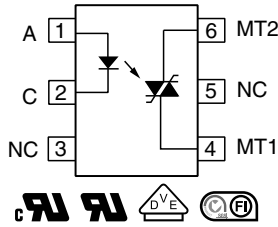
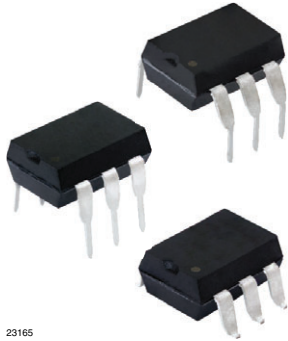




THE DATASHEET OF VO4258D



Optocoupler, Phototriac Output, High dV/dt, Low Input Current



FEATURES

- High static dV/dt 5 kV/μs
- High input sensitivity $I_{FT} = 1.6$ mA, 2 mA, and 3 mA
- 800 V blocking voltage
- 300 mA on-state current
- Isolation rated voltage 4420 V_{RMS}
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

APPLICATIONS

- Solid-state relays
- Industrial controls
- Office equipment
- Consumer appliances

AGENCY APPROVALS

- [UL](#)
- [cUL](#)
- [DIN EN 60747-5-5 \(VDE 0884-5\)](#), available with option 1
- [FIMKO](#)

LINKS TO ADDITIONAL RESOURCES



DESCRIPTION

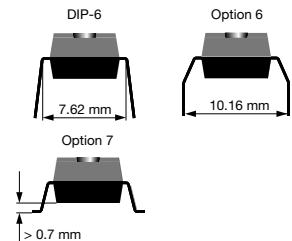
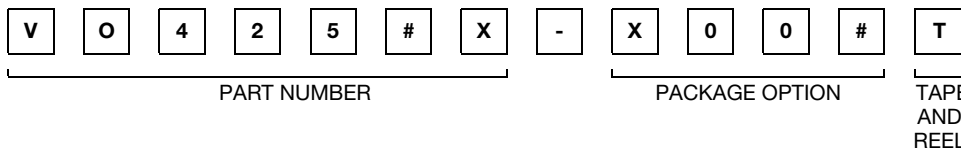
The VO4258 phototriac consists of a GaAs IRLED optically coupled to a photosensitive non-zero crossing TRIAC packaged in a DIP-6 package.

High input sensitivity is achieved by using an emitter follower phototransistor and a cascaded SCR predriver resulting in an LED trigger current of 1.6 mA for bin D, 2 mA for bin H, and 3 mA for bin M.

The new non zero phototriac family use a proprietary dV/dt clamp resulting in a static dV/dt of greater than 5 kV/μs.

The VO4258 phototriac isolates low-voltage logic from 120 V_{AC} , 240 V_{AC} , and 380 V_{AC} lines to control resistive, inductive, or capacitive loads including motors, solenoids, high current thyristors or TRIAC and relays.

ORDERING INFORMATION



AGENCY CERTIFIED / PACKAGE	V_{DRM} 800		
	TRIGGER CURRENT, I_{FT} (mA)		
	1.6	2	3
UL, cUL, BSI, FIMKO			
DIP-6	VO4258D	VO4258H	VO4258M
DIP-6, 400 mil, option 6	-	VO4258H-X006	-
SMD-6, option 7	VO4258D-X007T	VO4258H-X007T	VO4258M-X007T
VDE, UL, cUL, BSI, FIMKO	1.6	2	3
SMD-6, option 7	-	-	-

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)					
PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
INPUT					
Reverse voltage			V_R	6	V
Forward current			I_F	60	mA
Derate from 25 °C				1.33	mW/°C
OUTPUT					
Peak off-state voltage		VO4258D/H/M	V_{DRM}	800	V
RMS on-state current			I_{TM}	300	mA
Derate from 25 °C				6.6	mW/°C
COUPLER					
Storage temperature range			T_{stg}	-55 to +150	°C
Ambient temperature range			T_{amb}	-55 to +100	°C
Soldering temperature	Max. ≤ 10 s dip soldering ≥ 0.5 mm from case bottom		T_{sld}	260	°C

Note

- Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of this document. Exposure to absolute maximum ratings for extended periods of the time can adversely affect reliability.

