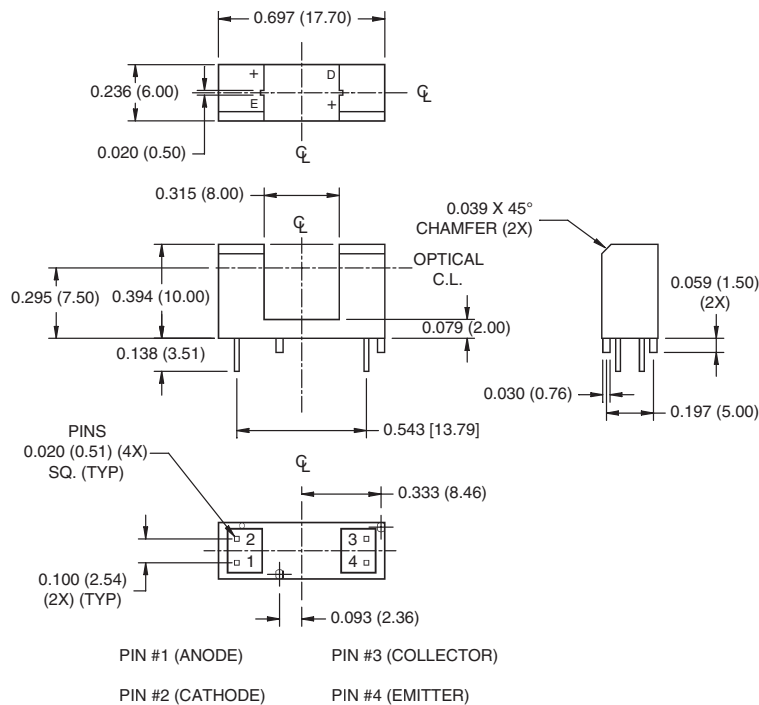
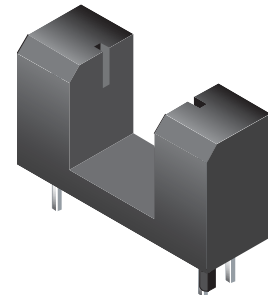


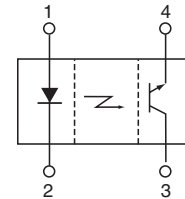
**PACKAGE DIMENSIONS**



**NOTES:**  
 1. Dimensions for all drawings are in inches (millimeters).  
 2. Tolerance of  $\pm .010$  (.25) on all non-nominal dimensions unless otherwise specified.



**SCHEMATIC**



**DESCRIPTION**

The QVE00034 is a slotted optical switch designed for multipurpose non-contact sensing. It consists of a GaAs LED and a silicon photo-transistor packaged into an injection molded housing and facing each other across a 0.315" (8.0 mm) gap. The housing is featuring locating knobs for accurate mounting.

**FEATURES**

- No contact switching
- 8mm wide slot
- 0.5 mm aperture width
- Opaque black plastic housing
- Locating knobs on housing base for accurate mounting
- Transistor Output

<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise specified)			
Parameter	Symbol	Rating	Units
Operating Temperature	$T_{OPR}$	-55 to +100	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 to +100	$^\circ\text{C}$
Soldering Temperature (Iron) <sup>(2,3,4)</sup>	$T_{SOL-I}$	240 for 5 sec	$^\circ\text{C}$
Soldering Temperature (Flow) <sup>(2,3)</sup>	$T_{SOL-F}$	260 for 10 sec	$^\circ\text{C}$
<b>EMITTER</b>			
Continuous Forward Current	$I_F$	50	mA
Reverse Voltage	$V_R$	6	V
Power Dissipation <sup>(1)</sup>	$P_D$	100	mW
<b>SENSOR</b>			
Collector-Emitter Voltage	$V_{CEO}$	30	V
Emitter-Collector Voltage	$V_{ECO}$	4.5	V
Collector Current	$I_C$	20	mA
Power Dissipation <sup>(1)</sup>	$P_D$	150	mW

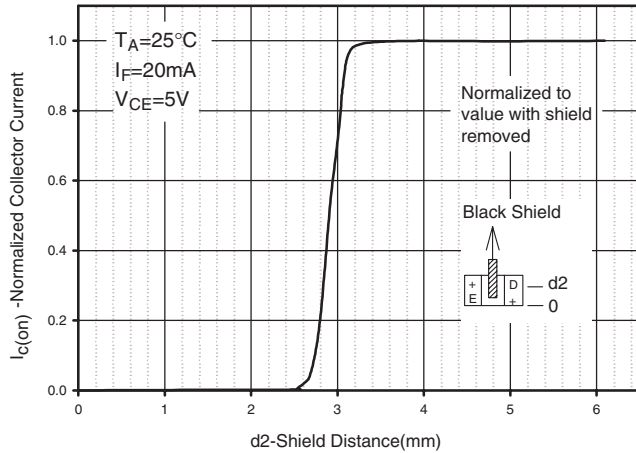
**NOTES**

1. Derate power dissipation linearly 1.67 mW/ $^\circ\text{C}$  above 25 $^\circ\text{C}$ .
2. RMA flux is recommended.
3. Methanol or isopropyl alcohols are recommended as cleaning agents.
4. Soldering iron tip 1/16" (1.6mm) from housing.

