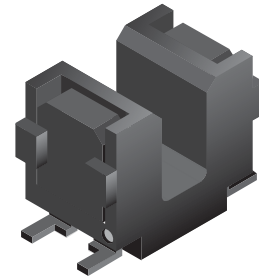
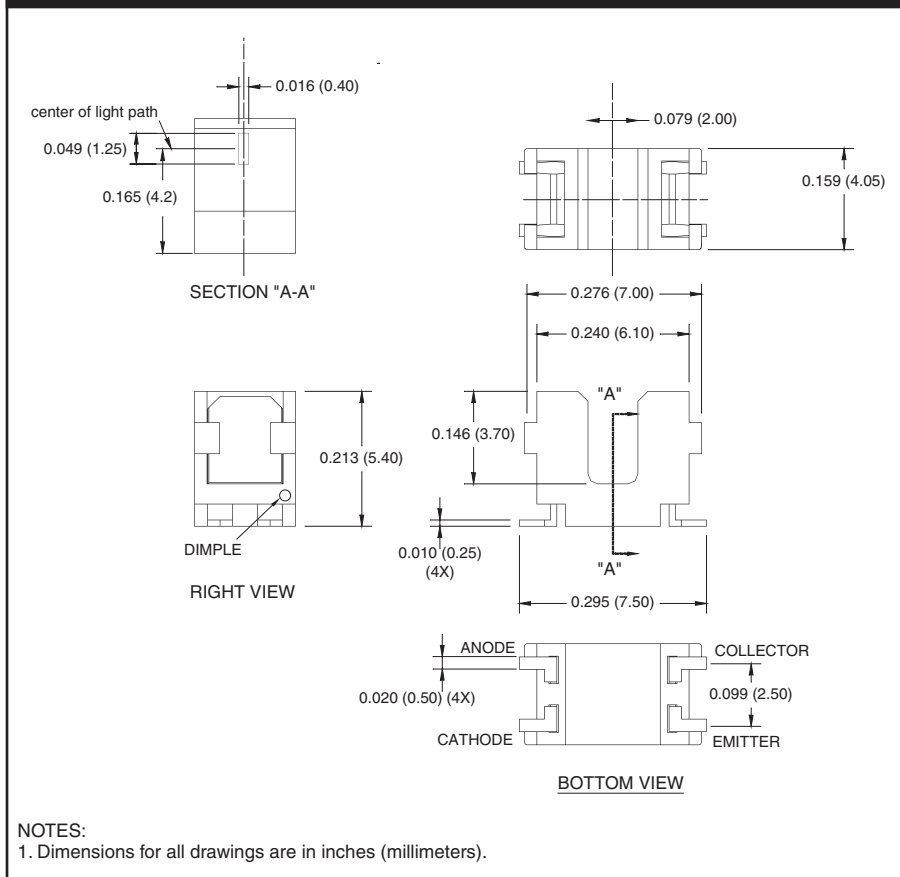
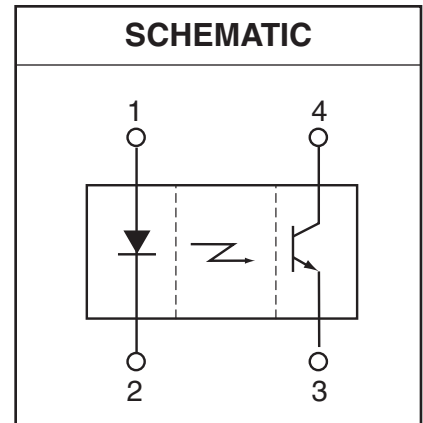


**PACKAGE DIMENSIONS**



**SCHEMATIC**



**DESCRIPTION**

The QVE00033 is a miniature slotted optical switch designed for surface mount applications. It consists of a GaAs LED and a silicon phototransistor facing each other across a 2mm gap, and packaged in a temperature resistant black plastic housing.

