

IS420, IS421, IS422, IS423



OPTICALLY COUPLED BILATERAL SWITCH LIGHT ACTIVATED ZERO VOLTAGE CROSSING TRIAC

APPROVALS

- UL recognised, File No. E91231

DESCRIPTION

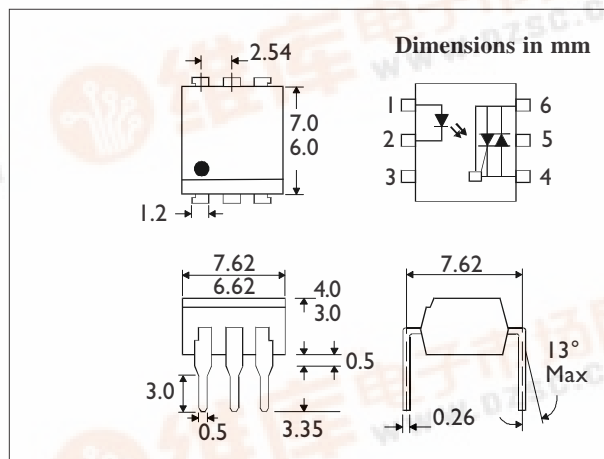
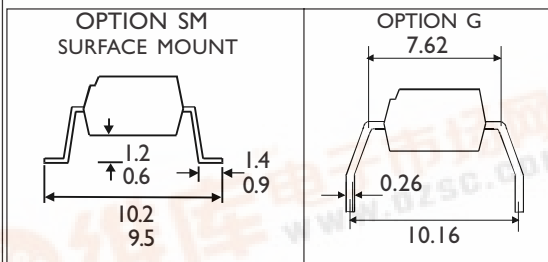
The IS42_ Series are optically coupled isolators consisting of a Gallium Arsenide infrared emitting diode coupled with a monolithic silicon detector performing the functions of a zero crossing bilateral triac mounted in a standard 6 pin dual-in-line package.

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) 7500 Vac (60 Hz , 1sec. duration)	

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

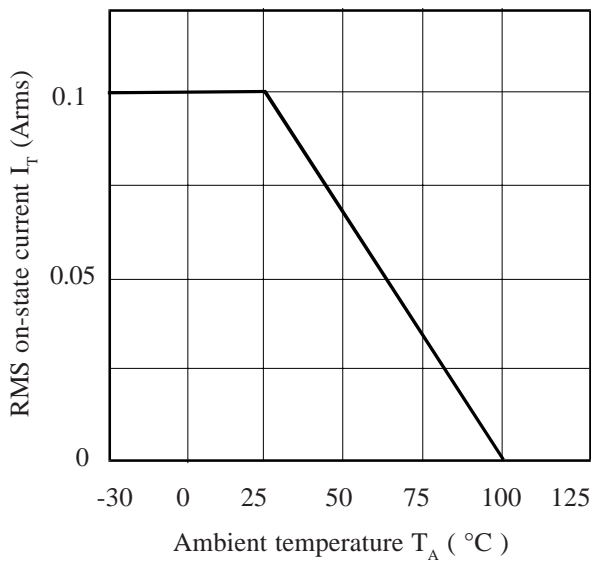
PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F) Reverse Current (I_R)		1.2	1.5 100	V μA	$I_F = 30\text{mA}$ $V_R = 6\text{V}$
Output	Peak Off-state Current (I_{DRM}) Peak Blocking Voltage (V_{DRM}) On-state Voltage (V_{TM}) Critical rate of rise of off-state Voltage (dv/dt)	400	1.8	300 3.0	nA V V $\text{V}/\mu\text{s}$	$V_{\text{DRM}} = 400\text{V}$ (note 1) $I_{\text{DRM}} = 300\text{nA}$ $I_{\text{TM}} = 100\text{mA}$ (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}		100	30 15 10 7	mA mA mA mA μA V_{RMS} V_{PK}	$V_{\text{TM}} = 3\text{V}$ (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	$I_F = \text{Rated } I_{\text{FT}}$ MT1-MT2 Voltage above which device will not trigger $I_F = \text{Rated } I_{\text{FT}}$ $V_{\text{DRM}} = 400\text{V}$ off-state

