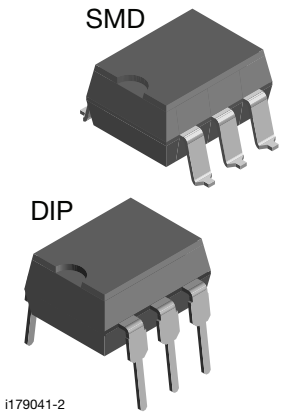
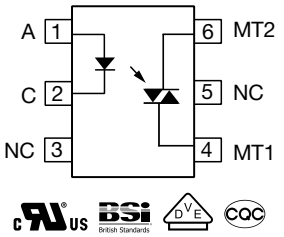
EN: This Datasheet/Document is presented by the manufacturer.

Please visit our website for pricing and availability at www.hestore.hu.

Optocoupler, Phototriac Output, Non-Zero Crossing, 400 V_{DRM}





FEATURES

- 400 V blocking voltage
- Isolation test voltage, 5300 V_{RMS}, t = 1 s
- Isolation materials per UL94
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

APPLICATIONS

- High current triac driver
- Solid state relay
- Switch small AC loads

AGENCY APPROVALS

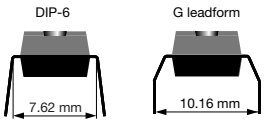
- UL1577, file no. E52744 system code H
- CSA notice 5A compliant, cUL tested
- DIN EN 60747-5-5 (VDE0884)
- BSI IEC 60950; IEC 60065
- CQC: GB8898-2001

DESCRIPTION

The K3020P, K3020PG series consists of a phototriac optically coupled to a gallium arsenide infrared-emitting diode in a 6-lead plastic dual inline package

ORDERING INFORMATION

K	3	0	2	0	P	#	X	0	#	#	T
PART NUMBER						TRIGGER CURRENT BIN	PACKAGE OPTION				TAPE AND REEL



AGENCY CERTIFIED/PACKAGE	TRIGGER CURRENT, I_{FT}				
VDE, cUL, BSI	3.6 mA	5 mA	10 mA	15 mA	30 mA
DIP-6	K3036P	K3023P	K3022P	K3021P	K3020P
DIP-6, 400 mil	K3036PG	K3023PG	K3022PG	K3021PG	K3020PG

Note

- G = leadform 10.16 mm; G is not marked on the body.

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
INPUT					
Reverse voltage			V_R	5	V
Forward current			I_F	80	mA
Surge current	P.W. < 10 µs		I_{FSM}	3	A
Power dissipation			P_{diss}	100	mW
Junction temperature			T_j	100	°C
OUTPUT					
Peak off-state voltage			V_{DRM}	400	V
On-state RMS current			$I_{D(RMS)}$	100	mA
Peak surge current	$t_p \leq 10$ ms		I_{FSM}	1.5	A
Power dissipation			P_{diss}	300	mW
Junction temperature			T_j	100	°C

For technical questions, contact: optocoupleranswers@vishay.com

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ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)					
PARAMETER	**TEST CONDITION**	**PART**	**SYMBOL**	**VALUE**	**UNIT**
COUPLER					
Isolation voltage	t = 1 s		V_{ISO}	5300	V_{RMS}
Total power dissipation			P_{tot}	350	mW
Storage temperature range			T_{stg}	- 55 to + 150	°C
Ambient temperature			T_{amb}	- 55 to + 100	°C
Junction temperature			T_j	100	°C
Lead soldering temperature (1)	2 mm from case, t < 10 s		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 wave profile for soldering conditions for through hole devices (DIP) “Assembly Instructions” (www.vishay.com/doc?80054)

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)							
PARAMETER	**TEST CONDITION**	**PART**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
INPUT							
Forward voltage	I_F = 50 mA		V_F		1.3	1.6	V
Reverse voltage	I_R = 10 µA		V_R	5			V
Junction capacitance	V_R = 0 V, f = 1 MHz		C_j		50		pF
OUTPUT							
Forward peak off-state voltage (repetitive)	I_{DRM} = 100 nA		V_{DRM} (1)	400			V
Peak on-state voltage	I_{TM} = 100 mA		V_{TM}		1.5	3	V
Critical rate of rise of off-state voltage	I_F = 0 A, V_D = 0.67 V_{DRM}		dV/dt_{cr}		10		V/µs
Critical rate of rise of on-state current commutation	V_D = 30 V_{RMS}, I_D = 15 mA_{RMS}		dV/dt_{crq}	0.1	0.15		V/µs
COUPLER (2)							
Emitting diode trigger current	V_S = 3 V, R_L = 150 Ω	K3020P	I_{FT}		15	30	mA
		K3020PG	I_{FT}		15	30	mA
		K3021P	I_{FT}		8	15	mA
		K3021PG	I_{FT}		8	15	mA
		K3022P	I_{FT}		5	10	mA
		K3022PG	I_{FT}		5	10	mA
		K3023P	I_{FT}		3	5	mA
		K3023PG	I_{FT}		3	5	mA
		K3036P	I_{FT}		2	3.6	mA
		K3036PG	I_{FT}		2	3.6	mA
Holding current	I_F = 10 mA, $V_S \geq$ 3 V		I_H		200		µA

Notes

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

(1) Test voltage must be applied within dV/dt ratings.

(2) I_{FT} is defined as a minimum trigger current.

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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}
Partial discharge test voltage (method a, $V_{pd} = V_{IORM} \times 1.875$)	V_{pd}			1669	V_{peak}
Isolation resistance at T_{amb} = 100 °C, V_{DC} = 500 V	R_{IO}	10^{11}			Ω
Isolation resistance at T_{amb} = 25 °C, V_{DC} = 500 V	R_{IO}	10^{12}			Ω
Safety rating - power	P_{SO}			265	mW
Safety rating - input current	I_{SI}			130	mA
Safety rating - temperature	T_{SI}			150	°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.

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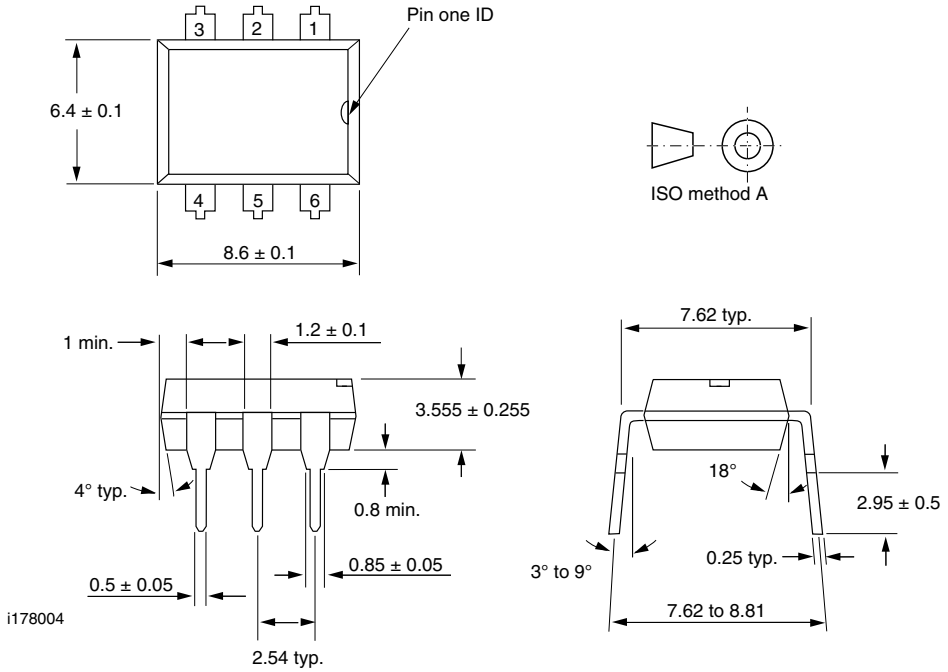
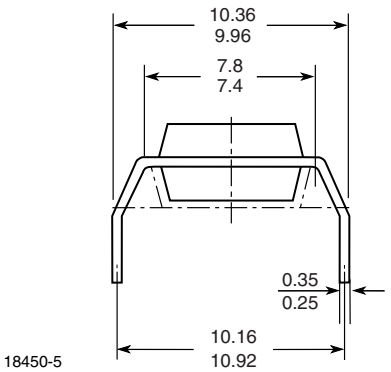
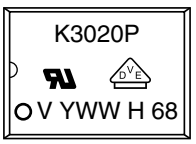
PACKAGE DIMENSIONS millimeters



G Series



PACKAGE MARKING (example)



Notes

- The “G” of the G leadform type is not marked on the body.
- The VDE logo is only marked on option1 parts.

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