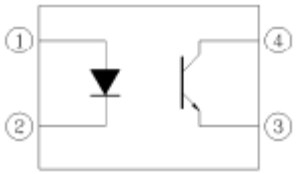
Feature:

- Halogen Free
- High Isolation voltage between input and output (Viso = 5000V rms)
- Creepage distance > 7.62mm
- Operating Temperature up to 100 ºC
- Available in Tube or Tape and reel
- Available with standard DIP-4, Wide lead bend, and SMD lead bend options.
- Conventional black housing package

Schematic:



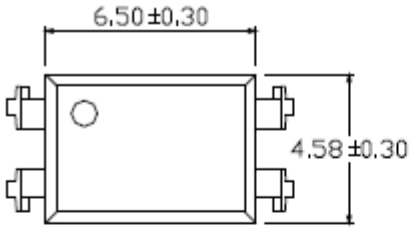
Pin Configuration
1. Anode
2. Cathode
3. Emitter
4. Collector

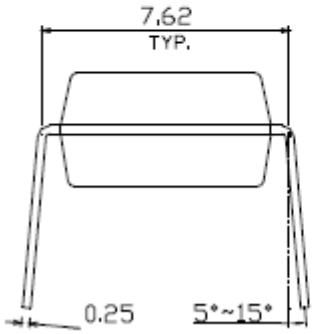
Certification & Compliance:

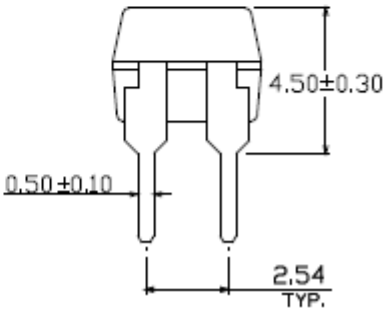
- Pb free and RoHS Compliant
- UL recognized (File # E338132)
- VDE recognized (File # 40030457)

Dimension: (Dot location indicates pin 1)

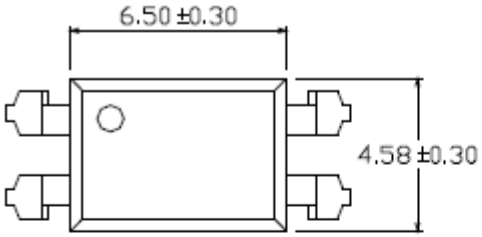
4-Pin Dip (standard):

