



6-Pin DIP Optoisolators Transistor Output

The H11AV1,A and H11AV2,A devices consist of a gallium arsenide infrared emitting diode optically coupled to a monolithic silicon phototransistor detector.

- Guaranteed 70 Volt V(BR)CEO Minimum
- 'A' Suffix = 0.400" Wide Spaced Leadform (Same as 'T' Suffix.)
- To order devices that are tested and marked per VDE 0884 requirements, the suffix "V" must be included at end of part number. VDE 0884 is a test option.

Applications

- General Purpose Switching Circuits
- · Interfacing and coupling systems of different potentials and impedances
- Monitor and Detection Circuits

Storage Temperature Range

Soldering Temperature (10 sec, 1/16" from case)

- Regulation and Feedback Circuits
- Solid State Relays

MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
INPUT LED	•		
Reverse Voltage	VR	6	Volts
Forward Current — Continuous	١F	60	mA
LED Power Dissipation @ T _A = 25°C with Negligible Power in Output Detector	PD	120	mW
Derate above 25°C		1.41	mW/°C
OUTPUT TRANSISTOR			
Collector–Emitter Voltage	VCEO	70	Volts
Emitter–Base Voltage	V _{EBO}	7	Volts
Collector–Base Voltage	VCBO	70	Volts
Collector Current — Continuous	IC	150	mA
Detector Power Dissipation @ T _A = 25°C with Negligible Power in Input LED	PD	150	mW
Derate above 25°C		1.76	mW/°C
TOTAL DEVICE	-		
Isolation Surge Voltage ⁽¹⁾ (Peak ac Voltage, 60 Hz, 1 sec Duration)	VISO	7500	Vac(pk)
Total Device Power Dissipation @ T _A = 25°C Derate above 25°C	PD	250 2.94	mW mW/°C
Ambient Operating Temperature Range	Та	-55 to +100	°C

T_{stg}

ΤL

-55 to +150

260

°C

°C

H11AV1,A H11AV2,A





1. Isolation surge voltage is an internal device dielectric breakdown rating. For this test, Pins 1 and 2 are common, and Pins 4, 5 and 6 are common.



ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)⁽¹⁾

Characteristic	Symbol	Min	Тур (1)	Max	Unit
INPUT LED	•		•		
Forward Voltage (IF = 10 mA) $ \begin{array}{c} T_A = 25^\circ C \\ T_A = -55^\circ C \\ T_A = 100^\circ C \end{array} $	VF	0.8 0.9 0.7	1.15 1.3 1.05	1.5 1.7 1.4	Volts
Reverse Leakage Current (V _R = 6 V)	IR	—	—	10	μA
Capacitance (V = 0 V, f = 1 MHz)	СЈ	—	18	—	pF
OUTPUT TRANSISTOR					
Collector–Emitter Dark Current (V _{CE} = 10 V)	ICEO	—	5	50	nA
Collector–Base Dark Current (V _{CB} = 10 V)	ICBO	—	0.5	—	nA
Collector–Emitter Breakdown Voltage (I _C = 1 mA)	V(BR)CEO	70	100	—	Volts
Collector–Base Breakdown Voltage (I _C = 100 μ A)	V(BR)CBO	70	100	—	Volts
Emitter–Collector Breakdown Voltage (I _E = 100 μ A)	V(BR)ECO	7	8	—	Volts
DC Current Gain (I _C = 2 mA, V_{CE} = 10 V) (Typical Value)	hFE	—	500	—	—
Collector–Emitter Capacitance (f = 1 MHz, V _{CE} = 10 V)	CCE	—	4.5	—	pF
COUPLED					
Output Collector Current (I _F = 10 mA, V _{CE} = 10 V) H11AV1, H11AV1A H11AV2, H11AV2A	I _C (CTR) ⁽²⁾	10 (100) 5 (50)	15 (150) 10 (100)	30 (300) —	mA (%)
Collector–Emitter Saturation Voltage (I _C = 2 mA, I _F = 20 mA)	V _{CE(sat)}	—	0.15	0.4	Volts
Turn–On Time (I _C = 2 mA, V _{CC} = 10 V, R _L = 100 Ω) ⁽³⁾	ton	—	5	15	μs
Turn–Off Time (I _C = 2 mA, V _{CC} = 10 V, R _L = 100 Ω) ⁽³⁾	toff	—	4	15	μs
Isolation Voltage (f = 60 Hz, t = 1 sec) ⁽⁴⁾	VISO	7500	_	_	Vac(pk)
Isolation Resistance (V = 500 V) ⁽⁴⁾	RISO	10 ¹¹	_	_	Ω
Isolation Capacitance (V = 0 V, f = 1 MHz) ⁽⁴⁾	C _{ISO}	—	0.2	0.5	pF

1. Always design to the specified minimum/maximum electrical limits (where applicable).

2. Current Transfer Ratio (CTR) = $I_C/I_F \times 100\%$.

3. For test circuit setup and waveforms, refer to Figure 11.

4. For this test, Pins 1 and 2 are common, and Pins 4, 5 and 6 are common.



TYPICAL CHARACTERISTICS



Figure 1. LED Forward Voltage versus Forward Current

Figure 2. Output Current versus Input Current



H11AV1,A H11AV2,A









Figure 11. Switching Time Test Circuit and Waveforms



H11AV1,A H11AV2,A

PACKAGE DIMENSIONS











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- General purpose switching circuits
- Interfacing and coupling systems of different potentials and impedances
- Monitor and detection circuits
- Regulation and feedback circuits
- Solid state relays

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H11AV1AV-M	Full Production	\$0.332	Purchase	BULK
H11AV1A-M	Full Production	\$0.332	Purchase	BULK

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H11AV1FV-M	Full Production	\$0.359	Purchase	N/A	N/A	BULK
H11AV1V-M	Full Production	\$0.332	Purchase	N/A	N/A	BULK
H11AV1SR2-M	Full Production	\$0.345	Purchase	DIP	6	TAPE REEL
H11AV1SR2V-M	Full Production	\$0.345	Purchase	DIP	6	TAPE REEL
H11AV1F-M	Full Production	\$0.359	Purchase	N/A	N/A	BULK
H11AV1SV-M	Full Production	\$0.339	Purchase	DIP	6	BULK
H11AV1FR2V-M	Full Production	\$0.359	Purchase	DIP	6	TAPE REEL
H11AV1S-M	Full Production	\$0.339	Purchase	DIP	6	BULK
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