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

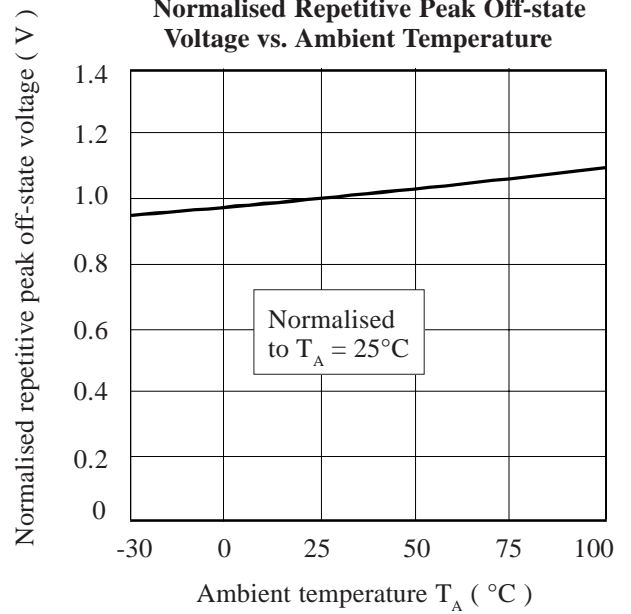
Note 2. Guaranteed to trigger at an I_F value less than or equal to max. I_{FT} , recommended I_F lies between Rated I_{FT} and absolute max. I_{FT} .

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

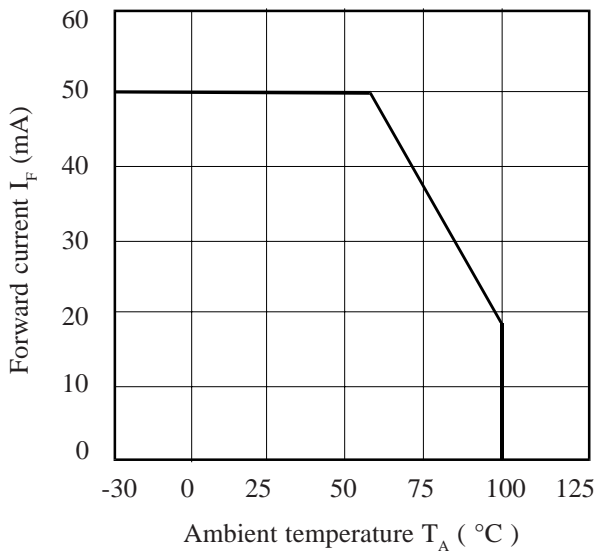
RMS On-state Current vs. Ambient Temperature



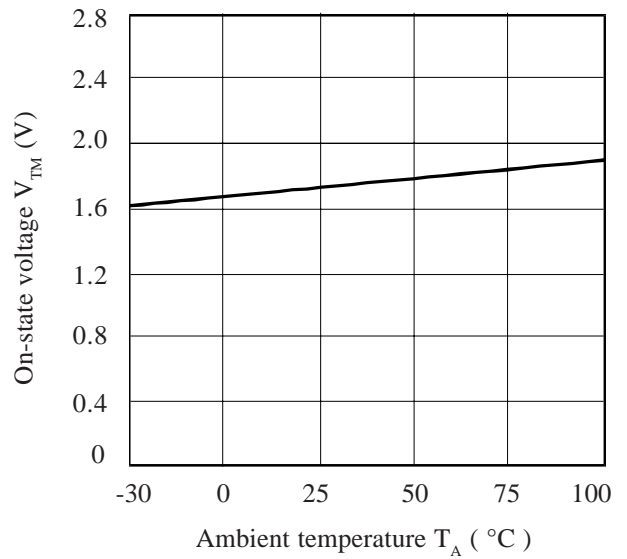
Normalised Repetitive Peak Off-state Voltage vs. Ambient Temperature



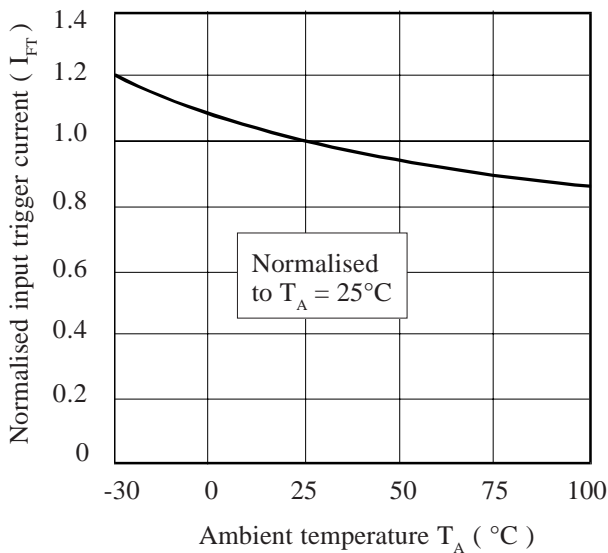
Forward Current vs. Ambient Temperature



On-state Voltage vs. Ambient Temperature



Normalised Input Trigger Current vs. Ambient Temperature



On-state Current vs. On-state Voltage