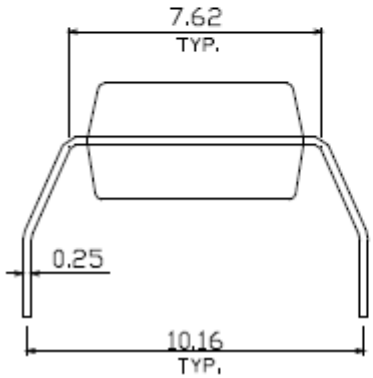


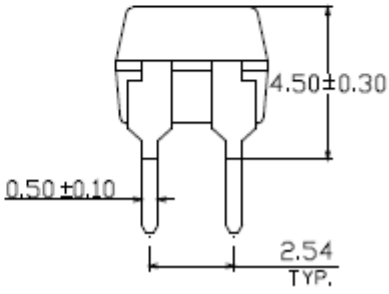




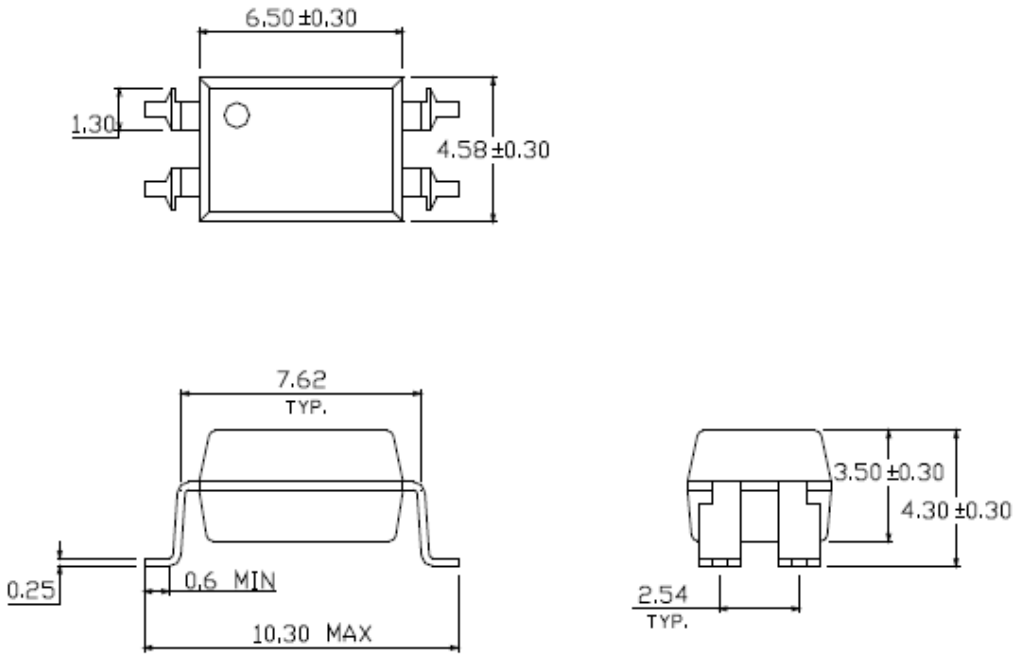
Wide lead bend (Option W):







SMD lead bend (Option S):



- All Dimensions are in mm
- Tolerance = +/- 0.1mm

Absolute Maximum Rating

Symbol	Parameter	Rating	Units
T_{STG}	Storage Temperature	-55 ~ 150	ºC
T_{OPR}	Operating Temperature	-55 ~ 100	ºC
T_{SOL}	Lead Solder Temperature	260 for 10 sec	ºC
P_{TOT}	Total Power Dissipation	200	mW
EMITTER			
I_F	Continuous Forward Current	50	mA
V_R	Reverse Voltage	6	V
P_D	Power Dissipation	70	mW
	Power Dissipation Derated above 100ºC	2.9	mW/ºC
DETECTOR			
V_{CEO}	Collector–Emitter Voltage	80	V
V_{ECO}	Emitter-Collector Voltage	7	V
I_C	Continuous Collector Current	50	mA
P_C	Collector Power Dissipation	150	mW
	Collector Power Dissipation Derated above80 ºC	5.8	mW/ºC

Electrical Characteristic (T_A=25 °C)

Emitter

Symbol	Characteristic	Device	Test Condition	Range			Unit
				Min	Typ	Max	
V_F	Forward Voltage	Q817	I_F = 20mA	-	1.2	1.4	V
I_R	Reverse Current		V_R = 4V	-	-	10	μA
C_t	Input Capacitance		V = 0, f = 1kHz	-	30	250	pF

Detector

Symbol	Characteristic	Device	Test Condition	Range			Unit
				Min	Typ	Max	
I_{CEO}	Collector-Emitter Dark current	Q817	V_{CE} =20V, I_F =0mA	-	-	100	nA
BV_{CEO}	Collector-Emitter breakdown voltage		I_C = 0.1mA	80	-	-	V
BV_{ECO}	Emitter-Collector breakdown voltage		I_E = 0.1mA	7	-	-	V

DC Transfer Characteristic:

Symbol	Characteristic	Device	Bin	Test Condition	Range			Unit
					Min	Typ	Max	
		Q817	-	I_F=5mA, V_{CE}=5V	50	-	600	%
			A		80	-	160	
			B		130	-	260	
			C		200	-	400	
			D		400	-	600	
$V_{CE(Sat)}$	Collector-Emitter saturation voltage			I_F=20mA, I_C= 1mA	-	0.1	0.2	V

AC Characteristic

Symbol	Characteristic	Device	Bin	Test Condition	Range			Unit
					Min	Typ	Max	
t_r	Rise time			V_{CE} = 2V, I_C = 2mA R_L =100Ω	-	6	18	μs
t_f	Fall time				-	8	18	

