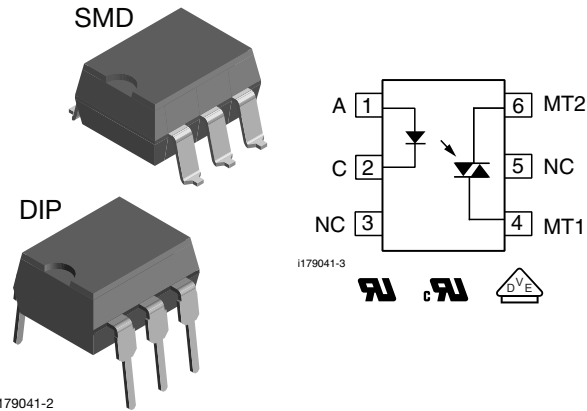


Optocoupler, Phototriac Output, Non-Zero Crossing, 1.5 kV/μs dV/dt, 600 V



DESCRIPTION

The VO3052 and VO3053 triac driver family consists of a GaAs infrared LED optically coupled to a monolithic photosensitive non-zero crossing triac detector chip.

The 600 V blocking voltage permits control of off-line voltages up to 240 V_{AC}, with a safety factor or more than two, and is sufficient for as much as 380 V.

FEATURES

- 1500 V/μs dV/dt minimum 2000 V/μs typical
- 600 V blocking voltage
- 100 mA on-state current
- Low input trigger current
- 6 pin DIP package
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT

APPLICATIONS

- Household appliances
- Triac drive/AC motor drives
- Solenoid/valve controls
- Office automation equipment/machine
- Temperature (HVAC)/lighting controls
- Switching power supply

AGENCY APPROVALS

- UL-file E52744 system code H or J
- cUL - file no. E52744, equivalent to CSA bulletin 5A
- DIN EN 60747-5-2 (VDE 0884) available with option 1

ORDERING INFORMATION	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">V</div> <div style="border: 1px solid black; padding: 2px;">O</div> <div style="border: 1px solid black; padding: 2px;">3</div> <div style="border: 1px solid black; padding: 2px;">0</div> <div style="border: 1px solid black; padding: 2px;">5</div> <div style="border: 1px solid black; padding: 2px;">#</div> <div style="border: 1px solid black; padding: 2px;">-</div> <div style="border: 1px solid black; padding: 2px;">X</div> <div style="border: 1px solid black; padding: 2px;">0</div> <div style="border: 1px solid black; padding: 2px;">#</div> <div style="border: 1px solid black; padding: 2px;">#</div> <div style="border: 1px solid black; padding: 2px;">T</div> </div> <p style="text-align: center;"> PART NUMBER PACKAGE OPTION TAPE AND REEL </p>	
AGENCY CERTIFIED/PACKAGE	TRIGGER, CURRENT I _{FT} (mA)
UL, cUL	5 10
DIP-6	VO3053 VO3052
DIP-6, 400 mil, option 6	VO3053-X006 VO3052-X006
SMD-6, option 7	VO3053-X007T VO3052-X007T
SMD-6, option 9	VO3053-X009T -
VDE, UL, cUL	5 10
DIP-6, 400 mil, option 6	- VO3052-X016



ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
INPUT							
Reverse current	$V_R = 6\text{ V}$		I_R			10	μA
Forward voltage	$I_F = 30\text{ mA}$		V_F		1.2	1.5	V
OUTPUT							
Leakage with LED off, either direction	$V_{DRM} = 600\text{ V}$		I_{DRM}		10	500	nA
Critical rate of rise off-state voltage	$V_D = 400\text{ V}$		dV/dt_{cr}	1500	2000		V/ μs
COUPLER							
LED trigger current, current required to latch output		VO3053	I_{FT}			5	mA
		VO3052	I_{FT}			10	mA
Peak on-state voltage, either direction	$I_{TM} = 100\text{ mA peak}$, $I_F = \text{rated } I_{FT}$		V_{TM}		1.7	3	V
Holding current, either direction			I_H		200		μA
Coupling capacitance	10 KHz		C_{IO}		0.4		pF

Note

- Typical values are characteristics of the device and are the result of engineering evaluations. Typical values are for information only and are not part of the testing requirements.