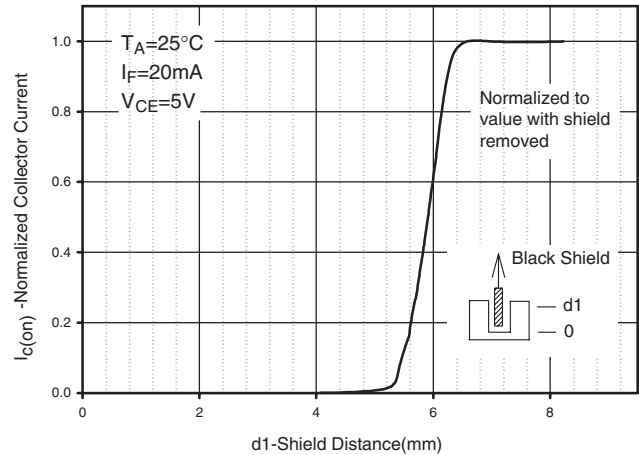
<b>ELECTRICAL/OPTICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise specified)						
PARAMETER	TEST CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
<b>EMITTER</b>						
Forward Voltage	$I_F = 20\text{ mA}$	$V_F$	—	1.2	1.5	V
Reverse Current	$V_R = 4\text{ V}$	$I_R$	—	—	10	$\mu\text{A}$
Peak Emission Wavelength	$I_F = 20\text{ mA}$	$\lambda_{PE}$	—	940	—	nm
<b>SENSOR</b>						
Dark Current	$V_{CE} = 10\text{ V}, I_F = 0\text{ mA}$	$I_D$	—	—	200	nA
	$V_{CE} = 2.5\text{ V}, I_F = 0\text{ mA}, T_A = -40^\circ\text{C to } +85^\circ\text{C}$		—	—	3	$\mu\text{A}$
<b>COUPLED</b>						
Collector Current	$I_F = 20\text{ mA}, V_{CE} = 10\text{ V}$	$I_{C(ON)}$	0.5	—	14	mA
Collector Emitter Saturation Voltage	$I_F = 20\text{ mA}, I_C = 0.1\text{ mA}$ $T_A = -40^\circ\text{C to } +85^\circ\text{C}$	$V_{CE(SAT)}$	—	—	0.4	V
Rise Time	$V_{CC} = 5\text{ V}, R_L = 100\ \Omega$	$t_r$	—	4	—	$\mu\text{s}$
Fall Time	$I_C = 5\ \mu\text{A}$	$t_f$	—	4	—	

**TYPICAL PERFORMANCE CURVES**

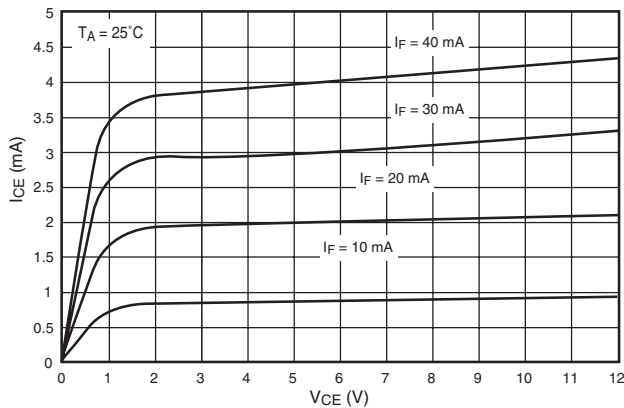
**Fig. 1 Collector Current vs. Shield Distance**



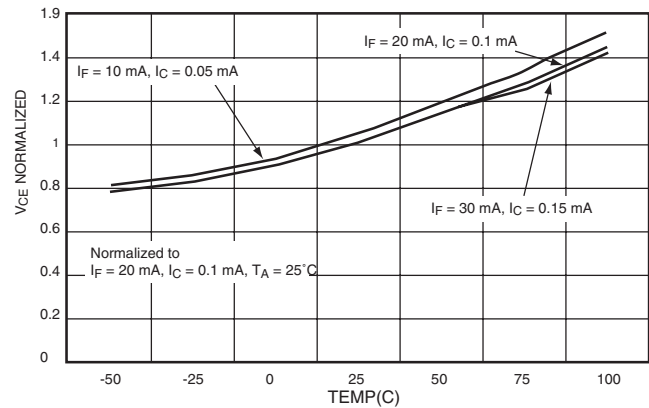
**Fig. 2 Collector Current vs. Shield Distance**