Isolation Characteristic

Symbol	Characteristic	Device	Bin	Test Condition	Range			Unit
					Min	Typ	Max	
R_{ISO}	Isolation Resistance			V_{IO} =500Vdc, 40-60% R.H	$5X10^{10}$	-	-	Ω
C_{ISO}	Isolation Capacitance			V_{IO}=0, f = 1MHz	-	0.6	1.0	pF
V_{ISO}	Isolation Voltage			f=60Hz, t=1min, I_{I-O} ≤ 2 μA	5000	-	-	V rms

Characteristic Curves:

Figure 1. Forward Current vs Forward Voltage

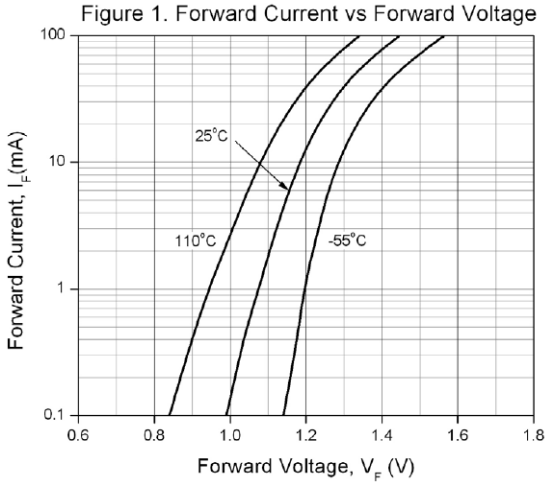


Figure 2. Normalized Current Transfer Ratio vs Forward Current