**FEATURES**

- No contact switching
- Transistor Output
- Compact surface mount package
- Opaque black plastic housing
- 2mm wide slot
- 0.4 mm aperture width
- Tape and reel
- Reflow conditions:  
Preheat = 160°C for 120 seconds  
Reflow = 200°C for 60 seconds (peak = 240°C)
- HL-94V-0 housing

<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)(2,3,4)	$T_{SOL-I}$	240 for 5 sec	$^\circ\text{C}$
Soldering Temperature (Flow)(2,3)	$T_{SOL-F}$	260 for 10 sec	$^\circ\text{C}$
Total Power Dissipation	$P_{TOT}$	100	mW
<b>EMITTER</b>			
Continuous Forward Current	$I_F$	50	mA
Reverse Voltage	$V_R$	6	V
Power Dissipation(1)	$P_D$	75	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(1)	$P_D$	75	mW

<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	1.4	V
Reverse Current	$V_R = 4\text{ V}$	$I_R$	—	—	10	$\mu\text{A}$
Peak Emission Wavelength	$I_F = 20\text{ mA}$	$I_{PE}$	—	940	—	nm
<b>SENSOR</b>						
Dark Current	$V_{CE} = 20\text{ V}, I_F = 0\text{ mA}$	$I_{CEO}$	—	—	100	nA
<b>COUPLED</b>						
Collector Current	$I_F = 5\text{ mA}, V_{CE} = 5\text{ V}$	$I_{C(ON)}$	100	—	600	$\mu\text{A}$
Collector Emitter	$I_F = 10\text{ mA}, I_C = 40\text{ }\mu\text{A}$	$V_{CE(SAT)}$	—	—	0.4	V
Rise Time	$V_{CC} = 5\text{ V}, R_L = 1000\text{ }\Omega$	$t_r$	—	7	150	$\mu\text{s}$
Fall Time	$I_C = 100\text{ }\mu\text{A}$	$t_f$	—	7	150	$\mu\text{s}$