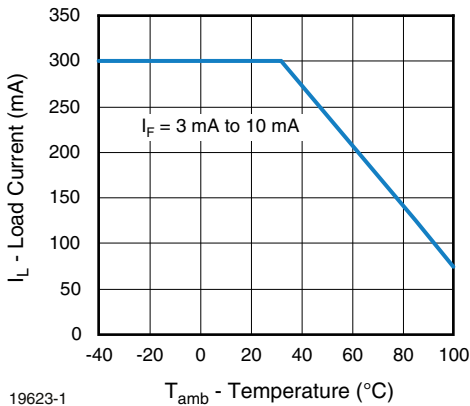


Fig. 1 - Recommended Operating Condition

SAFETY AND INSULATION RATINGS				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Climatic classification	According to IEC 68 part 1		55 / 100 / 21	
Comparative tracking index		CTI	175	
Maximum rated withstanding isolation voltage	t = 1 min	V_{ISO}	4420	V_{RMS}
Maximum transient isolation voltage		V_{IOTM}	8000	V_{peak}
Maximum repetitive peak isolation voltage		V_{IORM}	890	V_{peak}
Isolation resistance	$V_{IO} = 500\text{ V}, T_{amb} = 25\text{ }^{\circ}\text{C}$	R_{IO}	$\geq 10^{12}$	Ω
	$V_{IO} = 500\text{ V}, T_{amb} = 100\text{ }^{\circ}\text{C}$	R_{IO}	$\geq 10^{11}$	Ω
Output safety power		P_{SO}	500	mW
Input safety current		I_{SI}	250	mA
Safety temperature		T_S	175	$^{\circ}\text{C}$
Creepage distance			≥ 7	mm
Clearance distance			≥ 7	mm
Insulation thickness		DTI	≥ 0.4	mm
Pollution degree (DIN VDE 0109)			2	

Note

- As per IEC 60747-5-5, § 7.4.3.8.2, this optocoupler is suitable for “safe electrical insulation” only within the safety ratings. Compliance with the safety ratings shall be ensured by means of protective circuits.

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

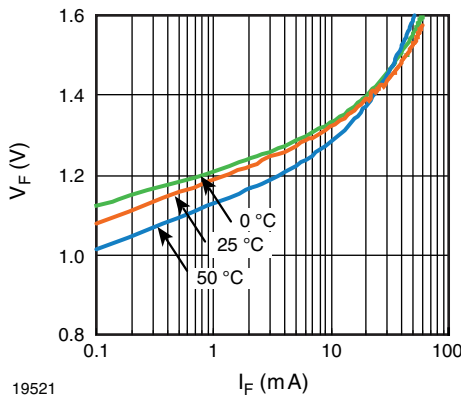


Fig. 2 - Diode Forward Voltage vs. Forward Current

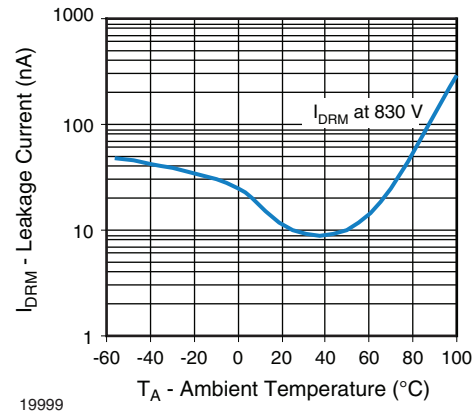


Fig. 4 - Leakage Current vs. Ambient Temperature

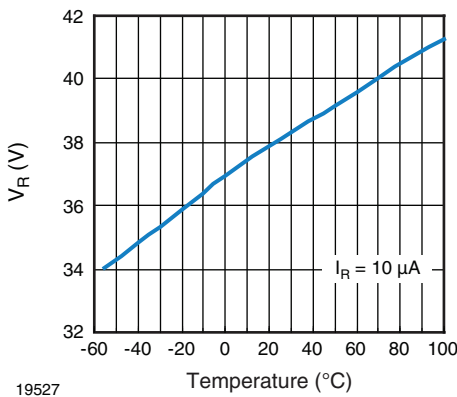


Fig. 3 - Diode Reverse Voltage vs. Temperature

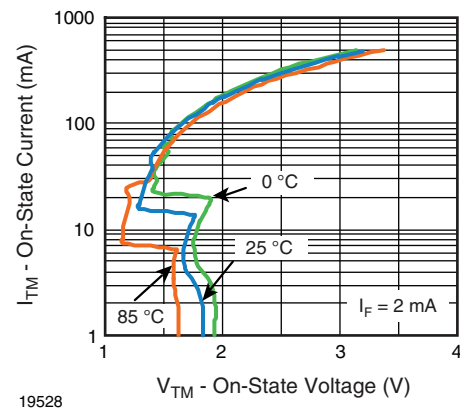
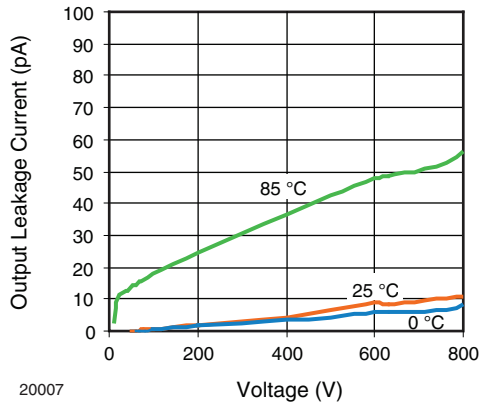
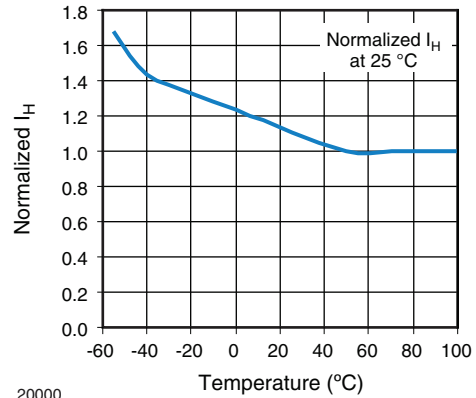


