

IS3020  
IS3021,IS3022



## OPTICALLY COUPLED BILATERAL SWITCH NON-ZERO CROSSING TRIAC

### DESCRIPTION

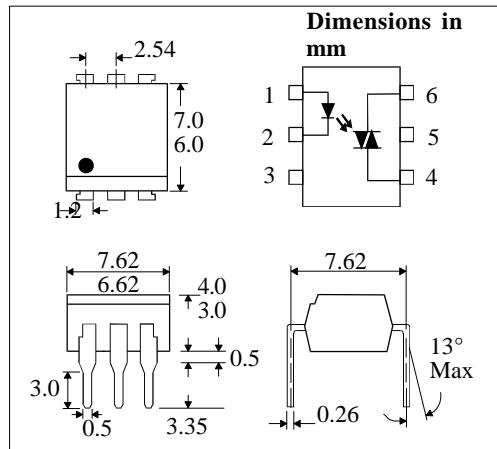
The IS3020, IS3021 and IS3022 are optically coupled isolators consisting of a Gallium Arsenide infrared emitting diode coupled with a light activated silicon bilateral switch performing the functions of a triac mounted in a standard 6 pin dual-in-line package.

### 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 ( $5.3\text{kV}_{\text{RMS}}, 7.5\text{kV}_{\text{PK}}$ )
- 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

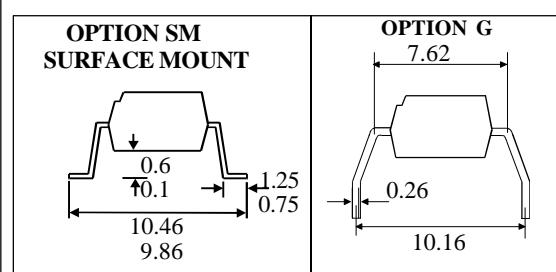
Forward Current	50mA
Reverse Voltage	6V
Power Dissipation	70mW (derate linearly 1.33mW/°C above 25°C)

### 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 ( $I_R$ )		1.2 100	1.5 $\mu\text{A}$	V $\mu\text{A}$	$I_F = 10\text{mA}$ $V_R = 6\text{V}$
Output	Peak Off-state Current ( $I_{DRM}$ ) Peak Blocking Voltage ( $V_{DRM}$ ) On-state Voltage ( $V_{TM}$ ) Critical rate of rise of off-state Voltage ( dv/dt ) ( note 1 ) Critical rate of rise of commutating Voltage ( dv/dt ) ( note 1 )	400	1.5	100 3.0	nA V V	$V_{DRM} = 400\text{V}$ ( note 1 ) $I_{DRM} = 100\text{nA}$ $I_{TM} = 100\text{mA}$ ( peak )
Coupled	Input Current to Trigger ( $I_{FT}$ ) (note 2 ) IS3020 IS3021 IS3022  Holding Current , either direction ( $I_H$ )  Input to Output Isolation Voltage $V_{ISO}$			10	V/ $\mu\text{s}$ $\mu\text{s}$	I load = 15mA, $V_{IN} = 30\text{V}$ ( fig 1. )
				30 15 10	mA mA mA	$V_D = 3\text{V}$ ( note 2 )
		5300 7500	100		$V_{RMS}$ $V_{PK}$	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.  $I_{FT}$ , recommended  $I_F$  lies between Rated  $I_{FT}$  and absolute max.  $I_{FT}$ .

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

**FIGURE 1**