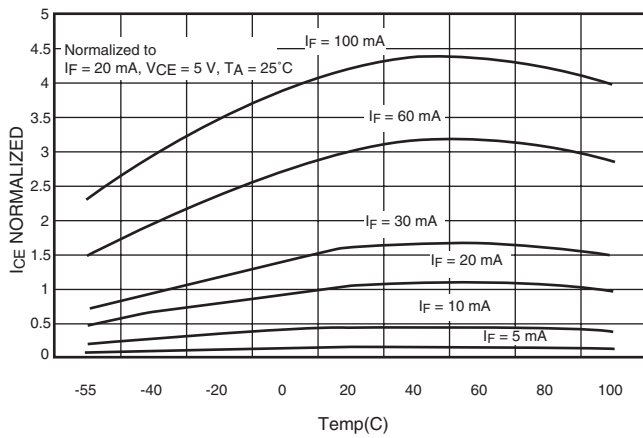
**Fig. 3 Collector-Emitter Voltage vs. Collector Current**



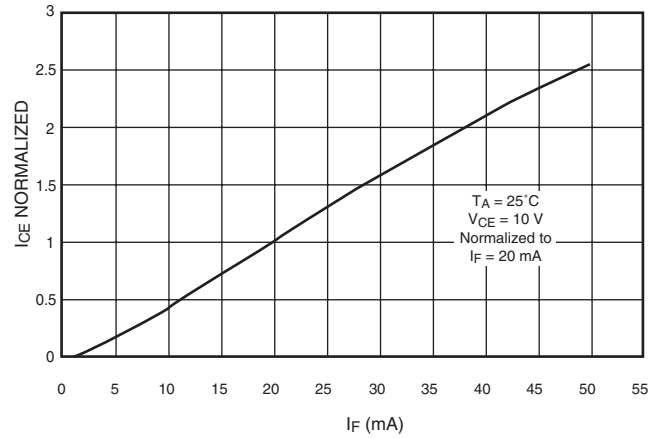
**Fig. 4 Collector-Emitter Voltage vs. Temperature**



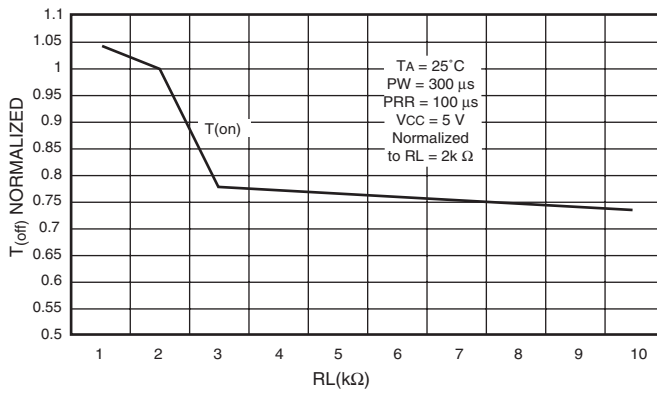
**Fig. 5 Collector Current vs. Temperature**



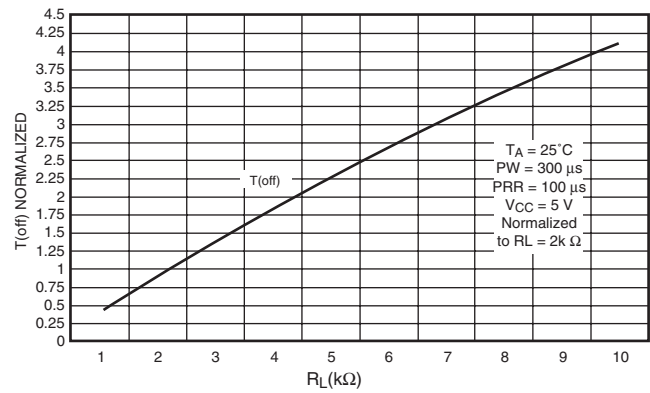
**Fig. 6 Collector Current vs. Forward Current**



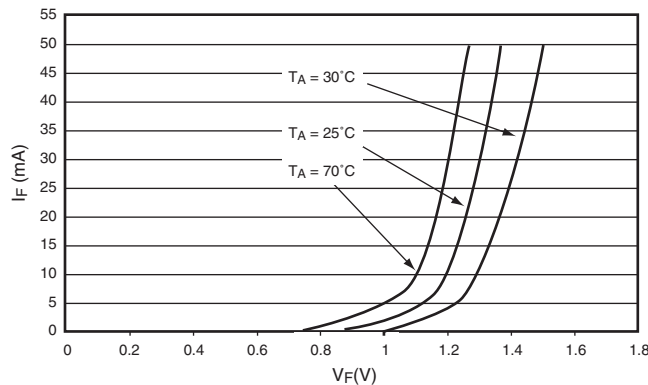
**Fig. 7 Rise Time vs. Load Resistance**



**Fig. 8 Fall Time vs. Load Resistance**



**Fig. 9 Forward Voltage vs. Forward Current**



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