Fig. 5 - Output On Current (I_{TM}) vs. Voltage



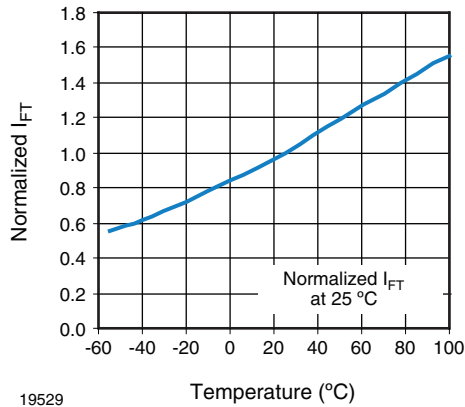
20007

Fig. 6 - Output Off Current (Leakage) vs. Voltage



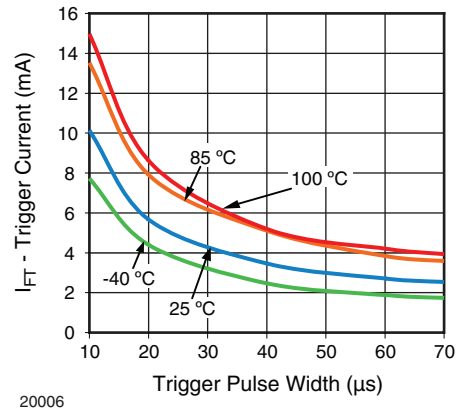
20000

Fig. 9 - Normalized Holding Current vs. Temperature



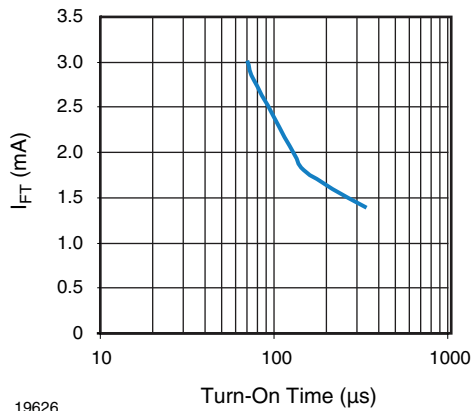
19529

Fig. 7 - Normalized Trigger Input Current vs. Temperature



20006

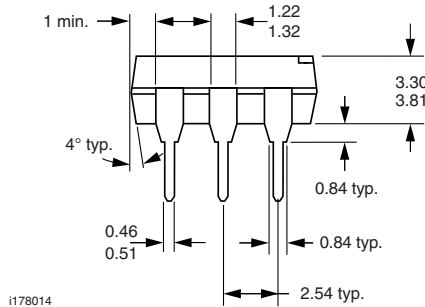
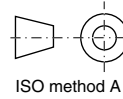
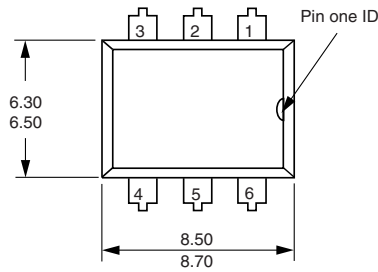
Fig. 10 - I_{FT} vs. LED Pulse Width



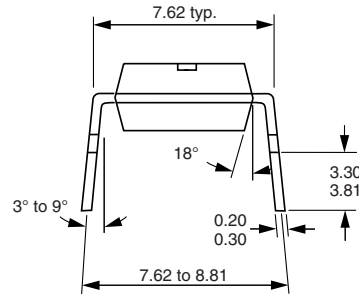
19626

Fig. 8 - Trigger Current vs. Turn-On Time

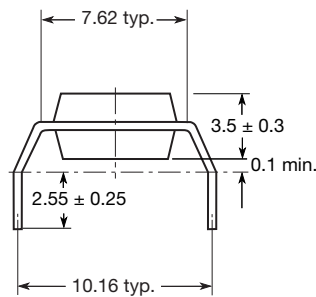
PACKAGE DIMENSIONS in millimeters



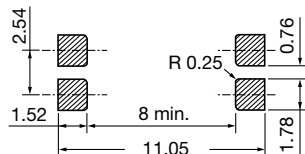
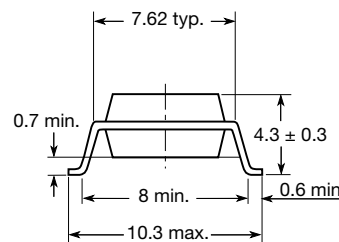
Option 6



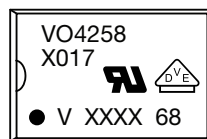
Option 7



20802-18



PACKAGE MARKING (example)



Notes

- XXXX = LMC (lot marking code)
- VDE logo is only marked on option 1 parts. Tape and reel suffix (T) is not part of the package marking



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