PC3SD21NTZB Series

Phototriac Coupler for Triggering

■ Features

1. Low zero-cross voltage ($V_{OX[MAX.]}$=20V)
2. Isolation voltage between input and output ($V_{iso\ (rms)}$:5kV)
3. High critical rate of rise of OFF-state voltage (dV/dt:MIN. 1 000V/μs)
4. Recognized by UL, file No. E64380
5. VDE:Under application (optionally available)

✵ **PC3SD21NTZB Series** are for 200V line

■ Applications

1. Home appliances
2. OA equipment, FA equipment
3. SSRs

■ Model Line-up

Minimum trigger current ($I_{FT[MAX.]}$)	for AC 200V line
7mA	**PC3SD21NTZB**
5mA	**PC3SD21NTZC**
3mA	**PC3SD21NTZD**

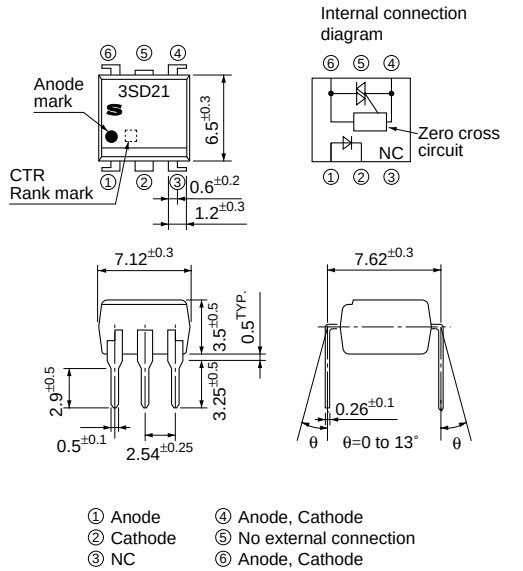
■ Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating	Unit
Input	*1 Forward current	I_F	50	mA
	Reverse voltage	V_R	6	V
Output	*1 RMS ON-state current	$I_{T\ (rms)}$	0.1	A
	Peak one cycle surge current	I_{surge}	1.2 (50Hz sine wave)	A
	Repetitive peak OFF-state voltage	V_{DRM}	600	V
Operating temperature		T_{opr}	−30 to +100	°C
Storage temperature		T_{stg}	−55 to +125	°C
*2 Isolation voltage		$V_{iso\ (rms)}$	5	kV
Soldering temperature		T_{sol}	260 (For 10s)	°C

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

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

■ Outline Dimensions (Unit : mm)



① Anode ④ Anode, Cathode
② Cathode ⑤ No external connection
③ NC ⑥ Anode, Cathode

✵ Pin ⑤ is not allowed external connection

■ 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=3V	–	–	10^{-5}	μA
Output	Repetitive peak OFF-state current		I_{DRM}	V_D=V_{DRM}	–	–	10^{-6}	μA
	ON-state voltage		V_T	I_T=0.1mA	–	–	2.5	V
	Holding current		I_H	V_D=4V	0.1	–	3.5	mA
	Critical rate of rise of OFF-state voltage		dV/dt	V_D=(1/√2) • V_{DRM}	1 000	2 000	–	V/μs
	Zero-cross voltage	**PC3SD21NTZB**	V_{OX}	Resistance load, I_F=15mA	–	–	20	V
		PC3SD21NTZC		Resistance load, I_F=8mA				
		PC3SD21NTZD						
Transfer characteristics	Minimum trigger current	**PC3SD21NTZB**	I_{FT}	V_D=4V, R_L=100Ω	–	–	7	mA
		PC3SD21NTZC			–	–	5	
		PC3SD21NTZD			–	–	3	
	Isolation resistance		R_{ISO}	DC=500V, 40 to 60%RH	5×10^{10}	1×10^{11}	–	Ω
	Turn-on time		t_{on}	V_D=4V, R_L=100Ω, I_F=20mA	–	–	50	μs

Fig.1 RMS ON-state Current vs. Ambient Temperature

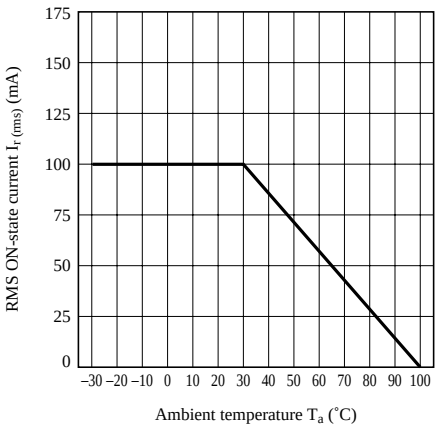


Fig.2 Forward Current vs. Ambient Temperature

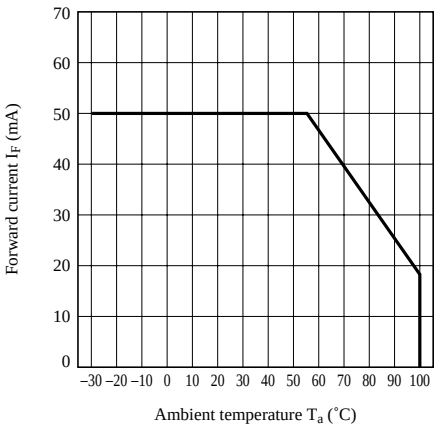


Fig.3 Forward Current vs. Forward Voltage (PC3SD21NTZB)

