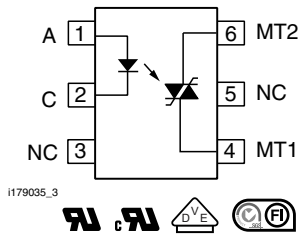




Optocoupler, Phototriac Output, High dV/dt, Low Input Current



21842-1



FEATURES

- High static dV/dt 5 kV/μs
- High input sensitivity 1.6 mA, 2 mA, and 3 mA
- 400 V and 600 V blocking voltage
- 300 mA on-state current
- Isolation test voltage 5300 V_{RMS}
- Material categorization:
For definitions of compliance please see www.vishay.com/doc?99912



RoHS COMPLIANT

DESCRIPTION

The VO4254 and VO4256 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 VO4254 and VO4256 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.

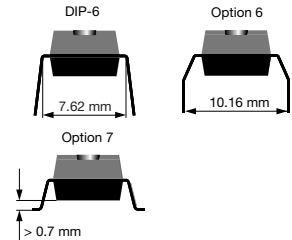
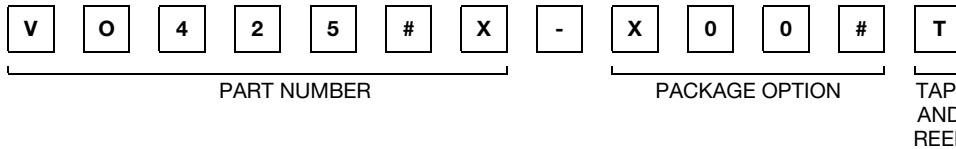
APPLICATIONS

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

AGENCY APPROVALS

- UL1577, file no. E52744 system code H or J, double protection
- cUL - file no. E52744, equivalent to CSA bulletin 5A
- DIN EN 60747-5-5 (VDE 0884) available with option 1
- FIMKO: FI25250

ORDERING INFORMATION



AGENCY CERTIFIED/PACKAGE	V _{DRM} 400			V _{DRM} 600		
	TRIGGER CURRENT, I _{FT} (mA)					
UL, cUL, FIMKO	1.6	2	3	1.6	2	3
DIP-6	VO4254D	VO4254H	VO4254M	VO4256D	VO4256H	VO4256M
DIP-6, 400 mil, option 6	VO4254D-X006	VO4254H-X006	VO4254M-X006	VO4256D-X006	VO4256H-X006	VO4256M-X006
SMD-6, option 7	VO4254D-X007T	VO4254H-X007T	VO4254M-X007T	VO4256D-X007T	VO4256H-X007T	VO4256M-X007T
UL, cUL, FIMKO, VDE	1.6	2	3	1.6	2	3
DIP-6	-	-	-	VO4256D-X001	-	-



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
Power dissipation			P_{diss}	100	mW
Derate from 25 °C				1.33	mW/°C
OUTPUT					
Peak off-state voltage		VO4254D/H/M	V_{DRM}	400	V
		VO4256D/H/M	V_{DRM}	600	V
RMS on-state current			I_{TM}	300	mA
Power dissipation			P_{diss}	500	mW
Derate from 25 °C				6.6	mW/°C
COUPLER					
Isolation test voltage (between emitter and detector, climate per DIN 500414, part 2, Nov. 74)	$t = 1\text{ s}$		V_{ISO}	5300	V_{RMS}
Storage temperature range			T_{stg}	- 55 to + 150	°C
Ambient temperature range			T_{amb}	- 55 to + 100	°C
Soldering temperature ⁽²⁾	max. $\leq 10\text{ s}$ dip soldering $\geq 0.5\text{ mm}$ from case bottom		T_{sld}	260	°C

Notes

- 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.
- (1) Refer to reflow profile for soldering conditions for surface mounted devices (SMD). Refer to wave profile for soldering conditions for through hole devices (DIP).

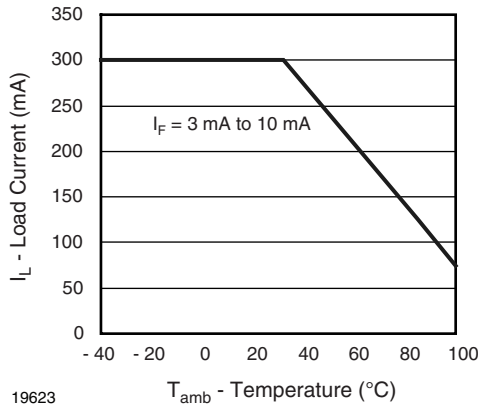
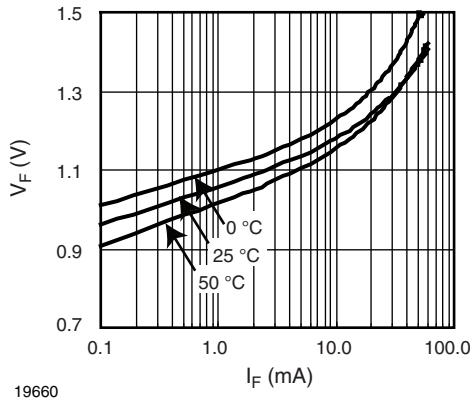


