IS420, IS421, IS422, IS423

OPTICALLY COUPLED BILATERAL SWITCH LIGHT ACTIVATED ZERO VOLTAGE CROSSING TRIAC

APPROVALS

- UL recognised, File No. E91231

DESCRIPTION

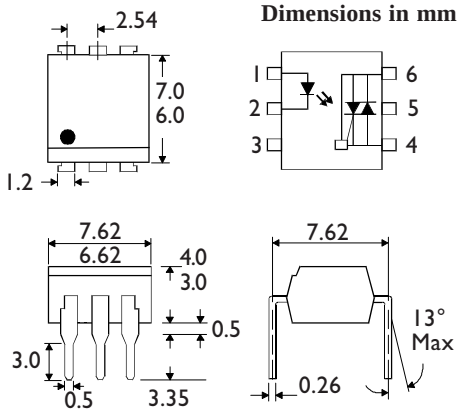
The IS42_ Series are optically coupled isolators consisting of a Gallium Arsenide infrared emitting diode coupled with a monolithic silicon detector performing the functions of a zero crossing bilateral triac mounted in a standard 6 pin dual-in-line package.

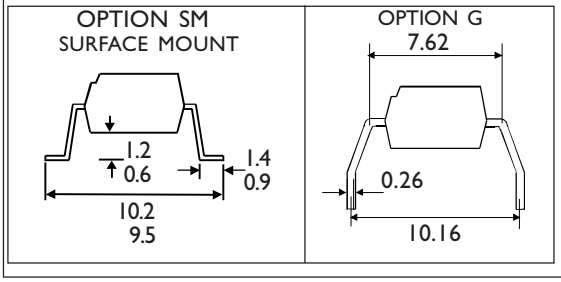
FEATURES

- 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 ($5.3kV_{RMS}$,$7.5kV_{PK}$)
- Zero Voltage Crossing
- 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 (1.6mm from case for 10 seconds)	260°C
Input-to-output Isolation Voltage (Pk) (60 Hz , 1sec. duration)	7500 Vac

INPUT DIODE

Forward Current	50mA
Reverse Voltage	6V
Power Dissipation (derate linearly 1.41mW/°C above 25°C)	120mW

OUTPUT PHOTO TRIAC

Off-State Output Terminal Voltage	400V
RMS Forward Current	100mA
Forward Current (Peak)	1.2A
Power Dissipation (derate linearly 1.76mW/°C above 25°C)	150mW

POWER DISSIPATION

Total Power Dissipation (derate linearly 2.94mW/°C above 25°C)	250mW

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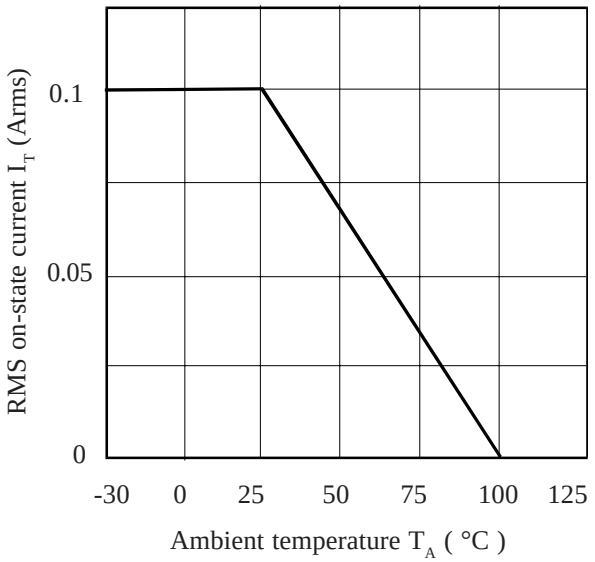
ELECTRICAL CHARACTERISTICS (T_A = 25°C Unless otherwise noted)

