JOCSZ21X-M4,JOCSZ31X-M4 Series

Rev.A.1.0

The products are 4-pin thyristor opto-couplers. The device combines an AIGaAs infrared emitting diode as the emitter which is optically coupled to a monolithic silicon zero-crossing photo triac in a plastic SOP4 package. The products are widely used in solenoid/valve controls, lighting controls, motor controls, temperature controls, static AC power switches,solid state relays, interfacing microprocessors up to 265 V_{AC} peripherals.

High isolation 3750 VRMS
DC input with zero-crossing photo triac output
Operating temperature range -55
REACH & RoHS compliance
HBM: Lb C ↓ C ⊤ N Δ wi D T D A O] ļ m ₴ ƀ ¯ ñ

Operating Temperature	T_{opr}	-55~110	
Junction Temperature	T_j	125	
Storage Temperature	T_{stg}	-55~125	
Soldering Temperature	T_{sol}	260	
Peak pulse voltage (T_j=25 ; non-repetitive,off-state)	V_{pp}	1	kV

: 100μs pulse, 100Hz frequency : AC for 1minute, R.H.=40~60%

(Temperature=25°C)

Parameter			Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage		V_F	I_F=10mA	-	1.2	1.5	V
	Reverse Current		I_R	V_R=6V	-	-	1	μA
	Input Capacitance		C_{in}	V=0, f=1kHz	-	10	-	pF
Output	Peak Off-state Current, Either Direction		I_{OFF}	V_{OFF}=Rated V_{OFF} I_F=0	-	-	100	nA
	Peak On-state Voltage, Either Direction		V_{TM}	I_{TM}=100mA	-	1.8	2.5	V
	Critical Rate of Rise of Off-state voltage		dV/dt	V_{PEAK}= Rated V_{PEAK} I_F=0	2000	-	-	V/μs
Transfer Characteristics	LED Trigger Current	JOCSZ21A JOCSZ31A	I_{FT}	Terminal Voltage=3V I_{TM}=100mA	-	-	10	mA
		JOCSZ21B JOCSZ31B			-	-	5	
		JOCSZ21C JOCSZ31C			-	-	3	
	Holding Current		I_H	I_{TM}=2mA, I_F=Rated I_{FT}	-	500	-	μA
	Isolation Resistance		R_{ISO}	DC500V 40~60%R.H.	10^{12}	10^{14}	-	Ω
	Floating Capacitance		C_{IO}	V=0, f=1MHz	-	10	-	pF
	Response Time		t_{on}	V_D=6V, R_L=100Ω, I_F=20mA	-	15	50	μs
Zero-Crossing Characteristics	Inhibit Voltage		V_{IH}	I_F=Rated I_{FT}	-	-	20	V
	Leakage in Inhibited State		I_{OFF2}	I_F=Rated I_{FT} V_{OFF}=Rated V_{OFF}	-	-	5	mA

: Test voltage must be applied within dV/dt ratings. : Refer to Fig.14 & Fig.15

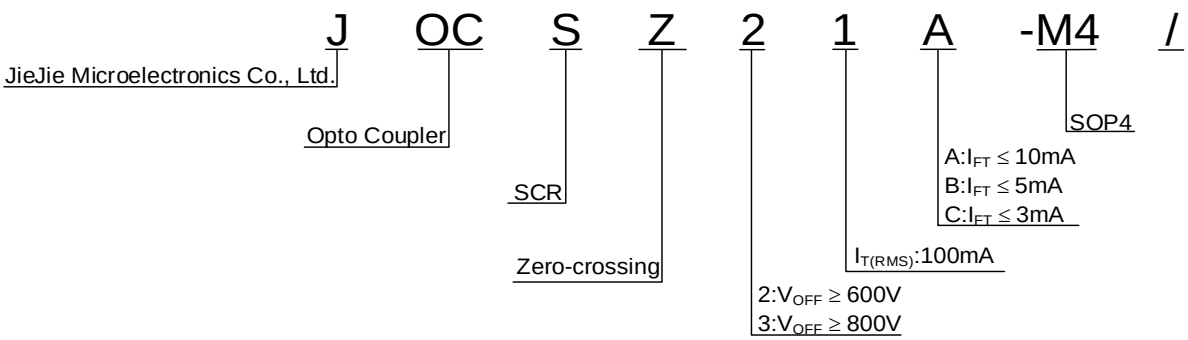

J
OC
S
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2
1
A
-M4
/
JieJie Microelectronics Co., Ltd.
Opto Coupler
SCR
Zero-crossing
2:VOFF ≥ 600V
3:VOFF ≥ 800V
IT(RMS):100mA
A:IFT ≤ 10mA
B:IFT ≤ 5mA
C:IFT ≤ 3mA
SOP4