**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.

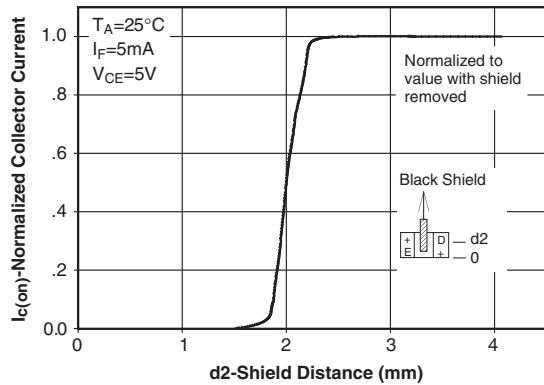


Figure 1. Normalized Collector Current Vs. Shield Distance

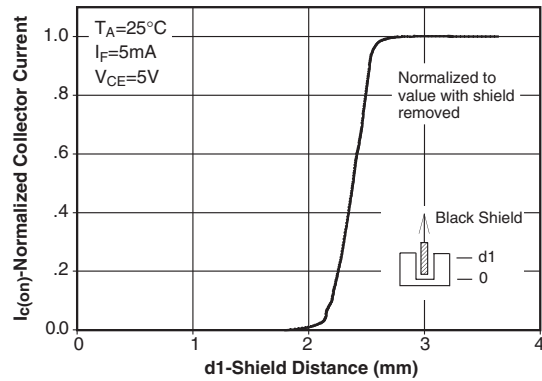


Figure 2. Normalized Collector Current Vs. Shield Distance

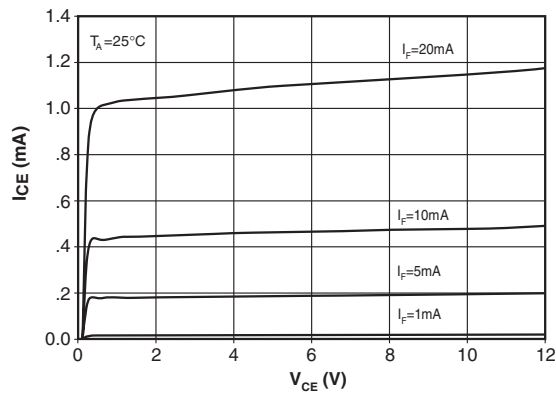


Figure 3. Collector Current Vs. Collector-Emitter Voltage

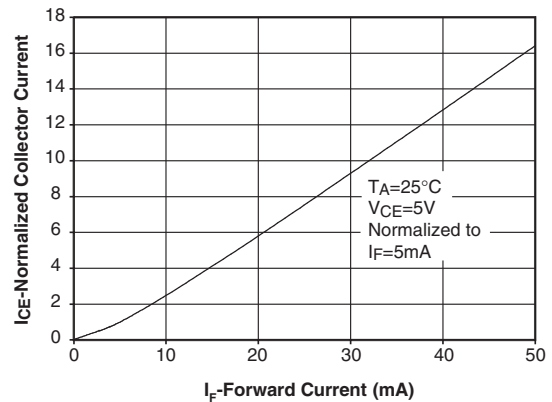


Figure 4. Normalized Collector Current Vs. Forward Current

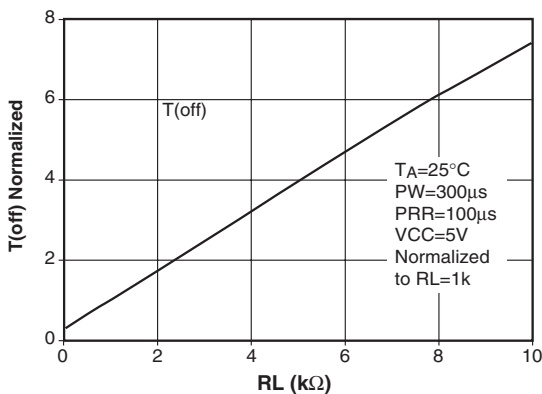


Figure 5. Rise Time vs. Load Resistance

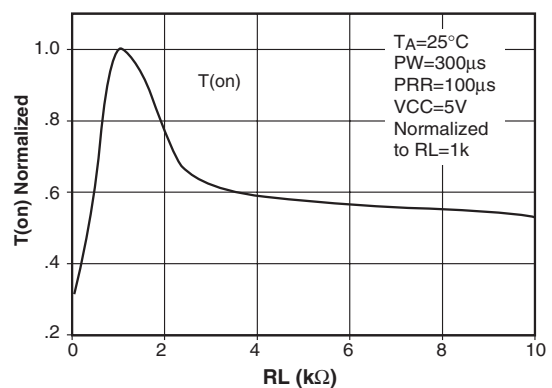
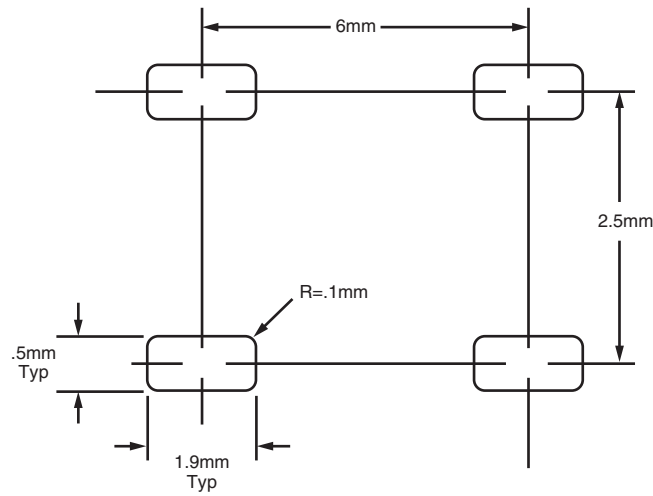


