

PC451

Mini-Flat Package, High Collector-emitter Voltage Type Photocoupler

■ Features

1. High collector-emitter voltage
 $V_{CEO}: 350V$
2. Soldering reflow type
3. Recognized by UL, file No. E64380

■ Applications

1. Telephones
2. Modems

■ Package Specifications

Model No.	Package specification	Diameter of reel	Tape width
PC451	Taping package (3 000pcs.)	φ370mm	13.5mm
PC451T	Taping package (750pcs.)	φ180mm	13.5mm
PC451Z	Sleeve package (100pcs.)	—	—

■ Absolute Maximum Ratings (Ta=25°C)

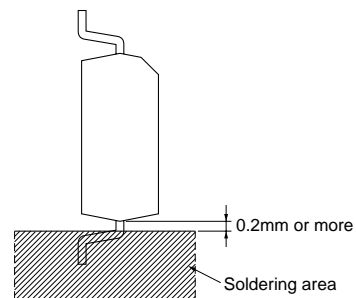
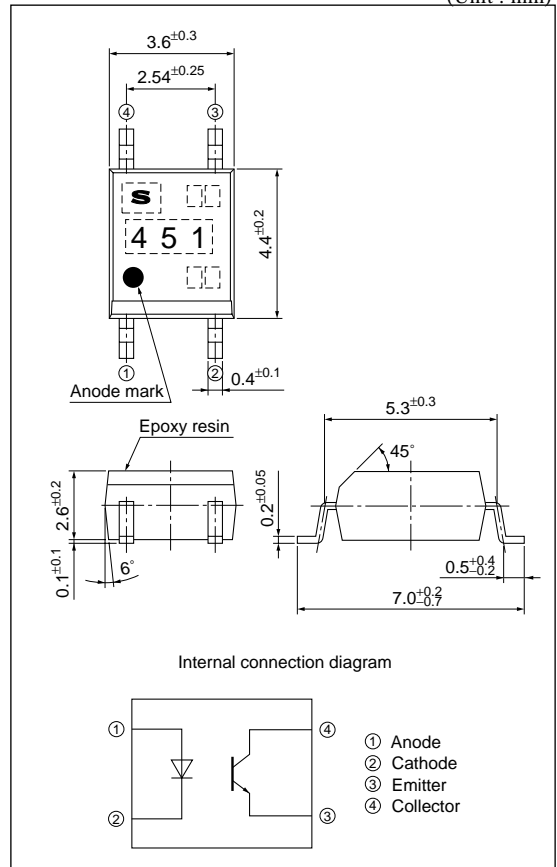
	Parameter	Symbol	Rating	Unit
Input	*1 Forward current	I_F	50	mA
	Reverse voltage	V_R	6	V
	*1 Power dissipation	P	70	mW
Output	Collector-emitter voltage	V_{CEO}	350	V
	Emitter-collector voltage	V_{ECO}	6	V
	Collector current	I_C	50	mA
	*1 Collector power dissipation	P_C	150	mW
	*1 Total power dissipation	P_{tot}	170	mW
	Operating temperature	T_{opr}	-25 to +100	°C
	Storage temperature	T_{stg}	-40 to +125	°C
	*2 Isolation voltage	$V_{iso (rms)}$	3.75	kV
	*3 Soldering temperature	T_{sol}	260	°C

*1 The derating factors of absolute maximum ratings due to ambient temperature are shown in Fig.2 to 5

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

*3 For 10 s

■ Outline Dimensions (Unit : mm)



