

**OPTICALLY COUPLED BILATERAL SWITCH NON-ZERO CROSSING TRIAC**

**DESCRIPTION**

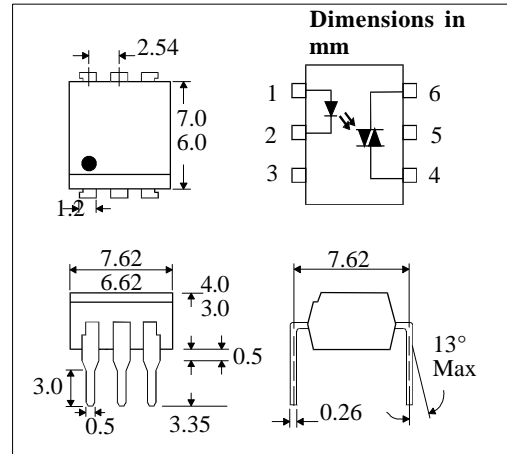
The IS3020, IS3021 and IS3022 are optically coupled isolators consisting of a Gallium Arsenide infrared emitting diode coupled with a light activated silicon bilateral switch performing the functions of a triac mounted in a standard 6 pin dual-in-line package.

**FEATURE**

- Options :-  
10mm lead spread - add G after part no.  
Surface mount - add SM after part no.  
Tape&reel - add SMT&R after part no.
- High Isolation Voltage (5.3kV<sub>RMS</sub>, 7.5kV<sub>PK</sub>)
- 400V Peak Blocking Voltage
- All electrical parameters 100% tested
- Custom electrical selections available

**APPLICATIONS**

- CRTs
- Power Triac Driver
- Motors
- Consumer appliances
- Printers



**ABSOLUTE MAXIMUM RATINGS (25 °C unless otherwise noted)**

Storage Temperature \_\_\_\_\_ -40°C-+150°C  
 Operating Temperature \_\_\_\_\_ -40°C-+100°C  
 Lead Soldering Temperature \_\_\_\_\_ 260°C  
 (1.6mm from case for 10 seconds)  
 Input-to-output Isolation Voltage (Pk) \_7500 Vac  
 (60 Hz , 1sec. duration)

**INPUT DIODE**

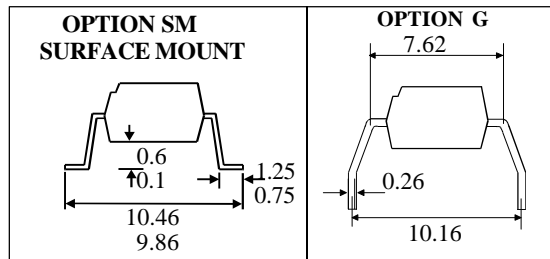
Forward Current \_\_\_\_\_ 50mA  
 Reverse Voltage \_\_\_\_\_ 6V  
 Power Dissipation \_\_\_\_\_ 70mW  
 (derate linearly 1.33mW/°C above 25°C)

**OUTPUT PHOTO TRIAC**

Off-State Output Terminal Voltage \_\_\_\_ 400V  
 Forward Current (Peak) \_\_\_\_\_ 1A  
 Power Dissipation \_\_\_\_\_ 300mW  
 (derate linearly 4.0mW/°C above 25°C)

**POWERDISSIPATION**

Total Power Dissipation \_\_\_\_\_ 330mW  
 (derate linearly 4.4mW/°C above 25°C)



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**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage ( $V_F$ ) Reverse Current ( $I_R$ )		1.2	1.5	V $\mu\text{A}$	$I_F = 10\text{mA}$ $V_R = 6\text{V}$
Output	Peak Off-state Current ( $I_{\text{DRM}}$ ) Peak Blocking Voltage ( $V_{\text{DRM}}$ ) On-state Voltage ( $V_{\text{TM}}$ ) Critical rate of rise of off-state Voltage ( $dv/dt$ ) ( note 1 ) Critical rate of rise of commutating Voltage ( $dv/dt$ ) ( note 1 )	400		100	nA V V $\text{V}/\mu\text{s}$ $\text{V}/\mu\text{s}$	$V_{\text{DRM}} = 400\text{V}$ ( note 1 ) $I_{\text{DRM}} = 100\text{nA}$ $I_{\text{TM}} = 100\text{mA}$ ( peak )  $I_{\text{load}} = 15\text{mA}$ , $V_{\text{IN}} = 30\text{V}$ ( fig 1. )
Coupled	Input Current to Trigger ( $I_{\text{FT}}$ ) (note 2 ) IS3020 IS3021 IS3022  Holding Current , either direction ( $I_H$ )  Input to Output Isolation Voltage $V_{\text{ISO}}$			30 15 10	mA mA mA  $\mu\text{A}$  $V_{\text{RMS}}$ $V_{\text{PK}}$	$V_D = 3\text{V}$ ( note 2 )   See note 3 See note 3

Note 1. Test voltage must be applied within  $dv/dt$  rating.

Note 2. Guaranteed to trigger at an  $I_F$  value less than or equal to max.  $I_{\text{FT}}$ , recommended  $I_F$  lies between Rated  $I_{\text{FT}}$  and absolute max.  $I_{\text{FT}}$ .

Note 3. Measured with input leads shorted together and output leads shorted together.

**FIGURE 1**

