PRELIMINARY

8-PIN BI-DIRECTIONAL TRANSISTOR OPTOCOUPLER

H11ADB6
(CTR = 20%minimum)

H11ADB61
(CTR = 50%minimum)

H11ADB62
(CTR = 200%-400%)

DESCRIPTION

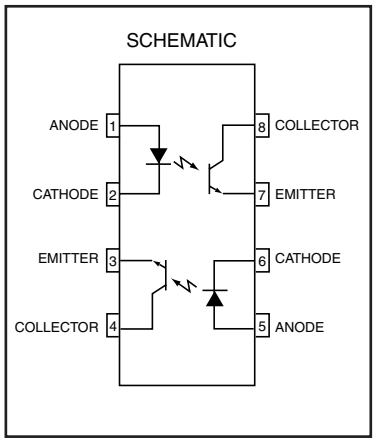
The H11ADB series optocouplers have two channels for high density applications. The inverse parallel channel orientation is ideal for applications which require data to be transmitted and received across the isolation boundary. Each channel consists of a GaAs LED optically coupled to a silicon NPN phototransistor.

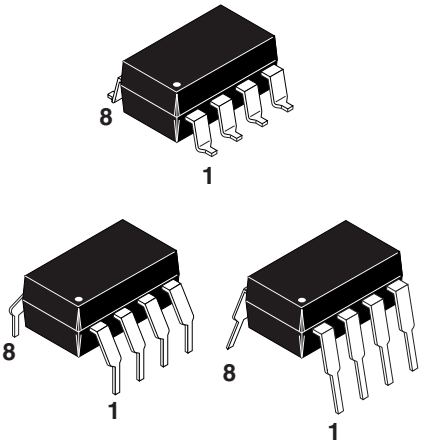
FEATURES

- Inverse parallel channel orientation
- High isolation voltage 5300 VAC RMS-1 minute, 7500 VAC PEAK-1 minute
- High BV_{CEO} minimum 70 volts
- Two isolated channels per package
- Underwriters Laboratory (UL) recognized file #E90700

APPLICATIONS

- AC line / Digital logic
- Digital logic / Digital logic
- Digital logic / AC Triac control





ABSOLUTE MAXIMUM RATINGS (No derating required up to 85°C)

Rating	Symbol	Value	Unit
EMITTER (Each channel)			
Forward Current - Continuous	IF	60	mA
Forward Current - Peak (PW = 1µs, 300pps)	$I_F(pk)$	3.0	A
Reverse Voltage	V_R	5	V
LED Power Dissipation @ T_A = 25°C	P_D	100	mW
Derate above 25°C		1.33	mW/°C
DETECTOR (Each channel)			
Collector Current - Continuous	I_C	50	mA
Collector-Emitter Breakdown Voltage	BV_{CEO}	70	V
Emitter-Collector Breakdown Voltage	BV_{ECO}	7	V
Detector Power Dissipation @ TA = 25°C	P_D	150	mW
Derate above 25°C		2.0	mW/°C
TOTAL DEVICE			
Storage Temperature	T_{STG}	-55 to +125	°C
Operating Temperature	T_{OPR}	-55 to +100	°C
Lead Solder Temperature	T_{SOL}	260 for 10 sec	°C
Total Device Power Dissipation @ TA = 25°C	P_D	400	mW
Derate above 25°C		5.33	mW/°C

QT OPTOELECTRONICS

PRELIMINARY 8-PIN BI-DIRECTIONAL TRANSISTOR OPTOCOUPLER

H11ADB6, H11ADB61, H11ADB62

ELECTRICAL CHARACTERISTICS (T_A = 25°C Unless otherwise specified.)