■ Electro-optical Characteristics

(Ta=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V_F	$I_F=20\text{mA}$	-	1.2	1.4	V
	Reverse current	I_R	$V_R=4\text{V}$	-	-	10	μA
	Terminal capacitance	C_t	$V=0, f=1\text{kHz}$	-	30	250	pF
Output	Collector dark current	I_{CEO}	$V_{CE}=200\text{V}, I_F=0$	-	-	1000	nA
	Collector-emitter breakdown voltage	BV_{CEO}	$I_C=0.1\text{mA}, I_F=0$	350	-	-	V
Transfer characteristics	Collector current	I_C	$I_F=5\text{mA}, V_{CE}=5\text{V}$	2	4	-	mA
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F=20\text{mA}, I_C=1\text{mA}$	-	0.1	0.3	V
	Isolation resistance	R_{ISO}	DC500V, 40 to 60%RH	5×10^{10}	10^{11}	-	Ω
	Floating capacitance	C_f	$V=0, f=1\text{MHz}$	-	0.6	1.0	pF
	Cut-off frequency	f_c	$V_{CE}=5\text{V}, I_C=2\text{mA}, R_L=100\Omega, -3\text{dB}$	-	50	-	kHz
	Response time	Rise time	t_r	$V_{CE}=2\text{V}$ $I_C=2\text{mA}$ $R_L=100\Omega$	-	4	10
Fall time		t_f	-		5	12	μs