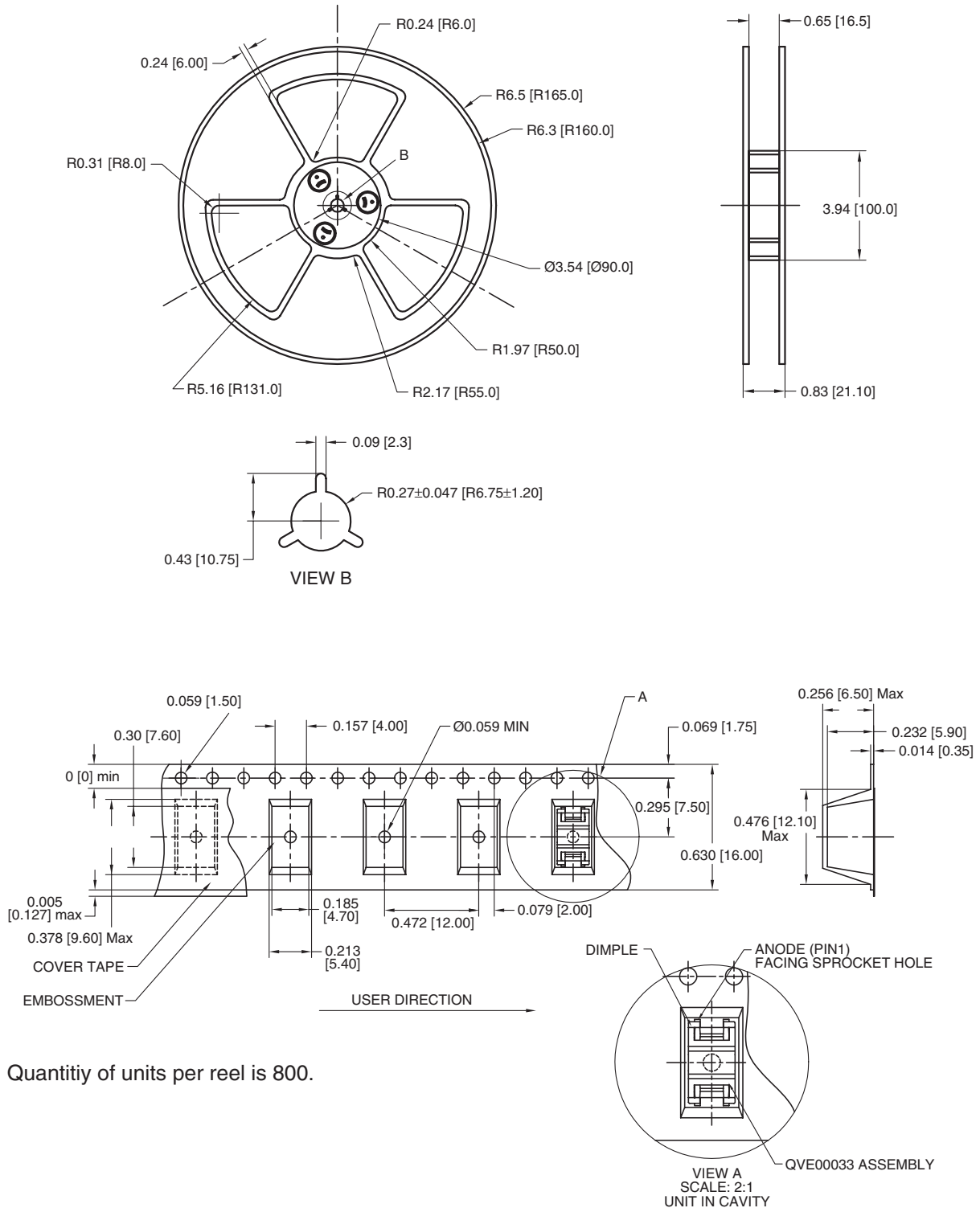
Figure 6. Fall Time vs. Load Resistance

**QVE00033**

**RECOMMENDED PRINTED CIRCUIT BOARD PATTERN (For Reference Only)**



**TAPE AND REEL DIMENSIONS**



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