INDIVIDUAL COMPONENT CHARACTERISTICS

Parameter	Test Conditions	Symbol	Min	Typ**	Max	Unit
EMITTER						
Input Forward Voltage	(I_F = 20 mA)	V_F		1.2	1.5	V
Reverse Voltage	(I_R = 10 µA)	V_R	3.0	25		V
Reverse Current	(V_R = 5 V)	I_R		0.001	10	µA
Junction Capacitance	(V_F = 0 V, f = 1 MHz)	C_J		50		pF
DETECTOR						
Collector-Emitter Breakdown Voltage	(I_C = 1.0 mA, I_F = 0)	BV_{CEO}	70	100		V
Emitter-Collector Breakdown Voltage	(I_E = 100 µA, I_F = 0)	BV_{ECO}	7	10		V
Collector-Emitter Dark Current	(V_{CE} = 10 V, I_F = 0)	I_{CEO}		1	100	nA
Capacitance	(V_{CE} = 0 V, f = 1 MHz)	C_{CE}		8		pF

TRANSFER CHARACTERISTICS

AC Characteristic	Test Conditions	Symbol	Min	Typ**	Max	Units
SWITCHING TIMES						
Non-Saturated Turn-on Time	(R_L = 100 Ω, I_C = 2 mA, V_{CC} = 10 V)	t_{on}		2.4	18	µs
Non-Saturated Turn-off Time	(R_L = 100 Ω, I_C = 2 mA, V_{CC} = 10 V)	t_{off}		2.4	18	µs

TRANSFER CHARACTERISTICS

DC Characteristic	Test Conditions	Symbol	Min	Typ**	Max	Units
Current Transfer Ratio, Collector-Emitter						
H11ADB6	(I_F = 5 mA, V_{CE} = 5 V)	CTR	20			%
H11ADB61			50			
H11ADB62			200		400	
Saturation Voltage	(I_F = 10 mA, I_C = 2.5 mA)	$V_{CE(sat)}$		0.15	0.40	V

ISOLATION CHARACTERISTICS

Characteristic	Test Conditions	Symbol	Min	Typ**	Max	Units
Input-Output Isolation Voltage	($I_{I-O} \leq$ 1 µA, 1 min.)	V_{ISO}	5300			Vac(rms)
Isolation Resistance	(V_{I-O} = 500 VDC)	R_{ISO}	10^{11}			Ω
Isolation Capacitance	(f = 1 MHz)	C_{ISO}		0.5		pf

** All typicals at T_A = 25°C

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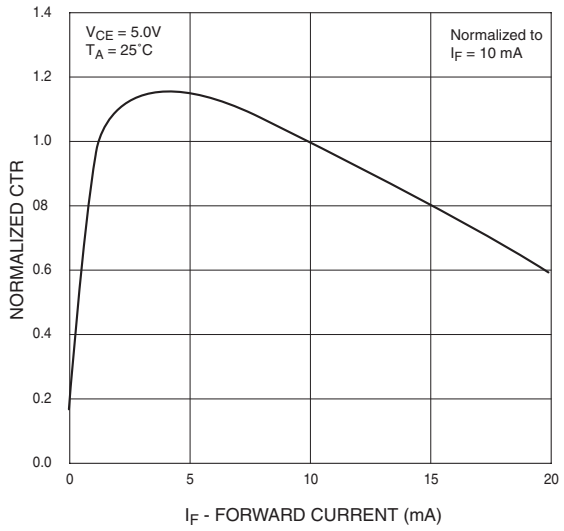
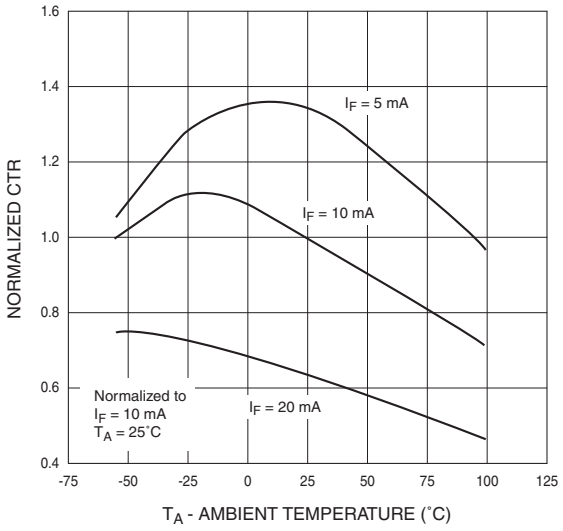
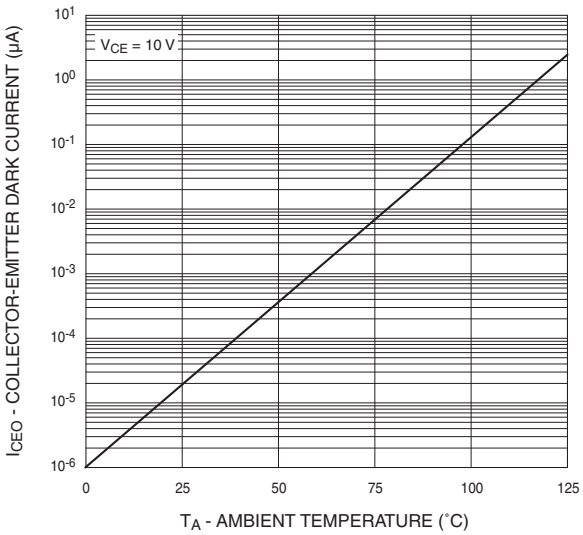
Normalized CTR vs. Forward Current