FIG.1: Max. Allowable LED Forward Current vs. Ambient Temperature

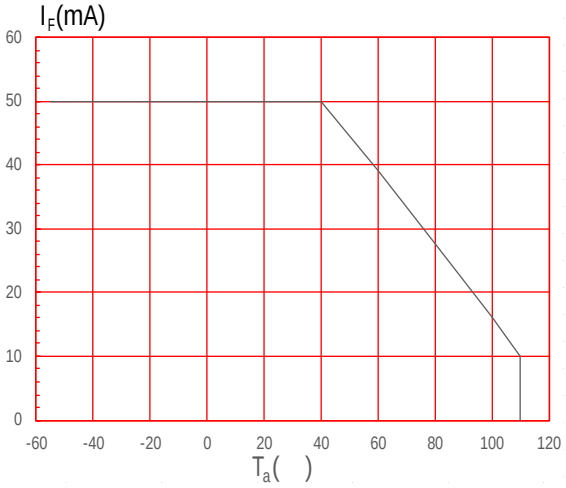


FIG.2: On-state Terminal Current vs. Ambient Temperature

FIG.7: Normalized On-state Terminal Voltage vs. Ambient Temperature

FIG.8: On-state Terminal Voltage vs. On-state Terminal Current

FIG.12: Test Circuits of Turn On Time

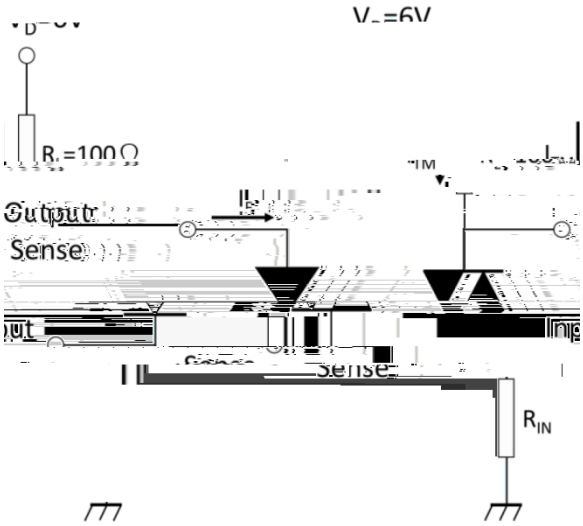


FIG.13: Waveforms of Turn On Time

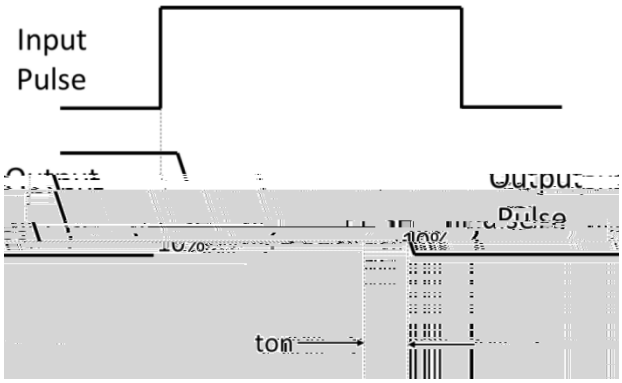


Fig.14: Test Circuits of dV/dt

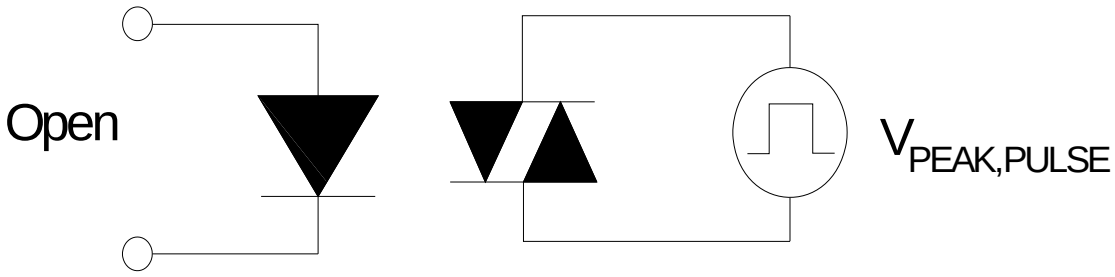
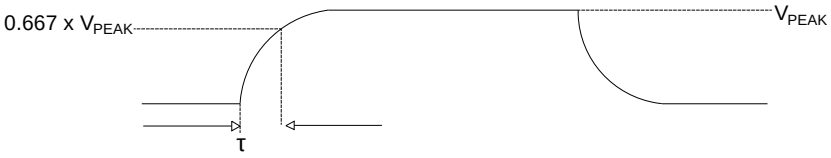