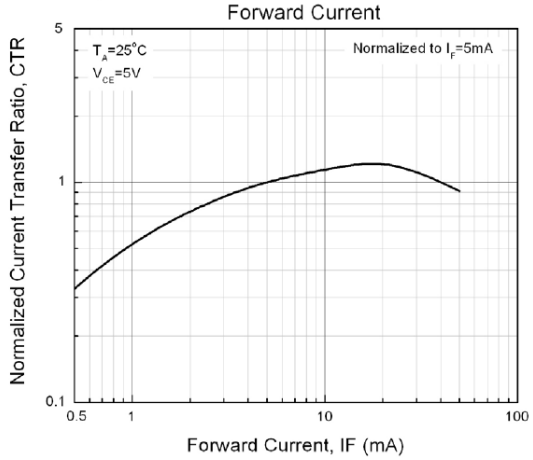


Figure 3. Current Transfer Ratio vs Ambient Temperature

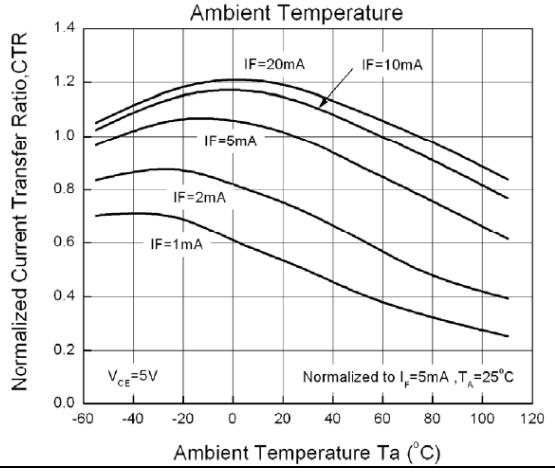


Figure 4. Dark Current vs Ambient Temperature

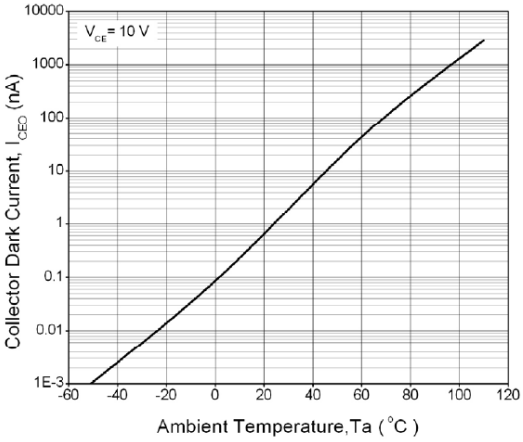


Figure 5. Collector-Emitter Saturation Voltage vs Collector Current

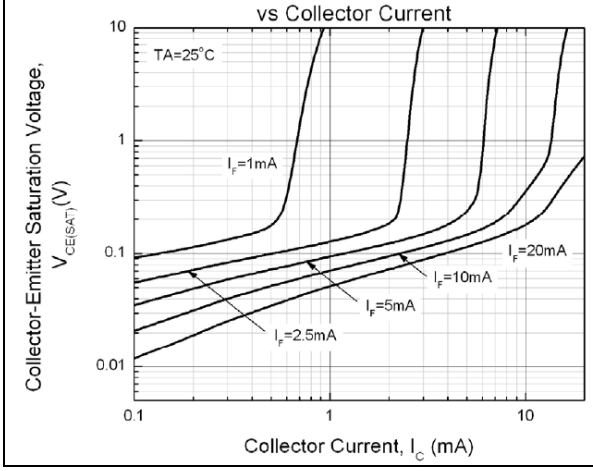
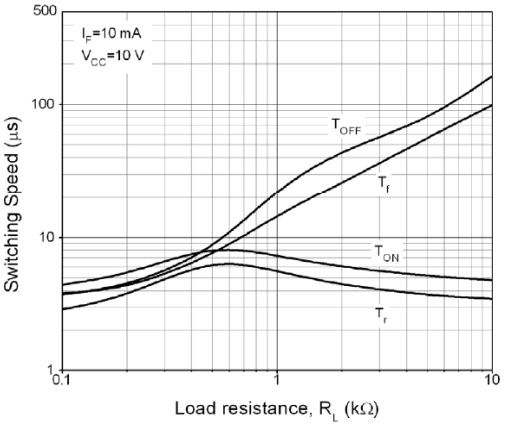
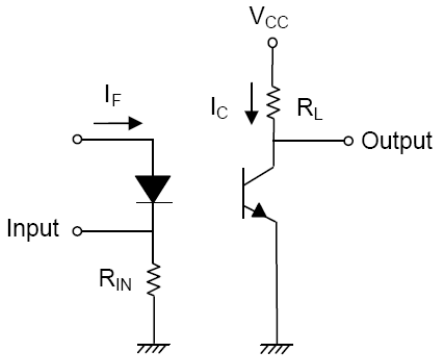
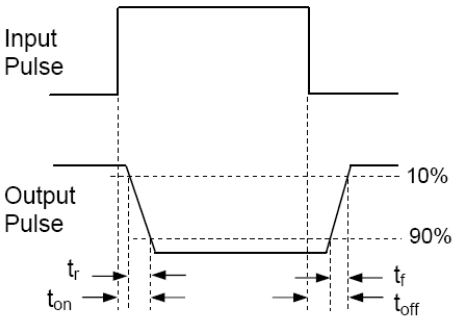