SAFETY AND INSULATION RATINGS						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	
Climatic classification (according to IEC 68 part 1)			55/100/21			
Pollution degree (DIN VDE 0109)			2			
Comparative tracking index	CTI	175				
Peak transient overvoltage	V_{IOTM}	8000			V_{peak}	
Peak working insulation voltage	V_{IORM}	890			V_{peak}	
Isolation resistance at $T_{amb} = 100\text{ }^{\circ}\text{C}$, $V_{DC} = 500\text{ V}$	R_{IO}	10^{11}			Ω	
Isolation resistance at $T_{amb} = 25\text{ }^{\circ}\text{C}$, $V_{DC} = 500\text{ V}$	R_{IO}	10^{12}			Ω	
Partial discharge test voltage (method a, $V_{pd} = V_{IORM} \times 1.875$)	V_{pd}	1669			V_{peak}	
Safety rating - power	P_{SO}			500	mW	
Safety rating - input current	I_{SI}			250	mA	
Safety rating - temperature	T_{SI}			175	$^{\circ}\text{C}$	
Clearance distance (Standard DIP-6)		7			mm	
Creepage distance (Standard DIP-6)		7			mm	
Clearance distance (400 mil DIP-6)		8			mm	
Creepage distance (400 mil DIP-6)		8			mm	

Note

- According to DIN EN60747-5-5 (see figure 4). This optocoupler is suitable for safe electrical isolation only within the safety ratings. Compliance with the safety ratings shall be ensured by means of suitable protective circuits.

TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

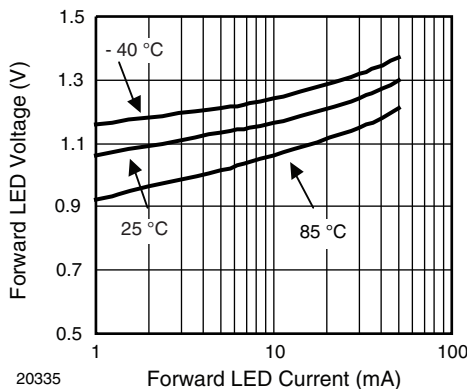


Fig. 1 - Forward Voltage vs. Forward Current

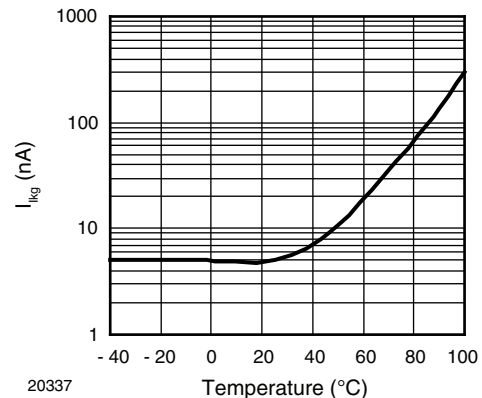


Fig. 2 - Off-State Leakage Current vs. Temperature

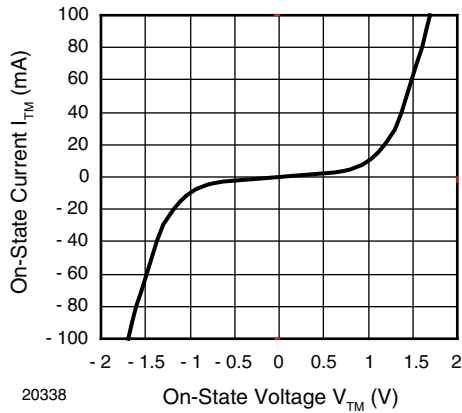


Fig. 3 - On-State Current vs. V_{TM}

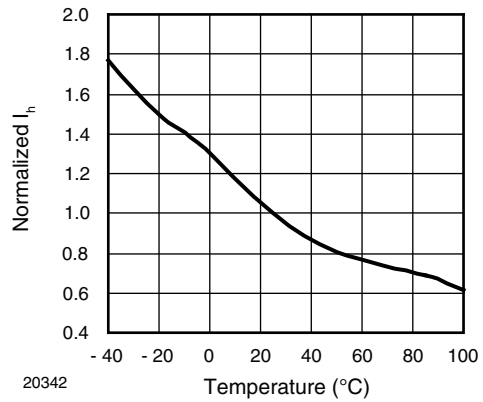


Fig. 6 - Normalized Holding Current vs. Temperature

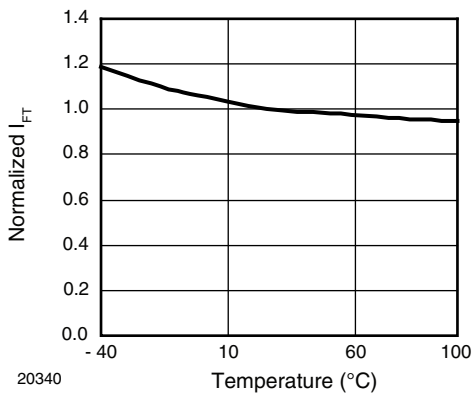


Fig. 4 - Normalized Trigger Current vs. Temperature

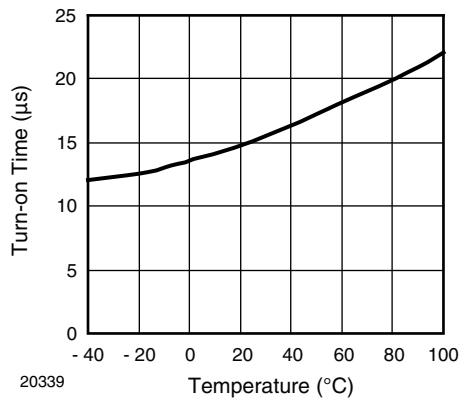


Fig. 7 - Turn-on Time vs. Temperature

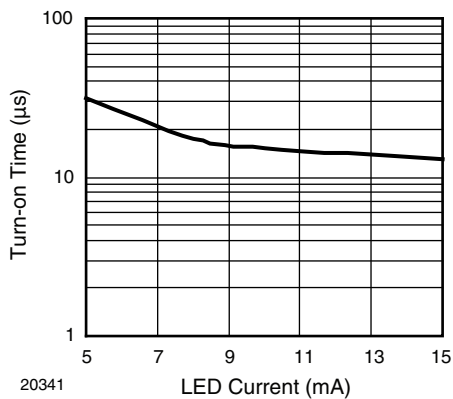


Fig. 5 - Turn-on Time vs. LED Current

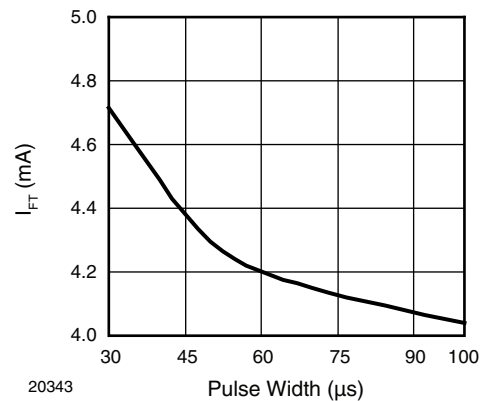
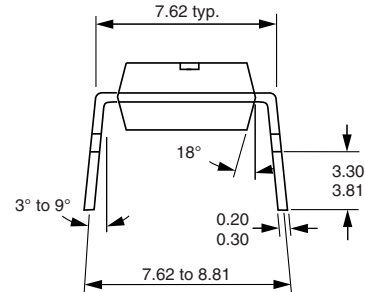
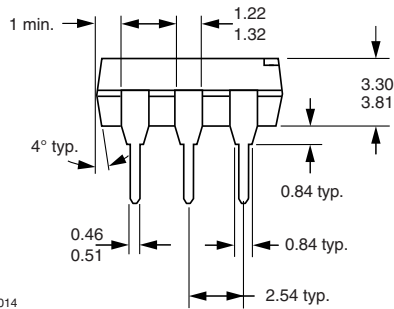
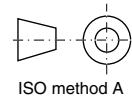
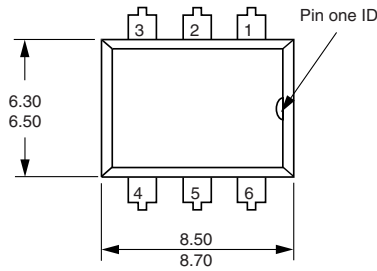


Fig. 8 - Trigger Current vs. Pulse Width

PACKAGE DIMENSIONS in millimeters

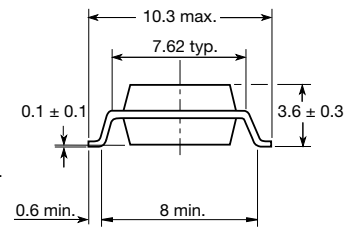
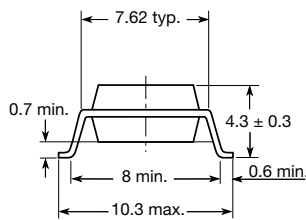
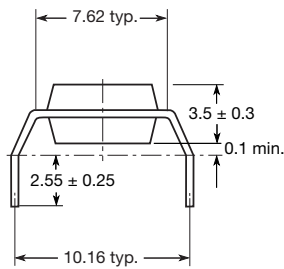


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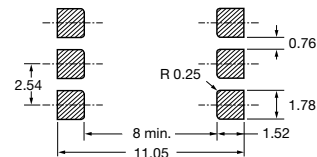
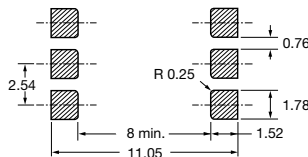
Option 6

Option 7

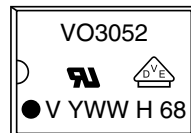
Option 9



20802-24



PACKAGE MARKING



Notes

- The VDE logo is only marked on option1 parts.
- Tape and reel suffix (T) is not part of the package marking.



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- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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