Normalized CTR vs. Ambient Temperature



Dark Current vs. Ambient Temperature



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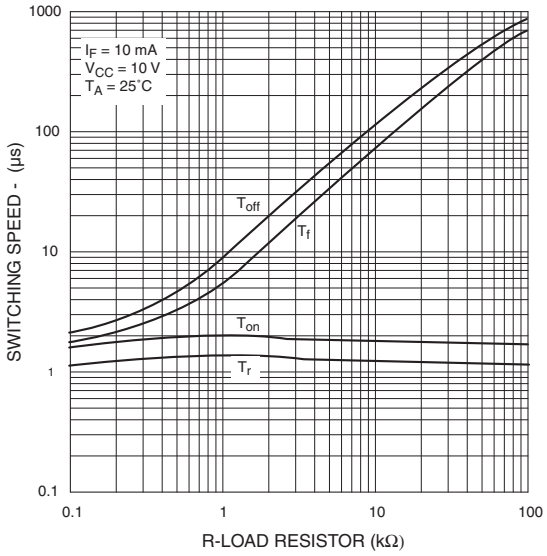
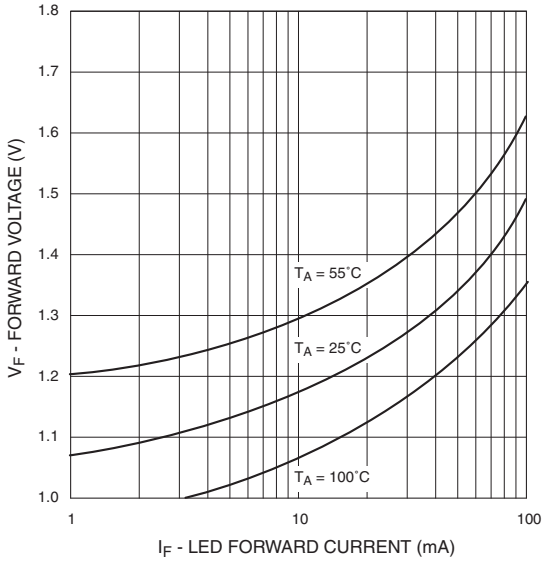
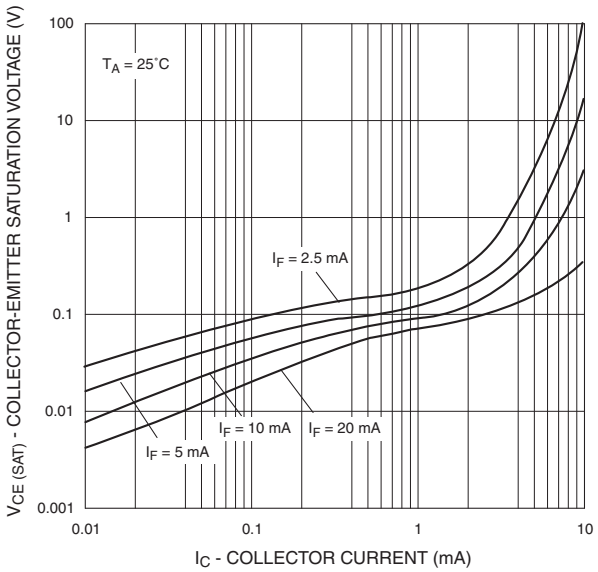
Switching Speed vs. Load Resistor