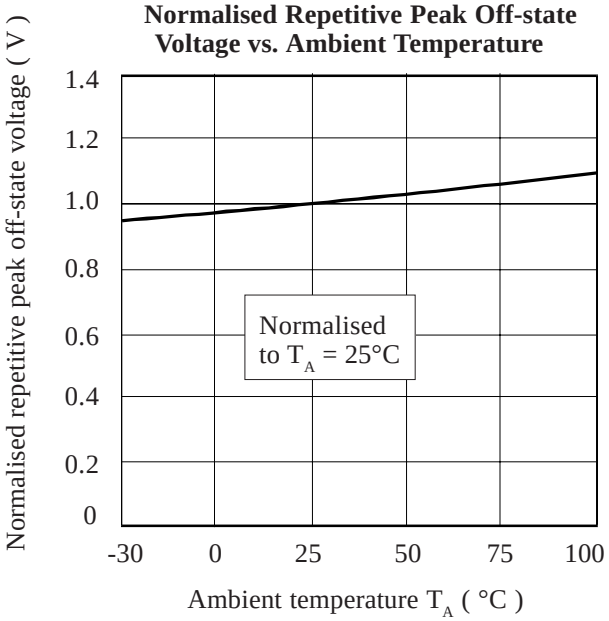
PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F) Reverse Current (I_R)		1.2	1.5 100	V µA	I_F = 30mA V_R = 6V
Output	Peak Off-state Current (I_{DRM}) Peak Blocking Voltage (V_{DRM}) On-state Voltage (V_{TM}) Critical rate of rise of off-state Voltage (dv/dt)	 400 100	 1.8	300 3.0	nA V V V/µs	V_{DRM} = 400V (note 1) I_{DRM} = 300nA I_{TM} = 100mA(peak)
Coupled	Input Current to Trigger (I_{FT})(note 2) IS420 IS421 IS422 IS423 Holding Current , either direction (I_H) Input to Output Isolation Voltage V_{ISO}	 5300 7500	 100	 30 15 10 7 	 mA mA mA mA µA V_{RMS} V_{PK}	 V_{TM} = 3V (note 2) See note 3 See note 3
Zero Crossing Charact--eristic	Inhibit Voltage (V_{IH}) Leakage in Inhibited State (I_S)			35 500	V µA	I_F = Rated I_{FT} MT1-MT2 Voltage above which device will not trigger I_F = Rated I_{FT} V_{DRM} = 400V off-state

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.

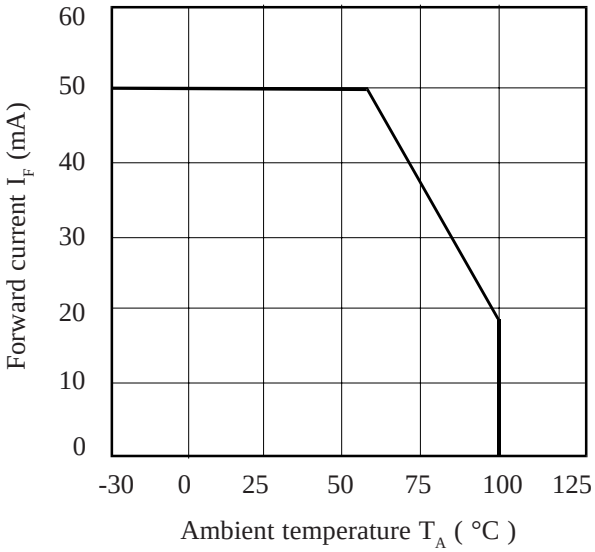
RMS On-state Current vs. Ambient Temperature



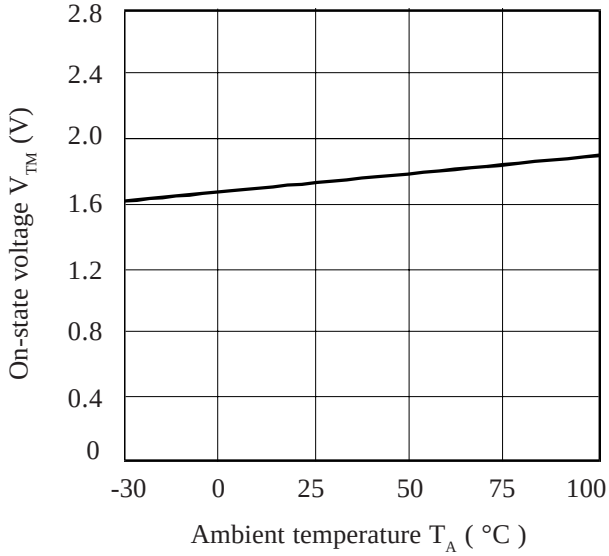
Normalised Repetitive Peak Off-state Voltage vs. Ambient Temperature



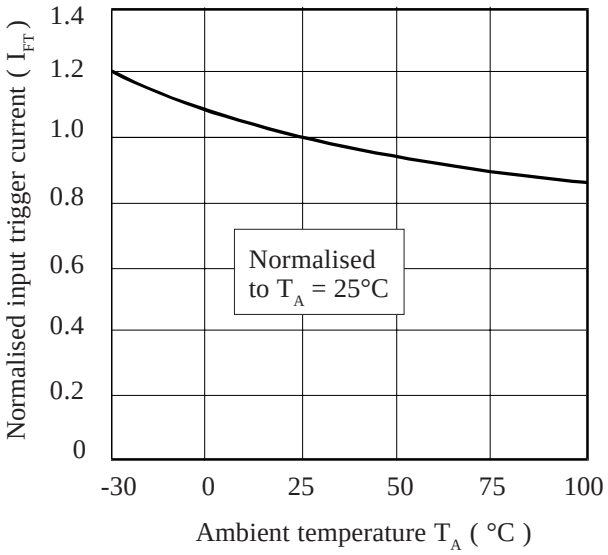
Forward Current vs. Ambient Temperature



On-state Voltage vs. Ambient Temperature



Normalised Input Trigger Current vs. Ambient Temperature



On-state Current vs. On-state Voltage