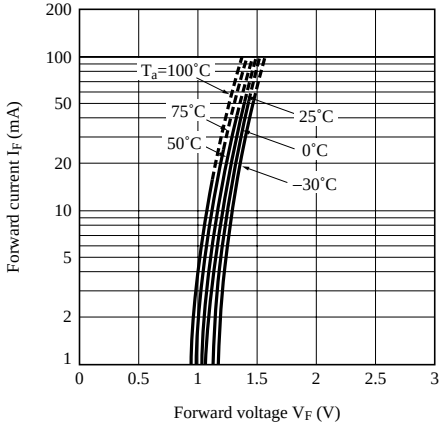


Fig.4 Forward Current vs. Forward Voltage (PC3SD21NTZC, PC3SD21NTZD)

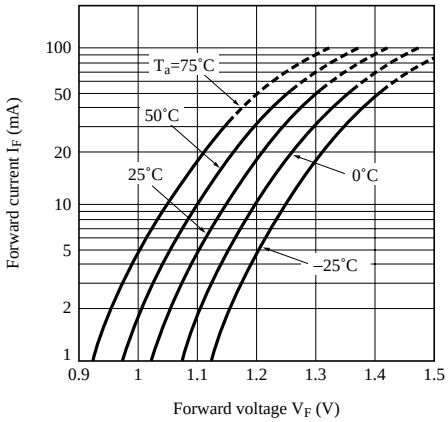


Fig.5 Minimum Trigger Current vs. Ambient Temperature (PC3SD21NTZB)

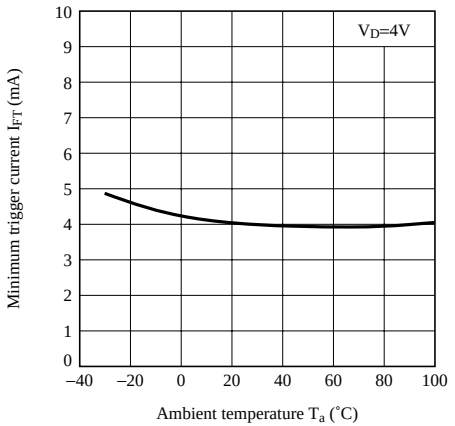


Fig.6 Minimum Trigger Current vs. Ambient Temperature (PC3SD21NTZC, PC3SD21NTZD)