Fig.1 Forward Current vs. Ambient Temperature

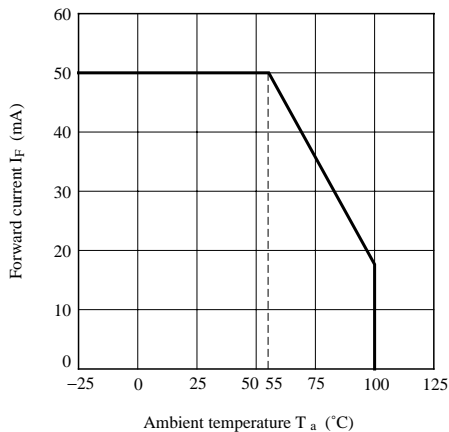


Fig.2 Diode Power Dissipation vs. Ambient Temperature

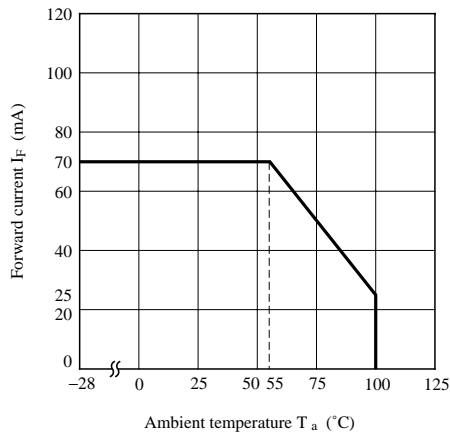


Fig.3 Collector Power Dissipation vs. Ambient Temperature

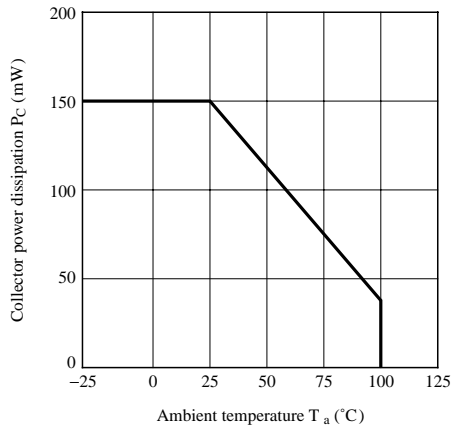


Fig.4 Power Dissipation vs. Ambient Temperature www.DataSheet4U.com

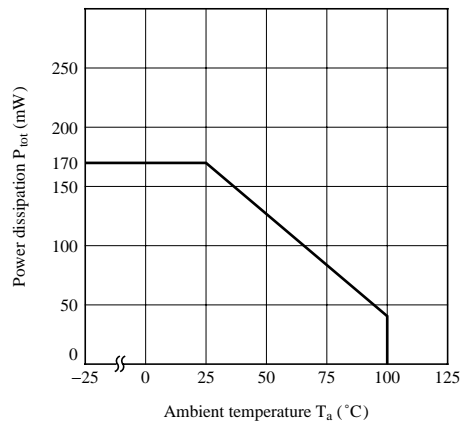


Fig.5 Peak Forward Current vs. Duty Ratio

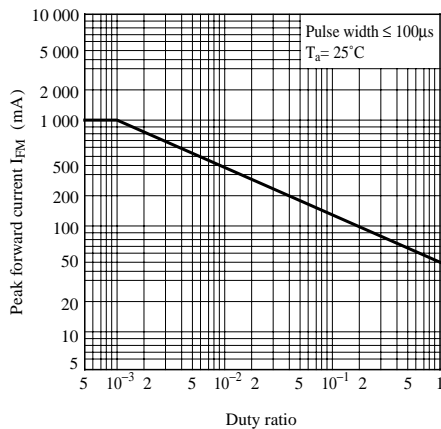


Fig.6 Forward Current vs. Forward Voltage

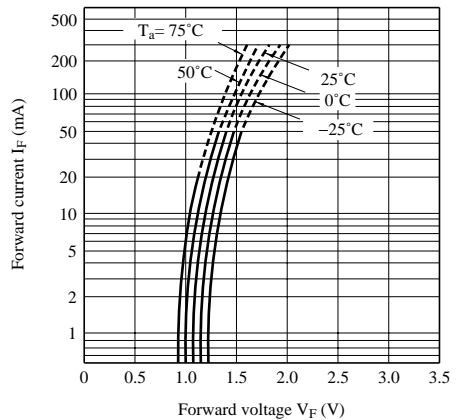


Fig.7 Current Transfer Ratio vs. Forward Current

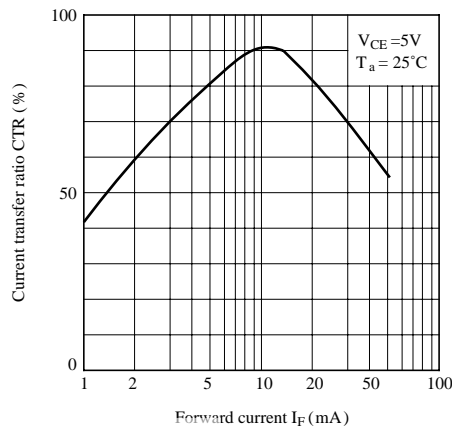


Fig.8 Collector Current vs. Collector-emitter Voltage

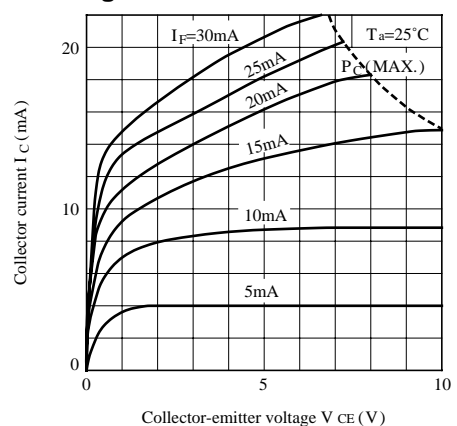