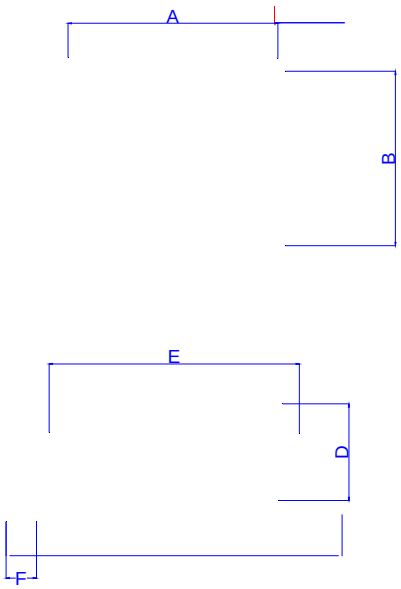
Fig.15: Waveforms of dV/dt

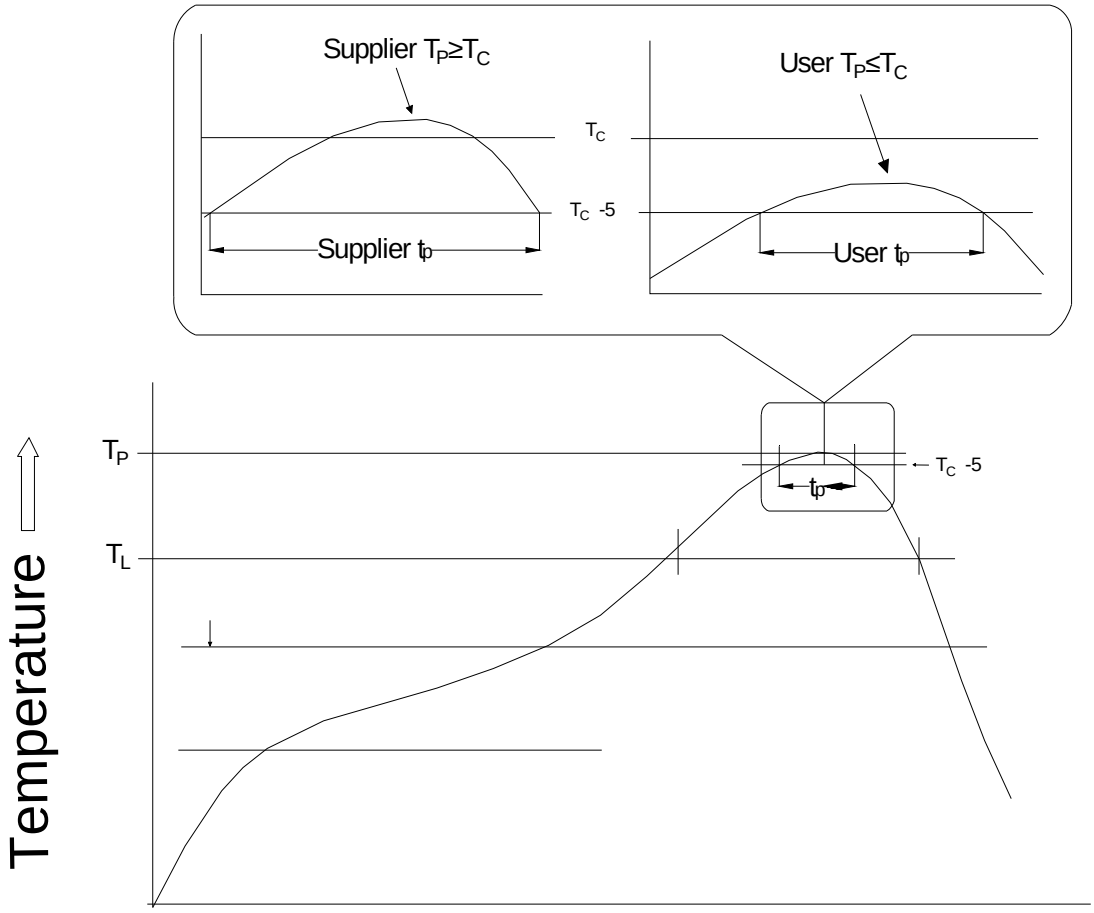


$$dV/dt = \frac{0.667 \times V_{PEAK}}{\tau}$$

FIG.16: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards




A
B
E
D
F


Supplier $T_P \geq T_C$
User $T_P \leq T_C$
T_C
T_C -5
Supplier t_p
User t_p
Temperature
T_P
T_L
T_C -5
t_p

Note: