

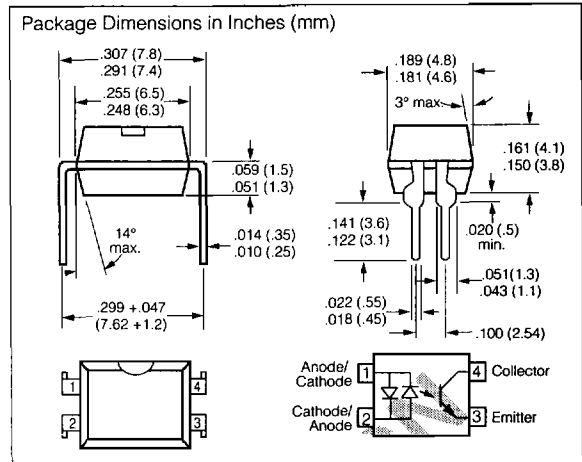
#### FEATURES

- High Current Transfer Ratios  
at 10 mA: 40-320%  
at 1 mA: 45% typical (>13)
- Low CTR Degradation
- Good CTR Linearity Depending on Forward Current
- Isolation Test Voltage, 5300 VAC<sub>RMS</sub>
- High Collector-Emitter Voltage, V<sub>CEO</sub>=70 V
- Low Saturation Voltage
- Fast Switching Times
- Field-Effect Stable by TRIOS\*
- Temperature Stable
- Low Coupling Capacitance
- End-Stackable, 0.100" (2.54 mm) Spacing
- High Common-Mode Interference Immunity (Unconnected Base)
- VDE #0884 Available with Option 1

#### DESCRIPTION

The SFH 620 is a DIP-4 optocoupler which has two bidirectional infrared emitters. This enables the transmission of AC voltage signals while the circuits are electrically isolated.

High isolation test voltage and high current transfer ratios characterize this reflective-mode device.



#### Maximum Ratings

##### Emitter

DC Forward Current	±60 mA
Surge Forward Current (t < 10 μs)	±2.5 A
Total Power Dissipation	100 mW

##### Detector

Collector-Emitter Voltage	70 V
Emitter-Collector Voltage	7 V
Collector Current	50 mA
Collector Current (t ≤ 1 ms)	100 mA
Total Power Dissipation	150 mW

#### Package

Isolation Test Voltage between Emitter and Detector

referred to Climate DIN 45046, part 2, New 74

1-1 sec	5000 VAC <sub>pk</sub> , 5300 VAC <sub>RMS</sub>
Creepage	≥7 mm
Clearance	≥7 mm
Isolator Thickness between Emitter and Detector	≥0.8 mm
Comparative Tracking Index per DIN IEC 112/VDE 0303, part 1	175
Isolation Resistance	
V <sub>0</sub> =500 V, T <sub>A</sub> =25°C	≥10 <sup>12</sup> Ω
V <sub>0</sub> =500 V, T <sub>A</sub> =100°C	≥10 <sup>11</sup> Ω
Storage Temperature Range	-55°C to +150°C
Ambient Temperature Range	-55°C to +100°C
Junction Temperature	100°C
Soldering Temperature (max. 10 s, dip soldering distance: to seating plane ≥1.5 mm)	260°C

#### Notes:

1. Dip soldering minimum clearance from bottom edge of package, 1.5 mm. Special soldering conditions apply when through-contacted circuit boards are used. Request appropriate specification.

\*Transparent IO Shield

**Characteristics** ( $T_A=25^\circ\text{C}$ )**Emitter**

	Symbol	Units	Condition
Forward Voltage	$V_F$	$\pm 1.25$ ( $\leq 1.65$ )	V $I_F=\pm 60$ mA
Capacitance	$C_0$	50	pF $V_R=0$ V, $f=1$ MHz
Thermal Resistance	$R_{THJA}$	750	K/W

**Detector**

Capacitance	$C_{CE}$	6.8	pF $V_{CE}=5$ V, $f=1$ MHz
Thermal Resistance	$R_{THJA}$	500	K/W

**Package**

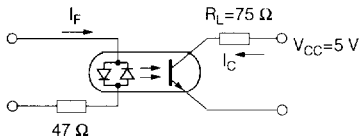
Collector-Emitter Saturation Voltage	$V_{CESAT}$	0.25 ( $\leq 0.4$ )	V $I_F=10$ mA, $I_C=2.5$ mA
Coupling Capacitance	$C_C$	0.2	pF

**Note:**

1. Still air, coupler soldered to PCB or base.

**Current Transfer Ratio ( $I_C/I_F$  at  $V_{CE}=5$  V) and Collector-Emitter Leakage Current by dash number**

	-1	-2	-3	
$I_C/I_F$ ( $I_F=\pm 10$ mA)	40-125	63-200	100-320	%
$I_C/I_F$ ( $I_F=\pm 1$ mA)	30 (>13)	45 (>22)	70 (>34)	%
Collector-Emitter Leakage Current ( $V_{CE}=10$ V) ( $I_{CEO}$ )	2 ( $\leq 50$ )	2 ( $\leq 50$ )	5 ( $\leq 100$ )	nA

**SWITCHING TIMES****Linear Operation** (without saturation)

$I_F=\pm 10$  mA,  $V_{CC}=5$  V,  $T_A=25^\circ\text{C}$

Load Resistance	$R_L$	75	$\Omega$
Turn-On Time	$t_{ON}$	3.0	$\mu\text{s}$
Rise Time	$t_R$	2.0	$\mu\text{s}$
Turn-Off Time	$t_{OFF}$	2.3	$\mu\text{s}$
Fall Time	$t_f$	2.0	$\mu\text{s}$
Cut-Off Frequency	$F_{CO}$	250	kHz