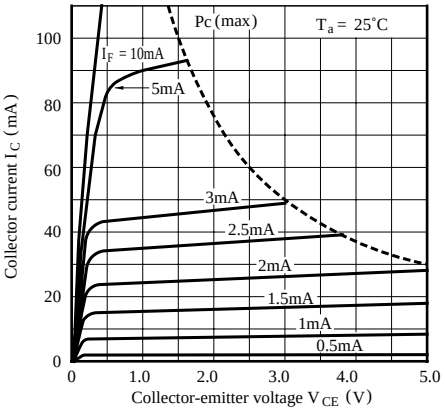


Fig. 8 Relative Current Transfer Ratio vs. Ambient Temperature

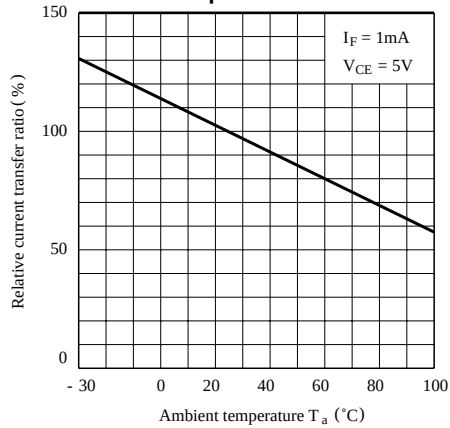


Fig.9 Collector-emitter Saturation Voltage vs. Ambient Temperature

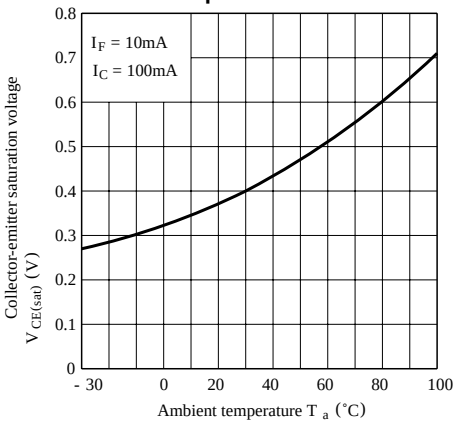


Fig.10 Collector Dark Current vs. Ambient Temperature

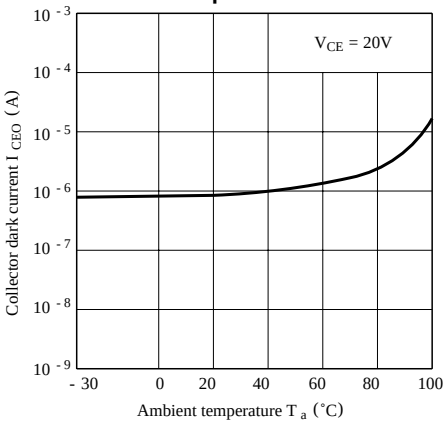


Fig.11 Response Time vs. Load Resistance

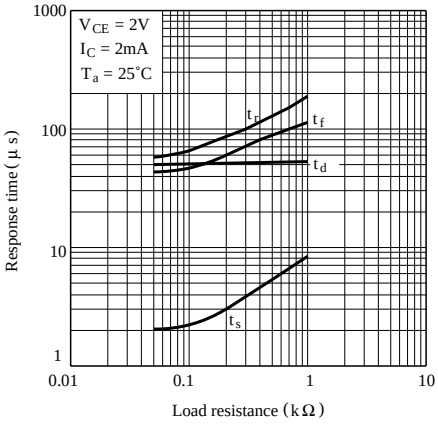
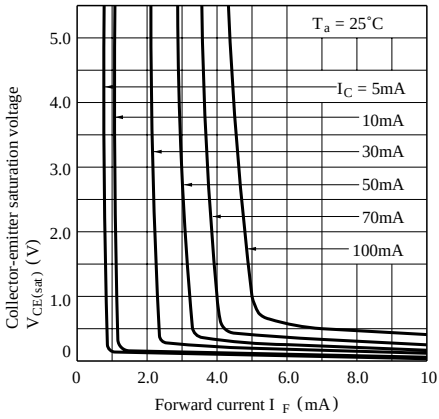


Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



●Please refer to the chapter "Precautions for Use."