Figure 6. Switching Time vs Load Resistance

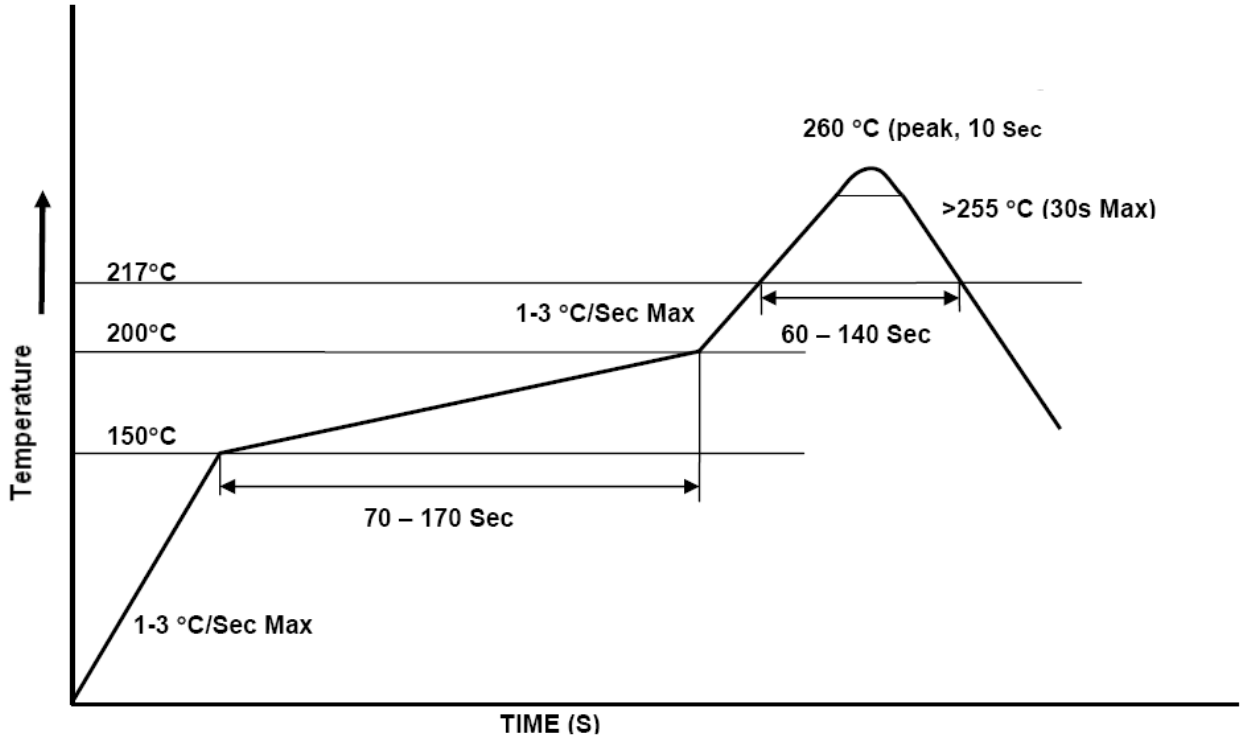


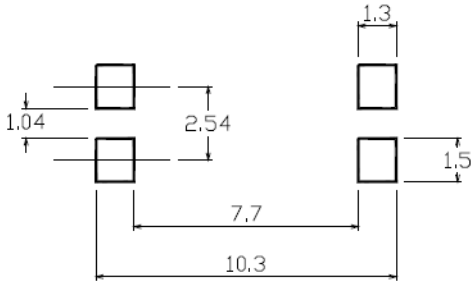
Test Circuit for Response Time:





Solder Profile & Footprint:

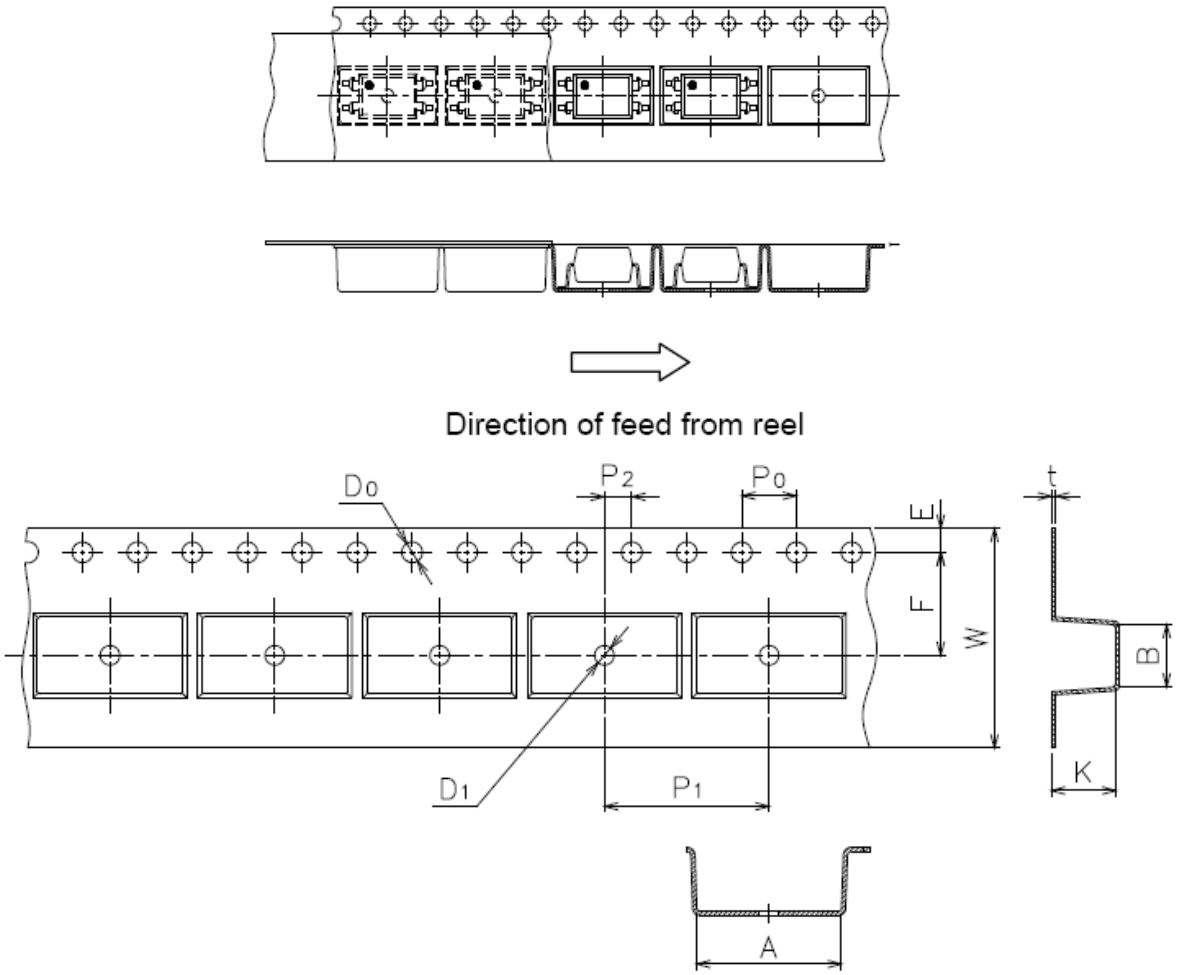




Recommended Solder Footprint for SMD Leadform

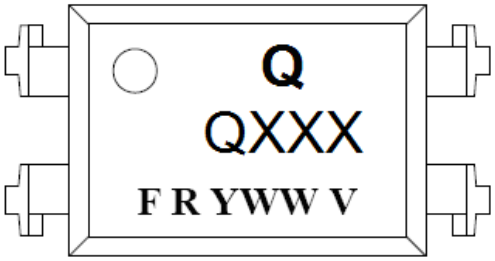
Units: mm tolerance: +/- 0.1mm

Packing & Labeling:
Tape Dimension:



Dimension No.	A	B	Do	D1	E	F
Dimension(mm)	10.4±0.1	4.55±0.1	1.5±0.1	1.5±0.05	1.75±0.1	7.5±0.1
Dimension No.	Po	P1	P2	t	W	K
Dimension(mm)	4.0±0.1	12.0±0.1	2.0±0.1	0.33±0.1	16.0+0.3/ -0.1	4.55±0.1

Device Marking:



Q = QT-Brightek Corporation
QXXX = Device Part Number
F = Country of Origin
R = Binning Option
Y = Year
WW = Week
V = VDE Option

Ordering Information:

Part Number	Orderable Part Number	Options	Description	Quantity per packing
Q817	Q817X	None	Standard 4pin DIP	100pcs / Tube
	Q817XV	None	Standard 4 pin Dip + With VDE marking	100pcs / Tube
	Q817XW	W	Wide lead bend (0.4 inch spacing)	100pcs / Tube
	Q817XWV	W	Wide lead bend (0.4 inch spacing) + VDE marking	100pcs / Tube
	Q817XSTA	S	SMD lead form with tape and reel option	2000pcs / reel
	Q817XSTAV	S	SMD lead form with tape and reel option + VDE marking	2000pcs / reel

X – Note is CTR Binning.

Revision History:

Description:	Revision #	Revision Date
Initial release	1.0	4/12/2010
Add CTR rank binning option and VDE number	1.1	7/28/2010
Feature, certification & compliance and ordering information updates	1.2	02/01/2011

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.