LED Forward Voltage vs. Forward Current



Collector-Emitter Saturation Voltage vs Collector Current



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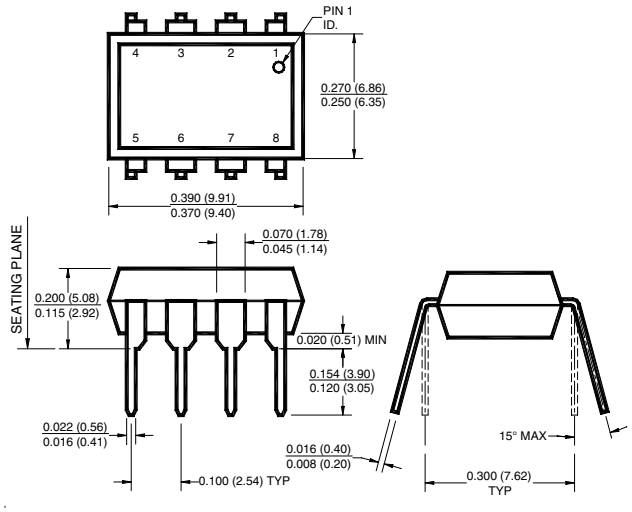
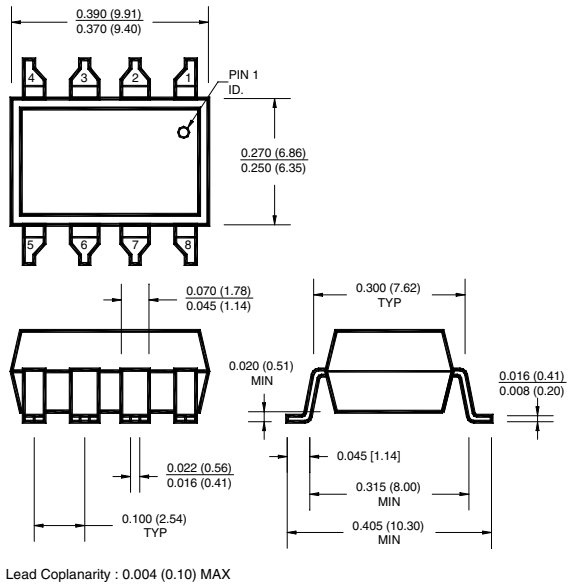
Package Dimensions (Through Hole)

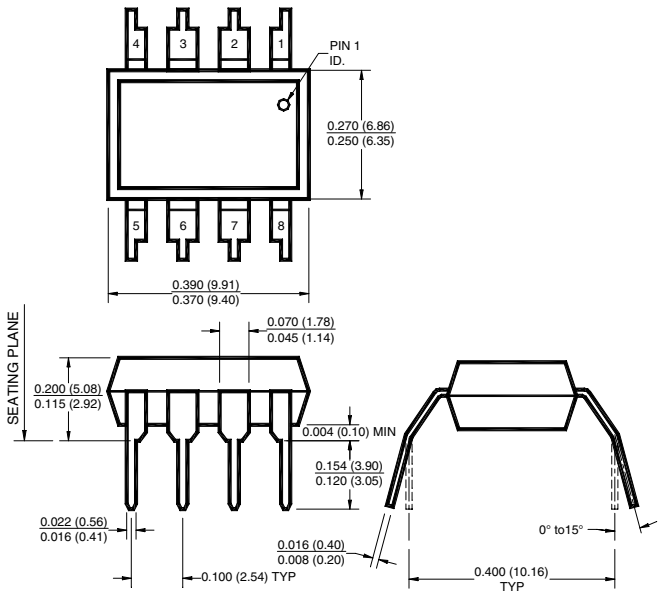


Package Dimensions (Surface Mount)



Lead Coplanarity : 0.004 (0.10) MAX

Package Dimensions (0.4”Lead Spacing)



NOTE

All dimensions are in inches (millimeters)

Call QT Optoelectronics for more information or the phone number of your nearest distributor.

United States 800-533-6786 • France 33 [0] 1.45.18.78.78 • Germany 49 [0] 89/96.30.51 • United Kingdom 44 [0] 1296 394499 • Asia/Pacific 603-7352417

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