Fig.9 Relative Current Transfer Ratio vs. Ambient Temperature

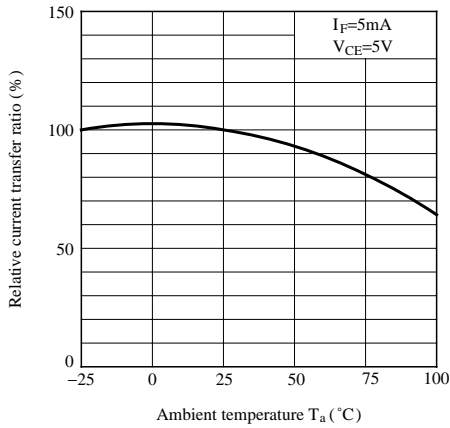


Fig.10 Collector - emitter Saturation Voltage vs. Ambient Temperature

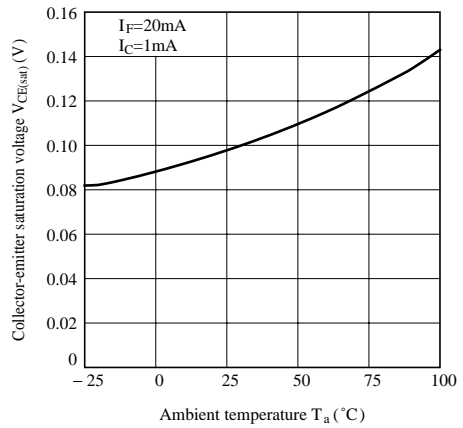


Fig.11 Collector Dark Current vs. Ambient Temperature

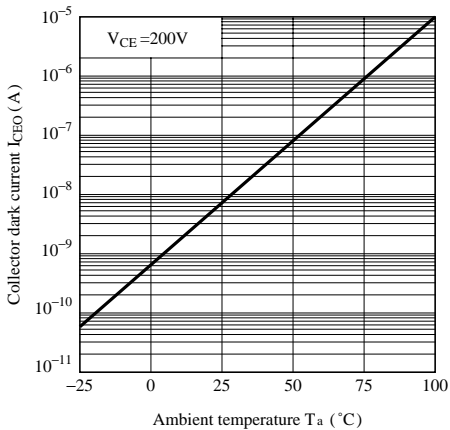


Fig.12 Response Time vs. Load Resistance

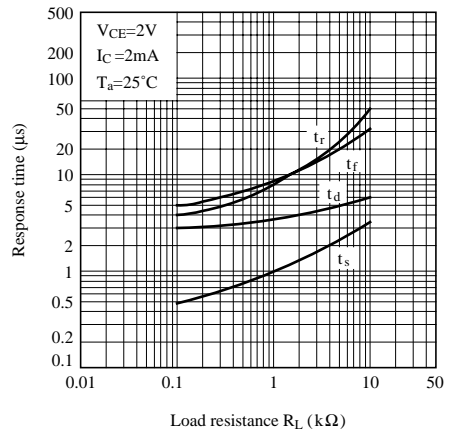


Fig.13 Test Circuit for Response Time

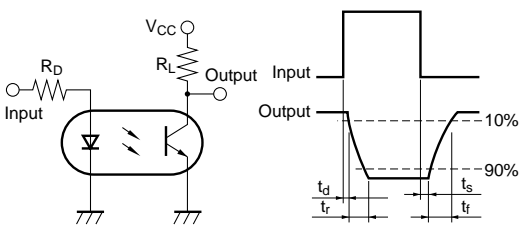


Fig.14 Voltage gain A(dB) vs. Frequency

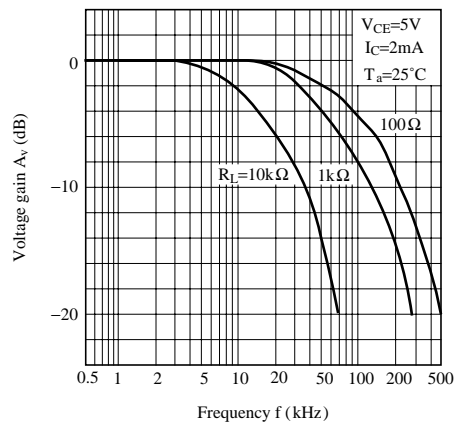


Fig.15 Test Circuit Frequency Response

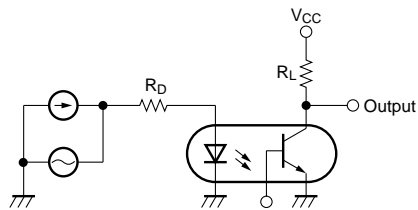
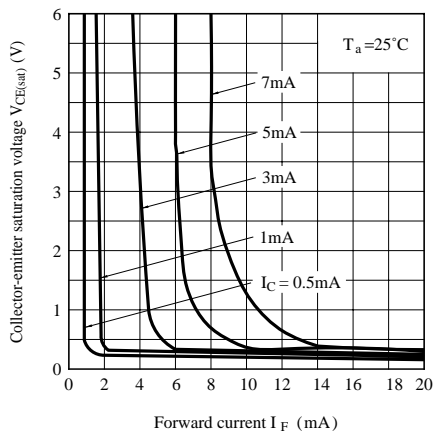


Fig.16 Collector-emitter Saturation Voltage vs. Forward Current



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