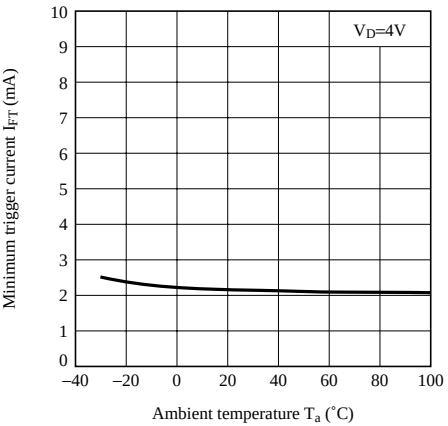


Fig.7 ON-state Voltage vs. Ambient Temperature

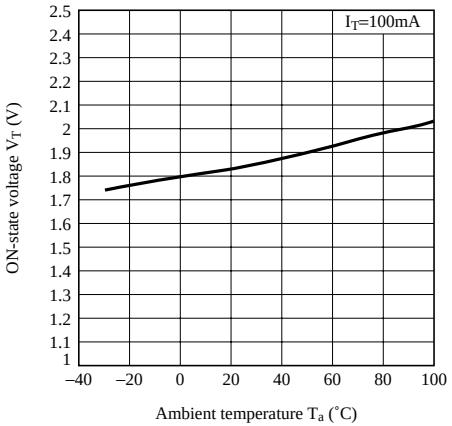


Fig.8 Holding Current vs. Ambient Temperature

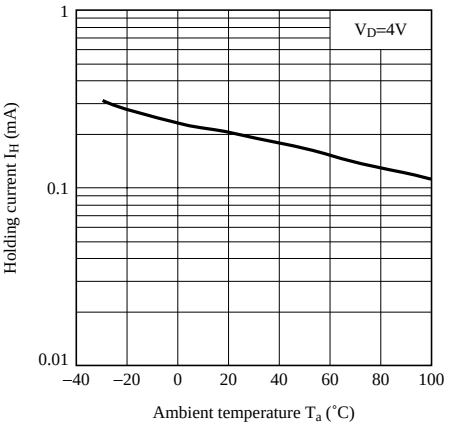


Fig.9 Repetitive Peak OFF-state Current vs. Ambient Temperature

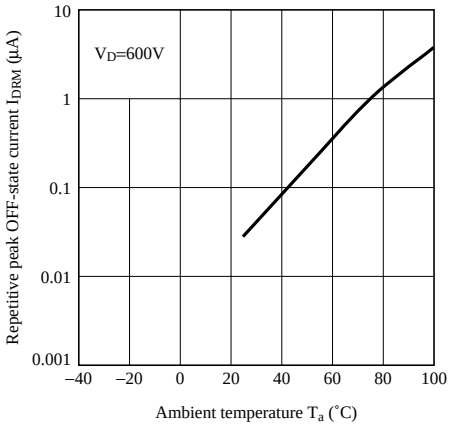


Fig.10 Relative Repetitive Peak OFF-state Voltage vs. Ambient Temperature

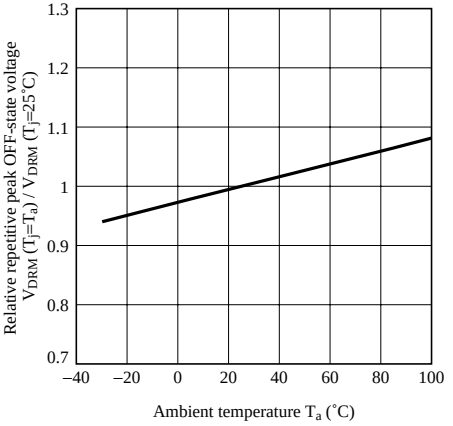


Fig.11 Turn-on Time vs. Forward Current (PC3SD21NTZB)

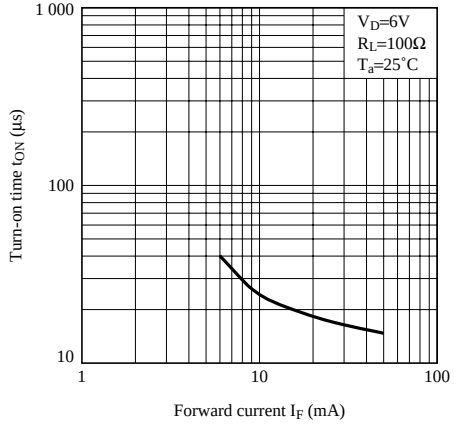


Fig.12 Turn-on Time vs. Forward Current (PC3SD21NTZC, PC3SD21NTZD)

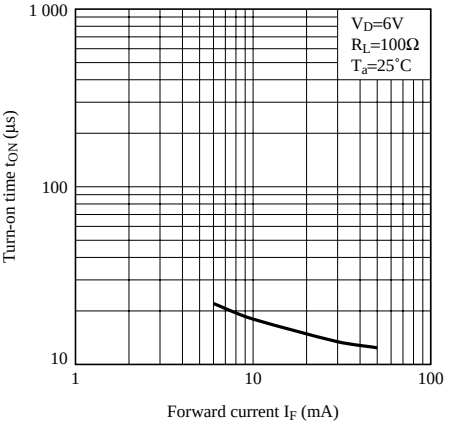


Fig.13 Zero-cross Voltage vs. Ambient Temperature (PC3SD21NTZB)

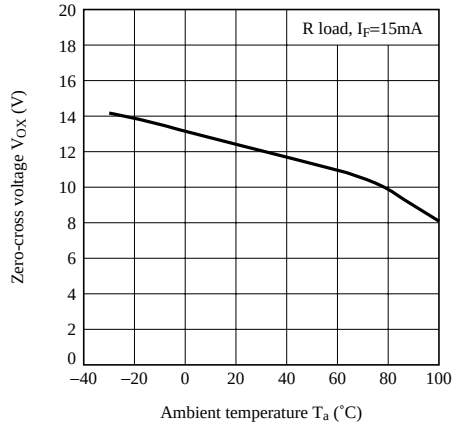
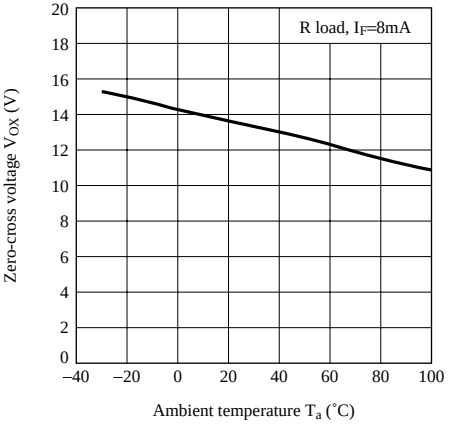


Fig.14 Zero-cross Voltage vs. Ambient Temperature (PC3SD21NTZC, PC3SD21NTZD)



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