Fig. 1 - Recommended Operating Condition



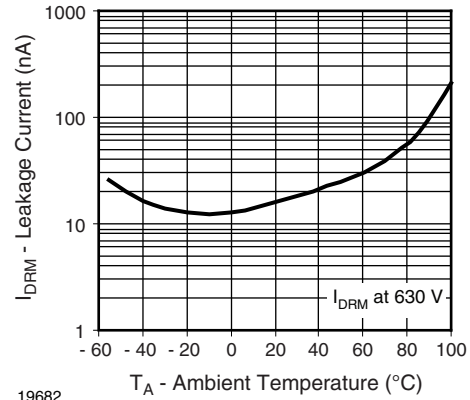
SAFETY AND INSULATION RATINGS						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Climatic classification (according to IEC68 part 1)				55/100/21		
Pollution degree (DIN VDE 0109)				2		
Comparative tracking index per DIN IEC112/VDE 0303 part 1, group IIIa per DIN VDE 6110 175 399			175		399	
V_{IOTM}		V_{IOTM}	8000			V
V_{IORM}		V_{IORM}	890			V
P_{SO}		P_{SO}			500	mW
I_{SI}		I_{SI}			250	mA
T_{SI}		T_{SI}			175	°C
Creepage distance			7			mm
Clearance distance			7			mm

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



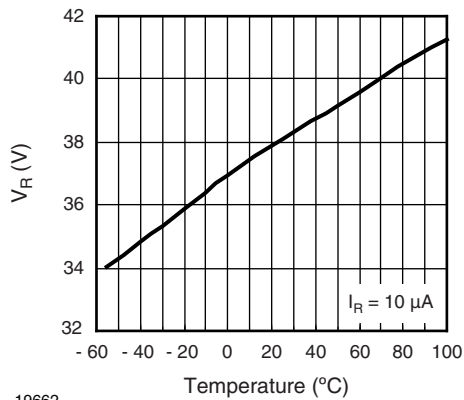
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Fig. 2 - Diode Forward Voltage vs. Forward Current



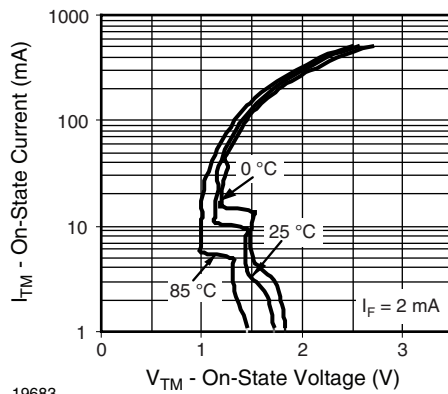
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Fig. 4 - Leakage Current vs. Ambient Temperature



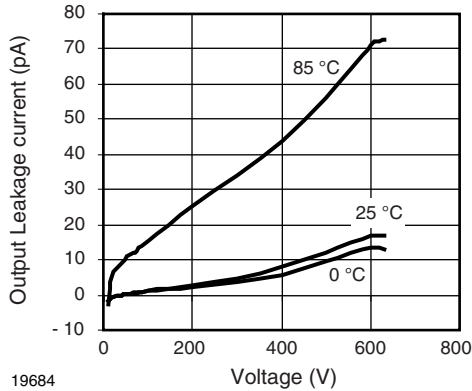
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Fig. 3 - Diode Reverse Voltage vs. Temperature



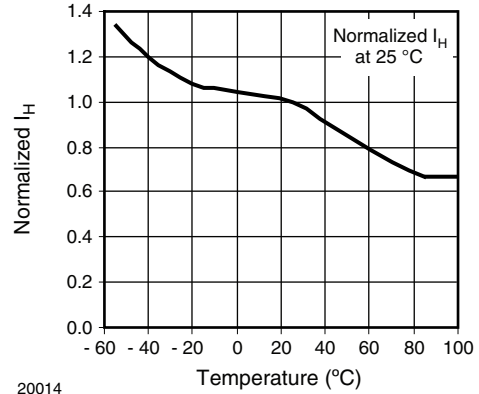
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Fig. 5 - On-State Current vs. On-State Voltage



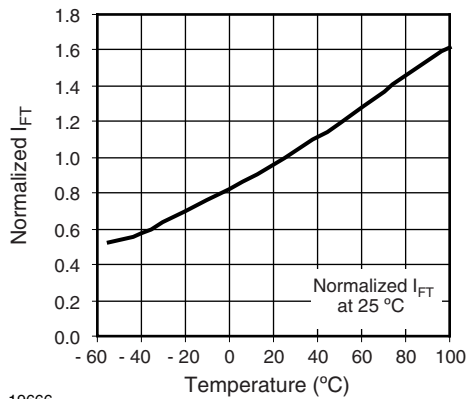
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Fig. 6 - Output Off Current (Leakage) vs. Voltage



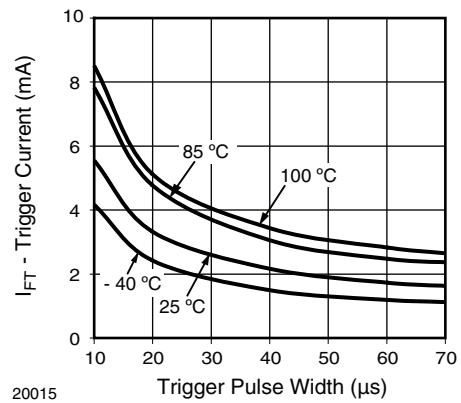
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Fig. 9 - Normalized I_H vs. Temperature



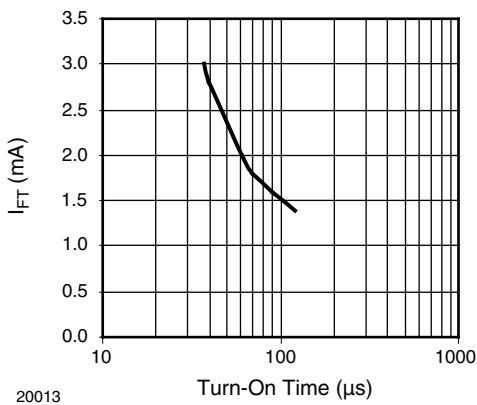
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Fig. 7 - Normalized Trigger Input Current vs. Temperature



20015

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

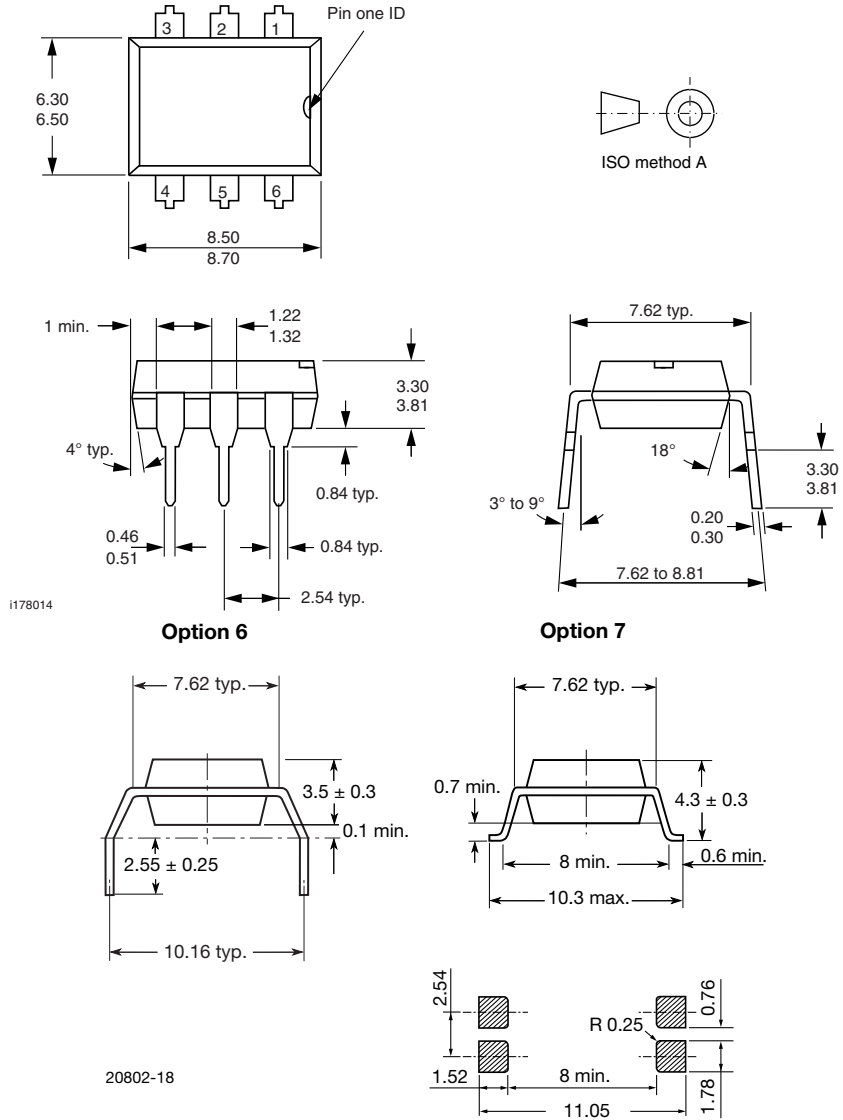


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Fig. 8 - I_{FT} vs. Turn-On Time (μ s)



PACKAGE DIMENSIONS in millimeters



PACKAGE MARKING (example)



Note

- 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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